

## **IMMINGHAM EASTERN RO-RO TERMINAL**



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Appendix 17.1: Transport Assessment

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Immingham Eastern Ro-Ro Terminal, Port of Immingham

\*Transport Assessment\*



Transport Assessment

7<sup>th</sup> February 2023 SJT/RT/23325-04e Transport Assessment

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Transport Assessment



#### 1.0 INTRODUCTION

1.1 David Tucker Associates (DTA) has been commissioned by Associated British Ports (ABP) to review the transport implications of the proposed roll-on/roll-off (Ro-Ro) facility within the Port of Immingham, which will be known as the Immingham Eastern Ro-Ro Terminal (IERRT). The proposed development plan is shown

attached at Annex A.

1.2 This Transport Assessment (TA) and has been prepared in accordance with the National Policy Statement for Ports (NPSfP) published January 2012, the National Planning Policy Framework (NPPF) published July 2021, and the National Planning Practice Guidance issued in March 2014, which replaces the previous Guidance on

Transport Assessment (2007).

1.3 This TA should be read alongside and in conjunction with the Environmental Statement which it supports. A separate Travel Plan has also been prepared to

support the IERRT application submission.

1.4 National Highways (NH) were consulted for a scoping response to the ES scoping opinion for the proposed development, the full response can be seen in **Annex B**. North East Lincolnshire and North Lincolnshire Councils (NELDC and NLDC respectively) were also consulted as part of the scoping process as the relevant Local Highway Authorities for the East Gate and the West Gate of the Port respectively. The full responses can be seen in **Annex C** and **Annex D**, respectively. Other comments have been received from statutory and non-statutory consultees and where appropriate issues and concerns have been addressed within

this report. A full summary of those is provided in the ES Chapter (Chapter 17).

1.5 This report considers the transport and highways implications associated with the

proposals and is structured as follows:

Chapter 1: Introduction;

Chapter 2: Policy Context;

## Transport Assessment



- Chapter 3: Existing Conditions;
- Chapter 4: Development Proposals;
- Chapter 5: Proposed Traffic Generation and Distribution;
- Chapter 6: Traffic Impact Assessment
- Chapter 7: Mitigation Measures; and
- Chapter 8: Conclusions.



#### 2.0 NATIONAL AND LOCAL POLICY

## 2.1 National Policy Statement for Ports

- 2.1.1 The NPSfP provides in paragraph 5.4.4 that "if a project is likely to have significant transport implications, the applicant's Environmental Statement (ES) should include a TA, using the WebTAG methodology stipulated in Department for Transport (DfT) guidance, or any successor to such methodology. Applicants should consult Highways England and/or the relevant highway authority, as appropriate, on the assessment and mitigation. The assessment should distinguish between the construction, operation, and decommissioning project stages as appropriate."
- 2.1.2 As well as a TA, paragraph 5.4.5 requires the applicant, where appropriate, to "prepare a travel plan, including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts."
- 2.1.3 Paragraph 5.4.8 states that "the TA should include private traffic accessing and leaving the port, where significant, even where not generated by the development under application".

## 2.2 National Planning Policy Framework

- 2.2.1 In July 2021, the Government published a revised National Planning Policy Framework (NPPF). The introductory paragraphs of the NPPF highlight that it can be a relevant consideration in terms of NSIP developments. This report should therefore be read in the context of the new NPPF.
- 2.2.2 Paragraph 111 of the NPPF is clear that: "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe".



- 2.2.3 Within this context, the NPPF identifies in Paragraph 112 that applications for development should:
  - a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second so far as possible to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
  - b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
  - c) create places that are safe, secure and attractive which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
  - d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and
  - e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.
- 2.2.4 Paragraph 113 of the NPPF goes on to state that: "All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed".
- 2.2.5 In reinforcing the principle of supporting sustainable development, paragraph 10 stipulates that at the heart of the Framework is "...a presumption in favour of sustainable development".
- 2.3 DfT Circular 02/2013 'Strategic Road Network and the Delivery of Sustainable Development'
- 2.3.1 This document sets out the way in which Highways England will engage with communities and the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the strategic network.
- 2.3.2 As set out in Para 88 / 89, where development proposals are consistent with an adopted Local Plan, Highways England does not anticipate the need for



engagement in a full assessment process at the planning application stage. However, where proposals are not consistent with the adopted Local Plan then a full assessment of the impact will be necessary.

## 2.3.3 Highways England require that:

"In consultation with relevant infrastructure providers, statutory environmental advisors and consenting authorities, developers must ensure all environmental implications associated with their proposals, are adequately assessed and report so as to ensure that the mitigation of any impact is compliant with prevailing policies and standards. This requirement applies in respect of the environmental impact arising from the temporary construction works and permanent transport solution associated with the development, as well as the environmental impact of the existing trunk road upon the development itself."

Para 45

## 2.4 'Travel Plans, Transport Assessment and Statements in decision taking' Planning Practice Guidance

## 2.4.1 Following directly on from paragraph 108 of the NPPF, the PPG states:

"Local planning authorities must make a judgement as to whether a development proposal would generate significant amounts of movement on a case by case basis (i.e. significance may be a lower threshold where road capacity is already stretched or a higher threshold for a development in an area of high public transport accessibility).

In determining whether a Transport Assessment or Statement will be needed for a proposed development local planning authorities should take into account the following considerations:

- the Transport Assessment and Statement policies (if any) of the Local Plan;
- the scale of the proposed development and its potential for additional trip generation (smaller applications with limited impacts may not need a Transport Assessment or Statement);
- existing intensity of transport use and the availability of public transport;
- proximity to nearby environmental designations or sensitive areas;
- impact on other priorities/strategies (such as promoting walking and cycling);
- the cumulative impacts of multiple developments within a particular area; and



- whether there are particular types of impacts around which to focus the Transport Assessment or Statement (e.g. assessing traffic generated at peak times)."
- 2.4.2 The Guidance advocates initial consultation with key decision makers at an early stage through pre-application discussions to determine the scope of the technical work required to underpin the associated transport assessments and travel plans. The key issues it suggests that should be considered are:
  - "the planning context of the development proposal;
  - appropriate study parameters (i.e. area, scope and duration of study);
  - assessment of public transport capacity, walking/ cycling capacity and road network capacity;
  - road trip generation and trip distribution methodologies and/ or assumptions about the development proposal;
  - measures to promote sustainable travel;
  - safety implications of development; and
  - mitigation measures (where applicable) including scope and implementation strategy."
- 2.4.3 It acknowledges that the scope and level of detail in reports will vary from site to site, but suggests the following should be considered when confirming the scope of the proposed assessment:
  - "information about the proposed development, site layout, (particularly proposed transport access and layout across all modes of transport);
  - information about neighbouring uses, amenity and character, existing functional classification of the nearby road network;
  - data about existing public transport provision, including provision/ frequency of services and proposed public transport changes;
  - a qualitative and quantitative description of the travel characteristics of the proposed development, including movements across all modes of transport that would result from the development and in the vicinity of the site;
  - an assessment of trips from all directly relevant committed development in the area (i.e. development that there is a reasonable degree of certainty will proceed within the next three years);



- data about current traffic flows on links and at junctions (including by different modes of transport and the volume and type of vehicles) within the study area and identification of critical links and junctions on the highways network;
- an analysis of the injury accident records on the public highway in the vicinity of the site access for the most recent three-year period, or five-year period if the proposed site has been identified as within a high accident area;
- an assessment of the likely associated environmental impacts of transport related to the development, particularly in relation to proximity to environmentally sensitive areas (such as air quality management areas or noise sensitive areas);
- measures to improve the accessibility of the location (such as provision/ enhancement of nearby footpath and cycle path linkages) where these are necessary to make the development acceptable in planning terms;
- a description of parking facilities in the area and the parking strategy of the development;
- ways of encouraging environmental sustainability by reducing the need to travel; and
- measures to mitigate the residual impacts of development (such as improvements to the public transport network, introducing walking and cycling facilities, physical improvements to existing roads.

In general, assessments should be based on normal traffic flow and usage conditions (e.g. non-school holiday periods, typical weather conditions) but it may be necessary to consider the implications for any regular peak traffic and usage periods (such as rush hours). Projections should use local traffic forecasts such as TEMPRO drawing where necessary on National Road Traffic Forecasts for traffic data.

The timeframe that the assessment covers should be agreed with the local planning authority in consultation with the relevant transport network operators and service providers. However, in circumstances where there will be an impact on a national transport network, this period will be set out in the relevant Government policy."

# 2.5 National Highways guidance document 'The Strategic Road Network: Planning for the Future' (2015)

2.5.1 This guidance document describes the approach which National Highways (formerly Highways England) takes to engage in the planning system and the issues looked at when considering draft planning documents. It also offers advice on the information which National Highways would like to see included in a planning proposal. The relevant paragraphs are summarised below.

Transport Assessment



"Transport assessments should generally be carried out in line with prevailing government guidance in agreement with us, through preapplication and scoping, such as a road safety audit (stage 1)".

Para 37

"We will expect to see measures implemented that fully mitigate any and all environmental impacts arising from and relating to the interaction between developments and the SRN. There are three aspects to this:

- The environmental impacts arising from the temporary construction works;
- The environmental impacts of the permanent transport solution associated with the development; and
- The environmental impact of the road network upon the development itself."

Para 49

"To avoid potential delay or challenge, transport assessments/statements and environmental statements/impact assessments should be mutually consistent and pay due regard to each other."

Para 52

"If the development is in an approved local plan and has had an appropriate level of assessment of the impact of the development undertaken, we [Highways England] do not anticipate the need to repeat the full assessment process at the planning application stage."

Para 87

"If, however, the development proposed has not been subject to an appropriate level of assessment, or is not included or consistent with an approved local plan, then we anticipate agreeing the scope of work required to make a full assessment. For those sites that have been considered at local plan stage, we will take into account any assessment already undertaken.

Para 88

"Formal pre-application discussions are an effective means of gaining a good, early understanding of the development, its benefits, its likely impacts and its infrastructure needs. By consulting with us pre-application, you will ensure that the transport assessment you prepare is appropriately scoped and is based on the most relevant and up-to-date data. It will also ensure that you are made aware of, and can take account of, any SRN issues that might have a bearing on the way in which the development is planned and/or delivered. This, in turn, helps avoid delays and difficulties further into the application process".

Para 94

"If a SR is to be prepared, we advise this includes:

 Details of the development, such as location, access arrangements, use class, size or number of units, likely phasing, maximum number of parking spaces and any other relevant information;

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- Proposed methodology for estimating the vehicular trip generation and distribution on the SRN, and resulting trip generation figures;
- Proposed methodology for assessing the impact of this trip generation on the SRN; and
- Proposed methodology for assessing the environmental consequences of the transport impacts of the development"

Para 98

## 2.6 North East Lincolnshire Local Plan 2013-2032

- 2.6.1 The local plan is a key document which will guide the changing use of land in the Borough and define the purpose to which it is put in the future. The Plan sets out the Council's vision and strategy for development, including why, where and how the Borough will grow. The Plan is a plan for growth and aims to ensure North East Lincolnshire becomes a sustainable location in which people can live, work and enjoy their recreation, both now and in the future.
- 2.6.2 Strategic Objective 7 considers transport around North East Lincolnshire.

"Improve accessibility to jobs and services by sustainable transport modes, including cycling and walking; reduce the overall need to travel with employment and housing growth spatially balanced; and provide the necessary infrastructure to support sustainable growth."

- 2.6.3 Policy 36 considers promoting sustainable transport within North East Lincolnshire.
  - To reduce congestion, improve environmental quality and encourage more active and healthy lifestyles, the Council will support measures that promote more sustainable transport choices. Where appropriate, proposals should seek to:
    - o focus development which generates significant movements in locations where the need to travel will be minimised;
    - o prioritise pedestrian and cycle access to and within the site;
    - make appropriate provision for access to public transport and other alternative means of transport to the car, adopting a 400m walk to bus stop standard;
    - make suitable provision to accommodate the efficient delivery of goods and supplies; and,



- o make suitable provision for electric vehicle charging, car clubs and car sharing when considering car park provision.
- Planning permission will be granted where any development that is expected to have significant transport implications delivers necessary and cost effective mitigation measures to ensure that development has an acceptable impact on the network's functioning and safety. These measures shall be secured through conditions and/or legal agreements.
- Where appropriate, Transport Statements, Transport Assessments and/or Travel Plans should be submitted with applications, with the precise form being dependant on the scale and nature of development and agreed through early discussion with the Council.
- The priority areas where combinations of sustainable transport measure and highway improvements will be focused are:
  - Grimsby town centre;
  - Cleethorpes town and centre and resort area;
  - o A180 corridor, (urban and industrial); and,
  - Urban area congestion hotspots and defined air quality management zones.

## 2.6.4 Policy 38 considers parking within North East Lincolnshire.

- Development proposals that generate additional parking demand should ensure that appropriate vehicle, powered two wheeler and cycle parking provision is made. The form and scale of off-street parking required will be assessed against the following:
  - o the accessibility of the development;
  - o the type, mix and use of the development;
  - o the availability and frequency of public transport services; and,
  - o local car ownership levels.
- Developers will be expected to have considered and incorporated measures to minimise parking provision without causing detriment to the functioning of the highway network, local amenity and safety.
- Where private and/or public on-site parking for public use is to be provided at least 5% of parking bays, should be designed, set out and reserved for people with mobility impairments. Such parking bays should be located as close to the main access to the building as possible.
- Where 100 or more parking places are to be provided to serve a commercial development, a minimum of three charging points should be provided for electric vehicles.



 Development proposals that make provision for surface parking areas to serve more than a single household, visitor, employee, or customer, should ensure that appropriate low maintenance landscaping is integrated into the design and layout of the sites.

## 2.7 North East Lincolnshire Local Transport Plan 2016-2032

2.7.1 The North East Lincolnshire Local Transport Plan (LTP) sets out the vision for highways and transport in the borough. The document identifies a number of challenges present in the area and summarises how that challenge will be addressed.

#### 2.8 North Lincolnshire Local Plan 2020-2038

2.8.1 The North Lincolnshire Local Plan will set out the ambition for the future of the area.
It is currently in the last stage of consultation at the time of writing this report (closed on 26th November 2021) before being formally adopted.

## 2.8.2 Policy T1: Promoting Sustainable Transport

- To reduce congestion, improve environmental quality and encourage more active and healthy lifestyles, the Council will support measures that promote more sustainable transport choices.
- Where appropriate, proposals should seek to:
  - o focus development which generates significant movements in locations where the need to travel will be minimised:
  - prioritise pedestrian and cycle access to and within the site and provide connections into the wider network:
  - o make suitable provision for access to public transport and other alternative means of transport to the car;
  - make suitable provision to accommodate the efficient delivery of goods and supplies; and,
  - make suitable provision for electric vehicle charging, car clubs and car sharing when considering parking provision.

## 2.8.3 Policy T2: Promoting Public Transport

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- To support the spatial strategy and encourage sustainable transport use the Council will support measures and actively encourage through partnership working, a transformed level of public transport service provision.
- This will include actively pursuing changes to rail franchises and timetables to improve services on the rail network to better integrate and link the key settlements.
- Provide for improved infrastructure at key interchange points.
- Support "JustGo North Lincs"/ DRT services across the area by seeking contributions from developers.

## 2.8.4 Policy T3: New Development and Transport

- In order to increase overall accessibility, minimise congestion and improve safety, new development will be supported where it is accessible, or can be made accessible, by sustainable modes of transport and addresses its likely transport impact. Development proposals should:
  - Produce and agree a transport assessment and travel plan, where requested by the Council;
  - Support, encourage and promote sustainable travel options, which may include walking, cycling, public transport, electric and ultra-low emission vehicles, car sharing and car clubs particularly in the Scunthorpe and Bottesford urban area, principal towns and large service centres;
  - Bring forward other necessary transport infrastructure to accommodate expected movement to and from the development;
  - Be provided with a satisfactory access which must ensure the safe operation of the highway. Proposals that cannot be served by a safe access and/or would adversely affect the safe operation of the highway will be refused; and,
  - Not have an adverse impact on the network's functioning and safety. Proposals that have significant transport implications will be expected to deliver necessary and cost effective mitigation measures. Such measures shall be secured through conditions and/or legal agreements.
- Developers will be required to demonstrate that their development is adequately served by a variety of modes of transport and will not have an adverse effect on transport near the site. The Council will require developers to contribute towards measures in the vicinity of the development to enhance the following, both on and off site:
  - Public transport services and infrastructure, providing bus stops within a 400m walk of all new developments,
  - Facilities for pedestrians and cyclists,
  - On street parking controls,



- o Traffic calming/reduction measures.
- These measures will be secured through planning conditions and/or legal agreements.

## 2.8.5 Policy T4: Parking

- Development proposals that generate additional parking demand should ensure that appropriate vehicle, powered two wheeler and cycle parking provision is made. The form and scale of off-street parking required will be assessed against the following:
  - o the accessibility of the development;
  - o the type, mix and use of the development;
  - o the availability and frequency of public transport services; and,
  - o local car ownership levels.
- Developers will be expected to have considered and incorporated measures to minimise parking provision without causing detriment to the functioning of the highway network, local amenity, and safety.
- Where private and/or public on-site parking for public use is to be provided at least 5% of parking bays, should be designed, set out and reserved for people with mobility impairments. Such parking bays should be located as close to the main access to the building as possible.
- Parking should incorporate facilities for electric vehicle charging and other ultra-low emission vehicles where appropriate, including parking courts and at non-residential locations. The type and number of chargers will vary dependant on location. One charging point per residential parking space should be provided.
- Development proposals that make provision for surface parking areas to serve more than a single household, visitor, employee, or customer, should ensure that appropriate low maintenance landscaping is integrated into the design and layout of the sites.

## 2.8.6 Policy T5: Cycle and Motorcycle Parking

- Development proposals that generate additional parking demand should require that adequate cycle and motorcycle parking provision is made. This should be:
  - o Well signed, easy to find and benefit from good natural surveillance; and,
  - Cycle shelters and compounds should be provided for all day/long stay parking



## 2.8.7 Policy T7: Safeguarding Transport and Infrastructure

- The Council will safeguard the routes of, and support measures which deliver, maintain and improve, key transport infrastructure, identified on the Policies Map, namely:
  - Lincolnshire Lakes road and transport infrastructure,
  - Brigg Link Road,
  - o Barton Link Road,
  - o Melton Ross Bridge,
  - o Improved access to North Killingholme Airfield, to provide an alternative access to Lancaster Approach,
  - Improved access to Sandtoft Industrial Estate,
  - Improvements to the A15 (South) between Junction 4 of the M180 and A46
- 2.8.8 A publication addendum has recently been consulted on, however, this does not contain amendments which will affect the proposed development.

#### 2.9 North Lincolnshire Local Transport Plan 2011-2026

2.9.1 The North Lincolnshire Local Transport Plan 2011-2026 (LTP3) outlines the strategic approach to transport in North Lincolnshire. The long-term vision for transport in North Lincolnshire is:

"A well maintained transport system that supports sustainable communities within a safe and prosperous environment and which contributes to the wider environmental, economic and social wellbeing of the people who live and work in North Lincolnshire."

- 2.9.2 The local transport goals for North Lincolnshire are:
  - Facilitate economic growth by targeting transport improvements in key development areas and along key strategic network corridors;
  - Reduce transport related carbon dioxide emissions and protect and enhance the natural and built environment through sustainable transport solutions;
  - Improve transport safety and security relating to death or injury from transport, in order to contribute towards safer and stronger communities;

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- Provide equal opportunities through improvements in accessibility to key local hubs and services by sustainable modes of transport; and
- Enhance people's health and wellbeing through the promotion of healthy modes of travel and provision of a high quality integrated transport system that contributes towards long term sustainable regeneration.

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#### 3.0 EXISTING CONDITIONS

#### 3.1 Site Location

3.1.1 The Port of Immingham is located to the north-east of Immingham and approximately 11km north-west of Grimsby. The Port estate is bound by the Humber Estuary to the north-east, Queens Road to the south-east, the A1173 to the south-west and the Phillips 66 gas facility, the CLH site and the AMEP site to the north-west.

## 3.2 **Local Highway Network**

- 3.2.1 A plan of the local road network can be seen on Figure 1. This shows the context of the Port of Immingham which has two highway access points, East Gate and West Gate.
- 3.2.2 From East Gate Queens Road is a single carriageway road which measures approximately 8.0m in width. The road is subject to a 40mph speed limit. There is a footway along the western side of the carriageway starting some 700m south of the East Gate. Queens Road runs between the East Gate of the Port of Immingham and the A1173 Manby Road via a three-arm roundabout.
- 3.2.3 From West Gate Humber Road is a single carriageway road which measures approximately 10m in width. The road is subject to a 40mph speed limit. Humber Road runs between the West Gate of the Port and the A160/ A1173 Manby Road/ Humber Road Roundabout.
- 3.2.4 The A1173 Manby Road is a single carriageway road which measures approximately 8.0m in width. The road is subject to the national speed limit of 60mph. There is a footway along the A1173 which changes between the eastern and western sides of the carriageway between the A1173 Manby Road/ Queens Road Roundabout and the A1173 Manby Road/ Pelham Road Roundabout. Dropped kerbs with tactile paving are provided at all crossing points. The A1173



runs between the A160/ A1173 Manby Road/ Humber Road Roundabout and the A180/ A1173 Manby Road Roundabout.

- 3.2.5 The A160 and A180 form part of the Strategic Road Network (SRN).
- 3.2.6 The A160 is a dual carriageway road with 7.3m wide carriages and hard strips in both directions. The road is subject to the national speed limit of 70mph. The A160 runs between the A160/ A1173 Manby Road/ Humber Road Roundabout and the A180.
- 3.2.7 The A180 is a dual carriageway road which measures approximately 20m in width. The road is subject to the national speed limit of 70mph. The A180 runs between Grimsby and becomes the M180 motorway some 20km south-west of the Port of Immingham.
- 3.2.8 The M180 motorway runs from Junction 5 of the M18 motorway before becoming the A180 near Immingham.

## 3.3 Existing Rail Infrastructure

- 3.3.1 There are two running lines passing through the Port Estate, both of which enter the Port boundary at Humber Road Junction. At this point the main running line (KIL1) travels in a north-easterly direction, curving north-westerly at West Junction where it exits the Port Estate to join the branch line to Killingholme (KIL2). KIL2 subsequently crosses Station Road by means of a level crossing. This is shown in **Figure 2**.
- 3.3.2 KIL1 is the most heavily used part of the Immingham Dock rail infrastructure. It connects into terminal facilities at Humber International Terminal (HIT), Tata's Immingham Bulk Terminal (IBT), Simon Storage West, Henderson Quay, the Mineral Quay and the Killingholme Branch Line (KIL2).

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- 3.3.3 The national rail network, operated by Network Rail and leading to the Port of Immingham provides three routes from the East Coast Main Line (ECML) to the key intersection at Wrawby Junction, about 14 km (c. 9 miles) west of Immingham. These are the west facing South Humberside Line passing Scunthorpe and joining the ECML at Doncaster. The south-west facing Brigg Line passes Gainsborough joining the ECML at Retford. The south facing Lincoln Line passes through Lincoln and joins the ECML at Newark.
- 3.3.4 East of Wrawby Junction is a three-track railway of four miles to Brocklesby Junction where passenger services to Grimsby and Cleethorpes branch to the southwest. Freight traffic to the Port branches north to Ulceby then loops past the two Imminghamoil refineries and onto the Port.
- 3.3.5 East of the Killingholme line, Immingham Reception sidings can be accessed, traffic can continue east on to DFDS Nordic Terminal, DB Cargo sidings, then onto ABP Rail sidings to the east of the Lock. Onward rail running lines continue on the Grimsby Light Railway (PYE2) to Great Coates, with onward rail traffic facing west on to the Down Cleethorpes Line. PYE2 is bi-directional and access to Immingham reception sidings can be via Great Coates.

#### 3.4 Baseline Traffic Flows

- 3.4.1 Automatic Traffic Counts (ATCs) were undertaken in 4 locations around the Port of Immingham between Monday 27<sup>th</sup> September 2021 and Sunday 3<sup>rd</sup> October 2021. Further ATCs were undertaken in 3 locations between Tuesday 16<sup>th</sup> November 2021 and Monday 22<sup>nd</sup> November 2021.
- 3.4.2 A series of turning surveys were obtained from North East Lincolnshire for the area surrounding the Port with further surveys undertaken on Tuesday 16<sup>th</sup> November 2021. The location of the traffic surveys can be seen in **Figure 3**.
- 3.4.3 Internal to the port estate, further turning counts were undertaken in April 2022 and these are also highlighted on **Figure 3**.

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3.4.4 The full results of the ATCs can be seen in **Annex BD 1** and the turning surveys in **Annex BD2**. A summary of the results can be seen in **Table 1** below.

Table 1 - Summary of ATC Results (2021)

| Location          | Direction      | Total<br>Vehicles | 5-day<br>average<br>24 hour | 7-day<br>average<br>24 hour | Average<br>85 <sup>th</sup> %ile<br>speed | Average<br>Mean<br>Speed |
|-------------------|----------------|-------------------|-----------------------------|-----------------------------|---|--------------------------|
| Humber Road (S    | Eastbound      | 22,412            | 4,037                       | 3,202                       | 35.7                                      | 28.9                     |
| of security gate) | Westbound      | 38,456            | 6,824                       | 5,494                       | 38.7                                      | 33.9                     |
| Humber Road (N    | Eastbound      | 9,997             | 1,775                       | 1,428                       | 22.1                                      | 18.2                     |
| of security gate) | Westbound      | 13,600            | 2,436                       | 1,943                       | 20.1                                      | 16.4                     |
| Ou cons Road      | Northwestbound | 13,327            | 2,396                       | 1,904                       | 40.3                                      | 34.5                     |
| Queens Road       | Southeastbound | 16,819            | 3,039                       | 2,403                       | 38.0                                      | 32.8                     |
| East Gate         | Northbound     | 16,752            | 3,033                       | 2,393                       | 17.5                                      | 13.2                     |
| East Gate         | Southbound     | 24,084            | 4,414                       | 3,441                       | 27.3                                      | 23.1                     |
| A1173 (N of Kiln  | Northbound     | 26,129            | 4,518                       | 3,733                       | 54.8                                      | 47.3                     |
| Lane              | Southbound     | 25,558            | 4,400                       | 3,651                       | 55.0                                      | 47.2                     |
| A1173 (N of       | Northbound     | 27,252            | 4,655                       | 3,893                       | 38.0                                      | 32.6                     |
| Kings Road)       | Southbound     | 26,803            | 4,565                       | 3,829                       | 40.5                                      | 35.1                     |
| Manby Boad        | Northbound     | 25,914            | 4,469                       | 3,702                       | 52.1                                      | 44.1                     |
| Manby Road        | Southbound     | 25,989            | 4,471                       | 3,713                       | 54.3                                      | 46.0                     |

3.4.5 Data for the trunk roads surrounding the area has been collected off webtris.highwaysengland.co.uk. The location of the TRADS surveys can be seen in **Figure 3**. A summary of the TRADS data can be seen in **Table 2** below.



Table 2 - Two-way TRADS Data

|                         |            | Base |          |      |     |
|-------------------------|------------|------|----------|------|-----|
| Key Links               | А          | M    | PM       |      |     |
|                         | All Veh.   | HGV  | All Veh. | HGV  |     |
| M180                    | Eastbound  | 1843 | 708      | 1558 | 450 |
| (West of A15)           | Westbound  | 1680 | 627      | 1693 | 471 |
| A15                     | Northbound | 873  | 90       | 998  | 103 |
| (North of M180)         | Southbound | 978  | 101      | 1038 | 103 |
| A180                    | Eastbound  | 1296 | 443      | 1239 | 424 |
| (West of A160)          | Westbound  | 968  | 323      | 1013 | 338 |
| A180                    | Eastbound  | 1379 | 149      | 1661 | 158 |
| (East of A1173)         | Westbound  | 1979 | 224      | 1511 | 148 |
| A160                    | Northbound | 609  | 257      | 392  | 204 |
| (Adj South Killinghome) | Southbound | 510  | 405      | 791  | 247 |
| A1173                   | Northbound | 603  | 46       | 260  | 18  |
| (South of Kings Road)   | Southbound | 204  | 30       | 426  | 31  |
| Ougana Bood             | Eastbound  | 340  | 51       | 90   | 11  |
| Queens Road             | Westbound  | 164  | 19       | 200  | 19  |

## 3.5 **Personal Injury Collisions**

## North East Lincolnshire

3.5.1 Personal Injury Collision (PIC) data has been obtained for the latest 5-year period (21/08/2016-20/08/2021) from North East Lincolnshire Council. The area analysed is Queens Road, the A1173 Manby Road and the A180/ A1173 Manby Road Roundabout. The dataset and location plan are included at **Annex BD3** and a summary of the PICs is provided in **Table 3**.

**Table 3** - Summary of PICs by Severity

| PIC Severity   | Slight | Serious | Fatal | Total |
|----------------|--------|---------|-------|-------|
| Number of PICs | 6      | 3       | 0     | 9     |
| % of Total     | 67%    | 33%     | 0%    | 100%  |

3.5.2 As shown in **Table 3**, in total there have been nine PICs recorded within the study area over the last five years. Six were classed as 'slight' in severity, 3 were classed as 'serious' in severity, and none were classed as 'fatal' in severity.

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- 3.5.3 The first PIC occurred on the A180 and was classed as 'slight' in severity. It occurred when vehicle one (transporter) was travelling eastbound on the A180 and was approximately 300 yards from the exit slip for Stallingborough interchange. Vehicle two was stationary with hazards on in lane one. When vehicle one has realised vehicle two is stationary, the driver attempted to move into lane 2 to swerve around vehicle two but has collided into vehicle two causing rear offside damage.
- 3.5.4 The second PIC occurred on the A1173 and was classed as 'slight' in severity. It occurred when both vehicles were travelling in a south-west direction. Vehicle 1 (car) travelling at speed comes into contact with vehicle 2 (pedal cycle) causing the rider to fall off the bicycle.
- 3.5.5 The third PIC occurred on the A180 and was classed as 'slight' in severity. It occurred when the A180 was closed due to a different incident. Vehicle 2 (car) realises the road is closed and brakes suddenly. Vehicle 1 (car) did not react in time and impacts into the rear of vehicle 2.
- 3.5.6 The fourth PIC occurred on the A1173 and was classed as 'serious' in severity. It occurred when a motorbike was overtaking a vehicle at a relatively slow speed. The rider starts to slow by pulling brake and the bike falls from under him.
- 3.5.7 The fifth PIC occurred on the A1173 and was classed as 'slight' in severity. It occurred when vehicle 1 (car) was turning right using a filter lane when vehicle 2 (motorbike) which was travelling behind the car has gone to overtake and has collided with the offside door.
- 3.5.8 The sixth PIC occurred on the A180 and was classed as 'serious' in severity. It occurred when both vehicles travelling westbound off the A180 onto the Stallingborough junction A1173. Vehicle 2 (car) stops at the top of the slip road at the Give Way lines and vehicle 1 (goods unknown weight) shunts into the rear of it.

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- 3.5.9 The seventh PIC occurred on the A180 and was classed as 'slight' in severity. It occurred when vehicle 1 (car) has been travelling on the A180 eastbound in lane 1 and has collided with the rear of vehicle 2 (goods vehicle).
- 3.5.10 The eighth PIC occurred on the A1173 and was classed as 'serious' in severity. It occurred when vehicle 1 (car) has been parked on the offside in a layby. It pulled out into the carriageway and pulled right across the road to do a U-turn. As it pulled into the middle of the road vehicle 2 (motorbike) has collided with the offside of the car causing the rider to fall off.
- 3.5.11 The ninth PIC occurred on the A180 and was classed as 'slight' in severity. It occurred when both cars were travelling eastbound towards Grimsby when vehicle 2 undertook and then pulled in front of vehicle 1. Vehicle 2 was then tapping his brakes and some words were exchanged through the windows. Vehicle 1 pulled over on the A180 slip road to Immingham and the driver of vehicle 2 pulled up behind the victim and as doing so hit the rear of vehicle 1.

## North Lincolnshire

3.5.12 North Lincolnshire do not provide accident data and have requested that the assessment obtain details from Crashmap.co.uk which provides the same data base. It was used to get the most recent 5-years' worth of accident data at the A160/ A1173 Manby Road/ Humber Road Roundabout and the area surrounding it. The output can be seen in Image 1 below.



a conoco offloading skid ABP Immingham Dock West Gate A160 DEDS Rimside Terminal

Brand Energy &

Image 1 Crashmap Online Output for West Gate

3.5.13 As can be seen above, there have been 5 PICs in the area; 4 were classed as 'slight' in severity and 1 was classed as 'serious' in severity. None of the PICs above were caused due to existing issues within the study area.

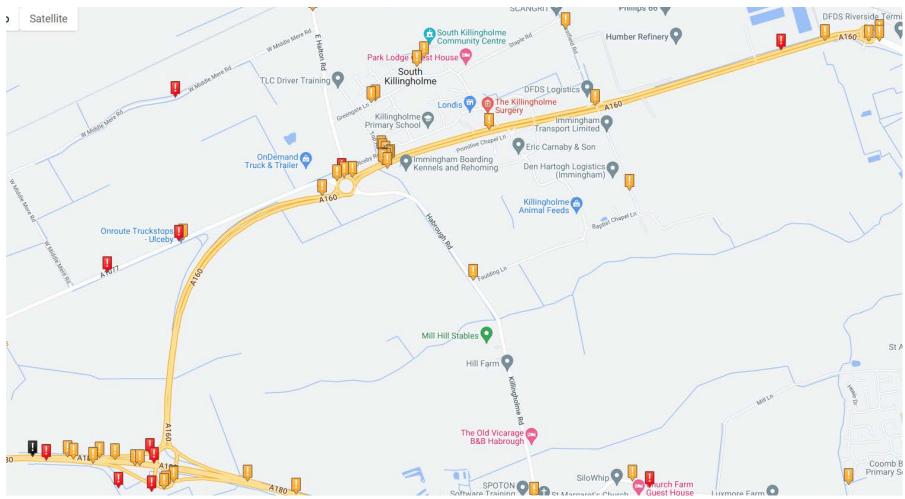
## National Highways

3.5.14 NH require the PIC assessment is extended along the Strategic Road Network (SRN) to the junctions which will be assessed. It is also required that the assessment covered the five years prior to the Covid-19 pandemic as well as 2020 and 2021. The output can be seen in **Figure 2** below which shows the most recent 7-years' worth of PIC data for the SRN network between the A180/ A160 and the A160/ Humber Road/ Manby Road Roundabouts.

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Image 2 - Crashmap Online Output for the SRN



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- 3.5.15 In the five years prior to the Covid-19 pandemic, a total of 28 PICs occurred along the SRN an average of 5.6 PICs per year. In the most recent 5-year period a total of 26 PICs occurred an average of 5.2 PICs per year. This shows that the Covid-19 pandemic did not alter the expected rate of accidents occurring within this study area. Since the PIC rate is so similar, the assessment is unlikely to be affected by the period used, and so the five years prior to the Covid-19 pandemic as well as 2020 and 2021 will be assessed at the request of NH.
- 3.5.16 A cluster of 5 PICs have occurred at the pedestrian crossing approximately 200m east of the A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout. All of the PICs which occurred at this location have been classified as 'slight' in severity.
- 3.5.17 Four PICs have occurred on the A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout – 3 of which were classified as 'slight' in severity and one which was classed as 'serious' in severity. The serious PIC occurred on the East Halton Road exit arm and involved 3 cars.
- 3.5.18 Nineteen PICs have occurred in the vicinity of the A180/ A160 Roundabout, 12 of which were classified as 'slight' in severity, 6 which were classified as 'serious' in severity, and 1 which was classified as 'fatal' in severity. The fatal PIC occurred approximately 190m west of the eastbound exit slip road and involved two cars (one of which was controlled by a young driver) and a goods vehicle.
- 3.5.19 Given the level of flows along the SRN, it is not considered that the level of PICs which have occurred within the study area is cause for concern. As well as this, none of the PICs were caused due to existing issues within the study area.

#### Summary

3.5.20 Overall, it can be concluded that there are no existing highway safety issues that need to be addressed as part of the current application.

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## 3.6 **Public Transport Provision**

## **Bus Services**

3.6.1 The nearest bus stop to the site is located on Queens Road, at the junction with Laporte Road, approximately 250m south of the East Gate into the Port of Immingham. The stop is serviced by the number 5M. This service runs between Immingham and Grimsby every Monday to Friday between 16:19 and 17:49 at a frequency of 30-minutes.

## Rail Services

- 3.6.2 The nearest railway station to the site is Stallingborough Railway Station which is approximately 5.5km south off Station Road. There are 4 cycle storage spaces located at the station. The services at the station are operated by East Midlands Railway only.
- 3.6.3 Habrough Railway Station, which is approximately 7.5km southwest of the site off the B1210, is located on the same line as Stallingborough Railway Station but is served by a higher number of services. There are 4 cycle storage spaces located at the station and 13 car parking spaces. The services at the station are operated by East Midlands Railway, Northern Trains and TransPennine Express. On weekdays, the station is served by an hourly TransPennine Express service between Cleethorpes and Manchester Airport. East Midlands Railway operate a two-hourly service between Grimsby Town and Leicester via Lincoln and Nottingham as well as a two-hourly service between Cleethorpes and Barton-on-Humber. On Saturdays, there are also three trains per day between Cleethorpes and Sheffield via Brigg which are operated by Northern Trains.
- 3.6.4 On Sundays, the TransPennine Express service is two-hourly in the morning but increases to hourly in the afternoon. During the summer months, there are three East Midlands Railway services between Nottingham and Cleethorpes and four



services to Barton-on-Humber with no services on either of these routes in the winter.

## 3.7 Walking and Cycling Provision

- 3.7.1 As well as the footways mentioned in **Section 3.2** above, all the residential roads in and around Immingham have lit footways on both sides of the carriageway. They are also all subject to a 30mph speed limit making them safe routes for both pedestrians and cyclists to use.
- 3.7.2 ABP are progressing a program to improve pedestrian and cycle facilities within the Port. The completion of this has been delayed due to the Covid-19 pandemic but is ongoing. These footways give pedestrian access to the Port via East Gate. A plan of these can be seen in **Annex E**.
- 3.7.3 There are a number of Public Rights of Way (PROWs) in the vicinity of the Port. There is a public footpath off Queens Road and a public Bridleway off Laporte Road, which forms part of the coastal path, both of which are approximately 500m from East Gate. All the PROWs near to the Port can be seen in **Image 3** below.

Westfield

Westfield

Size of the Communication of

Image 3 - Public Rights of Way Locations



#### 4.0 DEVELOPMENT PROPOSALS

#### 4.1 Overview

- 4.1.1 The proposals are to construct a new roll-on/ roll-off (Ro-Ro) facility within the Port of Immingham. It is designed to service the embarkation and disembarkation of principally commercial Ro-Ro cargo carried either by lorry or on unaccompanied trailers.
- 4.1.2 The proposed development straddles the existing port railway lines and a main port road over which a bridge will be built.
- 4.1.3 In addition, the new facility will be able to accommodate a very minor element of passenger use, albeit only when the demands of the Ro-Ro cargo operations so allow. The proposed development plan is shown attached at **Annex A**.

#### 4.2 Access

- 4.2.1 Both existing accesses to the Port will be available for use by the proposed development. These are the eastern dock access off Queens Road (East Gate) and the western dock access off Humber Road (West Gate), as described above.
- 4.2.2 Internally to the port, the operation will be accessed from the Robinson Road/Crescent Access Road junction which will also continue to serve the Origin Fertilisers UK building. Part of East Riverside will be stopped up as result of the proposed development. Therefore, in order to continue to serve the entire Port safely following the proposed development the Robinson Road/ Crescent Access Road junction and the Robinson Road/ East Dock Road junction will be reconfigured. These proposals can be seen in the development plan in **Annex A**.
- 4.2.3 The main landside storage area consists of "ground slots", circa 1,434 where unaccompanied trailers and units are held prior to either loading onto vessels or for outbound transit by road. Some of these areas are connected to the marine infrastructure by a new bridge over the port spine road and port railway.



- 4.2.4 Improvements are also proposed to the East Gate port entrance and exit point. A second entry lane will be provided to allow a higher volume of traffic to access the Port during each hour. On the adjacent highway, the bus stop will also be repositioned and the existing layby, which is occasionally used by HGVs for parking, will be removed. A pedestrian route between East Gate and the bus stop will be provided alongside the East Gate improvements. The proposals for East Gate can be seen in **Annex A**.
- 4.2.5 As part of the gate improvements the junction of Robinson Road and the IOT access road will have new warning signals (Wig-wag signals) and box junction line marking will also be installed.
- 4.2.6 It is agreed with North East Lincolnshire (as Highway Authority) that these works can be undertaken through Section 278 of the Highways Act prior to operation of the facility.

## 4.3 **Staff**

- 4.3.1 Land side staffing will include customs, security and stevedores and it is expected that up to 50 staff per shift over 3 shifts per day will be required. It is assumed that the three shifts will be 06:00-14:00, 13:30-21:30, and 21:30-06:00.
- 4.3.2 The staff forecasts have been provided by the expected end user and are shown in **Table 4** below.

**Table 4** - Typical Operators' Staff Requirements

|           | 06:00-14:00 | 13:30-21:30 | 21:30-06:00 |
|-----------|-------------|-------------|-------------|
| Monday    | 47          | 41          | 40          |
| Tuesday   | 47          | 41          | 40          |
| Wednesday | 47          | 41          | 40          |
| Thursday  | 47          | 41          | 40          |
| Friday    | 47          | 41          | 40          |
| Saturday  | 25          | 20          | 20          |
| Sunday    | 20          | 25          | 20          |

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4.3.3 As can be seen above, it is likely that fewer staff would be required during the night shift, however, for robustness 50 staff per shift has been assessed.

## 4.4 Parking Provision

4.4.1 The scheme includes approximately 80 pre-gate HGV parking spaces as well as marshalling lanes for accompanied freight and passenger vehicles, 155 staff parking spaces, 20 Tugmaster parking spaces and 15 equipment parking spaces. There will also be approximately 55 passenger parking spaces on site for when passengers are on a sailing. The location of the parking can be seen in the development plan as can be seen in **Annex A**.



#### 5.0 PROPOSED TRAFFIC GENERATION AND DISTRIBUTION

#### 5.1 **Construction Traffic Generation**

- 5.1.1 The construction of the IERRT project may be completed in a single stage, or it may be sequenced such that construction of the southernmost pier takes place at the same time as operation of the northernmost pier (see Chapter 3 of this ES). In the case of a sequenced construction, the duration of construction activity will be extended but it will not increase the scale of construction activity.
- 5.1.2 For the purposes of this assessment the worst case is that construction will take place in a single stage. The construction of the development as set out in Chapter 3 of the ES is expected to commence in early 2024 take in the region of 21 months to complete by mid 2025. It will involve the importation of a variety of building materials including steel, concrete, steel reinforcement, aggregates, blocks and asphalt.
- 5.1.3 Overall, it is expected that an average of 100 loads of material will be delivered on a typical daily weekday. This equates to 200 movements per weekday and an AADT of 158 movements. There will be some slightly higher peaks (for example if large concrete pours are underway) and by definition therefore days when less HGV traffic will be generated. A peak of 280 HGV movements per day is considered.
- 5.1.4 The calculations undertaken to arrive at this figure can be seen in **Annex F**.
- 5.1.5 Around 120 to 150 construction workers are expected on site on a typical day. The Census 2011 journey to work data for the middle super output area within which the site is located shows that around 80% of people drive to work. Applying this to the maximum number of staff indicated above equates to 120 trips (240 two-way light vehicle movements).
- 5.1.6 In total, therefore, forecast construction traffic movements are 240 light vehicles on a typical day and an average of 180 heavy vehicle movements (90 in, 90 out) per working day.

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- 5.1.7 To accommodate three new berths, it is anticipated that this will require dredging approximately 190,000 m³ of material. The dredged material is not currently considered suitable for beneficial use elsewhere, such as for reclamation purposes (see Waste Hierarchy Assessment (WHA), Appendix 2.1 in Volume 3 of the ES (Application Reference Number 8.4)). Therefore, it is envisaged that the dredged material will be transported to licensed disposal sites offshore (depending on the type of material) by barge (see Chapter 2 of the ES (Proposed Development)). On this basis no assessment or allowance for land-based movements arising from the dredge are covered in this report.
- 5.1.8 Overall, the daily construction traffic movements (circa 520 movements) will be significantly lower than the operational traffic level set out in the following paragraphs (circa 2,000 movements). Furthermore, this level of traffic will be occurring for a temporary period of time. The environmental impacts will therefore be less than those set out below for the operational phase.

## 5.2 **Proposed Operational Traffic Generation**

#### Light Vehicles

- 5.2.1 At present, there are very few on site staff and so, for the purposes of this assessment, the staffing levels mentioned in **Section 4.3** above are assumed to all be new. This equates to 150 person trips in and out over the day.
- 5.2.2 There will also be servicing and maintenance vehicles accessing the site throughout the day. This equates to an average of 5 vehicles in and out (10 two-way movements) in each hour between 07:00 and 19:00.

#### **HGVs**

5.2.3 The traffic generation related to the proposed development has been derived using the following assumptions:

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- a) Days of operation = 364 days per year (52x7)
- b) The IERRT as a whole (marine and landside elements combined) will accommodate a throughput up to 1,800 units per day
- c) Maximum throughput of cargo units per annum = 660,000
- d) Throughput of accompanied trailers/lorries, based on the split considered likely by the intended operator (28%), per annum = 184,800
- e) Throughput of unaccompanied trailers, based on the split considered likely by the intended operator (72%), per annum = 522,720
- f) Number of HGV movements per freight unit:
  - i. Unaccompanied units will be dropped off and whilst generally an HGV will drop and collect in the same visit, an allowance of 10% has been allowed for single deliveries meaning 1 unit = 1.1 HGV movements.
  - ii. Accompanied all have a tractor unit attached so each unit = 1 HGV movement.
- g) All traffic will travel by road
- 5.2.4 On that basis total movements generated by day can be seen in **Table 5** below.

**Table 5** – Annual Throughput Assumptions

|                                    | Units In | Units out | Total   |
|------------------------------------|----------|-----------|---------|
| Annual Units                       | 330,000  | 330,000   | 660,000 |
| Accompanied units (28%)            | 92,400   | 92,400    | 184,800 |
| Unaccompanied Units (72%)          | 237,600  | 237,600   | 475,200 |
| HGVs for Unaccompanied Units (10%) | 261,360  | 261,360   | 522,720 |
| Total HGVs                         | 353,760  | 353,760   | 707,520 |

- 5.2.5 Based on 364 days per year this equates to a peak of 972 HGVs in and 972 HGVs out per day, a total of 1,944 movements.
- 5.2.6 The above generation is the facility being fully utilised to the 1,800 unit level every day of the year. In reality the daily levels if traffic flows will be lower than this and

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will be market driven. By utilising these throughput levels, however, the assessment undertaken is robust.

- 5.2.7 There is also the option of allowing some level of passenger transport on the vessels. For safety reasons (relating to COMAH Regulations within the Port Estate), the maximum number of passengers allowed within the terminal is 100 and so this will also be the maximum number of passengers who sail on any day.
- 5.2.8 The number of passengers allow on the site will also be controlled by a requirement in the DCO and this has been agreed as an acceptable approach with National Highways.
- 5.2.9 This modest passenger transport will not change the results of the assessment below as the vehicles used by the passengers (a car, a car with a trailer or a motorhome) will replace a freight vehicle. Since a freight vehicle is assessed as 2.3 PCUs two cars, a car with a trailer, or a motorhome will result in the same or a lesser impact than a single HGV. For this reason, a separate assessment including passenger transport has not been undertaken.

#### 5.3 **Proposed Traffic Profile**

#### Light Vehicles

5.3.1 The profile of the staff and operational vehicle movements based on the assumptions made in **Section 4.3** can be seen in **Table 6** below.

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Table 6 - 24hr Traffic Profile for Staff and Service Vehicles

|             | Inbound | Outbound | Total |
|-------------|---------|----------|-------|
| 00:00-01:00 | 0       | 0        | 0     |
| 01:00-02:00 | 0       | 0        | 0     |
| 02:00-03:00 | 0       | 0        | 0     |
| 03:00-04:00 | 0       | 0        | 0     |
| 04:00-05:00 | 0       | 0        | 0     |
| 05:00-06:00 | 50      | 0        | 50    |
| 06:00-07:00 | 0       | 50       | 50    |
| 07:00-08:00 | 5       | 5        | 10    |
| 08:00-09:00 | 5       | 5        | 10    |
| 09:00-10:00 | 5       | 5        | 10    |
| 10:00-11:00 | 5       | 5        | 10    |
| 11:00-12:00 | 5       | 5        | 10    |
| 12:00-13:00 | 5       | 5        | 10    |
| 13:00-14:00 | 50      | 5        | 55    |
| 14:00-15:00 | 5       | 50       | 55    |
| 15:00-16:00 | 5       | 5        | 10    |
| 16:00-17:00 | 5       | 5        | 10    |
| 17:00-18:00 | 5       | 5        | 10    |
| 18:00-19:00 | 5       | 5        | 10    |
| 19:00-20:00 | 0       | 0        | 0     |
| 20:00-21:00 | 0       | 0        | 0     |
| 21:00-22:00 | 50      | 50       | 100   |
| 22:00-23:00 | 0       | 0        | 0     |
| 23:00-24:00 | 0       | 0        | 0     |
| Total       | 205     | 205      | 410   |

5.3.2 Despite the above, a worst-case assessment has been carried out in which 50 movements in and out have been assumed to occur in each peak hour.

#### HGV

5.3.3 The profile of movements across the day has been considered for two scenarios. Firstly, it has been assessed based on a typical operators' activities, split between unaccompanied freight (which is generally spread across the day) and accompanied freight (which tends to be more focused on sailing times). Secondly it has been based on the surveys of existing HGV profiles from the Port of



Immingham generally. This allows the specific end user expectations to be tested and also a sensitivity test in terms of changes in those operations.

5.3.4 The data provided by the intended operators existing operation can be seen below in **Table 7**.

**Table 7** – Existing Operator Data (From Gate Records Data; January-August 2021)

| Ноиг        |       | Check- | in Time |         | Exit Time |        |               |     |  |
|-------------|-------|--------|---------|---------|-----------|--------|---------------|-----|--|
| Hour        | Accom | panied | Unacco  | mpanied | Accom     | panied | Unaccompanied |     |  |
| 00:00-01:00 | 0     | 0%     | 180     | 0%      | 0         | 0%     | 71            | 0%  |  |
| 01:00-02:00 | 0     | 0%     | 110     | 0%      | 0         | 0%     | 68            | 0%  |  |
| 02:00-03:00 | 1     | 0%     | 86      | 0%      | 0         | 0%     | 50            | 0%  |  |
| 03:00-04:00 | 1     | 0%     | 99      | 0%      | 0         | 0%     | 51            | 0%  |  |
| 04:00-05:00 | 2     | 0%     | 103     | 0%      | 0         | 0%     | 192           | 0%  |  |
| 05:00-06:00 | 3     | 0%     | 251     | 0%      | 0         | 0%     | 600           | 1%  |  |
| 06:00-07:00 | 3     | 0%     | 848     | 2%      | 6         | 0%     | 1,502         | 3%  |  |
| 07:00-08:00 | 0     | 0%     | 1,382   | 3%      | 208       | 1%     | 1,970         | 4%  |  |
| 08:00-09:00 | 4     | 0%     | 1,922   | 4%      | 193       | 1%     | 1,526         | 3%  |  |
| 09:00-10:00 | 9     | 0%     | 2,228   | 4%      | 13,510    | 70%    | 1,728         | 4%  |  |
| 10:00-11:00 | 30    | 0%     | 2,575   | 5%      | 3,635     | 19%    | 2,556         | 5%  |  |
| 11:00-12:00 | 35    | 0%     | 2,953   | 6%      | 681       | 4%     | 4,340         | 9%  |  |
| 12:00-13:00 | 94    | 0%     | 3,120   | 6%      | 362       | 2%     | 4,705         | 10% |  |
| 13:00-14:00 | 211   | 1%     | 3,445   | 7%      | 2,227     | 1%     | 5,194         | 11% |  |
| 14:00-15:00 | 630   | 3%     | 4,008   | 8%      | 196       | 1%     | 4,614         | 10% |  |
| 15:00-16:00 | 1,319 | 6%     | 5,296   | 10%     | 144       | 1%     | 4,185         | 9%  |  |
| 16:00-17:00 | 1,940 | 10%    | 5,871   | 12%     | 86        | 0%     | 4,158         | 9%  |  |
| 17:00-18:00 | 3,007 | 15%    | 5,848   | 12%     | 55        | 0%     | 3,557         | 7%  |  |
| 18:00-19:00 | 4,881 | 24%    | 5,713   | 11%     | 38        | 0%     | 2,818         | 6%  |  |
| 19:00-20:00 | 6,414 | 31%    | 2,953   | 6%      | 31        | 0%     | 1,962         | 4%  |  |
| 20:00-21:00 | 1,816 | 9%     | 972     | 2%      | 17        | 0%     | 1,101         | 2%  |  |
| 21:00-22:00 | 11    | 0%     | 453     | 1%      | 17        | 0%     | 397           | 1%  |  |
| 22:00-23:00 | 0     | 0%     | 217     | 0%      | 6         | 0%     | 139           | 0%  |  |
| 23:00-24:00 | 1     | 0%     | 162     | 0%      | 0         | 0%     | 78            | 0%  |  |

5.3.5 The HGV profile is provided below in **Table 8** based on a typical operators' activities, split between unaccompanied freight (which is generally spread across the day) and accompanied freight (which tends to be more focused on sailing times). This has been calculated using the proportions shown in **Table 7**, above, applied to the traffic generation shown in **Table 5**.

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Table 8 – 24hr Traffic Generation Summary Based on End User Profile

|             | Inbound | Outbound | Total |
|-------------|---------|----------|-------|
| 00:00-01:00 | 2       | 1        | 3     |
| 01:00-02:00 | 2       | 1        | 3     |
| 02:00-03:00 | 1       | 1        | 2     |
| 03:00-04:00 | 1       | 1        | 2     |
| 04:00-05:00 | 1       | 3        | 4     |
| 05:00-06:00 | 3       | 9        | 12    |
| 06:00-07:00 | 12      | 22       | 34    |
| 07:00-08:00 | 19      | 31       | 50    |
| 08:00-09:00 | 26      | 25       | 51    |
| 09:00-10:00 | 31      | 221      | 252   |
| 10:00-11:00 | 36      | 89       | 125   |
| 11:00-12:00 | 41      | 73       | 114   |
| 12:00-13:00 | 44      | 74       | 118   |
| 13:00-14:00 | 50      | 79       | 129   |
| 14:00-15:00 | 63      | 70       | 133   |
| 15:00-16:00 | 90      | 63       | 153   |
| 16:00-17:00 | 107     | 62       | 169   |
| 17:00-18:00 | 121     | 52       | 173   |
| 18:00-19:00 | 145     | 41       | 186   |
| 19:00-20:00 | 128     | 29       | 157   |
| 20:00-21:00 | 38      | 16       | 54    |
| 21:00-22:00 | 6       | 6        | 12    |
| 22:00-23:00 | 3       | 2        | 5     |
| 23:00-24:00 | 2       | 1        | 3     |

<sup>\*</sup>numbers subject to minor rounding error (+/- one vehicle)

5.3.6 **Table 9** provides an alternative HGV profile that is based on the surveys of existing HGV profiles from the Port of Immingham as a whole. This is based on the proportions from the surveys discussed in **Section 3.4**.

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**Table 9** – 24hr Traffic Generation Summary Based on Port of Immingham Profile

|             | Inbound | Outbound | Total |
|-------------|---------|----------|-------|
| 00:00-01:00 | 6       | 5        | 11    |
| 01:00-02:00 | 6       | 7        | 13    |
| 02:00-03:00 | 5       | 7        | 12    |
| 03:00-04:00 | 9       | 7        | 16    |
| 04:00-05:00 | 18      | 13       | 31    |
| 05:00-06:00 | 45      | 20       | 65    |
| 06:00-07:00 | 71      | 39       | 110   |
| 07:00-08:00 | 78      | 43       | 121   |
| 08:00-09:00 | 63      | 57       | 120   |
| 09:00-10:00 | 61      | 70       | 131   |
| 10:00-11:00 | 63      | 74       | 137   |
| 11:00-12:00 | 66      | 77       | 143   |
| 12:00-13:00 | 68      | 73       | 141   |
| 13:00-14:00 | 77      | 79       | 156   |
| 14:00-15:00 | 76      | 85       | 162   |
| 15:00-16:00 | 73      | 75       | 149   |
| 16:00-17:00 | 57      | 76       | 133   |
| 17:00-18:00 | 41      | 63       | 104   |
| 18:00-19:00 | 31      | 39       | 69    |
| 19:00-20:00 | 16      | 27       | 43    |
| 20:00-21:00 | 13      | 13       | 26    |
| 21:00-22:00 | 10      | 10       | 20    |
| 22:00-23:00 | 11      | 8        | 19    |
| 23:00-24:00 | 7       | 7        | 14    |

<sup>\*</sup>numbers subject to minor rounding errors (+/- one vehicle)

## 5.4 **Peak Hour Identification**

5.4.1 The peak hours shown in each of the traffic surveys has been assessed to confirm the peak hours of the network as a whole. The peak hours can be seen in **Table 10** below.



**Table 10** - Peak Hour Analysis

| Survey I                  | _ocation                  | AM Peak     | PM Peak     |
|---------------------------|---------------------------|-------------|-------------|
| Oueana Bood               | Northwestbound            | 08:00-09:00 | 16:00-17:00 |
| Queens Road               | Southeastbound            | 07:00-08:00 | 13:00-14:00 |
| Humber Road (N of         | Eastbound                 | 06:00-07:00 | 16:00-17:00 |
| security)                 | Westbound                 | 07:00-08:00 | 16:00-17:00 |
| Humber Road (S of         | Eastbound                 | 07:00-08:00 | 14:00-15:00 |
| security)                 | Westbound                 | 10:00-11:00 | 16:00-17:00 |
| East Gate                 | Northbound                | 07:00-08:00 | 13:00-14:00 |
| Easi Gale                 | Southbound                | 08:00-09:00 | 16:00-17:00 |
| 11172 (N. of Kilp Long)   | Northbound                | 07:00-08:00 | 14:00-15:00 |
| A1173 (N of Kiln Lane)    | Southbound                | 07:00-08:00 | 16:00-17:00 |
| A1172 (N of Kings Bood)   | Northbound                | 07:00-08:00 | 16:00-17:00 |
| A1173 (N of Kings Road)   | Southbound                | 08:00-09:00 | 16:00-17:00 |
| Manby Road                | Northbound                | 07:00-08:00 | 16:00-17:00 |
| Manby Road                | Southbound                | 08:00-09:00 | 16:00-17:00 |
| A180/                     | A160                      | 07:00-08:00 | 16:00-17:00 |
| A160/ Ulceby Road/ Haboro | ugh Road/East Halton Road | 07:00-08:00 | 16:15-17:15 |
| A160/ Humber Ro           | oad/ Manby Road           | 07:00-08:00 | 16:00-17:00 |
| Humber Road,              | Rosper Road               | 07:00-08:00 | 16:00-17:00 |
| A180/                     | 07:30-08:30               | 16:15-17:15 |             |
| A1173/ k                  | 07:30-08:30               | 16:15-17:15 |             |
| A1173/ Ki                 | 07:15-08:15               | 16:00-17:00 |             |
| Queens Road               | Laporte Road              | 07:00-08:00 | 16:15-17:15 |
| Laporte Road/ Kiln        | Lane/Hobson Way           | 07:15-08:15 | 16:00-17:00 |

- 5.4.2 The traffic surveys undertaken on the local highway network show that the majority of the local roads have peak hours of 07:00-08:00 in the AM, and of 16:00-17:00 in the PM.
- 5.4.3 Comparison of development traffic generation for 07:00-08:00 and 08:00-09:00 show no material difference in either assessment scenario. In the evening peak, flows are also broadly consistent from 16:00-19:00. This can be seen in **Tables 8** and **9**.
- 5.4.4 Therefore, the identified highway peaks have been adopted in the assessments (07:00-08:00 and 16:00-17:00).



- 5.4.5 The two different profiles of development traffic (**Table 7** and **Table 8** above) show different traffic flows in the peak hours above. The two-way traffic movements based on the Immingham surveys between 07:00 and 08:00 are 121, and between 16:00 and 17:00 are 133. The two-way traffic movements based on the end user data between 07:00 and 08:00 are 50, and between 16:00 and 17:00 are 168.
- 5.4.6 On that basis and to ensure a robust assessment, the AM peak of 07:00-08:00 has been tested using the higher Immingham Profile and 16:00-17:00 using the higher enduser profile rates.

#### 5.5 **Proposed Traffic Distribution**

## **Light Vehicles**

5.5.1 The light vehicle traffic has been distributed using the 2011 Census Journey to Work data for the Middle Super Output Area (MSOA) North East Lincolnshire 001 which the site is located within. A summary of the journey to work data for local districts and the MSOA in which the site sits can be seen in **Table 11** below. The full data can be seen in **Annex G**.

Table 11 - Journey to Work Summary for MSOA North East Lincolnshire 001

| Location  | Percentage    |
|---|---------------|
| North East Lincolnshire (North East Lincolnshire 001) | 67.1% (17.6%) |
| North Lincolnshire                                    | 17.9%         |
| West Lindsey  | 5.0%          |
| East Lindsey  | 3.6%          |
| East Riding of Yorkshire                              | 1.5%          |
| Kingston upon Hull                                    | 1.5%          |
| Other   | 3.3%          |

5.5.2 In order to present a worst-case scenario in terms of junction impacts, the assessment assumes 50 light vehicles travelling inbound and outbound from the site in the AM and PM peak periods.

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5.5.3 The distribution of the light vehicles can be seen in **Figure 4** with the assignment of the light vehicles in **Figure 5**.

#### <u>HGVs</u>

- 5.5.4 The wider distribution for commercial traffic on the strategic highway network has been derived using data included within the Base Year Freight Matrices (BYFM) published by the Department for Transport (2012). The Matrices consist of the number of vehicles per average day between a set of origin-destination zone pairs for a 2006 base year. These zones are based on all 408 local authority districts, unitary authorities and London Boroughs and point zones for the 88 largest ports, of which the Port of Immingham is one, 5 main freight airports and 56 major concentrations of distribution centres. The base data can be seen at **Annex H**.
- 5.5.5 The outputs from the model have been analysed through the ArcGIS package from ESRI to determine the likely route of vehicles. The GIS assumed routing has been sense checked using Google maps and a review of the suitability of the network.
- 5.5.6 The resulting distribution and assignment of heavy vehicles to and from the Port on the wider network can be seen in **Table 12** below.



 Table 12 - HGV Distribution and Assignment

| Region            | Distribution | Assignment                   |       |  |  |
|-------------------|--------------|------------------------------|-------|--|--|
| East of England   | 2.6 %        | A1173 (Stallingborough Road) |       |  |  |
|                   |              | M180                         | 21.5% |  |  |
| East Midlands     | 21.5 %       | A1173 (Stallingborough Road) | 0.8%  |  |  |
|                   |              | Hobson Way                   | 0.2%  |  |  |
| Greater London    | 1.5 %        | M180                         |       |  |  |
| North East        | 0.9 %        | M180                         |       |  |  |
| North West        | 7.4 %        | M180                         |       |  |  |
| Scotland          | 2.9 %        | M180                         |       |  |  |
| South East        | 1.4 %        | M180                         |       |  |  |
| South West        | 1.3 %        | M180                         |       |  |  |
| Wales             | 1.7 %        | M180                         |       |  |  |
| West Midlands     | 12.2 %       | M180                         |       |  |  |
| Yorkshire and the |              | M180                         | 43.2% |  |  |
| Humber            | 46.7 %       | A15                          | 3.1%  |  |  |
| number            |              | Hobson Way                   | 0.4%  |  |  |

- 5.5.7 The facility is located in close proximity to the East Gate of the Port on the eastern side of the port estate. As described above the assignment of traffic locally form the port is a function of the destination of the vehicles. Both GIS and Google Maps confirm the quickest route from the facility to the M180 west is via the East Gate.
- 5.5.8 However, the access route through the port (and via West Gate) is marginally shorter in terms of distance to the M180 and therefore it can be expected some traffic might chose that route, which will depend matters such as day-to-day changes in flows and information provided by Satnav systems.
- 5.5.9 On this basis it is assumed that the majority of traffic (85%) will use East Gate, with a sensitivity assessment of 15% using West Gate. This is robust because it ensures that some assessment of impacts on the West gate exit and route to the A180 is assessed.
- 5.5.10 The flows for each gate are set out below using the end user profile, **Table 13**, and the Port of Immingham profile, **Table 14**.

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Table 13 - 24hr HGV Generation Summary Based on End User Profile

|             | To West Gate |          |       | To East Gate |          |       |  |
|-------------|--------------|----------|-------|--------------|----------|-------|--|
|             | Inbound      | Outbound | Total | Inbound      | Outbound | Total |  |
| 00:00-01:00 | 0            | 0        | 0     | 2            | 1        | 3     |  |
| 01:00-02:00 | 0            | 0        | 0     | 1            | 1        | 2     |  |
| 02:00-03:00 | 0            | 0        | 0     | 1            | 1        | 2     |  |
| 03:00-04:00 | 0            | 0        | 0     | 1            | 1        | 2     |  |
| 04:00-05:00 | 0            | 0        | 0     | 1            | 2        | 4     |  |
| 05:00-06:00 | 1            | 1        | 2     | 3            | 7        | 10    |  |
| 06:00-07:00 | 2            | 3        | 5     | 10           | 19       | 28    |  |
| 07:00-08:00 | 3            | 5        | 8     | 16           | 27       | 43    |  |
| 08:00-09:00 | 4            | 4        | 8     | 22           | 21       | 44    |  |
| 09:00-10:00 | 5            | 33       | 38    | 26           | 188      | 214   |  |
| 10:00-11:00 | 5            | 13       | 18    | 30           | 76       | 107   |  |
| 11:00-12:00 | 6            | 11       | 17    | 35           | 62       | 97    |  |
| 12:00-13:00 | 7            | 11       | 18    | 37           | 62       | 100   |  |
| 13:00-14:00 | 7            | 12       | 19    | 42           | 67       | 109   |  |
| 14:00-15:00 | 9            | 10       | 20    | 54           | 59       | 113   |  |
| 15:00-16:00 | 14           | 9        | 23    | 77           | 53       | 130   |  |
| 16:00-17:00 | 16           | 9        | 25    | 91           | 52       | 143   |  |
| 17:00-18:00 | 18           | 8        | 26    | 103          | 45       | 147   |  |
| 18:00-19:00 | 22           | 6        | 28    | 123          | 35       | 158   |  |
| 19:00-20:00 | 19           | 4        | 24    | 109          | 25       | 133   |  |
| 20:00-21:00 | 6            | 2        | 8     | 32           | 14       | 46    |  |
| 21:00-22:00 | 1            | 1        | 2     | 5            | 5        | 10    |  |
| 22:00-23:00 | 0            | 0        | 1     | 3            | 2        | 4     |  |
| 23:00-24:00 | 0            | 0        | 1     | 2            | 1        | 3     |  |

<sup>\*</sup> numbers subject to minor rounding errors (+/- one vehicle)

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Table 14 - 24hr HGV Generation Summary Based on Port of Immingham Profile

|             | -       | To West Gate | 9     |         | To East Gate |       |  |  |
|-------------|---------|--------------|-------|---------|--------------|-------|--|--|
|             | Inbound | Outbound     | Total | Inbound | Outbound     | Total |  |  |
| 00:00-01:00 | 1       | 1            | 2     | 5       | 4            | 9     |  |  |
| 01:00-02:00 | 1       | 1            | 2     | 5       | 6            | 11    |  |  |
| 02:00-03:00 | 1       | 1            | 2     | 4       | 6            | 10    |  |  |
| 03:00-04:00 | 1       | 1            | 2     | 8       | 6            | 12    |  |  |
| 04:00-05:00 | 3       | 2            | 5     | 16      | 11           | 27    |  |  |
| 05:00-06:00 | 7       | 3            | 10    | 38      | 17           | 55    |  |  |
| 06:00-07:00 | 11      | 6            | 17    | 60      | 33           | 93    |  |  |
| 07:00-08:00 | 12      | 6            | 18    | 66      | 37           | 103   |  |  |
| 08:00-09:00 | 9       | 9            | 18    | 54      | 48           | 102   |  |  |
| 09:00-10:00 | 9       | 10           | 19    | 52      | 59           | 111   |  |  |
| 10:00-11:00 | 9       | 11           | 20    | 53      | 63           | 116   |  |  |
| 11:00-12:00 | 10      | 12           | 22    | 56      | 65           | 121   |  |  |
| 12:00-13:00 | 10      | 11           | 21    | 58      | 62           | 120   |  |  |
| 13:00-14:00 | 12      | 12           | 24    | 66      | 67           | 133   |  |  |
| 14:00-15:00 | 11      | 13           | 24    | 65      | 72           | 137   |  |  |
| 15:00-16:00 | 11      | 11           | 22    | 62      | 64           | 127   |  |  |
| 16:00-17:00 | 9       | 11           | 20    | 49      | 65           | 114   |  |  |
| 17:00-18:00 | 6       | 9            | 15    | 35      | 53           | 88    |  |  |
| 18:00-19:00 | 5       | 6            | 11    | 26      | 33           | 59    |  |  |
| 19:00-20:00 | 2       | 4            | 7     | 14      | 23           | 37    |  |  |
| 20:00-21:00 | 2       | 2            | 4     | 11      | 11           | 22    |  |  |
| 21:00-22:00 | 2       | 1            | 3     | 9       | 8            | 17    |  |  |
| 22:00-23:00 | 2       | 1            | 3     | 9       | 7            | 16    |  |  |
| 23:00-24:00 | 1       | 1            | 2     | 6       | 6            | 12    |  |  |

<sup>\*</sup> numbers subject to minor rounding errors (+/- one vehicle)

- 5.5.11 The assignment of all vehicles accessing and departing the proposed development in both the AM and PM peak periods as discussed below in **Section 6.1**, measured in Passenger Car Units (PCUs), can be seen in **Figure 8**.
- 5.5.12 The key links assignment of baseline traffic and traffic from the proposed development, measured in total vehicles, can be seen in **Table 15** below.

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**Table 15** – Key Link Traffic Assignment

| Key Links                  |   | Base        |     |             |     | Development |     |             |     |
|----------------------------|---|-------------|-----|-------------|-----|-------------|-----|-------------|-----|
|                            |   | AM          |     | PM          |     | AM          |     | PM          |     |
| Ney Links                  |   | All<br>Veh. | HGV | All<br>Veh. | HGV | All<br>Veh. | HGV | All<br>Veh. | HGV |
| M180                       | Е | 1843        | 708 | 1558        | 450 | 81          | 71  | 120         | 110 |
| (West of A15)              | W | 1680        | 627 | 1693        | 471 | 50          | 39  | 58          | 48  |
| A15                        | Ν | 873         | 90  | 998         | 103 | 3           | 2   | 3           | 3   |
| (North of M180)            | S | 978         | 101 | 1038        | 103 | 4           | 4   | 6           | 6   |
| A180                       | Е | 1296        | 443 | 1239        | 424 | 86          | 75  | 127         | 116 |
| (West of A160)             | W | 968         | 323 | 1013        | 338 | 52          | 41  | 61          | 50  |
| A180                       | Е | 1379        | 149 | 1661        | 158 | 3           | 0   | 3           | 0   |
| (East of A1173)            | W | 1979        | 224 | 1511        | 148 | 3           | 0   | 3           | 0   |
| A160                       | Ν | 609         | 257 | 392         | 204 | 15          | 12  | 22          | 18  |
| (Adj South<br>Killinghome) | S | 510         | 405 | 791         | 247 | 8           | 6   | 10          | 8   |
| A1173                      | Ν | 603         | 46  | 260         | 18  | 78          | 66  | 114         | 102 |
| (South of Kings Road)      | S | 204         | 30  | 426         | 31  | 49          | 36  | 57          | 44  |
| Ougana Bood                | Е | 340         | 51  | 90          | 11  | 83          | 66  | 119         | 102 |
| Queens Road                | W | 164         | 19  | 200         | 19  | 53          | 36  | 61          | 44  |

5.5.13 The percentage change for AADT and then also, for completeness, for HGVs are shown in **Table 16** for the proposed operational traffic flows.

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**Table 16** – Traffic Impact on the Surrounding Road Network for Proposed Traffic Flows

| Locations                               |          | fic Flow –<br>DT | -        | d Traffic<br>ow | Percentage<br>Increase |        |
|---|----------|------------------|----------|-----------------|------------------------|--------|
|   | All Veh. | HGV              | All Veh. | HGV             | All Veh.               | HGV    |
| West Gate                               | 5,536    | 2,360            | 353      | 292             | 6.4%                   | 12.4%  |
| East Gate                               | 5,834    | 803              | 2,000    | 1,652           | 34.3%                  | 205.8% |
| Queens Road                             | 3,883    | 566              | 1,780    | 1,641           | 45.8%                  | 289.8% |
| Kings Road<br>(North of Queens<br>Road) | 7,722    | 568              | 87       | 0               | 1.1%                   | 0.0%   |
| A1173<br>(South of Kings Road)          | 7,384    | 795              | 1,742    | 1,641           | 23.6%                  | 206.4% |
| A1173<br>(Stallingborough Road)         | 16,854   | 1,318            | 74       | 74              | 0.4%                   | 5.6%   |
| A180<br>(East of A1173)                 | 34,246   | 3,253            | 24       | 0               | 0.1%                   | 0.0%   |
| A160<br>(Adj South Killinghome)         | 10,536   | 5048             | 305      | 292             | 2.9%                   | 5.8%   |
| A180<br>(West of A160)                  | 31,706   | 8,990            | 1,949    | 1,858           | 6.1%                   | 20.7%  |
| M180<br>(West of A15)                   | 37,748   | 9,634            | 1,851    | 1,765           | 4.9%                   | 18.3%  |
| A15<br>(North of M180)                  | 22,467   | 2,082            | 97       | 93              | 0.4%                   | 4.5%   |

- 5.5.14 To the east there is a less than 1% increase in traffic and to the west there is a less than 5% increase. This assessment, therefore, scopes out the links further east and west than those listed above. The assessment has also scoped out Grimsby as the vast majority of vehicle movements to Grimsby will be made by staff and there are very little peak hour traffic movements made by light vehicles.
- 5.5.15 Due to the level of traffic along the A15, this road has also been scoped out of any further detailed assessment.



#### 6.0 TRAFFIC IMPACT ASSESSMENT

#### 6.1 **Committed Development**

- 6.1.1 During the planning stage, it is important to take into consideration other developments in the vicinity of the site whose generated traffic could potentially have an impact on the proposed development and its associated junctions.
- 6.1.2 As required by the government's guidance on Travel Plans, Transport Assessments and Statements, DTA has engaged with National Highways, North Lincolnshire Council and North East Lincolnshire Council to agree which committed developments and planned transport improvements will need to be considered alongside the proposed development. The agreed developments which are to be considered are as follows:
  - Able Marine Energy Park
  - South Humber Bank Power Station (DM/1070/18/FUL)
  - Velocy's (DM/0026/18/FUL)
  - Stallingborough Interchange (DM/0302/21/REM)
  - Queens Road (DM/0147/16/FUL)
  - New Link Road (DM/0094/18/FUL)
  - Highfield House (DM/0728/18/OUT)
  - Able Logistics Park (PA/2009/0600)
- 6.1.3 There are two other projects in the area that DTA has been made aware of by ABP but have not been requested as committed development by National Highways, North Lincolnshire Council or North East Lincolnshire Council. These are the new Border Control Post located on Queens Road and an industrial / commercial scheme off the West Gate roundabout within the Port Estate.



6.1.4 A summary of the data used, and an outline of the assumptions made for the committed development can be seen in **Annex I** (Technical Note 1 – Committed Development Growth).

## 6.2 **Background Traffic Growth**

6.2.1 The base traffic flows have been factored up to the year of opening, 2025, and a future year, 2032 (10 years after the date of application). The relevant Middle Super Output Area (MSOA) has been used for each junction which is assessed. The resulting factors are shown in Table 17.

Table 17 - TEMPro Growth Factors

|                                |              | 2019-2021 |        | 2021 – 2025 |        | 2021 – 2032 |        |
|--------------------------------|--------------|-----------|--------|-------------|--------|-------------|--------|
| Middle Super<br>Output Area    | Road<br>Type | AM        | PM     | AM          | PM     | AM          | PM     |
| North East<br>Lincolnshire 001 | Minor        | 1.0189    | 1.0175 | 1.0298      | 1.0291 | 1.0773      | 1.0750 |
|                                | Trunk        | 1.0281    | 1.0266 | 1.0401      | 1.0394 | 1.1049      | 1.1025 |
| North East<br>Lincolnshire 007 | Minor        | 1.0133    | 1.0123 | 1.0269      | 1.0255 | 1.0683      | 1.0649 |
|                                | Principal    | 1.0132    | 1.0121 | 1.0262      | 1.0248 | 1.0654      | 1.0620 |
|                                | Trunk        | 1.0224    | 1.0214 | 1.0372      | 1.0358 | 1.0957      | 1.0921 |
| North<br>Lincolnshire 004      | Trunk        | 1.0252    | 1.0239 | 1.0443      | 1.0434 | 1.1131      | 1.1108 |
| North<br>Lincolnshire 011      | Motorway     | 1.0296    | 1.0289 | 1.0501      | 1.0500 | 1.1262      | 1.1260 |

6.2.2 Given the lack of any significant housing growth in the immediate area, the predominant growth will arise from increased commercial activity in and around the Port of Immingham. Road based throughput has increased from the port by around 10% over the last ten years.

## 6.3 Overall Committed Development Traffic Flows

6.3.1 The combined traffic flows from known committed developments and background growth at individual junctions are set out in **Annex J**.



## 6.4 **Junction Operation Assessments**

- 6.4.1 In accordance with the agreed scope of this Transport Assessment, public highway junctions at which operational traffic assessments have been carried out are:
  - Queens Road/Laporte Road Priority Junction
  - Laporte Road/ Kiln Lane/ Hobson Way Roundabout
  - Kings Road/ A1173 Roundabout
  - A1173/ Kiln Lane Roundabout
  - A1173/ SHIIP Roundabout
  - A160/ Humber Road/ Manby Road Roundabout (Manby Roundabout)
  - A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout (Habrough Roundabout)
  - A180/ A1173 Roundabout (including slip roads)
  - A160/ A180 Roundabout (Brocklesby Interchange) including slip roads
- 6.4.2 The measurements of each junction can be seen in **Annex BD4**.
- 6.4.3 The operation of the individual junctions has been tested using the industry standard modelling tool of TRL Junctions. The junctions have been assessed for the opening year of 2025 and future year of 2032. The input junction flows are provided in **Annex J**.
- 6.4.4 The junction models consider the performance of priority junctions and roundabouts in isolation from other junctions within the network. The arrival pattern is normally profiled using the direct hourly inputs (ODTAB) to replicate unconstrained demand although in practice where the individual junctions are within an urban network external constraints may make this unrealistic.

#### Transport Assessment



- 6.4.5 There are three key performance metrics which are output from the modelling software. These are the forecast queue length (in vehicles), the average delay (in seconds) and the ratio of flow to capacity (RFC). Convention is that the modelled period is sub-divided into 15-minute time segments and the highest (worst) results during the modelled period are reported.
- 6.4.6 The ARCADY and PICADY modules of Junctions 10 have been used to assess the capacity of the above junctions. The results are summarised in Annex K (Technical Note 2).
- 6.4.7 Merge / diverge assessments on the A180 / A1173 Interchange and the A160 / A180 Interchange Brocklesby Interchange) have been undertaken in accordance with the guidance within Design Manual for Roads and Bridges (DMRB) CD122 'Geometric design of grade separated junctions'. This considers the configuration of the slip road merge and diverge arrangements for a given combination of mainline and slip road flows against a number of different standard layouts. The results of these are summarised in **Annex L** (Technical Note 5).
- 6.4.8 Overall, from the modelling and assessment work undertaken it can be concluded that the proposed development will not have a significant impact on any of the assessed junctions and that no mitigation will be required.
- 6.4.9 The internal port junctions which are to be potentially affected by the proposed development have been assessed using the PICADY module of Junctions 10 to ensure the proposed development does not have any significant effect on the current running of the Port. The results are summarised in **Annex M (Technical Note 4)**.
- 6.4.10 The capacity of and the queuing occurring at the two entry gates has also been assessed following the proposed development. The existing gates are currently subject to infrequent queuing, mainly in the AM peak period and at shift changes. The proposed development will increase the flows during these times and therefore the proposals include works to increase the capacity by adding a second lane at

Transport Assessment



East Gate. This will broadly double the entrance capacity of the gate whilst the proposed development does not double the traffic flows accessing the Port. It is also proposed to implement Automatic Number Plate Recognition (ANPR) for staff which will again increase the capacity of the gate and reduce queuing times.



#### 7.0 MITIGATION MEASURES

#### 7.1 Use of Rail to reduce Road traffic

- 7.1.1 The NPSfP encourages the use of rail to reduce the impact of road based commercial traffic. This issue has also been raised by a number of consultees both statutory and non-statutory.
- 7.1.2 Unfortunately, rail is not currently a feasible or viable mode for Ro-Ro traffic, although this will be kept under continuous review and the layout does not in any way prejudice use of rail.

## 7.2 **Peak Hour Impacts**

- 7.2.1 The NPSfP (paragraph 5.4.12) encourages the use of demand management measures for spreading peak hour traffic impacts.
- 7.2.2 As set out above, the assessment (on the very robust assessment that the development is operating at the daily 1,800 unit throughput) has no material impact on junction operation to the extent that highway mitigation is required. It therefore follows that no measures to spread peak hour impacts is required.

## 7.3 **HGV Parking and Off-Site Impacts**

- 7.3.1 The number of HGV parking and storage provided on site means that all vehicles will be catered for on-site and there will not be any queuing on the local highway network. The facility includes for a significant amount of waiting areas and check in lanes, to specifically ensure that the design throughput of HGVs can be accommodated on site. There is no need therefore for mitigation.
- 7.3.2 There are existing local Truckstops to accommodate any increase demand in driver amenity requirements as a result of HGVs arriving at or departing Immingham.

Transport Assessment



- 7.3.3 Ulceby Truckstop is located on Ulceby Road adjacent to the A160. There are 72 parking spaces at the truckstop as well as a petrol filling station, an onsite café, and shower and toilet facilities.
- 7.3.4 A significant new truck stop is also being proposed to be located off the A18 south of the M180 / A180 / A15 roundabout (ref: PA/2021/2273). The outline planning application for this development seeks to construct a lorry park with up to 200 parking bays, erection of an amenity building, provision of a fuel filling station including the erection of a canopy and sales building comprising ancillary retail floor space, provision of electric vehicle forecourt and charging points, erection of up to two drive-thru restaurant units. The planning permission for this proposal has not been determined by North Lincolnshire Council at the time of writing this TA.

#### 7.4 Other Mitigation

- 7.4.1 NPSfP Para 5.4.22 requires the consideration of the following mitigation:
  - Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements;
  - Make sufficient provision for HGV parking, either on the port estate or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads during normal operating conditions. Developments should be designed with sufficient road capacity and parking provision (whether on- or offsite) to avoid the need for prolonged queuing on approach roads, and particularly for uncontrolled onstreet HGV parking on nearby public roads in normal traffic operating conditions, and allowing reasonable estimates for peak traffic patterns and fluctuations during normal operations; and
  - Ensure satisfactory arrangements, taking account of the views of road network providers and of the responsible police force(s), for dealing with reasonably foreseeable abnormal disruption. Where such effects are likely to cause queuing on the strategic road network or significant queuing on local roads, the applicant should include the outcome of consultation with the relevant police

#### Transport Assessment



force(s) as to traffic management measures that will be brought into effect, what the procedures will be for triggering them, and attribution of costs.

- 7.4.2 There are no specific highway capacity mitigation measures required to ensure the proposals are acceptable in highway terms.
- 7.4.3 If abnormal conditions prevent sailing, then there will be mitigation methods in place to prevent a build-up of HGVs off-site. All HGVs are booked in through a booking system so if there is a delay of more than 30 minutes or a not scheduled cancellation then the operator will advise customers with a cancel and delay advice by email and SMS. If there is a cancelled sailing, the reservations department will also call all freight customers to rebook. The same approach will be taken for travel passengers. All scheduled cancellations will be communicated long in advance.
- 7.4.4 The site layout of the facility has been designed to accommodate all peak inbound traffic movements. No specific off-site parking management for HGV is therefore necessary.
- 7.4.5 A Framework Travel Plan has been prepared to ensure that staff vehicle movements which can be reduced are committed to being reduced and can be found at Appendix 17.2 to the ES.
- 7.4.6 ABP are separately pursing Section 278 agreements with both National Highways and NELC to update the existing signage strategy for the Port of Immingham.

Transport Assessment

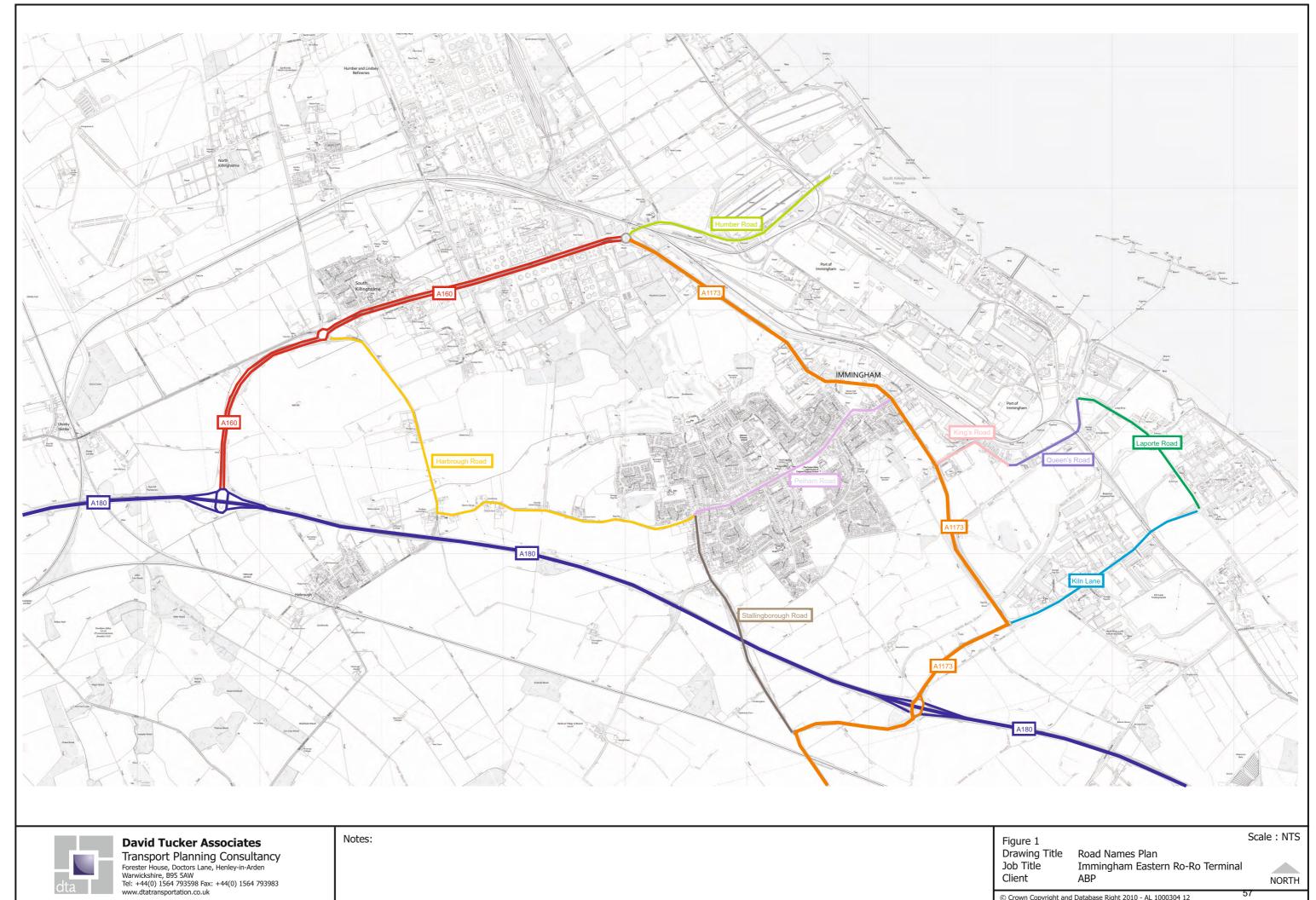


#### 8.0 CONCLUSIONS

- 8.1 David Tucker Associates (DTA) has been commissioned by Associated British Ports (ABP) to review the transport implications of the proposed roll-on/ roll-off (Ro-Ro) facility within the Port of Immingham, which will be known as the Immingham Eastern Ro-Ro Terminal (IERRT).
- 8.2 The existing accesses to the Port will be used by the proposed development.

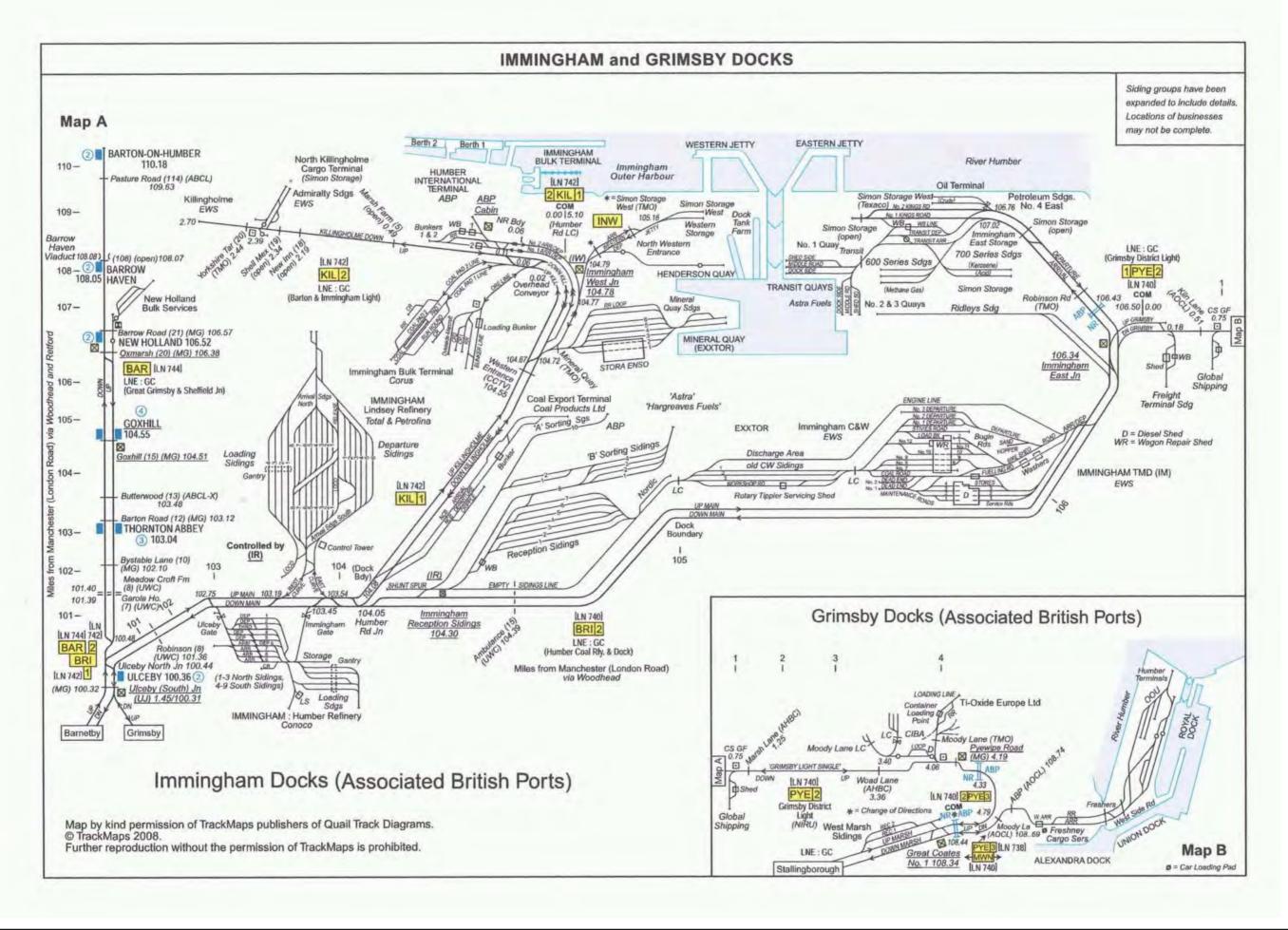
  These are the eastern dock access off Queens Road and the western dock access off Humber Road.
- 8.3 A review of the latest five-year personal injury collision data for the surrounding area has been undertaken and does not indicate any existing highway safety issues within the study area.
- 8.4 A review of the capacity of the local junctions shows that the operation will be within the capacity of the junctions following the development.
- 8.5 It is clear that following the mitigation proposed, the development would not result in a severe impact on highway safety or capacity and would meet the relevant national tests as set out in the NPPF and NPSfP. There is therefore no reasonable highway or transport reason to withhold consent.

# **Figures**



Client

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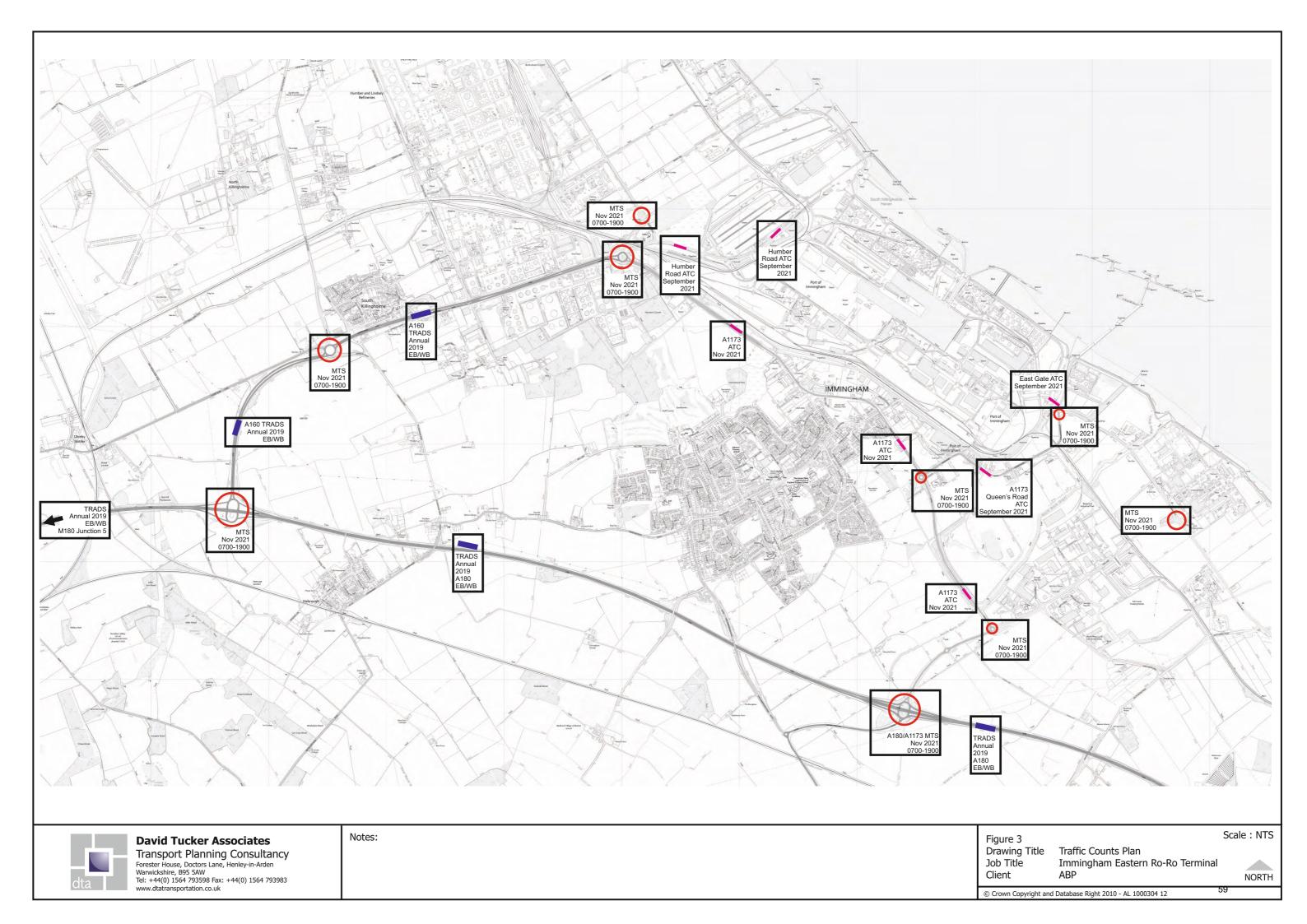
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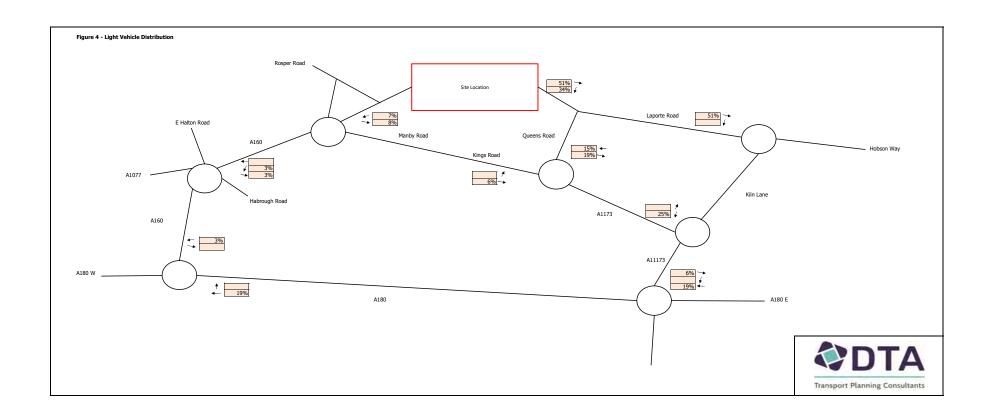
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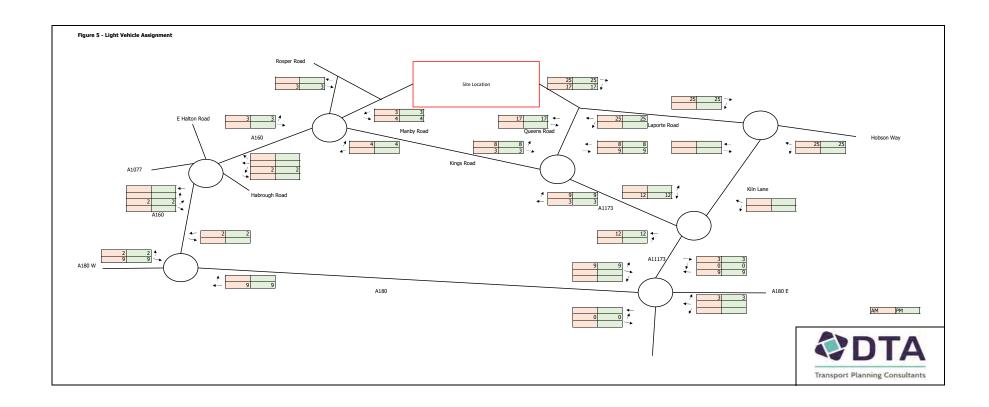
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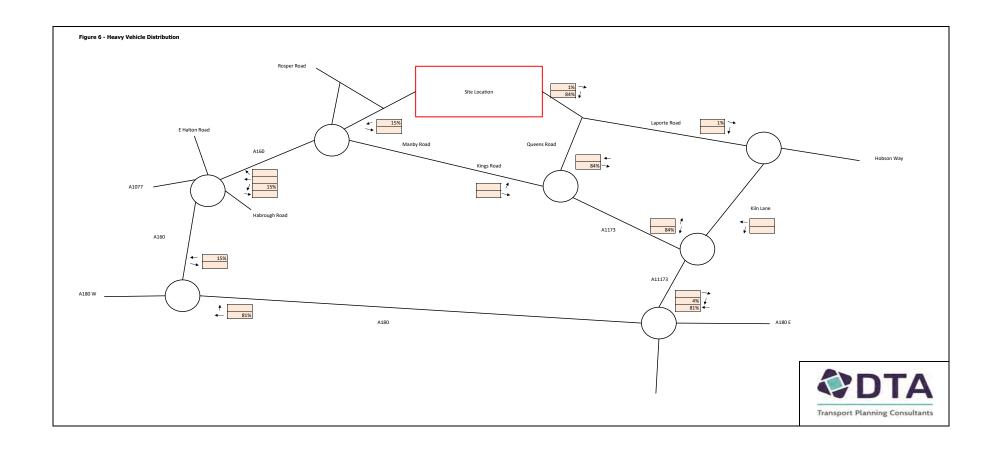
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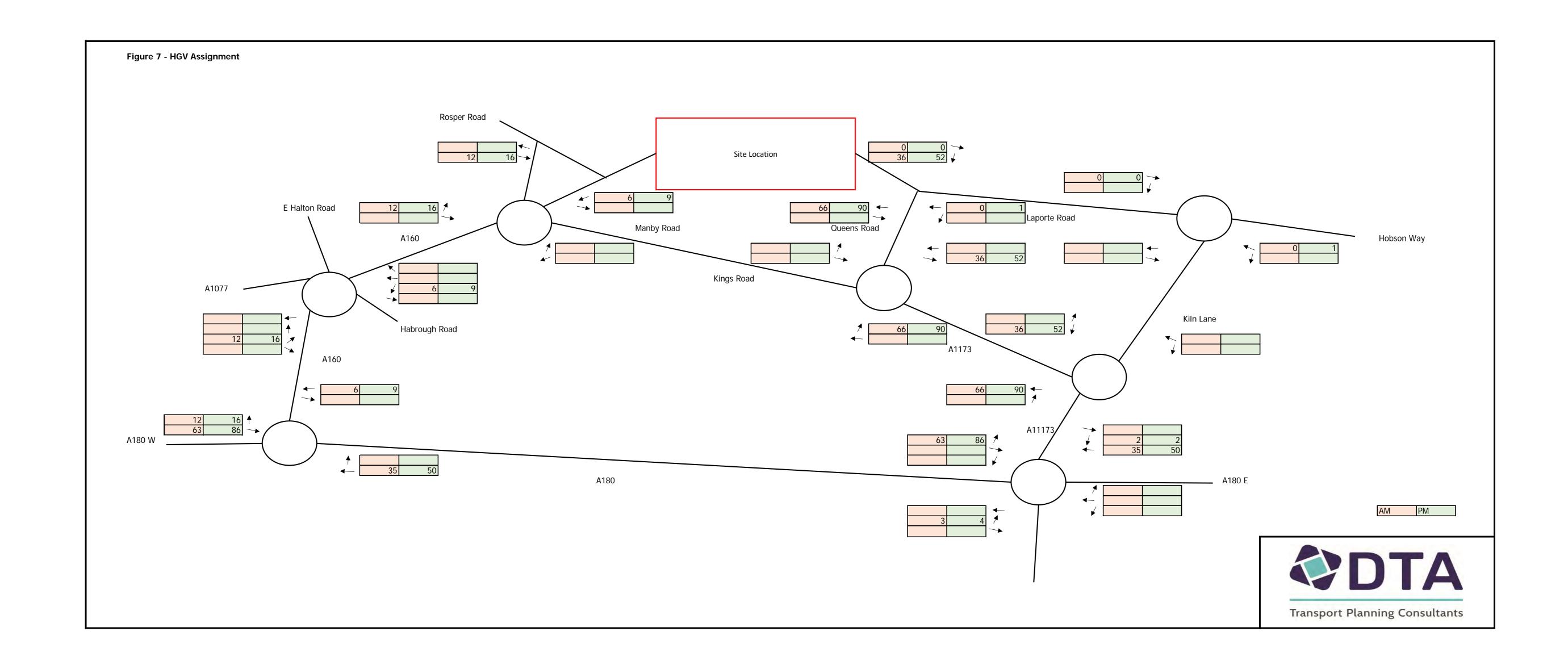
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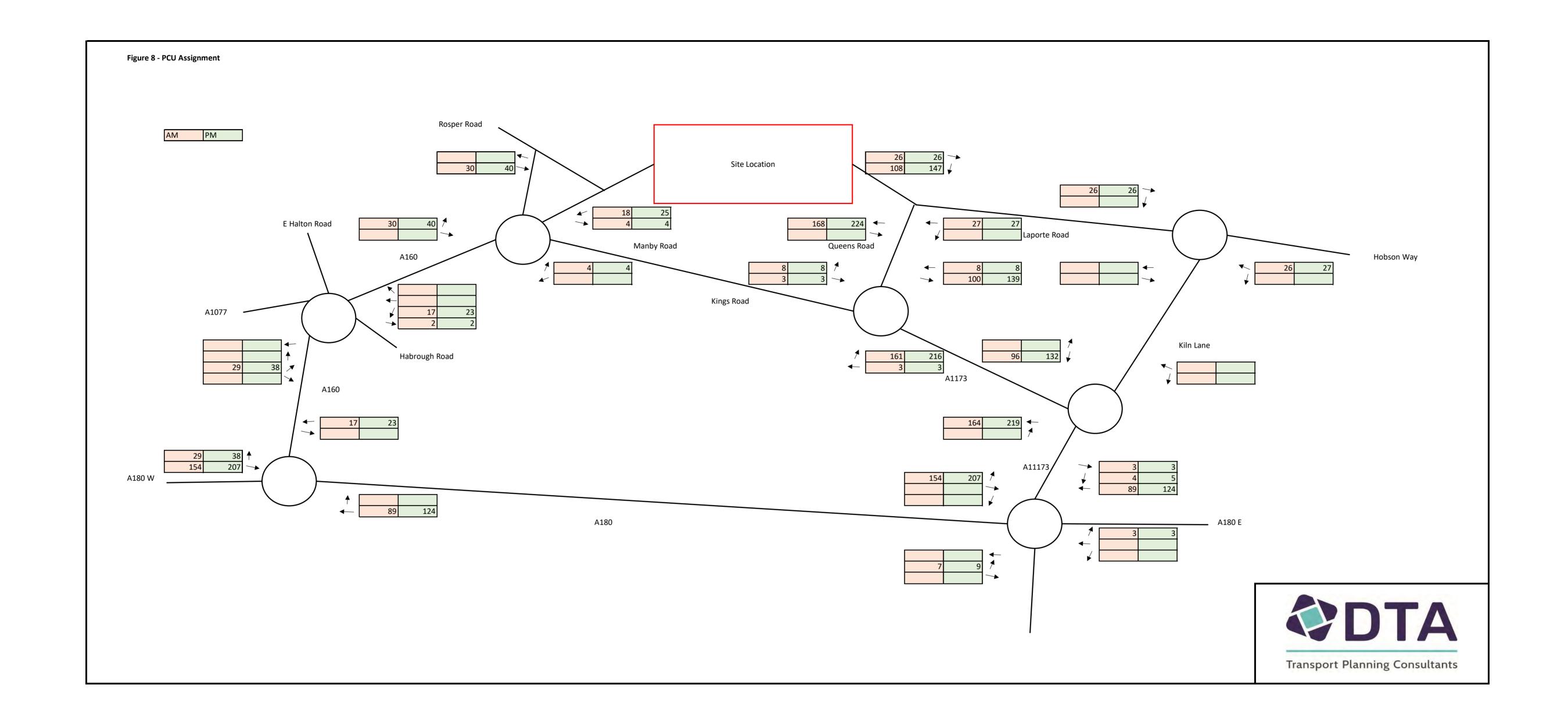




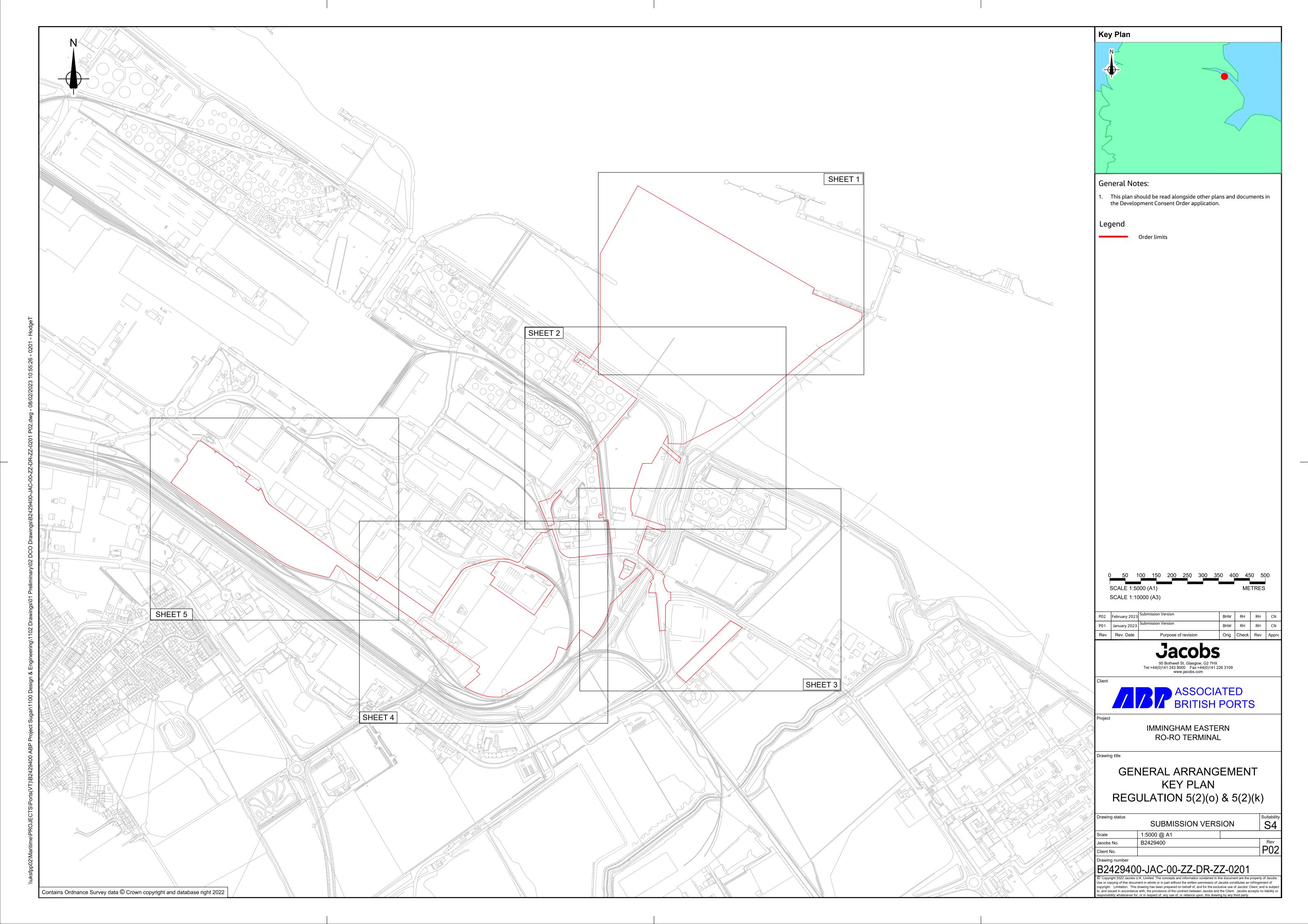


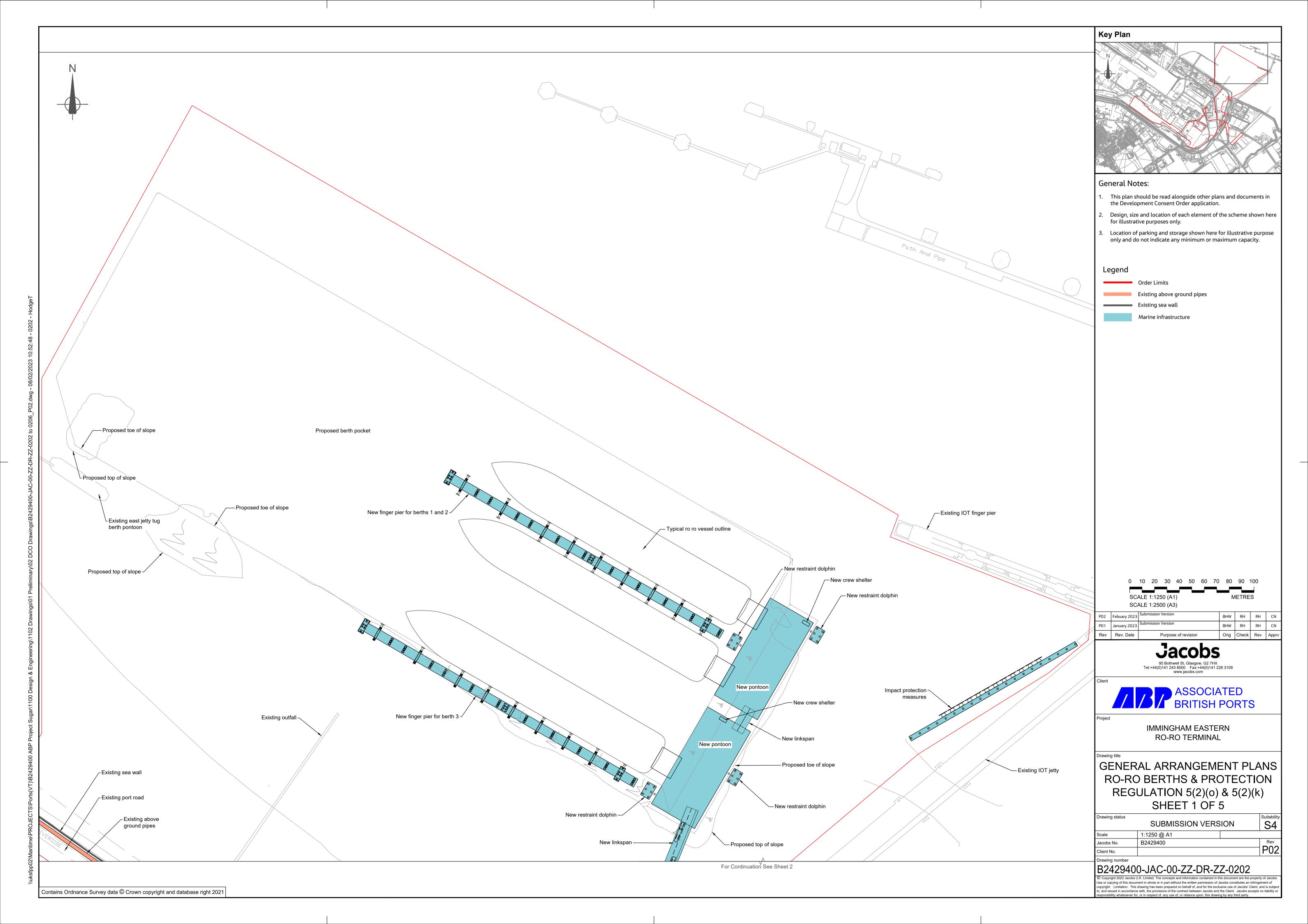


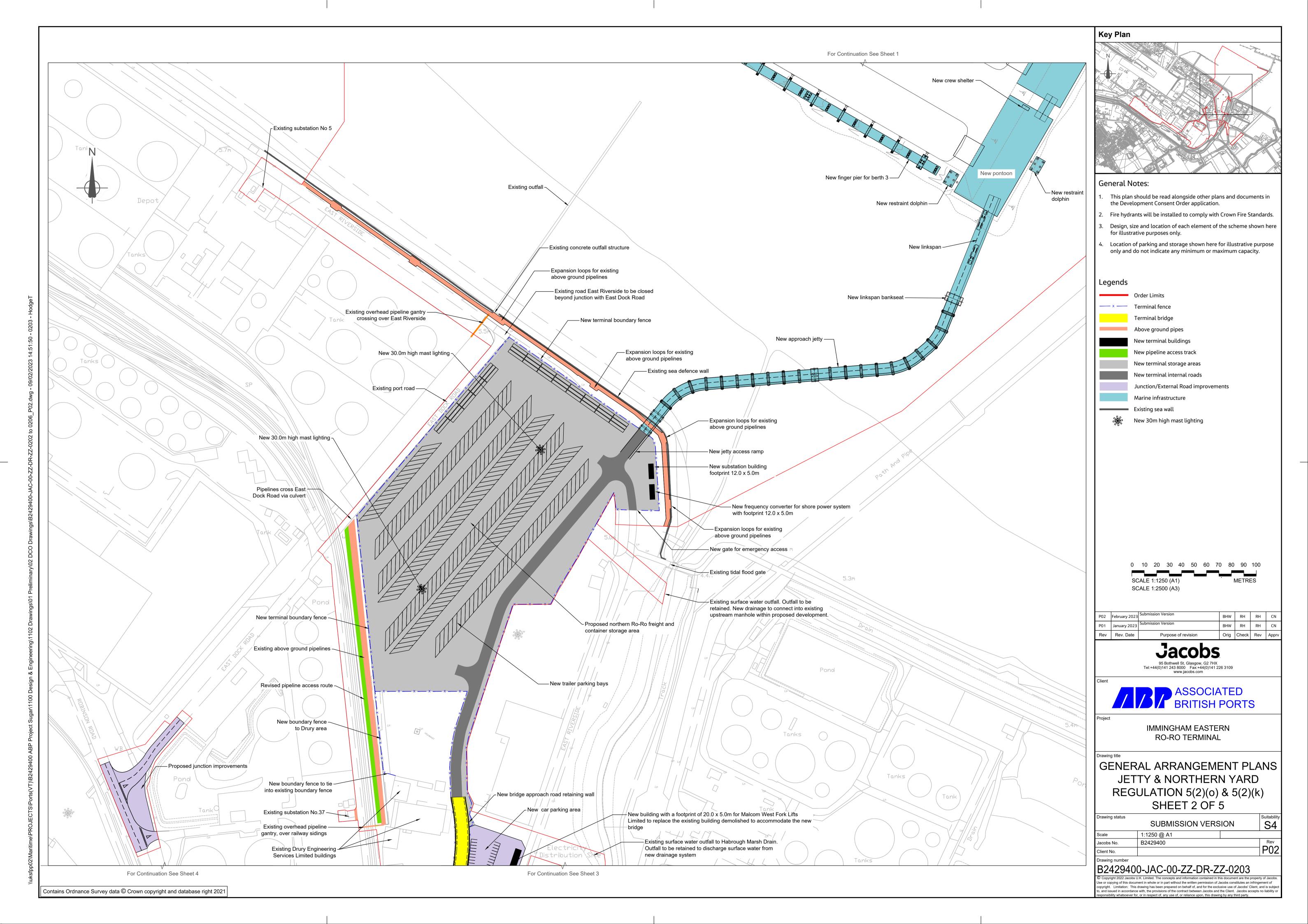


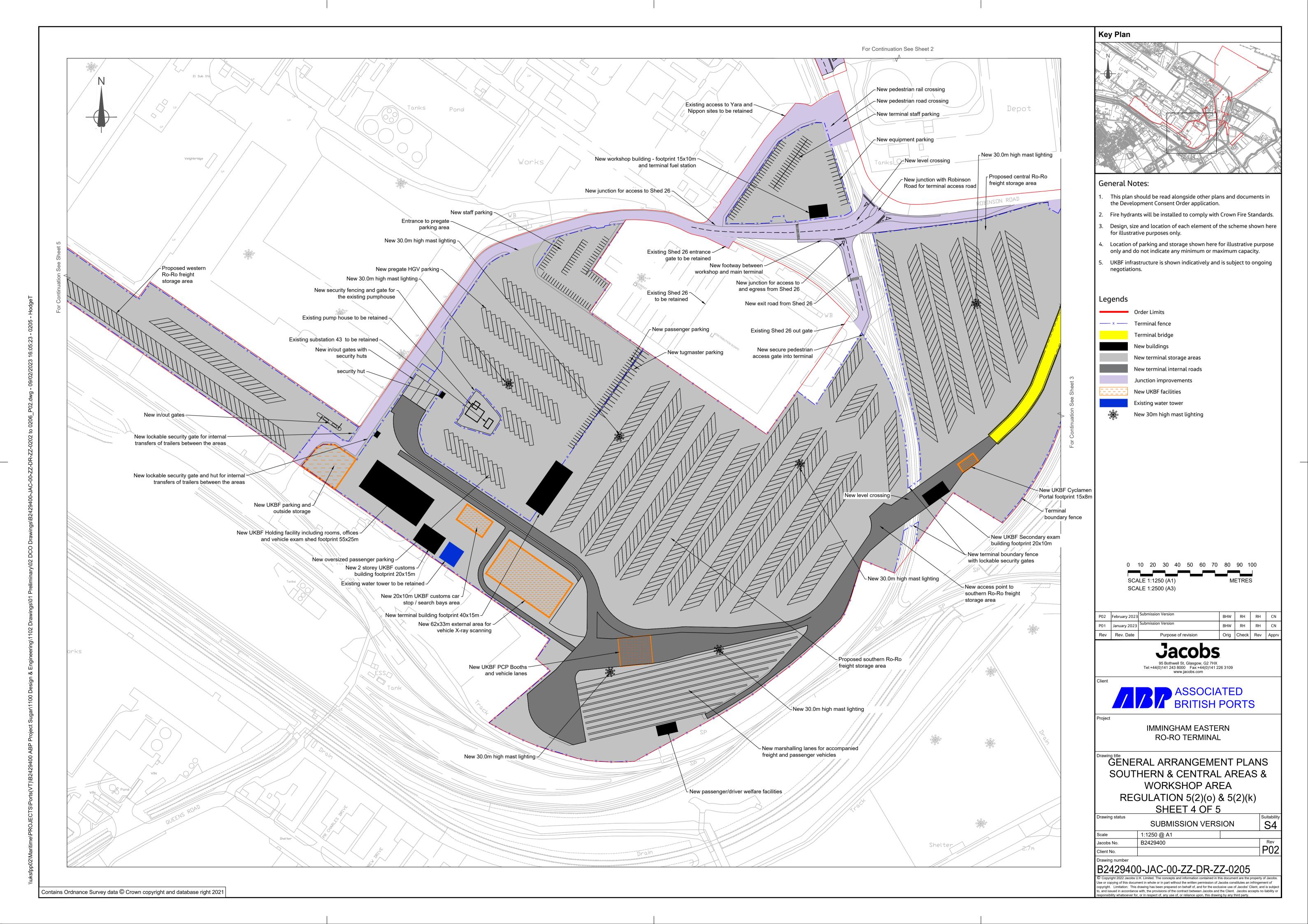


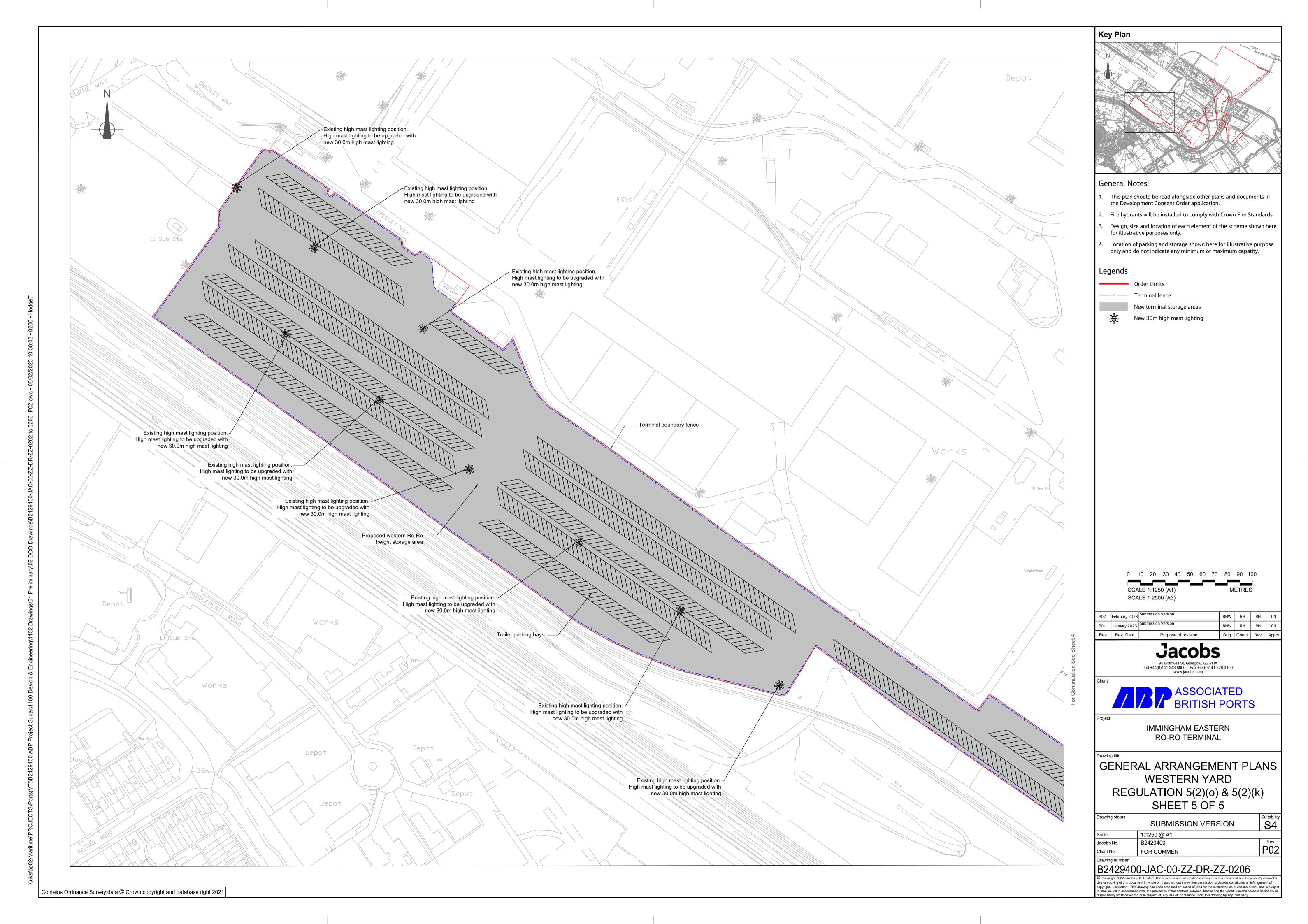
# Annex A











### Annex B



# AA.21.13.01: Immingham Eastern Terminal

Prepared for: Simon Geoghegan

Prepared by: Harry Mann [SYSTRA]

Date: 6<sup>th</sup> October 2021

Case Reference: DevHU0075

Document Reference: AA.21.05.25 Technical Memorandum

Reviewed/approved by: James Finch [SYSTRA]

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### Introduction

In September 2021, Associated British Ports [ABP] submitted a scoping request for the proposed development of a new roll-on/roll-off [Ro-Ro] facility within Immingham Port. The site is situated on the south bank of the Humber Estuary, 9km northwest of Grimsby and approximately 1km northeast of the town of Immingham.

The consultant responsible for the submitted Scoping Report [SR] is ABPmer [ABP] and the site is within the administrative boundary of North East Lincolnshire Council. The SR has been submitted to National Infrastructure Planning [NIP] as a Nationally Significant Infrastructure Project [NSIP].

The proposed development site's location, in relation to the Strategic Road Network [SRN], is presented in **Figure 1**.

Figure 1: Site location in relation to the Strategic Road Network



Source: Openstreetmap



The proposed development is located approximately 2.4km southeast of the A160 and approximately 2.7km north of the A180. Both the A160 and A180 highway routes are managed by National Highways.

Humber Road becomes the A160 to the west of the priority junction, via a 5-arm roundabout junction. The A160 Humber Road links with the A180 via a grade separated junction.

The A180 is a dual carriageway providing access to Grimsby to the south-west and the M180 at Junction 5 to the west.

For reference, the SRN within the Northeast Lincolnshire region, including the A160, A180 and M180, with further links to the M18, [50km west of the site] is shown in Figure 2.

Figure 2: Wider Strategic Road Network



Jacobs SYSTRA Joint Venture [JSJV] has reviewed the following sections of the Environmental Statement [ES] SR as these sections are deemed relevant to National Highway infrastructure:

- 3.1-3.3 Project description;
- 4.6 Policy context;
- 5.1-5.4 Proposed EIA methodology; and
- 6.13 Traffic and transport scoping review.

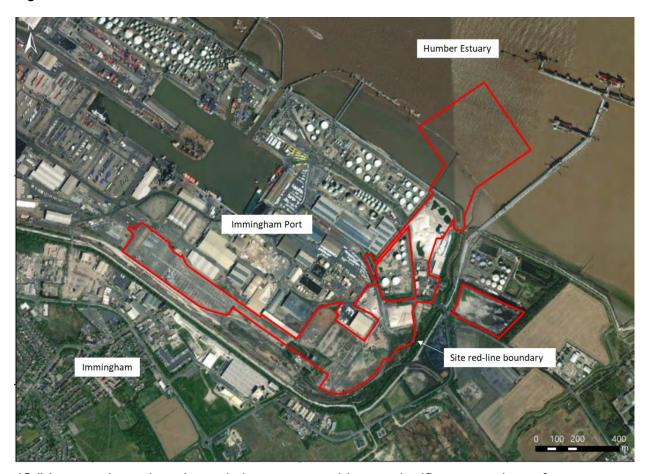
Within the SR, ABP provides an initial review of the baseline conditions relating to traffic and transport, presents several initial potential impacts of construction and operational phases of the proposed development and outlines the further work that will be required to determine the significance of any potential impacts, to include a Transport Assessment [TA].



# **Existing site facility**

The existing Immingham Port facility is shown in Figure 3.

Figure 3: Site Context



JSJV recognises that the existing port provides a significant number of separate operational areas, with bulk commodities including liquid fuels, solid fuels and ores, as well as Ro-Ro freight are handled from the following facilities:

- The Eastern and Western Jetties;
- the Immingham Oil Terminal [IOT];
- the Immingham Gas Terminal;
- Immingham Outer Harbour [IOH]; and
- the Humber International Terminal [HIT].

# **Proposed development**

The Port of Immingham is currently served by two principal access points, Humber Road to the west and Queens Road to the east.

JSJV understands that ABP as the owner and operator of the Port of Immingham is proposing to construct a new roll-on/roll-off [Ro-Ro] facility within the port. The development is proposed to service the embarkation and disembarkation of mostly commercial and automotive traffic freight.

The site lies within the eastern sector of the existing Immingham Port. In brief, the proposed development would comprise:



- The construction of a new four-berth Ro-Ro jetty;
- An existing cargo storage area designated for unit load/vehicle storage;
- A number of terminal buildings to provide appropriate facilities for lorry drivers and passengers, to include:
  - A small office;
  - Workshop; and
  - Gatehouse.
- An internal site bridge to cross over existing port infrastructure, including a new railway track.

JSJV notes that the applicant has stated within the description 'possibly with provision for a small element of passenger use during quiet periods'.

To facilitate the proposals, it is understood that the estuary will require a 'capital dredge' of the new berthing area, totalling 90,000 m². ABP estimates that about 330,000m³ of material in total will be removed. ABP states that it is not considered that the dredge material will be of a quality suitable for alternative beneficial use so will be disposed at sea. Within the ES and associated TA, JSJV will require details of the disposal area and confirmation that the waste would be loaded directly into the estuary without impacting the SRN.

ABP states "The identified sites, and indeed any other disposal options, will be fully assessed as part of the consenting process". Notwithstanding this, JSJV have an interest in the outcome of these discussions and ABP should reference dredging, including the resultant transport impact within the ES and associated TA, especially if the SRN is used as a route for disposal vehicles.

JSJV understand that the area immediately south of proposed jetty would be used as an area to accommodate trailer and container parking and storage. ABP note that the area will 'only require a simple upgrade, relocating existing port infrastructure, to provide open parking/storage space, although some peripheral areas of softer ground may require additional ground works in terms of hard surfacing.' To undertake an assessment, JSJV require full details of this proposed use, including the amount of parking proposed.

ABP also propose a number of small terminal buildings will be provided. To undertake an assessment, JSJV require full details of this proposed use, including the amount of parking proposed.

JSJV acknowledge that the current estimated construction timescales would commence in Summer 2023 and will have been largely completed by mid-2025.

JSJV understand the project description provided and acknowledge that at this stage, the final details of the proposal are yet to be confirmed.

### **Existing situation**

The Traffic and Transport Chapter of the EIA should describe the site background, including the site's location, history and existing use.

The chapter should also thoroughly describe the existing highway network in the area and the existing level of accessibility.



In addition to this, a collision data assessment should be undertaken covering the most recently available complete five-year period for the SRN, preferably using official data derived from the Local Highway Authority / National Highways.

A summary of any relevant outline planning consents and Local Plan allocations should also be provided.

# Policy and guidance

Within the Traffic and Transport Chapter of the ES, the impact of the development should be assessed based on relevant regional and national planning policy. JSJV acknowledge that the following policies are highlighted within the SR:

- National Planning Policy Framework [2021];
- North East Lincolnshire Council Local Plan 2013 to 2032 [Adopted 2018];
- Institute of Environmental Assessment Guidance Note No 1 "Guidelines for the Environmental Assessment of Road Traffic" [Institute of Environmental Assessment, 1993] [the 'IEA Guidelines']; and
- Travel Plans, Transport Assessment and Statements in decision-taking- Planning Practice Guidance [DCLG, 2014].

In terms of the impact on the SRN, JSJV request that the applicant assesses the proposal, considering the following policies:

- DfT Circular 02/2013 The SRN and the delivery of sustainable development. JSJV emphasises paragraph 48 of the DfT Circular 02/2013 which states the following:
  - "48. Transport assessment undertaken by the promoter of the development should be comprehensive enough to establish the likely environmental impacts, including air quality, light pollution and noise, and to identify the measures to mitigate these impacts."
- National Highways's guidance document 'The Strategic Road Network: Planning for The Future' [2015]. The following paragraphs from this guidance are relevant to the scoping stage:
  - Paragraph 37. "Transport assessments should generally be carried out in line with prevailing government guidance in agreement with us, through preapplication and scoping, such as a road safety audit [stage 1]".
  - Paragraphs 87 and 88. "If the development is in an approved local plan, and has had an appropriate level of assessment of the impact of the development undertaken, JSJV do not anticipate the need to repeat the full assessment process at the planning application stage. If, however, the development proposed has not been subject to an appropriate level of assessment, or is not included or consistent with an approved local plan, then JSJV anticipate agreeing the scope of work required to make a full assessment. For those sites that have been considered at local plan stage, JSJV will take into account any assessment already undertaken.
  - Paragraph 94. "Formal pre-application discussions are an effective means of gaining a good, early understanding of the development, its benefits, its likely impacts and its infrastructure needs. By consulting with us pre-application, you will ensure that the transport assessment you prepare is appropriately scoped and is based on the most relevant and up-to-date data. It will also ensure that you are made aware of, and can take account of, any SRN issues that might



have a bearing on the way in which the development is planned and/or delivered. This, in turn, helps avoid delays and difficulties further into the application process".

- Paragraph 98. "If a SR is to be prepared, JSJV advise this includes:
  - details of the development, such as location, access arrangements, use class, size or number of units, likely phasing, maximum number of parking spaces and any other relevant information;
  - proposed methodology for estimating the vehicular trip generation and distribution on the SRN, and resulting trip generation figures;
  - proposed methodology for assessing the impact of this trip generation on the SRN; and
  - proposed methodology for assessing the environmental consequences of the transport impacts of the development"
- JSJV recommends the following two paragraphs of the National Highways document 'The Strategic Road Network planning for the future' [2015]:
  - "49. JSJV will expect to see measures implemented that fully mitigate any and all environmental impacts arising from and relating to the interaction between developments and the SRN. There are three aspects to this:
    - the environmental impacts arising from the temporary construction works;
    - the environmental impacts of the permanent transport solution associated with the development; and
    - the environmental impact of the road network upon the development itself."
  - "52. To avoid potential delay or challenge, transport assessments/statements and environmental statements/impact assessments should be mutually consistent and pay due regard to each other."
- The DfT document 'Road Investment Strategy 2: 2020-2025'.

# Proposed EIA methodology

The Traffic Chapter of the EIA would be composed by David Tucker Associates [DTA] as the appointed Highway Consultant for the scheme. JSJV consider the EIA methodology presented within Section 5 of the SR to be structured and comprehensive and acknowledge ABPs reference to the Institute of Environmental Assessment [IEA] Guidance Note No 1 "Guidelines for the Environmental Assessment of Road Traffic" [IEA,1993].

#### **Cumulative impact**

ABP proposes the assessment of cumulative impact and in-combination assessment 'in accordance with the EIA Regulations'. ABP note that they will consider the effects of the Immingham Eastern Ro-Ro Terminal alongside those arising from other plans, projects and activities within the region, including:

- Able Marine Energy Park;
- Adaptation to Humber International Berth 2 to accommodate car carriers;
- Existing maintenance dredge and disposal practices;
- Cherry Cobbs Sands Regulated Tidal Exchange Project;



- Skeffling Managed Realignment Site;
- Keadby 3 Low Carbon Gas Power Station Project; and
- The North Lincolnshire Green Energy Park Scheme at Flixborough Wharf.

#### Consultation

JSJV acknowledge ABPs commitment to liaise with National Highways and North East Lincolnshire Council and North Lincolnshire Council in their capacity as the local highway authorities within the EIA methodology.

#### Traffic and transport study area

An initial study area has been identified in the SR as part of the baseline review for traffic. Stated as:

 "The study area that has been considered is the public highway network where any transport related impacts may occur, typically where there is a material change in traffic flows or characteristics of the road".

ABP state that the study area for each EIA topic will be refined in the PEIR and ES, within the topic-specific chapters. JSJV withhold comment on the study area until a clear description of the study area is provided. Full details of the proposed study area should be provided within the TA and ES.

#### **Future Baseline**

ABP highlight that the local network will experience growth in traffic over the 'assessment period'. This will include growth from other port related activities and growth from other economic development in the area. ABP confirm that this will be assessed once the committed and cumulative developments are agreed, and the future year baseline will set out those changes. JSJV withhold comment on growth factors until these are presented within the forthcoming Transport Assessment [TA].

JSJV, however, accept ABPs forecasted assessment year of will be "a) year of opening and b) 10 years after year of opening" [in accordance with Circular 02/13]. JSJV note that the current estimated construction timescales commencing in Summer 2023 and will have been largely completed by mid-2025. The resultant forecasted 'opening year' scenarios should be informed using these anticipated timescales.

#### Scope of potential impact pathways

The SN proposes that the traffic and transport ES chapter will set out the assessment of the likely changes to be generated by the proposed development, both beneficial and adverse and during both the construction and operational phases. JSJV agree with the 'Scoped In / Scoped Out' potential impact pathways during both the construction and operational phase of the proposed development.

As mentioned previously, JSJV notes that the applicant has stated within the description 'possibly with provision for a small element of passenger use during quiet periods'. This statement would have to be full explored within any assessment undertaken, with firm proposals submitted for review. Should the proposed development be also used as a passenger transport basis in addition to freight movement as initially proposed, this would have to be reflected in calculated trip generation and resultant junction impact assessment.



# **Transport Assessment**

ABP confirms that a TA will be prepared alongside the DCO application for the proposed development and provided as an appendix to the ES. The EIA traffic and transport chapter will then be informed by the outcome of the TA. JSJV supports this view.

ABP state that "the detailed operational characteristics of the development are still under review. The scope of the TA will be discussed with the relevant highway authorities and this will inform ongoing progression of the EIA". ABP confirms that "National Highways and/or the relevant highway authorities will be consulted to agree the scope of the TA".

JSJV understand that ABP will submit a separate scoping document to agree the scope of the TA with National Highways. The SR submitted acknowledges that "National Highways and/or the relevant highway authorities will be consulted to agree the scope of the TA". Notwithstanding this, the following section provides some indicative guidance that ABP should use during the developing of the forthcoming TA SR.

# Committed developments and planned transport improvements

With reference to the following government guidance on Travel Plans, Transport Assessments and Statements [https://www.gov.uk/guidance/travel-plans-transport-assessments-and-statements], JSJV would suggest that ABP should engage with North Lincolnshire Council to agree which committed developments and planned transport improvements should be considered alongside the proposed development.

"It is important to give appropriate consideration to the cumulative impacts arising from other committed development [i.e. development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years]. At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval".

In addition to those agreed with North Lincolnshire Council, JSJV suggest that this development should consider recent development proposed by Able Marine, comprising a 'Material Change' to their existing DCO on application reference: TR30006. The TA should state whether there would be any relationship between the two sites.

# Trip rates and trip generation

ABP should present firm, robust trip rates and trip generation for the development for each of the following proposed uses:

- A four-berth Ro-Ro jetty;
- Cargo storage area designated for unit load/vehicle storage; and
- 'A number of terminal buildings' to provide appropriate facilities for lorry drivers and passengers, to include:
  - A small office;



- Workshop; and
- Gatehouse.

The trip rates and resultant vehicle trip generation presented could be derived on a first principles approach or using trip rates from a different development site with a comparable level of accessibility and scale. Alternatively, the TRICS online database could be used.

Should the transport consultant use TRICS as a methodology, JSJV suggests that ABP considers the new 'TRICS Decide and Provide Guidance'. The new TRICS 'Decide and Provide Guidance' places a focus on a vision-led planning paradigm and aims to improve the resilience of planning decisions, taking into account the uncertainty of the future. At the core, its focus is on deciding on a preferred future and providing a development path best suited to achieving it. The new TRICS 'Decide and Provide' guidance is in accordance with National Highways policy, set out in 'The Strategic Road Network planning for the future' [2015], which states, at paragraph 34, that all planning evidence should:

- 1) Demonstrate how the proposals will reduce the need to travel, especially by car;
- 2) Demonstrate how the proposals will improve accessibility by all modes of travel and influence travel behaviours;
- 3) Assess the likely impact of residual trips [i.e. after measures have been considered];
- 4) Identify appropriate and proportionate mitigation measures and ensure that what is proposed promotes sustainable transport outcomes and avoids unnecessary works to the SRN.

As the proposed land use is for 'employment', JSJV request that appropriate weekday peak hours are presented, and these should be informed by appropriate traffic counts if necessary.

Due to the nature of the proposals, the TA should also estimate the amount of estimated Heavy Goods Vehicle movement that would be generated from the proposed development both during the construction and operational phases.

JSJV also expect to see detailed methodology explaining the determination of appropriate mode splits for the proposed development.

# Trip distribution and assignment

JSJV suggest that the trip distribution rates for the proposed development, the trip assignment based on these rates, and the proposed traffic flows, are clearly presented on traffic flow diagrams.

Considering the proposed development's location, JSJV expect the traffic flow diagrams to extend from the proposed development to all junctions that connect to both the A160 and A180.

### **Assessments**

Subject to the impact of the proposed development on the SRN, capacity assessments would most likely be required.

Regarding the threshold to warrant a junction capacity assessment, JSJV highlight the following guidance:



- National Planning Policy Framework [Ministry of Housing, Communities and Local Government, 2019];
- National Highways document 'The Strategic Road Network: planning for the future' [National Highways, 2015]; and
- The Department for Transport's Circular 02/2013.

In particular, 'The Strategic Road Network: planning for the future', which states that National Highways "will look at planning applications assessed as being 'severe' on a case-by-case basis. This will take in account the performance and character of the relevant section of the SRN, and the predicted effects on the development on its safe operation.

The 2007 DfT guidance that describes a '30-vehicle threshold for discussions' does not justify junction capacity assessments not being undertaken.

If assessments are required, JSJV offer the following comments:

- Weekday peak hours the applicant should take into account that the peak hour periods at the SRN junctions may differ to those of the local highway network, and these should be agreed prior to the assessments being carried out.
- Assessment years based on the Department for Transport [DfT] and National Highways guidance documents, assessments should be conducted at an appropriate opening year and subsequent horizon year. These should be agreed in scoping discussions prior to the assessments being conducted.
  - Paragraph 101 of the National Highways guidance document 'The Strategic Road Network: Planning for The Future':
    - "assessments should be carried out for the opening year, assuming full buildout and occupation, and either a date ten years after the date of registration of the associated application or the end of the Local Plan period [whichever is greater]".
  - Paragraph 27 of DfT 'Circular 02/2013':
    - "the opening of development shall be taken to be the date at which the development first becomes available for occupation".
- Committed development the applicant should include any relevant committed development traffic flows in the area that are likely to affect the flows at the relevant junctions in the assessment years. Appropriate committed development flows should be agreed with North East Lincolnshire Council.
- Planned Transport Improvements the applicant should include any relevant planned transport improvements in the area that are likely to affect the flows at the relevant junctions in the assessment years. Confirmation of these should be agreed with North East Lincolnshire Council but JSJV suggest that the following be considered:
- In addition to the inclusion of any relevant Local Plan sites as committed development, the proposed assessments should also consider background traffic growth. JSJV suggest that when factoring surveyed flows, to represent strategic traffic growth, the North East Lincolnshire Council local authority area and the trunk road type should be used to derive growth factors in TEMPro.

If the opening year assessments demonstrate that a mitigation scheme is required in order to accommodate the impact of the proposed development, this would need to



be assessed, agreed with National Highways and a Stage 1 Road Safety Audit undertaken prior to determination of the planning application.

Should the proposed development have the potential to materially impact SRN merge or diverges, JSJV request that merge/diverge assessments are undertaken for an appropriate opening year and future year, taking into account background traffic growth and committed development. If the assessments demonstrate that mitigation is required in order to safely accommodate the development traffic on the impact SRN, the potential mitigation scheme would need to be assessed, agreed with National Highways and a Stage 1 Road Safety Audit undertaken and approved prior to determination of the application.

# Construction traffic management plan

Given the proposed development's scale and proximity to the Strategic Road Network, JSJV suggest that a construction traffic management plan [CTMP] should be produced and agreed with National Highways, prior to the determination of this planning application. JSJV suggest that the CTMP includes the following:

- · Length of construction period;
- Hours of operation;
- Peak trip generation (including type of vehicles);
- Access routes, including consideration of abnormal loads (vehicle swept path analysis may be required) and details of proposed signage, implementation and enforcement;
- Mitigation measures limited delivery times (and details of enforcement e.g. penalty clauses for contractor, noise reduction, wheel washing); and
- Travel plan type measures (e.g. staff recruitment policies (local staff), mini-bus for staff, number of parking spaces, car share database);

Subject to a review of the proposed peak trip generation during construction, assessments may be required to understand the potential impact on the Strategic Road Network.

JSJV note that the construction traffic of this development has the potential to cause National Highways concern. This is due to all construction traffic having to use the A160 and A180. Any additional HGV movements would also need to be clearly understood.

### **Travel Plan**

It is noted that there is no reference to a Travel Plan [TP] within the submitted SR. JSJV support the preparation of a TP to be produced in combination with the existing 'site wide TP, with the aim to limit the amount of private vehicle trips to and from the site and to promote sustainable modes of travel. JSJV make the following recommendations to ensure a robust and effective TP:

- Quantifiable mode shift targets should be set in advance;
- A firm financial commitment should be made in the TP with regards to funding for the measures proposed in the short, medium and long term;
- Detail should be provided on the phasing of any proposed measures relative to any phasing of the development;



- The TP should clearly outline the responsibilities of the different parties involved with regards to implementing, monitoring and funding the TP; and
- The TP monitoring strategy should be designed to monitor the level of vehicle trips assumed in the TA.

According to National Highways guidance set out in 'A guide to working with National Highways on planning matters', the TP should demonstrate how proposals aim to reduce the amount of private vehicle trips and support sustainable transport. As a result, the TP should:

- demonstrate how the proposals will reduce the need to travel, especially by car;
- demonstrate how the proposals will improve accessibility by all modes of travel and influence travel behaviours;
- assess the likely impact of residual trips [i.e. after measures have been considered], and
- identify appropriate and proportionate mitigation measures and ensure that what is proposed promotes sustainable transport outcomes and avoids unnecessary works to the SRN.

Given the proximity of the site to the A160 and A180, and the likelihood that most trips by car from the site are likely to interact with the SRN, JSJV suggest that the TP document should detail how the site design will ensure that 'public transport and active travel are the natural first choice for daily activities' as stated in DfT's 'Decarbonising Transport: Setting the Challenge' document [March 2020]. These measures should be considered alongside the trip rate derivation using TRICS Decide and Provide Guidance mentioned previously.

# **Summary and Conclusions**

On the basis of this review, the recommendation to National Highway in relation to this development proposals is:

**Pre-application / Scoping Response** – comments are made on the pre-application / scoping in order to assist defining an appropriate assessment of the Strategic Road Network.

This review has highlighted the need for a Transport Assessment and Travel Plan to be produced in support of this planning application, to be included within the Traffic and Transport Chapter of the ES. A summary of our comments for the preparation of these documents is detailed below:

- The TA should reference dredging, including the resultant transport impact, especially if the SRN is used as a route for disposal vehicles;
- JSJV require details of the disposal area and [if decided], confirmation that the waste would be loaded directly into the estuary without impacting the SRN;
- To make an assessment, JSJV require full details of the proposed development, including the 'area to accommodate trailer and container parking and storage' and full details of 'a number of small terminal buildings' as proposed. In addition, JSJV request that the amount of parking proposed is provided;
- JSJSV acknowledge that at this stage, the final details of the proposal are yet to be confirmed;
- The baseline section of the TA should:



- Describe the site background, including the site's location, history and existing use:
- Describe the existing highway network in the area and the existing level of accessibility;
- Provide a collision data assessment should be undertaken covering the most recently available complete five-year period for the SRN; and
- Outline any relevant outline planning consents and Local Plan allocations.
- The impact of the development should be assessed based on relevant regional and national planning policy;
- JSJV understand that ABP will submit a separate scoping document to agree the scope of the TA with National Highways, however, items raised within this review provide an outline of the details that JSJV would require within any assessment submitted;
- It is also noted that there is no reference to a Travel Plan [TP] within the submitted SR.



# AA.22.05.30: Immingham Eastern Terminal

Prepared for: Simon Geoghegan

Prepared by: Harry Mann [SYSTRA]

Date: 6<sup>th</sup> July 2022
Case Reference: DevHU0075

Document Reference: AA.22.05.30 Technical Memorandum

Reviewed/approved by: Terry Dale [SYSTRA]

Limitation: This document has been prepared on behalf of, and for the exclusive use of National Highways, and is subject to, and issued in accordance with, the provisions of the National Spatial Planning Contract. JSJV accept no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this document by any third party.

### Introduction

In September 2021, Associated British Ports [the Applicant] submitted a scoping request for the proposed development of a new roll-on/roll-off [Ro-Ro] facility at Immingham Port. The port is situated on the south bank of the Humber Estuary, 9km to the northwest of Grimsby and approximately 1km to the northeast of Immingham.

The Applicant submitted an Environmental Statement Scoping Report [SR] in September 2021 to National Infrastructure Planning [NIP] as a Nationally Significant Infrastructure Project [NSIP]. In October 2021, Jacobs SYSTRA Joint Venture [JSJV] has reviewed the sections of the SR deemed relevant to National Highways infrastructure.

Subsequent to the October 2021 SR, a draft Preliminary Transport Assessment [TA] [ref: SJT/RT/23325-02a] was provided to JSJV [5 January 2022] that outlined what would be covered by the TA including trip generation, distribution and matters including PIC assessment. JSJV has reviewed the contents of this preliminary TA.

In addition, following a meeting between the Applicant, David Tucker Associates [DTA], National Highways and JSJV [9 June 2022], DTA provided a Technical Note [TN] [Appendix F] to summarise the results of the junction capacity assessments undertaken. DTA requested that JSJV review matters considered within the draft TA and the supplementary TN to inform the forthcoming full Transport Assessment.

JSJV would note that DTA has provided an extract of the junction capacity assessment as a standalone document that supplements a 'Working Draft' TA [doc ref: SJT/RT/23325-04a] which was produced 31 May 2022.

National Highways acknowledge that the junction capacity assessments and associated TA submitted at this stage are 'draft' and, as such, this JSJV response will provide guidance commensurate with the information provided.

The Applicant has previously confirmed that a TA will be prepared alongside the DCO application and will be provided as an appendix to the ES.

The application site is within the administrative boundary of Northeast Lincolnshire Council [NELC]; its location, in relation to the Strategic Road Network [SRN], is presented in **Figure 1**.



Figure 1: Site location in relation to the Strategic Road Network



Source: Openstreetmap

The proposed development is located approximately 2.4km to the southeast of the A160 and approximately 2.7km to the north of the A180. Both the A160 and A180 highway routes are managed by National Highways and form part of the SRN.

Humber Road becomes the A160 to the west of the priority junction, via a 5-arm roundabout junction. The A160 Humber Road links with the A180 via a grade separated junction.

The A180 is a dual carriageway providing access to Grimsby to the south-west and the M180 at Junction 5 to the west.

For reference, the SRN within the Northeast Lincolnshire region, including the A160, A180 and M180, with further links to the M18, [50km west of the site] is shown in **Figure 2**.

Figure 2: Wider Strategic Road Network

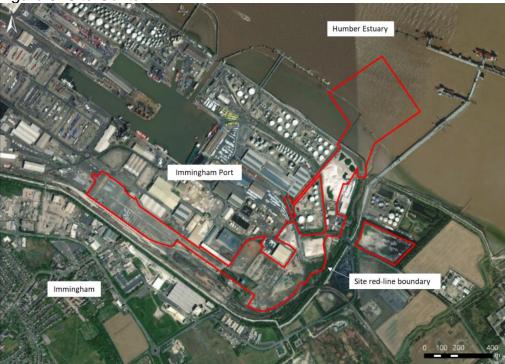




# **Existing site facility**

The existing Immingham Port facility is shown in Figure 3.

Figure 3: Site Context



JSJV recognises that the existing port is made up of a significant number of separate operational areas, with bulk commodities including liquid fuels, solid fuels and ores, as well as Ro-Ro freight are handled from the following facilities:

- The Eastern and Western Jetties;
- the Immingham Oil Terminal [IOT];
- the Immingham Gas Terminal;
- Immingham Outer Harbour [IOH]; and
- the Humber International Terminal [HIT].

### **Proposed development**

JSJV understands that the Applicant, as the owner and operator of the Port of Immingham proposes are to construct a new roll-on/ roll-off (Ro-Ro) facility within the port. It is designed to service the embarkation and disembarkation of principally commercial cargo carried either by lorry or on unaccompanied trailers which, for reference, is termed throughout as 'wheeled cargo'.

In addition, the new facility has been designed to accommodate an element of passenger use, albeit only when the demands of the Ro-Ro cargo operations will allow. The Port of Immingham is currently served by two principal access points, Humber Road to the west and Queens Road to the east.

The existing accesses to the Port will continue to be used by the proposed development. These are the eastern dock access off Queens Road (East Gate) and the western dock access off Humber Road (West Gate). Internal to the port, the operation will be accessed from a single point on the main port spine road, Robinson



Road. The arrangement will also serve the retained access to the Origin Fertilisers UK building.

Land side staffing is proposed to include customs, security and stevedores and DTA has anticipated that up to 50 staff per shift over 3 shifts per day will be required. DTA has assumed that the three shifts will be 06:00-14:00, 14:00-22:00, and 22:00-06:00. JSJV agree that these shifts are typical of the proposed development.

## Policy and guidance

Within the TA, JSJV note that impact of the development has been assessed based on relevant regional and national planning policy, including:

- National Planning Policy Framework [2021];
- North East Lincolnshire Council Local Plan 2013 to 2032 [Adopted 2018];
- Institute of Environmental Assessment Guidance Note No 1 "Guidelines for the Environmental Assessment of Road Traffic" [Institute of Environmental Assessment, 1993] [the 'IEA Guidelines']; and
- Travel Plans, TA and Statements in decision-taking- Planning Practice Guidance [DCLG, 2014].

In terms of the impact on the SRN, JSJV would recommend that the Applicant assesses the proposal with considering of the following policies:

- DfT Circular 02/2013 The SRN and the delivery of sustainable development. JSJV emphasises paragraph 48 of the DfT Circular 02/2013 which states the following:
  - "48. Transport assessment undertaken by the promoter of the development should be comprehensive enough to establish the likely environmental impacts, including air quality, light pollution and noise, and to identify the measures to mitigate these impacts."
- National Highways guidance document 'The Strategic Road Network: Planning for The Future' [2015]. The following paragraphs from this guidance are relevant to the scoping stage:
  - Paragraph 37. "Transport assessments should generally be carried out in line with prevailing government guidance in agreement with us, through preapplication and scoping, such as a road safety audit [stage 1]".
  - Paragraphs 87 and 88. "If the development is in an approved local plan, and has had an appropriate level of assessment of the impact of the development undertaken, JSJV do not anticipate the need to repeat the full assessment process at the planning application stage. If, however, the development proposed has not been subject to an appropriate level of assessment, or is not included or consistent with an approved local plan, then JSJV anticipate agreeing the scope of work required to make a full assessment. For those sites that have been considered at local plan stage, JSJV will take into account any assessment already undertaken.
  - Paragraph 94. "Formal pre-application discussions are an effective means of gaining a good, early understanding of the development, its benefits, its likely impacts and its infrastructure needs. By consulting with us pre-application, you will ensure that the transport assessment you prepare is appropriately scoped and is based on the most relevant and up-to-date data. It will also ensure that you are made aware of, and can take account of, any SRN issues that might



have a bearing on the way in which the development is planned and/or delivered. This, in turn, helps avoid delays and difficulties further into the application process".

- Paragraph 98. "If a SR is to be prepared, JSJV advise this includes:
  - details of the development, such as location, access arrangements, use class, size or number of units, likely phasing, maximum number of parking spaces and any other relevant information;
  - proposed methodology for estimating the vehicular trip generation and distribution on the SRN, and resulting trip generation figures;
  - proposed methodology for assessing the impact of this trip generation on the SRN; and
  - proposed methodology for assessing the environmental consequences of the transport impacts of the development"
- JSJV would point to the following two paragraphs of the National Highways document 'The Strategic Road Network planning for the future' [2015]:
  - "49. National Highways will expect to see measures implemented that fully mitigate any and all environmental impacts arising from and relating to the interaction between developments and the SRN. There are three aspects to this:
    - the environmental impacts arising from the temporary construction works;
    - the environmental impacts of the permanent transport solution associated with the development; and
    - the environmental impact of the road network upon the development itself."
  - "52. To avoid potential delay or challenge, transport assessments/statements and environmental statements/impact assessments should be mutually consistent and pay due regard to each other."
- The DfT document 'Road Investment Strategy 2: 2020-2025'.

JSJV agree with the policy consulted when producing the TA.

### **Technical Review**

#### PIC Assessment

A draft PIC assessment was provided to JSJV within the May 2022 working draft TA. Personal Injury Collision (PIC) data was obtained for the latest 5-year period (21/08/2016-20/08/2021) from North East Lincolnshire Council. The study area analysed was Queens Road, the A1173 Manby Road and the A180/ A1173 Manby Road Roundabout.

DTA confirm that North Lincolnshire do not provide accident data and have requested that the assessment obtains details from Crashmap.co.uk. JSJV agree with this approach, however, would note that a collision data assessment should be undertaken for all junctions considered within capacity assessment, including:

- A160/ Humber Road/ Manby Road Roundabout (Manby Roundabout);
- Brocklesby Interchange [A180 / A160];
- Stallingborough Interchange [A180 / A1173]; and



 A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout (Habrough Roundabout).

The PIC analysis should consider the most recently available complete five-year period for the SRN, covering the period before conditions were impacted by the Covid pandemic; 2020 & 2021 data should also be reviewed to supplement the results and to ensure a robust dataset.

DTA concludes that there are no existing highway safety issues that would need to be addressed; however, for JSJV to determine the same, the data for all SRN junctions should be presented within the TA.

#### **Trip Generation**

JSJV has provisionally agreed to the methodology set out in the preliminary TA to derive the trip generation from a 'first principles' approach.

#### **Construction Traffic**

DTA state that the construction of the development is expected to take in the region of 21 months to complete.

Previously, JSJV highlighted that construction traffic has the potential to cause National Highways concern due to all construction traffic being required to use the A160 and A180.

Considering JSJVs comments regarding the impact of construction traffic, DTA confirm within the TA that the proposed development would require the importation of a variety of building materials and, overall, it is expected that an average of 70 loads of material will be delivered on a daily basis.

DTA estimate that approximately 120 to 150 construction workers are expected on site on a typical day. DTA also highlight that Census 2011 journey to work data for the middle super output area within which the site is located shows that around 80% of people drive to work. Applying this to the maximum number of staff indicated above equates to 120 trips (240 two-way light vehicle movements).

DTA confirms that in total, construction traffic movements are 240 light vehicles on a typical day and a maximum of 140 heavy vehicle movements (70 in, 70 out) per working day. JSJV consider this to be a robust construction impact estimation.

DTA states that to accommodate three new berths, it is anticipated that this will require dredging approximately 230,000 m³ of material. Previously, JSJV noted that the TA should include firm details regarding the 'capital dredge' of the new berthing area, totalling 90,000 m². the Applicant previously estimated that about 330,000m³ of material in total will be removed. the Applicant stated that it is not considered that the dredge material will be of a quality suitable for alternative beneficial use so will be disposed of at sea. Within the associated TA, JSJV previously requested details of the disposal area and confirmation that the waste would be loaded directly into the estuary without impacting the SRN.

The working draft TA confirms that the dredged material is not considered suitable for beneficial use elsewhere, such as for reclamation purposes, therefore, the dredged material will be transported to licensed disposal sites offshore by barge.

JSJV acknowledge that no assessment or allowance for land-based movements arising from the dredge are required within the TA.



JSJV agree that overall, the daily construction traffic movements (circa 380 movements) would be significantly lower than the operational traffic of the proposed development and would not cause a concern from a capacity perspective on the SRN.

Notwithstanding this, given the proposed development's scale and proximity to the Strategic Road Network, JSJV suggest that a construction traffic management plan [CTMP] should be produced and agreed with National Highways, prior to the determination of this planning application. JSJV suggest that the CTMP includes the following:

- Length of construction period;
- Hours of operation;
- Peak trip generation [including type of vehicles];
- Access routes, including consideration of abnormal loads [vehicle swept path analysis may be required] and details of proposed signage, implementation and enforcement:
- Mitigation measures limited delivery times [and details of enforcement e.g., penalty clauses for contractor, noise reduction, wheel washing]; and
- Travel plan type measures [e.g., staff recruitment policies [local staff], minibus for staff, number of parking spaces, car share database].

#### Proposed traffic generation

JSJV discussed the estimated traffic generation of cars and HGVs that would result from site operations within the 9 June 2022 meeting. DTA confirms within the draft TA that there are very few on site staff so all light vehicular traffic is assumed to be new. This would equate to 150 person trips arrivals / departures throughout the day.

JSJV would request that full details are provided with supporting evidence substantiating the assumption of 150 employee trips arrivals / departures.

DTA confirm that there will also be servicing and maintenance vehicles accessing the site throughout the day. This equates to an average of 5 vehicles in and out (10 two-way movements) in each hour between 07:00 and 19:00. All traffic will travel by road.

JSJV previously agreed to the approach to estimating the HGV traffic generation related to the Ro-Ro element. DTA has noted the following assumptions:

- Days of operation = 364 days per year (52x7);
- The IERRT as a whole (marine and landside elements combined has been designed to accommodate up to 1,800 units per day;
- Maximum throughput of cargo units pa = 660,000;
- Throughput of accompanied trailers/ lorries, based on the current split provided by the intended operator, per annum = 184,800;
- Throughput of unaccompanied trailers, based on the current split provided by the intended operator, per annum = 522,720;
- Number of HGV movements per freight unit:
  - i. Unaccompanied will be dropped off and whilst generally an HGV will drop and collect in the same visit, an allowance of 10% has been allowed for single deliveries meaning 1 unit = 1.1 HGV movements; and



 ii. Accompanied all have a tractor unit attached so each unit = 1 HGV movement.

JSJV previously agreed to the 24hr traffic profile for staff and service [light] vehicles. An extract of which is shown in **Table 1**.

Table 1- Extract of working draft TA- 24hr Traffic Profile for Staff and Service Vehicles

|             | Inbound | Outbound | Total |
|-------------|---------|----------|-------|
| 00:00-01:00 | 0       | 0        | 0     |
| 01:00-02:00 | 0       | 0        | 0     |
| 02:00-03:00 | 0       | 0        | 0     |
| 03:00-04:00 | 0       | 0        | 0     |
| 04:00-05:00 | 0       | 0        | 0     |
| 05:00-06:00 | 50      | 0        | 50    |
| 06:00-07:00 | 0       | 50       | 50    |
| 07:00-08:00 | 5       | 5        | 10    |
| 08:00-09:00 | 5       | 5        | 10    |
| 09:00-10:00 | 5       | 5        | 10    |
| 10:00-11:00 | 5       | 5        | 10    |
| 11:00-12:00 | 5       | 5        | 10    |
| 12:00-13:00 | 5       | 5        | 10    |
| 13:00-14:00 | 50      | 5        | 55    |
| 14:00-15:00 | 5       | 50       | 55    |
| 15:00-16:00 | 5       | 5        | 10    |
| 16:00-17:00 | 5       | 5        | 10    |
| 17:00-18:00 | 5       | 5        | 10    |
| 18:00-19:00 | 5       | 5        | 10    |
| 19:00-20:00 | 0       | 0        | 0     |
| 20:00-21:00 | 0       | 0        | 0     |
| 21:00-22:00 | 50      | 0        | 50    |
| 22:00-23:00 | 0       | 50       | 50    |
| 23:00-24:00 | 0       | 0        | 0     |

DTA has also provided an estimated HGV profile as shown in **Table 2** based on a typical operators' activities, split between unaccompanied freight (which ABP notes is generally spread across the day) and accompanied freight (which ABP highlights that this is more focused on sailing times). JSJV would request that evidence is provided for review that show what the 'typical operators activities' arrival / departure profile is based on.



Table 2- Extract of working draft TA- 24hr Traffic Profile for HGVs [End User]

|             | Inbound | Outbound | Total |  |
|-------------|---------|----------|-------|--|
| 00:00-01:00 | 2       | 1        | 3     |  |
| 01:00-02:00 | 2       | 1        | 2     |  |
| 02:00-03:00 | 1       | 1        | 2     |  |
| 03:00-04:00 | 1       | 1        | 2     |  |
| 04:00-05:00 | 1       | 3        | 4     |  |
| 05:00-06:00 | 3       | 9        | 12    |  |
| 06:00-07:00 | 12      | 22       | 33    |  |
| 07:00-08:00 | 19      | 32       | 50    |  |
| 08:00-09:00 | 26      | 25       | 51    |  |
| 09:00-10:00 | 31      | 221      | 252   |  |
| 10:00-11:00 | 36      | 90       | 125   |  |
| 11:00-12:00 | 41      | 73       | 114   |  |
| 12:00-13:00 | 44      | 74       | 117   |  |
| 13:00-14:00 | 50      | 79       | 129   |  |
| 14:00-15:00 | 63      | 70       | 133   |  |
| 15:00-16:00 | 90      | 63       | 153   |  |
| 16:00-17:00 | 107     | 62       | 168   |  |
| 17:00-18:00 | 121     | 52       | 173   |  |
| 18:00-19:00 | 145     | 41       | 186   |  |
| 19:00-20:00 | 128     | 29       | 157   |  |
| 20:00-21:00 | 38      | 16       | 54    |  |
| 21:00-22:00 | 6       | 6        | 12    |  |
| 22:00-23:00 | 3       | 2        | 5     |  |
| 23:00-24:00 | 2       | 1        | 3     |  |

<sup>\*</sup>numbers have been rounded

JSJV have reservations between the end user profile presented and the arrival / departure profile based on the Port of Immingham profile. The end user profile has approximately 38% [50 HGV movements] of the two-way HGV traffic shown in the Port of Immingham profile [130 HGV movements] in the AM peak period of 07:00-08:00 and 08:00-09:00.

Comprehensive evidence should be presented that details the HGV profile assumed.

#### Peak hour identification

DTA has analysed traffic survey data within the local highway and used the AM peak of 07:00-08:00 and the PM peak of 17:00-18:00. JSJV would also request that the peak hour is investigated, specifically considering the SRN to ensure that the peak hour selected is considered robust.

### Light vehicles

Light vehicle traffic has been distributed using the 2011 Census Journey to Work data for the Middle Super Output Area (MSOA) North East Lincolnshire 001 which the site is located within. JSJV agree with this approach and the resultant light vehicle assignment of vehicles.



#### **HGV**

The wider distribution for commercial traffic on the strategic highway network has been derived using data included within the Base Year Freight Matrices (BYFM) published by the Department for Transport (2012). The Matrices consist of the number of vehicles per average day between a set of origin-destination zone pairs for a 2006 base year. DTA confirms that these zones are based on all 408 local authority districts, unitary authorities and London Boroughs and point zones for the 88 largest ports, of which the Port of Immingham is one, 5 main freight airports and 56 major concentrations of distribution centres. For JSJV to agree with this approach and the resultant light vehicle assignment of vehicles, JSJV would request that a full breakdown of data is submitted within the TA for review.

DTA has estimated that 85% of HGV traffic will use East Gate with 15% using West Gate. JSJV note that this distribution has been provisionally agreed to by NELC.

#### Committed development

Committed development has been agreed with NELC.

#### Background growth

Base traffic flows have been factored up to the year of opening, 2025, and a future year, 2032 (10 years after the date of application). The relevant Middle Super Output Area (MSOA) has been used for each junction which is assessed and JSJV have undertaken an analysis of the TEMPRO database and agree with this approach and the resultant TEMPRO growth factors as shown in **Table 3**.

Table 3- Extract of working draft TA- TEMPRO Growth Factors

|                                |              | 2019-2021 |        | 2021 – 2025 |        | 2021 – 2032 |        |
|--------------------------------|--------------|-----------|--------|-------------|--------|-------------|--------|
| Middle Super<br>Output Area    | Road<br>Type | AM        | PM     | AM          | PM     | АМ          | PM     |
| North East<br>Lincolnshire 001 | Minor        | 1.0189    | 1.0175 | 1.0298      | 1.0291 | 1.0773      | 1.0750 |
|                                | Trunk        | 1.0281    | 1.0266 | 1.0401      | 1.0394 | 1.1049      | 1.1025 |
| North East<br>Lincolnshire 007 | Minor        | 1.0133    | 1.0123 | 1.0269      | 1.0255 | 1.0683      | 1.0649 |
|                                | Principal    | 1.0132    | 1.0121 | 1.0262      | 1.0248 | 1.0654      | 1.0620 |
|                                | Trunk        | 1.0224    | 1.0214 | 1.0372      | 1.0358 | 1.0957      | 1.0921 |
| North<br>Lincolnshire 004      | Trunk        | 1.0252    | 1.0239 | 1.0443      | 1.0434 | 1.1131      | 1.1108 |
| North<br>Lincolnshire 011      | Motorway     | 1.0296    | 1.0289 | 1.0501      | 1.0500 | 1.1262      | 1.1260 |

## **Junction capacity assessment**

#### Assessment scenarios

Considering the scenarios presented within the capacity assessment, DTA has presented the following:

- 2021 Base;
- 2025 Base;
- 2025 Base + Committed;
- 2025 Base + Committed + Development;



- 2032 Base;
- 2032 Base + Committed; and
- 2032 Base + Committed + Development.

Considering the assessment scenarios presented, JSJV confirm that the operational analysis of the SRN is in accordance with the criteria set out in Circular 02/2013.

JSJV acknowledge that from the SR submitted in September 2021, the estimated construction timescales have been estimated to commence in Summer 2023 and are expected to have been largely completed by mid-2025.

Considering this guidance, JSJV recommend that DTA would provide certainty that the 2025 forecast year would be representative of the development opening year.

For information, JSJV note that the proposed assessment years should comply with the following guidance:

 Paragraph 101 of the HE guidance document 'The Strategic Road Network: Planning for The Future':

"assessments should be carried out for the opening year, assuming full buildout and occupation, and either a date ten years after the date of registration of the associated application or the end of the Local Plan period (whichever is greater)".

Paragraph 27 of DfT 'Circular 02/2013':

"the opening of development shall be taken to be the date at which the development first becomes available for occupation".

### Assessment study area

#### Introduction

JSJV note that DTA has engaged with National Highways, North Lincolnshire Council and Northeast Lincolnshire Council to agree which junctions should be considered for capacity assessment.

JSJV note that four junctions within the study area considered by DTA are National Highways infrastructure as shown in **Figure 4**.

jsjv

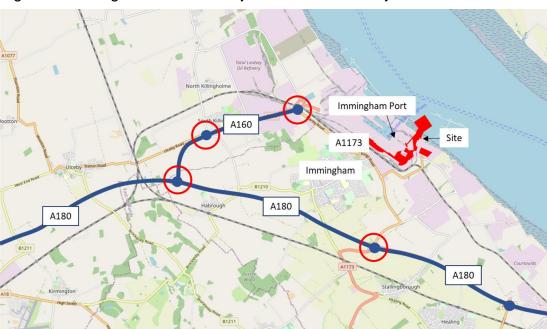


Figure 4: Strategic Road Network junctions within study area

JSJV will consider the capacity assessment provided for the following SRN junctions:

- A160/ Humber Road/ Manby Road Roundabout (Manby Roundabout);
- Brocklesby Interchange [A180 / A160];

Road / Junction Managed by National Highways

- Stallingborough Interchange [A180 / A1173]; and
- A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout (Habrough Roundabout).

In addition, JSJV note that DTAs assessment considers the configuration of the slip road merge and diverge arrangements. DTA has provided draft merge / diverge assessments on the A180/ A1173 Interchange and the A160/ A180 Interchange [Brocklesby Interchange] have been undertaken in accordance with the requirements set out within the Design Manual for Roads and Bridges [DMRB] CD122 'Geometric design of grade separated junctions.'

In addition, DTA has provided capacity assessment at the following local highway networks:

- Queens Road/ Laporte Road Priority Junction;
- Laporte Road/ Kiln Lane/ Hobson Way Roundabout;
- Kings Road/ A1173 Roundabout; and
- A1173/ Kiln Lane Roundabout.

Although not linked to the SRN, JSJV agree with NELCs request to also include the A1173 / SHJIIP roundabout within the junction assessments list due to potential impacts on the adjacent industrial estate infrastructure.



#### Baseline traffic data

JSJV note that automatic traffic counts (ATCs) were undertaken in 4 locations around the Port of Immingham between Monday 27 September 2021 and Sunday 3 October 2021.

Further ATCs were undertaken in 3 locations between Tuesday 16 November 2021 and Monday 22 November 2021.

DTA states that a series of turning surveys were obtained from North East Lincolnshire for the area surrounding the Port with further surveys undertaken on Tuesday 16 November 2021. DTA refer JSJV to Figure 3 within the draft TA, as JSJV assumes that DTA is referring to the Tuesday 16 November 2021 counts, however the counts are highlighted as 'due Nov'. JSJV require confirmation of the exact dates that the SRN MTC surveys were captured and for this data to be supplied for review.

In addition, JSJV note that there is no mention of queue length calibration within the draft TA. To ensure a robust assessment is undertaken within the TA, full details should be provided of ARCADY model validation, including the methodology undertaken to derive queue lengths and resultant impacts on the capacity assessment.

### Junctions 10 geometric parameters

DTA has used the ARCADY module of Junctions 10 to provide an assessment of the operation of the junctions included within the study area.

DTA has provided an associated AutoCAD file to JSJV that contains Junctions 10 geometric parameters used within the capacity assessment, JSJV has extracted the geometries and included extract of each junction within **Figure 5** to **Figure 8**.

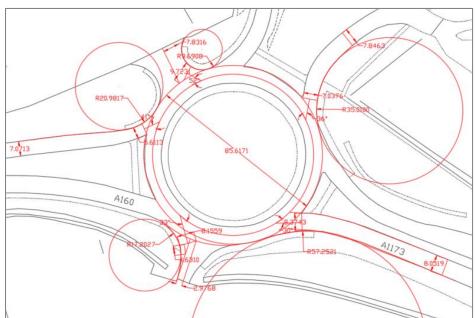


Figure 5: Manby Roundabout Geometric Parameters (DTA Drawing 23325)



Figure 6: Brocklesby Interchange Geometric Parameters (DTA Drawing 23325)

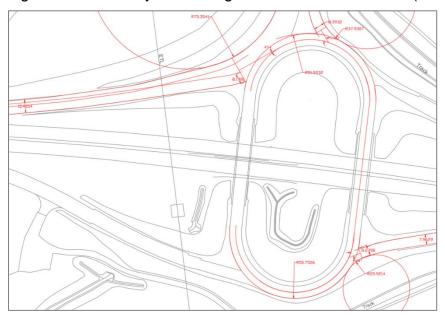
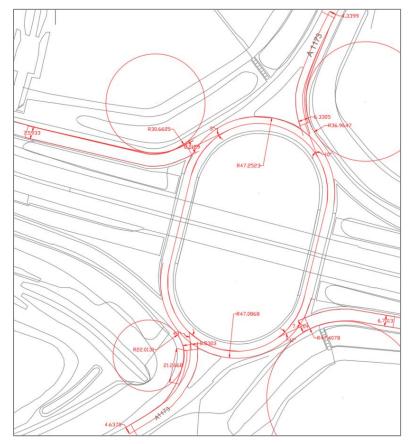


Figure 7: Stallingborough Interchange Geometric Parameters (DTA Drawing 23325)





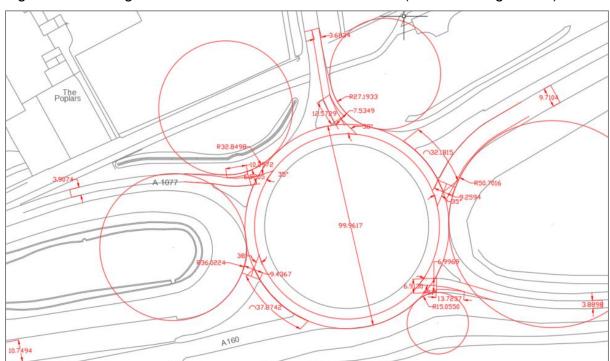


Figure 8: Habrough Roundabout Geometric Parameters (DTA Drawing 23325)

JSJV have reviewed the geometric parameters used within the capacity assessment and agree with the entry width, approach width, effective flare length, entry radius, entry conflict angle and inscribed circle diameter for each of the capacity assessment models.

#### Matters to be considered in TA

JSJV understand that the area immediately south of proposed jetty within the development site would be used as an area to accommodate trailer and container parking and storage. the Applicant note that the area will 'only require a simple upgrade, relocating existing port infrastructure, to provide open parking/storage space, although some peripheral areas of softer ground may require additional ground works in terms of hard surfacing.' To undertake an assessment, JSJV require full details of this proposed use, including the amount of parking proposed.

the Applicant also propose a number of small terminal buildings will be provided. To undertake an assessment, JSJV require full details of this proposed use, including the amount of parking proposed.

DTA states that the number of HGV parking and storage provided on site means that all vehicles will be catered for on-site and there will not be any queuing on the local highway network. JSJV note that the current working draft TA does not confirm parking provision within the proposed development. JSJV would require this to be included within the TA.

As highlighted within previous correspondence, JSJV notes that the Applicant has stated the intension to bring forward the proposed development 'possibly with provision for a small element of passenger use during quiet periods'. This was explained verbally by DTA within the 9 June 2022 meeting. This statement would have to be full explored within any assessment undertaken, with firm proposals submitted for review. Should the proposed development be also used as a passenger transport basis in addition to freight movement as initially proposed, this would have to be reflected in calculated trip generation and resultant junction impact assessment.



JSJV / National Highways will explore the suitability of the potential for a restrictive condition to be applied to the passenger transport proposals.

JSJV acknowledge that it is reported that rail is not a feasible or viable mode for Ro-Ro traffic.

### **Travel Plan**

It is noted that there is no reference to a Travel Plan [TP] within the previously submitted SR or within subsequent correspondence between DTA and JSJV. JSJV support the preparation of a TP to be produced in combination with the existing 'site wide TP, with the aim to limit the amount of private vehicle trips to and from the site and to promote sustainable modes of travel. JSJV make the following recommendations to ensure a robust and effective TP:

- Quantifiable mode shift targets should be set in advance;
- A firm financial commitment should be made in the TP with regards to funding for the measures proposed in the short, medium and long term;
- Detail should be provided on the phasing of any proposed measures relative to any phasing of the development;
- The TP should clearly outline the responsibilities of the different parties involved with regards to implementing, monitoring and funding the TP; and
- The TP monitoring strategy should be designed to monitor the level of vehicle trips assumed in the TA.

According to National Highways guidance set out in 'A guide to working with National Highways on planning matters', the TP should demonstrate how proposals aim to reduce the amount of private vehicle trips and support sustainable transport. As a result, the TP should:

- demonstrate how the proposals will reduce the need to travel, especially by car;
- demonstrate how the proposals will improve accessibility by all modes of travel and influence travel behaviours;
- assess the likely impact of residual trips [i.e., after measures have been considered], and
- identify appropriate and proportionate mitigation measures and ensure that what is proposed promotes sustainable transport outcomes and avoids unnecessary works to the SRN.

Given the proximity of the site to the A160 and A180, and the likelihood that most trips by car from the site are likely to interact with the SRN, JSJV suggest that the TP document should detail how the site design will ensure that 'public transport and active travel are the natural first choice for daily activities' as stated in DfT's 'Decarbonising Transport: Setting the Challenge' document [March 2020]. These measures should be considered alongside the trip rate derivation using TRICS Decide and Provide Guidance mentioned previously.

JSJV agree with NELCs general disagreement with the applications general theme of discouragement of sustainable travel. NELC suggested to DTA and the Applicant that the Applicant should consider modernising the portside area to be accessible to sustainable modes as discouraging access by bicycle or on foot is not consistent with modern good practise.



# Signage Scheme

JSJV acknowledges the Applicants desire to amend three existing signs within the SRN. JSJV would assess the suitability of the design amendments in combination with the full TA and will liaise with National Highways to provide further guidance on signage matters.

# **Summary and Conclusions**

**Pre-application / Scoping Response** – comments are made on the pre-application / scoping in order to assist defining an appropriate assessment of the Strategic Road Network.

A summary of our comments for the preparation of the TA and TP documents is detailed below:

- The PIC analysis should consider the most recently available complete five-year period for the SRN before baseline conditions were impacted by the Covid pandemic. 2020-2021 data should also be observed to supplement the results;
- Given the proposed development's scale and proximity to the Strategic Road Network, JSJV suggest that a construction traffic management plan [CTMP] should be produced and agreed with National Highways, prior to the determination of this planning application;
- JSJV would request that full details are provided with supporting evidence substantiating the assumption of 150 employee trips arrivals / departures;
- JSJV would request that evidence is provided for review that show what the 'typical operators activities' HGV arrival / departure profile is based on;
- JSJV have reservations between the end user profile presented and the arrival / departure profile based on the Port of Immingham profile. Comprehensive evidence should be presented that details the HGV profile assumed;
- JSJV would also request that the peak hour is investigated, specifically considering the SRN to ensure that the peak hour selected is considered robust;
- For JSJV to agree with this approach and the resultant light vehicle assignment of vehicles, JSJV would request that a full breakdown of HGV routeing data is submitted within the TA for review;
- JSJV recommend that DTA would provide certainty that the 2025 forecast year would be representative of the development opening year;
- JSJV agree with NELCs request to also include the A1173 / SHJIIP roundabout within the junction assessments;
- JSJV require confirmation of the exact dates that the SRN MTC surveys were captured and for this data to be supplied for review;
- To ensure a robust assessment is undertaken within the TA, full details should be provided of ARCADY model validation, including the methodology undertaken to derive queue lengths and resultant impacts on the capacity assessment;
- To undertake an assessment of the area immediately south of proposed jetty within the development site used as an area to accommodate trailer and container parking and storage, JSJV require full details of this proposed use, including the amount of parking proposed;



- To undertake an assessment of the terminal buildings to be provided, JSJV require full details of this proposed use, including the amount of parking proposed;
- JSJV note that the current working draft TA does not confirm parking provision within the proposed development. JSJV would require this to be included within the TA;
- Should the proposed development be also used as a passenger transport basis in addition to freight movement as initially proposed, this would have to be reflected in calculated trip generation and resultant junction impact assessment; and
- It is noted that there is no reference to a Travel Plan [TP] within the previously submitted SR or within subsequent correspondence between DTA and JSJV.



# AA.22.12.22: Immingham Eastern Terminal

Prepared for: Simon Geoghegan

Prepared by: Harry Mann [SYSTRA]

Date: 5<sup>th</sup> September 2022

Case Reference: DevHU0075

Document Reference: AA.22.12.22 Technical Memorandum 03

Reviewed/approved by: Terry Dale [SYSTRA]

Limitation: This document has been prepared on behalf of, and for the exclusive use of National Highways, and is subject to, and issued in accordance with, the provisions of the National Spatial Planning Contract. JSJV accept no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this document by any third party.

# Introduction

In September 2021, Associated British Ports [the Applicant] submitted a scoping request for the proposed development of a new roll-on/roll-off [Ro-Ro] facility at Immingham Port. The port is situated on the south bank of the Humber Estuary, 9km to the northwest of Grimsby and approximately 1km to the northeast of Immingham.

The Applicant submitted an Environmental Statement Scoping Report [SR] in September 2021 to National Infrastructure Planning [NIP] as a Nationally Significant Infrastructure Project [NSIP]. In October 2021, Jacobs SYSTRA Joint Venture [JSJV] reviewed the sections of the SR deemed relevant to National Highways infrastructure in TM01.

Subsequent to the October 2021 SR, a draft Preliminary Transport Assessment [TA] [ref: SJT/RT/23325-02a] was provided to JSJV [5 January 2022] that outlined what would be covered by the TA including trip generation, distribution and matters including PIC assessment. JSJV reviewed the contents of this preliminary TA in June 2022 and provided a response to matters in TM02.

Following a meeting between the Applicant, David Tucker Associates [DTA], National Highways and JSJV [9 June 2022], DTA provided a supplementary Technical Note [TN] to summarise the results of the junction capacity assessments undertaken. JSJV reviewed matters considered within the draft TA and the supplementary TN and provided a technical memorandum [TM02], providing feedback and to inform future iterations of the TA.

JSJV noted the following items to be considered during the preparation of the TA and TP documents:

- JSJV requested that the PIC analysis should consider the most recently available complete five-year period for the SRN before baseline conditions were impacted by the Covid pandemic. Observation of 2020-2021 data was recommended to supplement the results;
- Given the proposed development's scale and proximity to the Strategic Road Network, JSJV suggested that a construction traffic management plan [CTMP] should be produced and agreed with National Highways, prior to the determination of the planning application;
- JSJV requested that full details are provided with supporting evidence substantiating the assumption of 150 employee trips arrivals / departures;



- JSJV requested that evidence is provided for review that show what the 'typical operators activities' HGV arrival / departure profile is based on;
- JSJV had reservations between the end user profile presented and the arrival / departure profile based on the Port of Immingham profile. Comprehensive evidence should be presented that details the HGV profile assumed;
- JSJV requested that the peak hour is investigated, specifically considering the SRN to ensure that the peak hour selected is considered robust;
- For JSJV to agree with the approach to estimating light vehicle assignment of vehicles, JSJV requested that a full breakdown of HGV routeing data is submitted within the TA for review;
- JSJV recommended that DTA should provide certainty that the 2025 forecast year would be representative of the development opening year;
- JSJV agreed with NELCs request to also include the A1173 / SHJIIP roundabout within the junction assessments;
- JSJV required confirmation of the exact dates that the SRN MTC surveys were captured and for this data to be supplied for review;
- To ensure a robust assessment is undertaken within the TA, JSJV requested that full details should be provided of ARCADY model validation, including the methodology undertaken to derive queue lengths and resultant impacts on the capacity assessment;
- To undertake an assessment of the area immediately south of proposed jetty within the development site used as an area to accommodate trailer and container parking and storage, JSJV requested full details of this proposed use, including the amount of parking proposed;
- To undertake an assessment of the terminal buildings to be provided, JSJV required full details of this proposed use, including the amount of parking proposed;
- JSJV noted that the previous iteration of the working draft TA did not confirm parking provision within the proposed development. JSJV would require this to be included within the TA;
- JSJV highlighted that should the proposed development be also used as a
  passenger transport basis in addition to freight movement as initially
  proposed, this would have to be reflected in calculated trip generation and
  resultant junction impact assessment; and
- It was noted that there was no reference to a Travel Plan [TP] within the previously submitted SR or within subsequent correspondence between DTA and JSJV.

Subsequent to a meeting between the Applicant, David Tucker Associates [DTA], National Highways and JSJV [20 July 2022], DTA has provided an updated iteration of the current draft Construction Environmental Management Plan [CEMP] and has submitted a revision to the draft TA. JSJV acknowledges that the TA submitted is defined as a 'working draft' and will refer to this document as 'TA' hereafter.

This TM [TM03] will provide a review of the submitted documentation deemed relevant to National Highways infrastructure.



The application site is within the administrative boundary of Northeast Lincolnshire Council [NELC]; its location, in relation to the Strategic Road Network [SRN], is presented in **Figure 1**.



Figure 1: Site location in relation to the Strategic Road Network

Source: Openstreetmap

For reference, the SRN within the Northeast Lincolnshire region, including the A160, A180 and M180, with further links to the M18, [50km west of the site] is shown in **Figure 2**.

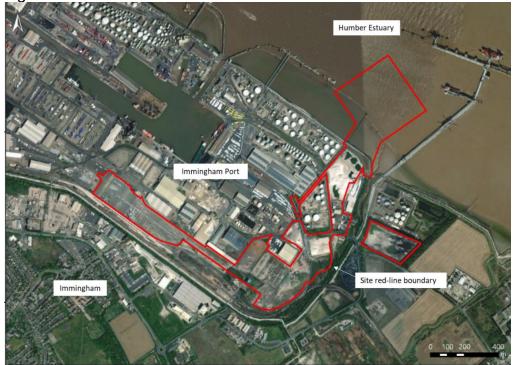


# **Existing site facility**

The Port of Immingham is currently served by two principal access points, Humber Road to the west and Queens Road to the east. The existing Immingham Port facility is shown in **Figure 3**.



Figure 3: Site Context



# **Proposed development**

JSJV understands that development proposals remain unchanged from the previous iteration of the TA. JSJV understands that the Applicant, as the owner and operator of the Port of Immingham proposes to construct a new roll-on/roll-off [Ro-Ro] facility within the port. It is designed to service the embarkation and disembarkation of principally commercial cargo carried either by lorry or on unaccompanied trailers.

In addition, the new facility has been designed to accommodate an element of passenger use, 'when the demands of the Ro-Ro cargo operations will allow'.

The existing accesses to the Port will continue to be used by the proposed development. These are the eastern dock access off Queens Road [East Gate] and the western dock access off Humber Road [West Gate].

Land side staffing is proposed to include customs, security and stevedores and DTA has anticipated that up to 50 staff per shift over 3 shifts per day will be required. DTA has assumed that the three shifts will be 06:00-14:00, 14:00-22:00, and 22:00-06:00. JSJV agree that these shifts are typical of the proposed development.

## **Technical Review**

# Policy and guidance

In TM02, JSJV recommended that the Applicant assesses the highway impacts of the proposed development considering the following policies:

- DfT Circular 02/2013; and
- National Highways guidance document 'The Strategic Road Network: Planning for The Future' [2015].

Having reviewed the updated policy section in the TA, JSJV now agree with the relevant regional and national planning policy used by DTA



### PIC assessment

A draft Personal Injury Collision [PIC] assessment was provided to JSJV within the May 2022 TA presenting PIC data obtained for the latest 5-year period [21/08/2016-20/08/2021] from Northeast Lincolnshire Council. The study area considered included Queens Road, the A1173 Manby Road, and the A180/ A1173 Manby Road Roundabout.

DTA concluded that there are no existing highway safety issues that would need to be addressed; however, JSJV recommended in TM02 that a collision data assessment should be undertaken that considers all junctions that were included within this capacity assessment exercise, including:

- A160/ Humber Road/ Manby Road Roundabout [Manby Roundabout];
- Brocklesby Interchange [A180 / A160];
- Stallingborough Interchange [A180 / A1173]; and
- A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout [Habrough Roundabout].

In response, DTA has presented the most recent 7-years' worth of PIC data for the SRN network between the A180/ A160 and the A160/ Humber Road/ Manby Road Roundabouts. DTA claim that:

Given the level of flows along the SRN, it not considered that the level of PICs which have occurred within the study area is cause for concern.

Subsequent to a review of the PIC data presented with the TA, JSJV would agree that there are no observable common causation factors found, therefore, the accident analysis shows that there are no inherent layout or design related highway safety issues on the local highway surrounding the site which could be exacerbated by the development.

## **Parking**

JSJV understands that the area immediately south of proposed jetty is intended to be used as an area to accommodate trailer and container parking and storage. The Applicant notes that the area will 'only require a simple upgrade, relocating existing port infrastructure, to provide open parking/storage space, although some peripheral areas of softer ground may require additional ground works in terms of hard surfacing.' JSJV previously requested full details of this proposed use, including the amount of parking proposed.

DTA stated that the volume of HGV parking and storage provided on site means that all vehicles will be catered for on-site and there will be no queuing on the local highway network. JSJV highlighted that the previous iteration of the working draft TA did not confirm parking provision within the proposed development.

In response, DTA has confirmed that the scheme includes 78 pre-gate HGV parking spaces as well as marshalling lanes for accompanied freight and passenger vehicles, 151 staff parking spaces, 18 Tugmaster parking spaces and 13 equipment parking spaces. DTA confirms that there will also be 54 passenger parking spaces on site for when passengers are on a sailing.

JSJV assumes that the parking proposed would suit operator requirement as no parking policy has been quoted to substantiate the level of parking proposed. JSJV would request that an assessment of parking demand / supply is presented within the



full TA document utilising estimated arrival / departure profiles and forecasted trip generation statistics to ensure that the provision is adequate to ensure that all vehicles will be catered for on-site and there will be no queuing on the local highway network that could gueue back to the SRN.

### Passenger transport

As highlighted within TM01, TM02 and subsequent correspondence with representatives from National Highways, JSJV notes that the Applicant has previously stated the intension to bring forward the proposed development 'possibly with provision for a small element of passenger use during quiet periods'. This was explained verbally by DTA within the 9 June 2022 meeting.

JSJV highlighted that the proposed development mentions that the proposed development could also be used as a passenger transport option and this should have to be reflected in the forecast trip generation and resultant junction impact assessment.

In response, as highlighted by ABP in the 20 July 2022 meeting, for safety reasons [relating to COMAH Regulations within the Port Estate], the maximum number of passengers allowed within the terminal is 100 and so this will also be the maximum number of passengers who can be on any one sailing.

JSJV request details on the maximum number of sailings permitted per hour and also request confirmation that 'number of passengers' would also refer to vehicles discharging from the ferry upon arrival. JSJV request confirmation that the 100 vehicle limit within the 'terminal' sums to the total arrivals / departures or if 100 arrival passengers would be permitted in combination with 100 departing passengers

Whilst JSJV appreciate the current restrictions on passengers, to satisfy National Highways by means of an enforceable restrictive limit that can be relied on in perpetuity, JSJV / National Highways will explore the suitability of the potential for a restrictive condition to be applied to the passenger transport proposals.

#### DTA argue that:

"The passenger transport will not change the results of the assessment below as the vehicles used by the passengers (a car, a car with a trailer or a motorhome) will replace a freight vehicle. Since a freight vehicle is assessed as 2.3 PCUs two cars, a car with a trailer, or a motorhome will result in the same or a lesser impact than a single HGV."

Whilst JSJV appreciate this statement, JSJV also refer to the 54 passenger parking spaces on site reserved for 'when passengers are on a sailing'. JSJV would request that this statement is substantiated as this appears that there is also the potential for passengers to board the ferry as a pedestrian after driving to the terminal, circumnavigating the 'replacement' argument as stated.

To demonstrate the worst-case traffic generation, JSJV would expect the parking reserved for passengers to be utilised within the traffic generation assessment.

JSJV would need to have certainty that the planning permission sought would not facilitate the provision of a separate passenger service from the terminal.

## Trip generation

JSJV maintains its agreement to the methodology set out in the preliminary TA to derive the trip generation from a 'first principles' approach.



#### **Construction Traffic**

Within the TA, DTA estimate that approximately 120 to 150 construction workers are expected on site on a typical day. DTA also highlight that Census 2011 journey to work data for the middle super output area within which the site is located shows that around 80% of people drive to work. Applying this to the maximum number of staff indicated above equates to 120 trips [240 two-way light vehicle movements].

In total, DTA estimates construction traffic movements to be 240 light vehicles on a typical day and a maximum of 140 heavy vehicle movements [70 in, 70 out] per working day.

JSJV previously considered this to be a robust construction impact estimation and maintain this position. JSJV agree that the daily construction traffic movements [circa 380 movements] would be significantly lower than the operational traffic of the proposed development and would not cause a concern, from a capacity perspective, on the SRN.

Given the scale of the proposed development and its proximity to the Strategic Road Network, JSJV previously requested that a Construction Traffic Management Plan [CTMP] should be produced and agreed with National Highways, prior to the determination of this planning application. JSJV suggested that the CTMP includes the following:

- Length of construction period;
- Hours of operation;
- Peak trip generation [including type of vehicles];
- Access routes, including consideration of abnormal loads [vehicle swept path analysis may be required] and details of proposed signage, implementation and enforcement;
- Mitigation measures limited delivery times [and details of enforcement e.g., penalty clauses for contractor, noise reduction, wheel washing]; and
- Travel plan type measures [e.g., staff recruitment policies [local staff], minibus for staff, number of parking spaces, car share database].

JSJV acknowledge that in May 2022, ABP submitted a Draft Construction Environmental Management Plan [CEMP] that provides indicative details of construction traffic management.

The CEMP provided goes some way to detailing traffic management issues associated with construction of the development, ABP highlights that both a detailed Construction Traffic Management Plan [CTMP] and a Construction Workers' Travel Plan [CWTP] will be prepared by the contractor once the final construction details are confirmed.

JSJV note that the CTMP and CWTP documents should be provided for review when available and approved by National Highways before occupation of the site. Alternately, the Applicant could agree to a planning condition with National Highways to approve the documents prior to construction.

## Proposed traffic generation

#### **Light Vehicles**

JSJV previously discussed the estimated traffic generation of cars and HGVs that would result from site operations within the 9 June 2022 meeting. DTA proposes within



the draft TA that "there are very few on site staff so all light vehicular traffic is assumed to be new. This would equate to 150 person trips arrivals / departures throughout the day."

JSJV requested within TM01 that full details should be provided with supporting evidence substantiating the assumption of 150 employee trips arrivals / departures. JSJV would note that the revised TA does not appear to provide evidence to substantiate this estimation.

#### **Heavy Goods Vehicles**

DTA propose that there will also be servicing and maintenance vehicles accessing the site throughout the day, equating to an average of 5 vehicles in and out [10 two-way movements] in each hour between 07:00 and 19:00. All traffic will travel by road.

JSJV previously agreed in TM01 to the approach to estimating the HGV traffic generation related to the Ro-Ro element. DTA has noted the following assumptions:

- Days of operation = 364 days per year [52x7];
- The IERRT as a whole [marine and landside elements combined has been designed to accommodate up to 1,800 units per day;
- Maximum throughput of cargo unit's pa = 660,000;
- Throughput of accompanied trailers/ lorries, based on the current split provided by the intended operator, per annum = 184,800;
- Throughput of unaccompanied trailers, based on the current split provided by the intended operator, per annum = 522,720;
- Number of HGV movements per freight unit:
  - i. Unaccompanied will be dropped off and whilst generally an HGV will drop and collect in the same visit, an allowance of 10% has been allowed for single deliveries meaning 1 unit = 1.1 HGV movements; and
  - ii. Accompanied all have a tractor unit attached so each unit = 1 HGV movement.

JSJV previously agreed in TM01 to the 24hr traffic profile for staff and service [light] vehicles. An extract of which is shown in **Table 1**.



Table 1- Extract of working draft TA- 24hr Traffic Profile for Staff and Service Vehicles

|             | Inbound | Outbound | Total |
|-------------|---------|----------|-------|
| 00:00-01:00 | 0       | 0        | 0     |
| 01:00-02:00 | 0       | 0        | 0     |
| 02:00-03:00 | 0       | 0        | 0     |
| 03:00-04:00 | 0       | 0        | 0     |
| 04:00-05:00 | 0       | 0        | 0     |
| 05:00-06:00 | 50      | 0        | 50    |
| 06:00-07:00 | 0       | 50       | 50    |
| 07:00-08:00 | 5       | 5        | 10    |
| 08:00-09:00 | 5       | 5        | 10    |
| 09:00-10:00 | 5       | 5        | 10    |
| 10:00-11:00 | 5       | 5        | 10    |
| 11:00-12:00 | 5       | 5        | 10    |
| 12:00-13:00 | 5       | 5        | 10    |
| 13:00-14:00 | 50      | 5        | 55    |
| 14:00-15:00 | 5       | 50       | 55    |
| 15:00-16:00 | 5       | 5        | 10    |
| 16:00-17:00 | 5       | 5        | 10    |
| 17:00-18:00 | 5       | 5        | 10    |
| 18:00-19:00 | 5       | 5        | 10    |
| 19:00-20:00 | 0       | 0        | 0     |
| 20:00-21:00 | 0       | 0        | 0     |
| 21:00-22:00 | 50      | 0        | 50    |
| 22:00-23:00 | 0       | 50       | 50    |
| 23:00-24:00 | 0       | 0        | 0     |

DTA also provided an estimated HGV profile as shown in **Table 2** based on a typical operators' activities, split between unaccompanied freight [which ABP notes is generally spread across the day] and accompanied freight [which ABP highlights that this is more focused on sailing times].

Table 2- Extract of working draft TA- 24hr Traffic Profile for HGVs [End User]

|             | Inbound | Outbound | Total |
|-------------|---------|----------|-------|
| 00:00-01:00 | 2       | 1        | 3     |
| 01:00-02:00 | 2       | 1        | 2     |
| 02:00-03:00 | 1       | 1        | 2     |
| 03:00-04:00 | 1       | 1        | 2     |
| 04:00-05:00 | 1       | 3        | 4     |
| 05:00-06:00 | 3       | 9        | 12    |
| 06:00-07:00 | 12      | 22       | 33    |
| 07:00-08:00 | 19      | 32       | 50    |
| 08:00-09:00 | 26      | 25       | 51    |
| 09:00-10:00 | 31      | 221      | 252   |
| 10:00-11:00 | 36      | 90       | 125   |
| 11:00-12:00 | 41      | 73       | 114   |
| 12:00-13:00 | 44      | 74       | 117   |
| 13:00-14:00 | 50      | 79       | 129   |
| 14:00-15:00 | 63      | 70       | 133   |
| 15:00-16:00 | 90      | 63       | 153   |
| 16:00-17:00 | 107     | 62       | 168   |
| 17:00-18:00 | 121     | 52       | 173   |
| 18:00-19:00 | 145     | 41       | 186   |
| 19:00-20:00 | 128     | 29       | 157   |
| 20:00-21:00 | 38      | 16       | 54    |
| 21:00-22:00 | 6       | 6        | 12    |
| 22:00-23:00 | 3       | 2        | 5     |
| 23:00-24:00 | 2       | 1        | 3     |

\*numbers have been rounded

JSJV previously had reservations between the end user profile presented and the arrival / departure profile based on the Port of Immingham profile. JSJV requested that



evidence be provided for review that shows what the 'typical operators activities' arrival / departure profile is based on.

In response, DTA has presented existing operator data based on Gate Records Data from January 2021 - August 2021. An extract is shown in **Table 3**.

Table 3- Extract of working draft TA- Existing Operator Data [From Gate Records data]

| Hour        | Check-in Time |        |               | Exit Time |             |     |               |     |
|-------------|---------------|--------|---------------|-----------|-------------|-----|---------------|-----|
| nour        | Accom         | panied | Unaccompanied |           | Accompanied |     | Unaccompanied |     |
| 00:00-01:00 | 0             | 0%     | 180           | 0%        | 0           | 0%  | 71            | 0%  |
| 01:00-02:00 | 0             | 0%     | 110           | 0%        | 0           | 0%  | 68            | 0%  |
| 02:00-03:00 | 1             | 0%     | 86            | 0%        | 0           | 0%  | 50            | 0%  |
| 03:00-04:00 | 1             | 0%     | 99            | 0%        | 0           | 0%  | 51            | 0%  |
| 04:00-05:00 | 2             | 0%     | 103           | 0%        | 0           | 0%  | 192           | 0%  |
| 05:00-06:00 | 3             | 0%     | 251           | 0%        | 0           | 0%  | 600           | 1%  |
| 06:00-07:00 | 3             | 0%     | 848           | 2%        | 6           | 0%  | 1,502         | 3%  |
| 07:00-08:00 | 0             | 0%     | 1,382         | 3%        | 208         | 1%  | 1,970         | 4%  |
| 08:00-09:00 | 4             | 0%     | 1,922         | 4%        | 193         | 1%  | 1,526         | 3%  |
| 09:00-10:00 | 9             | 0%     | 2,228         | 4%        | 13,510      | 70% | 1,728         | 4%  |
| 10:00-11:00 | 30            | 0%     | 2,575         | 5%        | 3,635       | 19% | 2,556         | 5%  |
| 11:00-12:00 | 35            | 0%     | 2,953         | 6%        | 681         | 4%  | 4,340         | 9%  |
| 12:00-13:00 | 94            | 0%     | 3,120         | 6%        | 362         | 2%  | 4,705         | 10% |
| 13:00-14:00 | 211           | 1%     | 3,445         | 7%        | 2,227       | 1%  | 5,194         | 11% |
| 14:00-15:00 | 630           | 3%     | 4,008         | 8%        | 196         | 1%  | 4,614         | 10% |
| 15:00-16:00 | 1,319         | 6%     | 5,296         | 10%       | 144         | 1%  | 4,185         | 9%  |
| 16:00-17:00 | 1,940         | 10%    | 5,871         | 12%       | 86          | 0%  | 4,158         | 9%  |
| 17:00-18:00 | 3,007         | 15%    | 5,848         | 12%       | 55          | 0%  | 3,557         | 7%  |
| 18:00-19:00 | 4,881         | 24%    | 5,713         | 11%       | 38          | 0%  | 2,818         | 6%  |
| 19:00-20:00 | 6,414         | 31%    | 2,953         | 6%        | 31          | 0%  | 1,962         | 4%  |
| 20:00-21:00 | 1,816         | 9%     | 972           | 2%        | 17          | 0%  | 1,101         | 2%  |
| 21:00-22:00 | 11            | 0%     | 453           | 1%        | 17          | 0%  | 397           | 1%  |
| 22:00-23:00 | 0             | 0%     | 217           | 0%        | 6           | 0%  | 139           | 0%  |
| 23:00-24:00 | 1             | 0%     | 162           | 0%        | 0           | 0%  | 78            | 0%  |

The existing HGV delivery profile accords with the estimated 24hr traffic generation summary based on end user profile presented in **Table 2**. JSJV agree that the use of existing HGV delivery profile data provides a reasonable indication of the variation in daily traffic generation.

#### Peak hour identification

DTA previously considered traffic survey data within the local highway and used the AM peak of 07:00-08:00 and the PM peak of 17:00-18:00. In TM01, JSJV requested that the peak hour is investigated, specifically considering the SRN to ensure that the peak hour selected is considered robust.

In response, DTA has presented an assessment of network peak hour to confirm the peak hours. An extract of this analysis is shown in **Table 4**.



Table 4- Extract of working draft TA- Peak Hour Analysis

| Survey I                  | AM Peak        | PM Peak     |             |
|---------------------------|----------------|-------------|-------------|
| Ousens Read               | Northwestbound | 08:00-09:00 | 16:00-17:00 |
| Queens Road               | Southeastbound | 07:00-08:00 | 13:00-14:00 |
| Humber Road (N of         | Eastbound      | 06:00-07:00 | 16:00-17:00 |
| security)                 | Westbound      | 07:00-08:00 | 16:00-17:00 |
| Humber Road (S of         | Eastbound      | 07:00-08:00 | 14:00-15:00 |
| security)                 | Westbound      | 10:00-11:00 | 16:00-17:00 |
| Foot Coto                 | Northbound     | 07:00-08:00 | 13:00-14:00 |
| East Gate                 | Southbound     | 08:00-09:00 | 16:00-17:00 |
| A1172 (N of Kilm Land)    | Northbound     | 07:00-08:00 | 14:00-15:00 |
| A1173 (N of Kiln Lane)    | Southbound     | 07:00-08:00 | 16:00-17:00 |
| A1172 (N of Kings Dood)   | Northbound     | 07:00-08:00 | 16:00-17:00 |
| A1173 (N of Kings Road)   | Southbound     | 08:00-09:00 | 16:00-17:00 |
| Manhu Daad                | Northbound     | 07:00-08:00 | 16:00-17:00 |
| Manby Road                | Southbound     | 08:00-09:00 | 16:00-17:00 |
| A180/                     | 07:00-08:00    | 16:00-17:00 |             |
| A160/ Ulceby Road/ Haboro | 07:00-08:00    | 16:15-17:15 |             |
| A160/ Humber Ro           | 07:00-08:00    | 16:00-17:00 |             |
| Humber Road               | 07:00-08:00    | 16:00-17:00 |             |
| A180/                     | 07:30-08:30    | 16:15-17:15 |             |
| A1173/ F                  | 07:30-08:30    | 16:15-17:15 |             |
| A1173/ Kings Road         |                | 07:15-08:15 | 16:00-17:00 |
| Queens Road/ Laporte Road |                | 07:00-08:00 | 16:15-17:15 |
| Laporte Road/ Kiln        | 07:15-08:15    | 16:00-17:00 |             |

The traffic surveys undertaken on the local highway network show that the majority of the local roads have observable peak hours of 07:00-08:00 in the AM, and 16:00-17:00 in the PM. Consequently, DTA has adjusted the identified highway peaks that have been adopted in the capacity assessments [07:00-08:00 and 16:00-17:00]. As the identified network peak hours coincide with the A180 / A160 peaks, JSJV consider this adjustment to appropriate given the data provided.

## Light vehicles

JSJV previously agreed with DTAs approach to distribute light vehicles. Light vehicle traffic is distributed using the 2011 Census Journey to Work data for the Middle Super Output Area [MSOA] Northeast Lincolnshire 001 which the site is located within.

#### **HGV**

The wider distribution for commercial traffic on the strategic road network has been derived using data included within the Base Year Freight Matrices [BYFM] published by the Department for Transport [2012]. The Matrices consist of the number of vehicles per average day between a set of origin-destination zone pairs for a 2006 base year. DTA confirms that these zones are based on all 408 local authority districts, unitary authorities and London Boroughs and point zones for the 88 largest ports, of which the Port of Immingham is one, 5 main freight airports and 56 major concentrations of distribution centres.

JSJV previously stated that, in order to agree with this approach and the resultant light vehicle assignment, a full breakdown of data should be submitted within the TA. JSJV



can confirm that DTA has now included the base data in Annex H. JSJV has reviewed the base data and agree that the approach to wider distribution of commercial traffic on the strategic highway network is appropriate.

DTA has ultimately estimated that 85% of HGV traffic will use East Gate with 15% using West Gate. JSJV note that this distribution has also been provisionally agreed to by NELC.

### Committed development

Committed development has been agreed with NELC. JSJV can confirm that this has not materially changed since the previous iteration of the TA.

# Junction capacity assessment

#### Assessment scenarios

Considering the scenarios presented within the capacity assessment, DTA has presented the following:

- 2021 Base:
- 2025 Base:
- 2025 Base + Committed;
- 2025 Base + Committed + Development;
- 2032 Base;
- 2032 Base + Committed; and
- 2032 Base + Committed + Development.

Considering the assessment scenarios presented, JSJV confirm that the operational analysis of the SRN is in accordance with the criteria set out in Circular 02/2013.

JSJV acknowledge that from the SR submitted in September 2021, the estimated construction timescales have been estimated to commence in Summer 2023 and are expected to have been largely completed by mid-2025.

# Assessment study area

JSJV note that four junctions within the study area considered by DTA are National Highways infrastructure as shown in **Figure 4**.



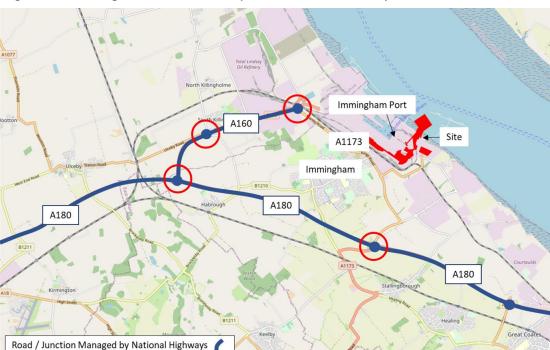


Figure 4: Strategic Road Network junctions within study area

JSJV has considered the capacity assessment provided for the following SRN junctions:

- A160/ Humber Road/ Manby Road Roundabout [Manby Roundabout];
- Brocklesby Interchange [A180 / A160];
- Stallingborough Interchange [A180 / A1173]; and
- A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout [Habrough Roundabout].

In addition, JSJV note that the DTA assessment considers the configuration of the slip road merge and diverge arrangements. DTA has provided draft merge / diverge assessments on the A180/ A1173 Interchange and the A160/ A180 Interchange [Brocklesby Interchange] have been undertaken in accordance with the requirements set out within the Design Manual for Roads and Bridges [DMRB] CD122 'Geometric design of grade separated junctions.'

### Queue length validation

JSJV previously noted that there was no mention of queue length calibration within the draft TA. To ensure a representative assessment is undertaken within the TA, JSJV requested full details be provided of ARCADY model validation, including the methodology undertaken to derive queue lengths and resultant impacts on the capacity assessment. In response, DTA confirms that the baseline modelling has been checked against the queues in Annex BD2 of the TA and "have been appropriately validated". JSJV has undertaken a review using the queue lengths presented in the TA and agree that the '2021 Base' assessment scenario accords with the observed queue lengths at Manby Roundabout, Brocklesby Interchange, Stallingborough Interchange and at Habrough Roundabout.



### Junctions 10 geometric parameters

DTA has used the ARCADY module of Junctions10 to provide an assessment of the operation of the junctions included within the study area.

DTA has provided an associated AutoCAD file to JSJV that contains Junctions 10 geometric parameters, JSJV has extracted the geometries and included an extract of each junction within **Figure 5** to **Figure 8**.

Figure 5: Manby Roundabout Geometric Parameters [DTA Drawing 23325]

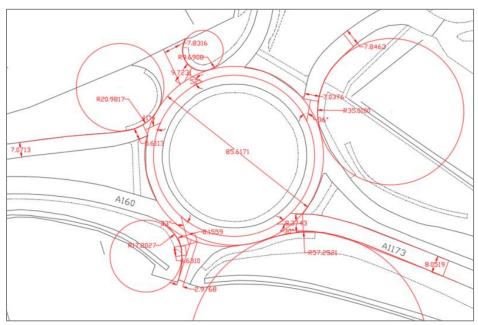


Figure 6: Brocklesby Interchange Geometric Parameters [DTA Drawing 23325]

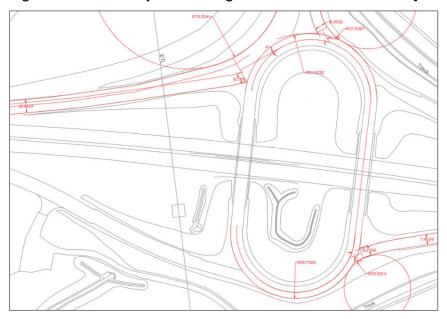




Figure 7: Stallingborough Interchange Geometric Parameters [DTA Drawing 23325]

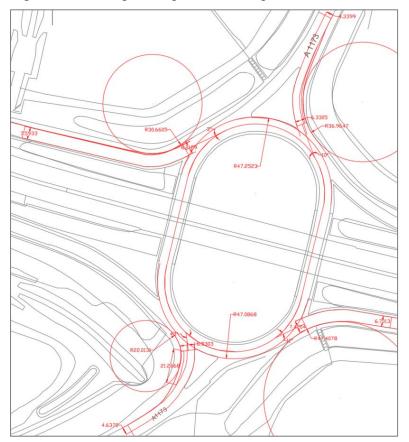
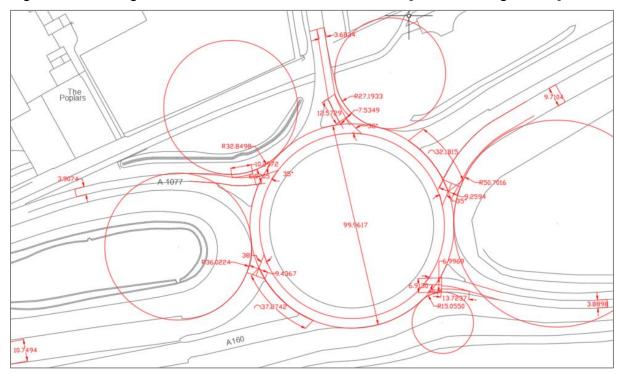


Figure 8: Habrough Roundabout Geometric Parameters [DTA Drawing 23325]



JSJV previously reviewed the geometric parameters used within the capacity assessment and maintain agreement with the entry width, approach width, effective flare length, entry radius, entry conflict angle and inscribed circle diameter for each of the capacity assessment models. These geometries remain unchanged from the previous iteration.



In summary, JSJV agree with the Junctions 10 geometric parameters and the associated queue validation and JSJV consider the SRN capacity assessment models generally provide an accurate representation of the operation of the SRN junctions. However, to fully satisfy JSJV in terms of operational assessment, it is requested that full details be provided, with supporting evidence, substantiating the assumption of 150 employee trips arrivals / departures as stated within the trip generation section of the TA.

### Capacity assessment results

JSJV has reviewed the results from the capacity assessment provided in Annex K of the TA. The results confirm that for all of the SRN junctions assessed, with regards to the maximum reported RFC and estimated traffic queues during the most onerous scenarios at Manby Roundabout, Brocklesby Interchange, Stallingborough Interchange or Habrough Roundabout, the impacts are marginal and unlikely to result in a material impact. JSJV however refer to previous comments regarding the requirement to determine employee trips arrivals / departures to agree with the capacity assessment results.

# Merge / diverge assessment results

DTA has undertaken merge / diverge assessments on the A180 / A1173 Interchange and the A160 / A180 interchange in accordance with the guidance within Design Manual for Roads and Bridges (DMRB) CD122 'Geometric design of grade separated junctions'.

JSJV would highlight that in accordance with the requirements set out in Circular 02/2013 and Planning Practice Guidance, the opening year of the development should be used to assess whether mitigation is required.

#### A180 / A1173 Interchange

At present, both eastbound and westbound merge slip road and both diverge slip roads at the A180 / A1173 Interchange exist as 'Layout A' geometry with two lanes up and downstream on the mainline.

#### **Eastbound merge**

The 2019, 2025 and 2032 'no-development scenario' flows for the eastbound merge in both the AM and PM peaks require a '**Layout D'** with 1 lane upstream and 2 lanes downstream on the mainline.

The 2025 and 2032 'plus committed and development' scenario in the PM peak require a **Layout E** with 1 lane upstream and 2 lanes downstream on the mainline.

Notwithstanding the mainline lanes, from the eastbound merge assessment presented for the A180 / A1173 Interchange, the proposed development would result in the need for a layout step change from Layout D to Layout E.

#### Westbound merge

The 2019, 2025 and 2032 'no-development scenario' flows for the westbound merge in both the AM and the PM peak require a **Layout D** with 1 lane upstream and 2 lanes downstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in the AM and the PM peak also require a **Layout D** with 1 lane upstream and 2 lanes downstream on the mainline



The proposed development does not trigger the need to alter the layout of the westbound merge slip road.

#### **Eastbound diverge**

The 2019, 2025 and 2032 'no-development scenario' flows for the eastbound diverge in both the AM and the PM peaks require a **Layout A** with 1 lane upstream and downstream on the mainline.

The addition of the proposed development in the 2019, 2025 and 2032 'plus committed and development' scenarios in the AM peak requires a **Layout C** with 1 lane downstream and 2 lanes upstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in the PM peak require a **Layout A** with 1 lane upstream and 2 lanes downstream on the mainline.

Notwithstanding the mainline lanes, from the eastbound diverge assessment presented for the A180 / A1173 Interchange, the proposed development would result in the need for a layout step change from **Layout A** to **Layout C**.

#### Westbound diverge

The 2019, 2025 and 2032 'no-development scenario' flows for the westbound diverge in both the AM and the PM peak require a **Layout A** with 1 lane upstream and 2 lanes downstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in the AM peak requires a **Layout C** with 1 lane downstream and 2 lanes upstream on the mainline with the PM peak, requiring a **Layout A** with 1 lane upstream and downstream on the mainline.

Notwithstanding the mainline lanes, from the westbound diverge assessment presented for the A180 / A1173 Interchange, the proposed development would result in the need for a layout step change from **Layout A** to **Layout C**.

JSJV has tabulated the outcomes from the merge / diverge assessment as shown in **Table 5.** 

Table 5- Merge / Diverge Assessment A180 / A1173 Interchange

| Fooility. | Direction | Scenario              | Scenario        |                 |  |
|-----------|-----------|-----------------------|-----------------|-----------------|--|
| Facility  | Direction | Scenario              | AM Peak Hour    | PM Peak Hour    |  |
|           |           | Existing Facililty    | Layout A- 2 / 2 |                 |  |
|           | Eastbound | 2025 Base             | Layout D- 1 / 2 | Layout D- 1 / 2 |  |
| Morgo     |           | 2025 With Development | Layout E-1/2    | Layout E- 1 / 2 |  |
| Merge     |           | Existing Facililty    | Layo            | ut A- 2 / 2     |  |
|           | Westbound | 2025 Base             | Layout D- 1 / 2 | Layout D- 1 / 2 |  |
|           |           | 2025 With Development | Layout D- 1 / 2 | Layout D- 1 / 2 |  |
|           |           | Existing Facililty    | Layo            | ut A- 2 / 2     |  |
|           | Eastbound | 2025 Base             | Layout A- 1 / 1 | Layout A- 1 / 1 |  |
| Divorgo   |           | 2025 With Development | Layout C-1/2    | Layout A- 1 / 2 |  |
| Diverge   |           | Existing Facililty    | Layo            | ut A- 2 / 2     |  |
|           | Westbound | 2025 Base             | Layout A- 1 / 2 | Layout A- 1 / 2 |  |
|           |           | 2025 With Development | Layout C-1/2    | Layout A- 1 / 2 |  |

Clearly the A180 / A1173 Interchange merge / diverge assessments show a need for upgrade with a step change indication triggered by the proposed development at the



eastbound merge, eastbound diverge and westbound diverge. The step change refers to the merge / diverge geometry. Further analysis is required in this regard and JSJV do not agree with DTAs arguments relating to the acceptability of 'Layout A with two lanes up and downstream on the mainline' for the merge / diverge slip roads identified.

#### A160/ A180 Interchange

At present, both merge slip road and both diverge slip roads at the A160 / A180 Interchange exist as **Layout A** with two lanes up and downstream on the mainline.

#### **Eastbound merge**

The 2019, 2025 and 2032 'no-development scenario' flows for the eastbound merge in both the AM and the PM peak require a **Layout D** with 1 lane upstream and 2 lanes downstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in the AM and the PM peak also require a **Layout D** with 1 lane upstream and 2 lanes downstream on the mainline.

The proposed development does not trigger the need to alter the layout of the eastbound merge slip road.

#### Westbound merge

The 2019, 2025 and 2032 'no-development scenario' flows for the westbound merge in both the AM and the PM peak require a **Layout D** with 1 lane upstream and 2 lanes downstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in the AM and the PM peak also require a **Layout D** with 1 lane upstream and 2 lanes downstream on the mainline.

The proposed development does not trigger the need to alter the layout of the westbound merge slip road.

#### **Eastbound diverge**

The 2019, 2025 and 2032 'no-development scenario' flows for the eastbound diverge in the AM peak requires a **Layout C** with 1 lane downstream and 2 lanes upstream on the mainline with the PM peak, requiring a **Layout A** with 1 lane upstream and downstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in both the AM and the PM peak require a **Layout C** with 1 lane upstream and 2 lanes downstream on the mainline.

Notwithstanding the mainline lanes, from the eastbound diverge assessment presented for the A160/ A180 Interchange, the proposed development would result in the need for a layout step change from **Layout A** to **Layout C**.

#### Westbound diverge

The 2019, 2025 and 2032 'no-development scenario' flows for the westbound diverge in both the AM and the PM peak require a **Layout A** with 1 lane upstream and 2 lanes downstream on the mainline.

The 2019, 2025 and 2032 'plus committed and development' scenarios in both the AM and the PM peak require a **Layout C** with 1 lane upstream and 2 lanes downstream on the mainline.



Notwithstanding the mainline lanes, from the westbound diverge assessment presented for the A160/ A180 Interchange, the proposed development would result in the need for a layout step change from **Layout A** to **Layout C**.

JSJV has tabulated the outcomes from the merge / diverge assessment as shown in **Table 6.** 

Table 6- Merge / Diverge Assessment A160 / A180 Interchange

| Facility | Direction | Cooperio              | Scenario        |                 |  |
|----------|-----------|-----------------------|-----------------|-----------------|--|
| Facility | Direction | Scenario              | AM Peak Hour    | PM Peak Hour    |  |
|          |           | Existing Facililty    | Layout A- 2 / 2 |                 |  |
|          | Eastbound | 2025 Base             | Layout D- 1 / 2 | Layout D- 1 / 2 |  |
| Morgo    |           | 2025 With Development | Layout D- 1 / 2 | Layout D- 1 / 2 |  |
| Merge    |           | Existing Facililty    | Layout A-       | 2/2             |  |
|          | Westbound | 2025 Base             | Layout D-1/2    | Layout D- 1 / 2 |  |
|          |           | 2025 With Development | Layout D-1/2    | Layout D- 1 / 2 |  |
|          |           | Existing Facililty    |                 |                 |  |
|          | Eastbound | 2025 Base             | Layout C-1/2    | Layout A- 1 / 1 |  |
| Divorgo  |           | 2025 With Development | Layout C-1/2    | Layout C- 1 / 2 |  |
| Diverge  |           | Existing Facililty    | Layout A-       | 2/2             |  |
|          | Westbound | 2025 Base             | Layout A- 1 / 2 | Layout A- 1 / 2 |  |
|          |           | 2025 With Development | Layout C-1/2    | Layout C- 1 / 2 |  |

The A160/ A180 Interchange merge / diverge assessments show a need for upgrade with a step change indication triggered by the proposed development at the eastbound diverge and westbound diverge. Further analysis is required in this regard and JSJV do not agree with DTAs arguments relating to the acceptability of 'Layout A with two lanes up and downstream on the mainline' for the merge / diverge slip roads identified. DTAs analysis appears to assess singularly the number of lanes on the mainline and not the merge / diverge geometries as stipulated in CD122 'Geometric design of grade separated junctions'.

# **Travel Plan**

It is noted that DTA has provided a Framework Travel Plan [TP] within the latest iteration of documents submitted, to be achieved over a five-year implementation period.

The TP sets an initial 10% mode shift reduction target in car use for employees against the baseline mode share of 79.8%. JSJV agree with this target. JSJV note that it is stated that the base mode share for the site and associated car driver target will be reviewed within three months of first occupation.

JSJV also note that the TP outlines the responsibilities of the different parties involved with regards to implementing and monitoring the TP.

An extract of the TP measures to be implemented are shown in **Table 7**.



Table 7- Extract of working draft TA- Travel Plan Measures

| Preliminary Design Feature    | Description  |
|-------------------------------|--|
| Pedestrian and Cycle Access   | Pedestrian and cycle access is being developed on site, separately to this proposed development.   |
| Cycle Parking                 | Cycle parking will be provided on site, located near to the main entrance points of buildings, and will be covered and secure.   |
| Public Transport              | A footway between the bus stop on Laporte Road and the proposed development will be provided as part of the proposals. This will allow safe access to public transport.                |
| Detailed Design Feature       |  |
| Car Share Spaces              | Consideration will be given to providing allocated car parking for car-sharers. These would be provided in a priority location and reviewed as part of the Travel Plan implementation. |
| Electric Charging Points      | Electric vehicle charging points are to be provided as part of the development proposals.  |
| Showering/changing Facilities | Shower and changing facilities will be provided on-site to accommodate staff travel by active modes.   |

According to National Highways guidance set out in 'A guide to working with National Highways on planning matters', the TP should demonstrate how proposals aim to reduce the amount of private vehicle trips and support sustainable transport. As a result, the JSJV recommend that TP should:

- Explicitly demonstrate how the proposals will reduce the need to travel, especially by car;
- Clearly demonstrate how the proposals will improve accessibility by all modes of travel and influence travel behaviours; and
- Thoroughly assess the likely impact of residual trips [i.e., after measures have been considered].

JSJV would highlight the following deficiencies in the TP:

- A firm financial commitment should be made in the TP with regards to funding for the measures proposed in the short, medium and long term; and
- The TP monitoring strategy should be designed to monitor the level of vehicle trips assumed in the TA- currently, staff mode share is the only factor that is proposed to be monitored.

JSJV previously agreed with NELCs general disagreement with the applications general theme of discouragement of sustainable travel. The TP measures submitted as 'preliminary design features' goes some way to promote sustainable transport. JSJV will liaise with NELC to discuss these matters and consider the acceptability of the TP presented.

# Signage Scheme

JSJV acknowledges the Applicant's proposal to amend three existing signs within the SRN. From an initial review of the signage strategy, JSJV will liaise with National Highways and the Council to provide further guidance on the inbound and outbound signage scheme presented.

At this point, JSJV would note that to agree the signage scheme proposed, full design is required and the design would be subject to Stage 1 Road Safety Audit before determination of the application.



To progress matters, DTA should provide details on how the Applicant intends to deliver the signage works.

# **Summary and Conclusions**

**Pre-application / Scoping Response** – comments are made on the pre-application / scoping in order to assist defining an appropriate assessment of the Strategic Road Network.

A summary of our comments for the preparation of the TA and TP documents is detailed below:

- Given the scale of the proposed development and its proximity to the Strategic Road Network, JSJV suggest that a construction traffic management plan [CTMP] should be recommended as a condition associated with the planning permission if granted. National Highways should approve the CTMP and CWTP documents prior to commencement of works.
- Whilst JSJV appreciate the current restrictions on passenger numbers enforced by the port, to satisfy National Highways by means of an enforceable restrictive limit that can be relied on in perpetuity. JSJV / National Highways will explore the suitability of the potential for a restrictive condition to be applied to the passenger transport proposals;
- JSJV would request that full details be provided, with supporting evidence, substantiating the assumption of 150 employee trips arrivals / departures; and
- DTAs analysis appears to assess only the number of lanes on the mainline and not the merge / diverge geometries as stipulated in CD122 'Geometric design of grade separated junctions'. The A160/ A180 Interchange and A180 / A1173 Interchange merge / diverge assessments ultimately show a need for upgrade with a step change indication triggered by traffic generation from the proposed development. JSJV do not agree with the DTA comment relating to the acceptability of 'Layout A with two lanes up and downstream on the mainline' for the merge / diverge slip roads identified at both junctions of concern.

### Annex C

Both marine and terrestrial archaeology have been identified and have been 'scoped in' in this assessment.

#### For Clarity;

The information in the heritage assessment/EIA needs to provide sufficient evidence to understand the impact of the proposal on the significance of any heritage assets and their settings, sufficient to meet the requirements of paragraph 194 of the National Planning Policy Framework (NPPF).

The National Planning Policy Framework states that 'Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation' (para 194).

We would expect the EIA to contain a full archaeological evaluation report which explores in the first place non-intrusive evaluation of the site, and, if this suggests that further information is required we would expect intrusive evaluation in the form of trial trenching to further inform the heritage impact statement as to presence/absence/ location, depth, survival and significance of any remains. This should inform a suitable mitigation strategy for the impact.

In addition to the underground remains we would expect a report on the potential impact on the historic landscape. North East Lincolnshire has had Historic Landscape Characterisation undertaken and this should be consulted.

Regarding setting issues, potential impacts on the settings and significance of designated and non-designated heritage assets which would experience visual change should be evidenced using accurate visual representations. Viewpoints, including views of, from, and across heritage asset receptors as well as general intervisibility, all have historic context and need to be assessed properly to determine the contribution of the setting of the heritage asset and the potential impact upon it by development or proposed mitigation measures.

The NPPF states that 'Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction or from development within its setting), should require clear and convincing justification. '(para200) and also 'the effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application.' (para 203)

The Environmental Impact Assessment should contain sufficient information to enable an informed planning decision to be made.

Louise

#### **Louise Jennings**

Heritage Officer

**Development Management Services** 

Places & Communities North - NEL



| Thanks   |
|--|
| Rachel   |
| Rachel Graham  |
| NELC Ecologist   |
|  |
|  |
|  |
|  |
| I have looked at the document and from a landscape prospective I have no concerns about it.  Given the location of the docks and the proposal the impact on the landscape character are very low on the priority list. |
| Regards  |
| Paul A Chaplin   |
| Trees and Woodland Officer   |
| Development Manageemnt Services  |
| Places & Communities – NEL   |
| n@nelincs.gov.uk   |
| Tel. +   |
| Mob. +   |

| I can confirm I am content with the scoping.  |
|---|
| Kind regards  |
| Lara  |
|   |
| Lara Hattle   |
| Highways & Transport Planner  |
| Highway Assets  |
|   |
|   |
|   |
|   |
| Good Morning Richard  |
|   |
| Having reviewed the AQ section of the scoping request, everything we'd expect to be covered within the proposed Air Quality Assessment is included. |
| Within the proposed / in Quality / 65253/fferre is included.  |
| Kind Regards  |
|   |
| Louisa  |
| Louisa Hewett, Environmental Protection Officer, North East Lincolnshire Council  |
| Doughty Road, Grimsby, DN32 OLL   |
|   |
|   |
|   |

From:

Subject: RE: 23325 - Proposed Ro-Ro Facility at Immingham Confidential

Date:17 June 2022 15:06:49Attachments:Eastgate Google Route.png

Eastgate Route B.png
Eastgate Route A.png

Hi Lara,

I've had a look at these and provide the following:

- Consider use of a sensitivity test for bus construction days; what is the variance from 70 two-way HGV movements this would generate? (5.1.3)
- Confirm local network peak times against observed data. Traffic patterns can be unusual around the docks due to external factors and unusual shift patterns. Evidence requires of assumed peaks.
- Generally agree with the 85 / 15 split for access.
- I've attached three files, two of which are the 'obvious' route choices to get from eastgate to the A180 westbound. The third is Google's advised route. My concern here is that the route past Pelham Road / Kings Road roundabout is the shortest distance of the three, and depending on a drivers' SATNAV setting, this might be the preferred route. This has potential implications to the AQMA, which was revoked a few years ago following the Council's major highways scheme to deliver a new A18 A180 link road and prevent HGVs from traversing the Kings Road / Pelham Road roundabout. Need to see strong evidence that this route will be discouraged as strongly as possible. Consultation with the Council's environmental team and potentially DEFRA required regarding this issue.
- I note that the approved c.525 dwelling development on Stallingborough Road, Immingham, has been missed from the committed development list
- I note that the A1173 / SHJIIP roundabout has been missed from the junction assessments list, although the development has been included in Com Dev. The roundabout should be assessed, as this proposal has the potential to have a significant impact on the Council's flagship industrial estate.
- Would like to request access to the traffic models used for Kings Road / A1173, A1173 / Kiln Lane, and SHIIP once completed.
- I note from the traffic modelling outcomes that the A1173 / Kiln Lane roundabout exceeds .85 RFC (subject to model checks). I would be more comfortable with the proposed 'no mitigation required' suggestion if sustainable travel credentials where improved.

I note the general theme of discouragement of sustainable travel and would actually see this application (as it is substantial in nature) to consider modernising the portside area to be accessible to sustainable modes. Actively discouraging access by bicycle or on foot is not consistent with modern good practise. The entire portside area, owned in full by the applicant, has the potential for excellent active travel links with Immingham, and consideration should be given to a change in policy and infrastructure to enable this as part of this proposal.

Happy to discuss further.

Kind regards, Mark

# **Mark Gibbons**

Major Transport Projects Manager Highways and Transport



#### equans.co.uk

NEW OXFORD HOUSE, GEORGE STREET Grimsby, North East Lincolnshire, DN31 1HB

From: Lara Hattle (EQUANS) @nelincs.gov.uk>

**Sent:** 17 June 2022 09:20

**To:** Mark Gibbons (EQUANS) .nelc@nelincs.gov.uk>

Subject: FW: 23325 - Proposed Ro-Ro Facility at Immingham Confidential

Hi Mark,

Following my email last week this is a further report on the junction modelling.

Will you be able to come back to me by next week? They are submitting to Government shortly so have asked for my response by the 27<sup>th</sup> June.

Many thanks

Lara

#### **Lara Hattle**

#### **Senior Highways Development Control Officer**

**Highway Assets** 

Places & Communities - NEL





#### engie.co.uk

New Oxford House George Street Grimsby, North East Lincolnshire DN31 1HB **From:** Simon Tucker @dtatransportation.co.uk> Sent: 15 June 2022 12:24 **To:** Lara Hattle (EQUANS) @nelincs.gov.uk>; 'Louisa Simpson' @northlincs.gov.uk>; 'Geoghegan, Simon' @highwaysengland.co.uk>; 'TJeynes@abports.co.uk' @abports.co.uk> **Cc:** Rose Tinley <u>@dtatransportation.co.uk</u>>; 'Nicola Robinson' @abports.co.uk>; 'MANN Harry' @systra.com>; 'Greenwood, Brian' @clvdeco.com> Subject: 23325 - Proposed Ro-Ro Facility at Immingham Confidential Hi all. Thank you for your time last week. As promised I attach: 1. Junction Modelling Report (Appendix F) of the TA will full appendices. The measurements for the junctions are on a single CAD file available here -2. Schematic Signage proposals again for comments. Perhaps you could all confirm receipt and if you need anything else please let me know. Kind regards Simon Tucker This email is confidential and is intended only for the addressee. It is the property of the sender and if you are not the addressee you must not deal with it in any way other than to notify us of its receipt by you in error. Registered Office: DTA Transportation Limited, Forester House, Doctors Lane, Henley in Arden, Warwickshire B95 5AW Registered in England & Wales No. 5305640 From: Simon Tucker **Sent:** 31 May 2022 17:52 To: 'Lara Hattle (EQUANS)' @nelincs.gov.uk>; 'Louisa Simpson' @northlincs.gov.uk>; 'Geoghegan, Simon' @highwaysengland.co.uk>; 'TJeynes@abports.co.uk' <tievnes@abports.co.uk> **Cc:** Rose Tinley <u>@dtatransportation.co.uk</u>>; 'Nicola Robinson' @abports.co.uk>; 'MANN Harry' @systra.com>; 'Greenwood, Brian' @clydeco.com> Subject: 23325 - Proposed Ro-Ro Facility at Immingham Confidential

Hi all,

I look forward to seeing you all next Thursday for our meeting. I propose the following agenda.

- 1. Previous meeting notes (attached).
- 2. Update on timescales for DCO application.
- 3. Working Draft TA (attached). I haven't included all the appendices at this stage but do also include:
  - a. Committed development (Appendix E)
  - b. Junction Modelling Assessments (Appendix F)
  - c. Signage Strategy (Appendix I)
- 4. Next steps and next meeting.

#### Kind regards

#### Simon Tucker



Tel:

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### **Annex D**

# FW: Pla Application CON/SCO/2021/4

#### Louisa Sim

Tue 05/10/2021

To:Andrew Law < w@northlincs.gov.uk>;

Cc:Planning < Pla thlincs.gov.uk >; Highwaydevelopment < Highwaydevelopment@northlincs.gov.uk >;

Hi Andy,

I am happy wit posed approach to assessing the Traffic and Transport impacts identified in the EIA Scoping Note.

Kind regards

Louisa Simpson Highway Development Services Team Leader Assets & Infrastructure North Lincolnshire Council



From: planningapplications <planningapplications@northlincs.gov.uk>

Sent: 30 September 2021 10:56

To: Highwaydevelopment < Highwaydevelopment@northlincs.gov.uk >

Subject: Planning Application CON/SCO/2021/4

Dear Sir/Madam,

Application No: CON/SCO/2021/4

**Proposal:** EIA Scoping request for a proposed roll-on/roll-off facility including marine works

Site Location: Associated British Ports, Immingham Eastern Ro-Ro Terminal

**Applicant:** Associated British Ports

Case Officer: Andrew Law

Your views are requested on the above consultation. You can view the associated documents directly on the web site by selecting the following link:

#### http://infrastructure.planninginspectorate.gov.uk/document/TR030007-000009

Any comments should reach me no later than **7 October 2021**. In the meantime if you have any queries about the proposal these should be directed to the case officer named above.

If you have no objections or comments to make then early notification of this will assist me to deal with the consultation promptly. Any comments you do make will appear on the council's web site.

#### **Development Management**

North Lincolnshire Council Business Development Church Square House 30-40 High Street Scunthorpe DN15 6NL

Tel: 01724 297000

Email: planning@northlincs.gov.uk

Web: www.northlincs.gov.uk

From:

Subject: FW: 23325 - Proposed Ro-Ro Facility at Immingham Confidential

**Date:** 27 June 2022 12:59:08

Attachments: <u>image001.jpg</u>

See below also for review.

Simon

#### Kind regards

#### Simon Tucker



Tel:

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From: Louisa Simpson @northlincs.gov.uk>

**Sent:** 24 June 2022 14:46

**To:** Simon Tucker @dtatransportation.co.uk>

Subject: RE: 23325 - Proposed Ro-Ro Facility at Immingham Confidential

Hi Simon,

#### My comments are:

- 2.8.1 an addendum to the Publication Draft of the Local Plan is currently being consulted on, with a closing date of 11<sup>th</sup> July 2022.
- 5.1 presumably a Construction Phase Traffic Management Plan, will be produced prior
  to works starting. Will you be looking to agree preferred routes to site for HGV
  movements as part of this? I understand that the average movements will be 70 loads (or
  140 two-way movements) a day, is any information available on the worst case scenario of
  expected load movements, and the length of time this could last for.
- 5.4.2 can you provide the traffic data to support this please as the pm peak in the area used to be widely accepted as 16:00 17:00.
- 5.5.9 agree with the suggested split
- 6.1 has the Able Logistics Park been included as a committed development (PA/2009/0600 | North Lincolnshire Planning Portal (northlincs.gov.uk))? If it has been dismissed, it would be useful to understand why?

Kind regards

Louisa Simpson
Highway Development Services Team Leader
Economy & Environment
North Lincolnshire Council

Hi all,

I look forward to seeing you all next Thursday for our meeting. I propose the following agenda.

- 1. Previous meeting notes (attached).
- 2. Update on timescales for DCO application.
- 3. Working Draft TA (attached). I haven't included all the appendices at this stage but do also include:
  - a. Committed development (Appendix E)
  - b. Junction Modelling Assessments (Appendix F)
  - c. Signage Strategy (Appendix I)
- 4. Next steps and next meeting.

#### Kind regards

#### Simon Tucker



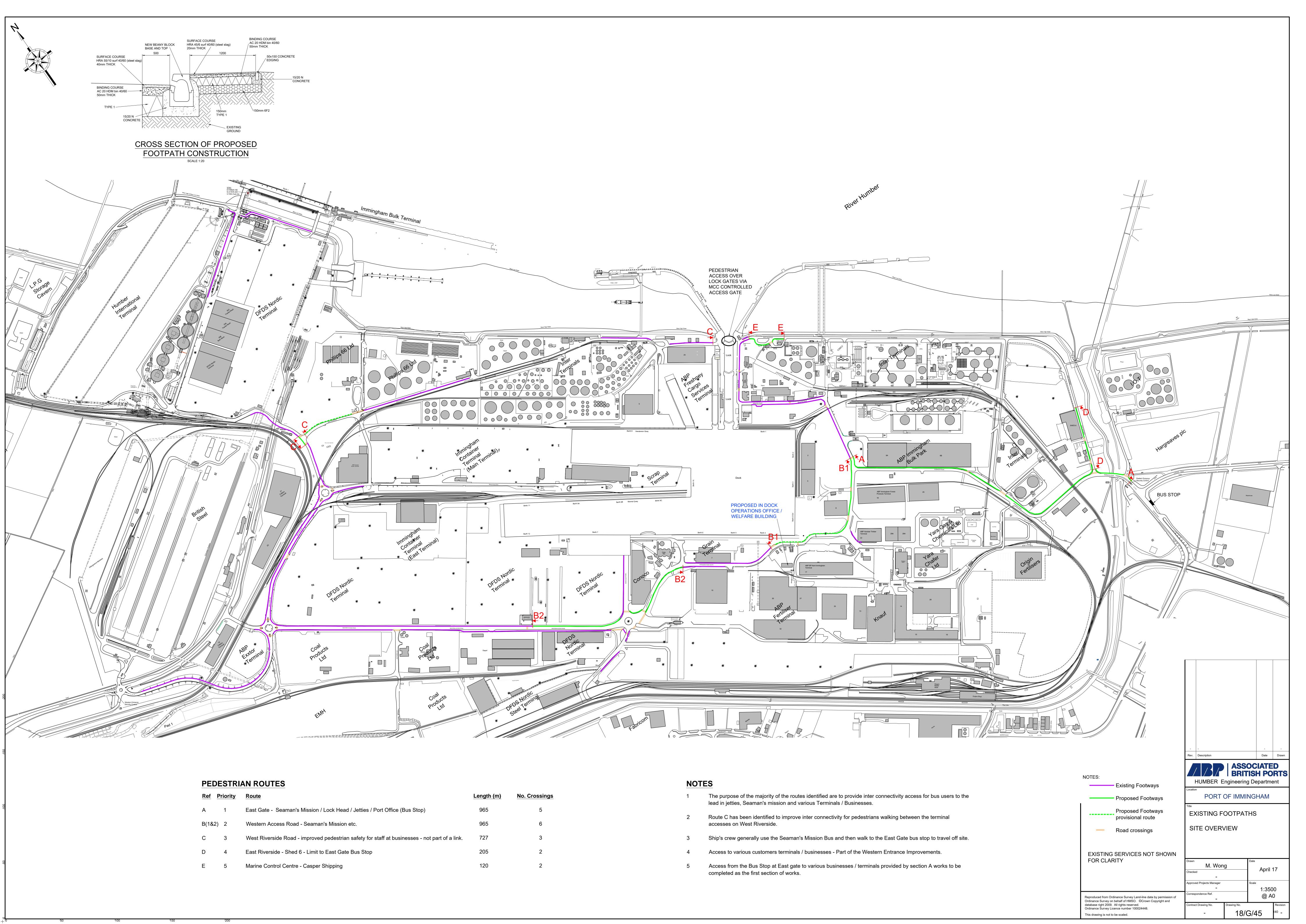


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workplace.

### Annex E



## Annex F

#### **Traffic Assumptions = Construction**

|                  |        |              |          |       |       | Average Daily |
|------------------|--------|--------------|----------|-------|-------|---------------|
|                  | Total  | Unit         | per Load | Loads | Moves | Movement      |
| Steel piles      | 7700   | tonnes       | 20       | 385   | 770   |               |
| RMC              | 30000  | m3           | 8        | 3750  | 7500  |               |
| Concrete precast | 7500   | m3           | 8        | 938   | 1875  |               |
| Reinforce        | 25000  | tonnes       | 20       | 1250  | 2500  |               |
| Steel buildings  | 6000   | tonnes       | 20       | 300   | 600   |               |
| Aggs             | 60000  | m3           | 8        | 7500  | 15000 |               |
| Sand             | 150000 | m3           | 8        | 18750 | 37500 |               |
| Blocks           | 0      | tonnes       | 18       | 0     | 0     |               |
| Ashpalt          | 81000  | tonnes       | 8        | 10125 | 20250 |               |
|                  |        |              |          |       | 85995 | 200           |
|                  |        |              |          |       |       |               |
|                  |        |              |          |       | AAWT  | 200           |
|                  |        |              |          |       | AADT  | 158           |
| Time             | 21     | months       |          |       |       |               |
|                  | 78     | weeks        |          |       |       |               |
| Working          | 5.5    | ays per weel | k        |       |       |               |
| Days wokring     | 429    |              |          |       |       |               |
| Total Days       | 546    |              |          |       |       |               |

### **Annex G**

|                    | All categories:<br>Method of travel to | Work<br>mainly at | Underground,<br>metro, light |       | Bus,<br>minibus |      | Motorcycle, scooter or | Driving a  | Passenger<br>in a car or |         |         | Other<br>method of<br>travel to |
|--------------------|--|-------------------|------------------------------|-------|-----------------|------|------------------------|------------|--------------------------|---------|---------|---------------------------------|
| Residence          | work                                   | or from           | rail, tram                   | Train | or coach        | Taxi | moped                  | car or van | van                      | Bicycle | On foot | work                            |
| Enfield 020        | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Malthan Fanat 024  | 1                                      | _                 | _                            | _     | _               |      | _                      | _          |                          |         | _       |                                 |
| Waltham Forest 024 | 1                                      | 0                 |                              | 1     | 0               |      | 0                      |            | 0                        | 0       | 0       |                                 |
| Bolton 023         | 1                                      | 0                 |                              | 0     |                 | _    |                        |            | 0                        | 0       | 0       |                                 |
| Bury 004           | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Bury 012           | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | -       |                                 |
| Tameside 024       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | -       |                                 |
| Trafford 017       | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 0          | 1                        | 0       | 0       | 0                               |
| Wigan 030          | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Wigan 040          | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| St. Helens 004     | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Sefton 006         | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Sefton 038         | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Wirral 004         | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Wirral 022         | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 0          | 1                        | 0       | 0       | 0                               |
| Wirral 042         | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Barnsley 009       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 0       |                                 |
| Barnsley 011       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Barnsley 018       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | -       |                                 |
| Barnsley 019       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Barnsley 025       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 0       |                                 |
| Barnsley 026       | 2                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Barnsley 029       | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 0       |                                 |
|                    |  |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
| Barnsley 030       | 2                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Doncaster 001      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Doncaster 003      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 1       |                                 |
| Doncaster 008      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Doncaster 014      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 0       |                                 |
| Doncaster 015      | 3                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 0       |                                 |
| Doncaster 016      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Doncaster 018      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       |         |                                 |
| Doncaster 022      | 2                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                        | 0       | 0       | 0                               |
| Doncaster 025      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Doncaster 030      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Doncaster 031      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Rotherham 003      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 0          | 1                        | 0       | 0       | 0                               |
| Rotherham 007      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 0          | 1                        | 0       | 0       | 0                               |
| Rotherham 011      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Rotherham 015      | 1                                      | 0                 | 0                            | 0     |                 | 0    |                        |            | 0                        | 0       | 0       |                                 |
| Rotherham 018      | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
| Rotherham 019      | 1                                      | 0                 |                              | 0     |                 |      |                        |            | 0                        | 0       | 0       |                                 |
| Rotherham 020      | 1                                      | 0                 |                              | 0     |                 |      |                        | 1          | 0                        | 0       |         | -                               |
| Rotherham 021      | 1                                      | 0                 |                              |       |                 |      | -                      |            | 0                        | 0       |         |                                 |
| Rotherham 029      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        |         |         |                                 |
| Rotherham 031      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         | -                               |
| Sheffield 004      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 014      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 030      | 1                                      |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
|                    |  | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 036      | 3                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 046      | 2                                      | 0                 |                              |       |                 |      |                        |            | 0                        |         |         |                                 |
| Sheffield 051      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 055      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 063      | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Sheffield 071      | 1                                      | 0                 | 0                            | 0     | 1               | 0    | 0                      | 0          | 0                        | 0       | 0       | 0                               |
| Newcastle upon     |  |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
| Tyne 005           | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
|                    |  |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
| North Tyneside 002 | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
|                    |  |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
| South Tyneside 014 | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
|                    |  |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
| South Tyneside 015 | 1                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                        | 0       | 0       | 0                               |
|                    |  |                   |                              |       |                 |      |                        |            |                          |         |         |                                 |
| South Tyneside 020 | 2                                      | 0                 | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                        | 0       | 0       | 0                               |
| Sunderland 007     | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Birmingham 064     | 1                                      | 0                 |                              |       |                 |      |                        |            | 0                        | 0       |         |                                 |
| Dudley 011         | 1                                      | 0                 | -                            |       |                 |      |                        |            |                          |         |         |                                 |
| Dudicy UII         |  | U                 | U                            | 0     |                 |      | 1 0                    |            | U                        | U       | U       | U                               |

|                                 | All categories:     |                |                              |       |                 |      |                        |            |                       |         |         | Other               |
|---------------------------------|---------------------|----------------|------------------------------|-------|-----------------|------|------------------------|------------|-----------------------|---------|---------|---------------------|
|                                 | Method of travel to | Work mainly at | Underground,<br>metro, light |       | Bus,<br>minibus |      | Motorcycle, scooter or | Driving a  | Passenger in a car or |         |         | method of travel to |
| Residence                       | work                | or from        | rail, tram                   | Train | or coach        | Taxi | moped                  | car or van | van                   | Bicycle | On foot | work                |
| Calderdale 019                  | 1                   | 0              | 0                            | 0     |                 |      | 0                      |            |                       |         |         |                     |
| Leeds 028                       | 2                   | 0              | 0                            | 0     |                 | 0    | 0                      |            |                       |         | 0       |                     |
| Hartlepool 001                  | 1                   | 0              | 0                            | 0     |                 | 0    | 0                      |            |                       |         |         |                     |
| Hartlepool 005                  | 3                   | 0              | 0                            | 0     |                 | 0    | 0                      |            |                       |         | 2       |                     |
| Middlesbrough 007<br>Redcar and | 1                   | U              | U                            | U     | U               | 0    | 0                      | 1          | U                     | U       | 0       | 0                   |
| Cleveland 012                   | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 001                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 002                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 005                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                | _                            |       | _               | _    | _                      |            | _                     | _       | _       | _                   |
| 006                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees<br>007         | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 0          | 0                     | ,       | 0       | 0                   |
| Stockton-on-Tees                |                     | U              | U                            | U     | U               | U    | U                      | 0          | U                     | 2       | U       | U                   |
| 011                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     | 0              | 0                            |       |                 |      |                        |            | 0                     | 0       |         | - 0                 |
| 013                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 0          | 1                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 015                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 021                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Stockton-on-Tees                |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 023                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              | _                   |                |                              |       |                 |      |                        | _          |                       |         |         |                     |
| 001                             | 7                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 7          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull<br>002       | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     | U              | U                            | U     | U               | U    | U                      |            | U                     | U       | U       | U                   |
| 004                             | 4                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 4          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 005                             | 4                   | 0              | 0                            | 0     | 0               | 0    | 1                      | 2          | 1                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 006                             | 4                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 3          | 1                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 007                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            | _                     |         |         |                     |
| 010                             | 3                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 1                     | 0       | 0       | 0                   |
| Kingston upon Hull<br>011       | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              | 1                   | U              | U                            | U     | U               | U    | U                      | 1          | U                     | U       | U       | U                   |
| 012                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     | J              | U                            | - 0   | 0               | - 0  | U                      |            | 0                     |         | 0       | - 0                 |
| 013                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                | -                            |       |                 |      |                        |            |                       |         |         |                     |
| 014                             | 4                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 4          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 015                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 016                             | 4                   | 0              | 0                            | 1     | 0               | 0    | 0                      | 2          | 0                     | 1       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              | •     |                 | _    |                        |            |                       |         |         |                     |
| 018                             | 1                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull<br>019       | 5                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 5          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              | 5                   | U              | U                            | U     | 0               | U    | U                      | 5          | U                     | U       | 0       | U                   |
| 020                             | 4                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 3          | 1                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      | 0                      |            |                       |         |         |                     |
| 022                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 1                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 023                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 2          | 0                     | 0       | 0       | 0                   |
| Kingston upon Hull              |                     |                |                              |       |                 |      |                        |            |                       |         |         |                     |
| 024                             | 2                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 1          | 1                     | 0       | 0       | 0                   |
| Kingston upon Hull              | _                   |                | _                            | _     | _               | _    | _                      | _          | _                     | _       | _       |                     |
| 025                             | 6                   | 0              | 0                            | 0     | 0               | 0    | 0                      | 6          | 0                     | 0       | 0       | 0                   |

|                                 | categories:       |                   |              |       |                     |      |             |            |             |         |         |                   |
|---------------------------------|-------------------|-------------------|--------------|-------|---------------------|------|-------------|------------|-------------|---------|---------|-------------------|
|                                 |                   |                   |              |       |                     |      |             |            |             |         |         | Other             |
|                                 | Method of         | Work              | Underground, |       | Bus,                |      | Motorcycle, |            | Passenger   |         |         | method of         |
| Residence                       | travel to<br>work | mainly at or from | metro, light | Train | minibus<br>or coach | Tavi | scooter or  | Driving a  | in a car or | Diovelo | On foot | travel to<br>work |
| Kingston upon Hull              | work              | or from           | rail, tram   | Train | or coach            | Taxi | moped       | car or van | van         | Bicycle | On root | work              |
| 026                             | 2                 | 0                 | 0            | 0     | o                   | 0    | 0           | 2          | 0           | 0       | 0       | 0                 |
| Kingston upon Hull              |                   | 0                 |              |       | U                   |      | 0           |            |             |         |         |                   |
| 027                             | 2                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 2          | 0           | 0       | 0       | 0                 |
| Kingston upon Hull              | _                 |                   |              |       |                     |      | -           | _          |             |         |         |                   |
| 028                             | 3                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 3          | 0           | 0       | 0       | 0                 |
| Kingston upon Hull              |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| 029                             | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| Kingston upon Hull              |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| 031                             | 5                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 5          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 002                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     | _    | _           |            |             |         | _       |                   |
| Yorkshire 005                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   | 0                 |              | 0     | 0                   | 0    | _           | _          |             | _       | _       | 0                 |
| Yorkshire 008<br>East Riding of | 1                 | 0                 | 0            | 0     | U                   | 0    | 0           | 1          | 0           | 0       | 0       | U                 |
| Yorkshire 011                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  | -                 | - 0               |              | 0     | 0                   |      |             |            | 0           | 0       |         |                   |
| Yorkshire 014                   | 2                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 2          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             | _          |             |         |         |                   |
| Yorkshire 016                   | 4                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 3          | 1           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 017                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 019                   | 5                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 5          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 020                   | 3                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 3          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   | _                 |              |       |                     |      | _           |            | _           |         | _       |                   |
| Yorkshire 025                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  | 2                 | 0                 | 0            | 0     | 0                   | 0    | 0           | ,          | 0           | 0       | 0       | 0                 |
| Yorkshire 026<br>East Riding of | 3                 | 0                 | U            | U     | U                   | U    | U           | 3          | U           | U       | U       | U                 |
| Yorkshire 027                   | 2                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 2          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   | 0                 |              | 0     | U                   |      | 0           |            |             |         |         |                   |
| Yorkshire 028                   | 4                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 4          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 029                   | 5                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 5          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 031                   | 2                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 2          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 032                   | 8                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 8          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   | _                 |              | _     |                     |      | _           |            | _           | _       | _       |                   |
| Yorkshire 033                   | 2                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 2          | 0           | 0       | 0       | 0                 |
| East Riding of<br>Yorkshire 034 | 6                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 5          | 1           | 0       | 0       | 0                 |
| East Riding of                  | О                 | U                 | U            | U     | U                   | 0    | U           | 5          | 1           | U       | 0       | 0                 |
| Yorkshire 035                   | 8                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 8          | 0           | 0       | 0       | 0                 |
| East Riding of                  | 0                 | - 0               | U            | - 0   | 0                   |      |             | 8          |             |         |         |                   |
| Yorkshire 036                   | 3                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 3          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 038                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 039                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 040                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 041                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| East Riding of                  |                   |                   |              |       |                     |      |             |            |             |         |         |                   |
| Yorkshire 042                   | 1                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 1          | 0           | 0       | 0       | 0                 |
| North East                      | 1274              |                   |              |       | 35                  | 4.4  | 4.4         | 705        | 100         | 101     | 224     |                   |
| Lincolnshire 001<br>North East  | 1374              | 0                 | 0            | 1     | 25                  | 11   | 11          | 785        | 106         | 101     | 334     | 0                 |
| Lincolnshire 002                | 39                | 0                 | 0            | 0     | 0                   | 0    | 0           | 27         | 4           | 5       | 3       | 0                 |
| North East                      | 33                | - 0               | U            | U     | 0                   |      | 0           | 21         | 4           |         | 3       | "                 |
| Lincolnshire 003                | 104               | 0                 | 0            | 0     | 9                   | 0    | 5           | 79         | 6           | 1       | 4       | 0                 |

|                                | All               |                   |              |       |                     |      |             |                      |             |         |         |                   |
|--------------------------------|-------------------|-------------------|--------------|-------|---------------------|------|-------------|----------------------|-------------|---------|---------|-------------------|
|                                | categories:       |                   |              |       |                     |      |             |                      |             |         |         | Other             |
|                                | Method of         | Work              | Underground, |       | Bus,                |      | Motorcycle, |                      | Passenger   |         |         | method of         |
| Residence                      | travel to<br>work | mainly at or from | metro, light | Train | minibus<br>or coach | Tavi | scooter or  | Driving a car or van | in a car or | Diovelo | On foot | travel to<br>work |
| North East                     | WOLK              | or from           | rail, tram   | Train | Of COACII           | Taxi | moped       | car or van           | van         | Bicycle | On loot | WOLK              |
| Lincolnshire 004               | 142               | 0                 | 0            | 0     | 6                   | 0    | 2           | 129                  | 3           | 1       | 1       | 0                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 005               | 104               | 0                 | 0            | 0     | 3                   | 0    | 0           | 93                   | 6           | 0       | 2       | 0                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 006               | 53                | 0                 | 0            | 0     | 2                   | 1    | 2           | 40                   | 5           | 2       | 1       | 0                 |
| North East                     |                   |                   |              |       | _                   |      |             |                      |             |         |         |                   |
| Lincolnshire 007<br>North East | 255               | 0                 | 0            | 0     | 4                   | 0    | 4           | 223                  | 13          | 9       | 2       | 0                 |
| Lincolnshire 008               | 117               | 0                 | 0            | 0     | 6                   | 1    | 2           | 96                   | 8           | 2       | 2       | 0                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 009               | 105               | 0                 | 0            | 0     | 2                   | 0    | 1           | 95                   | 6           | 1       | 0       | 0                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 010               | 106               | 0                 | 0            | 0     | 8                   | 0    | 0           | 91                   | 3           | 3       | 1       | 0                 |
| North East                     |                   |                   |              | _     |                     |      | _           |                      |             | _       | _       |                   |
| Lincolnshire 011               | 48                | 0                 | 0            | 0     | 3                   | 0    | 0           | 36                   | 4           | 3       | 2       | 0                 |
| North East<br>Lincolnshire 012 | 163               | 0                 | 0            | 0     | 8                   | 1    | 6           | 126                  | 9           | 8       | 4       | 1                 |
| North East                     | 103               |                   | 0            |       | 8                   |      | 0           | 120                  |             | 8       | - 4     |                   |
| Lincolnshire 013               | 167               | 0                 | 0            | 0     | 7                   | 0    | 3           | 145                  | 11          | 0       | 1       | 0                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 014               | 82                | 0                 | 0            | 0     | 3                   | 0    | 0           | 76                   | 2           | 0       | 1       | 0                 |
| North East                     |                   |                   |              | _     |                     |      | _           |                      |             | _       | _       |                   |
| Lincolnshire 015               | 76                | 0                 | 0            | 0     | 2                   | 0    | 0           | 57                   | 12          | 2       | 3       | 0                 |
| North East<br>Lincolnshire 016 | 194               | 0                 | 0            | 0     | 4                   | 0    | 1           | 168                  | 8           | 4       | 8       | 1                 |
| North East                     | 134               | 0                 | 0            |       | - 4                 | 0    |             | 100                  |             |         |         | 1                 |
| Lincolnshire 017               | 103               | 0                 | 0            | 0     | 2                   | 0    | 1           | 86                   | 7           | 3       | 1       | 3                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 018               | 75                | 0                 | 0            | 0     | 2                   | 0    | 0           | 67                   | 5           | 0       | 1       | 0                 |
| North East                     |                   |                   |              | _     |                     |      |             |                      |             | _       |         | _                 |
| Lincolnshire 019               | 81                | 0                 | 0            | 0     | 5                   | 0    | 1           | 60                   | 12          | 2       | 1       | 0                 |
| North East<br>Lincolnshire 020 | 131               | 0                 | 0            | 0     | 3                   | 1    | 1           | 121                  | 4           | 0       | 1       | 0                 |
| North East                     | 131               | 0                 | 0            |       | 3                   |      |             | 121                  | - 4         |         |         |                   |
| Lincolnshire 021               | 149               | 0                 | 0            | 0     | 1                   | 0    | 1           | 132                  | 11          | 2       | 2       | 0                 |
| North East                     |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| Lincolnshire 022               | 146               | 0                 | 0            | 0     | 1                   | 0    | 1           | 133                  | 9           | 1       | 1       | 0                 |
| North East                     |                   |                   |              |       |                     |      | _           |                      |             | _       | _       |                   |
| Lincolnshire 023               | 137               | 0                 | 0            | 1     | 1                   | 0    | 0           | 131                  | 4           | 0       | 0       | 0                 |
| North Lincolnshire 001         | 104               | 0                 | 0            | 0     | 0                   | 0    | 2           | 97                   | 2           | 1       | 2       | 0                 |
| North Lincolnshire             | 104               |                   |              |       |                     |      |             | 37                   |             |         |         |                   |
| 002                            | 119               | 0                 | 0            | 0     | 0                   | 0    | 3           | 109                  | 6           | 0       | 0       | 1                 |
| North Lincolnshire             |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| 003                            | 21                | 0                 | 0            | 0     | 0                   | 0    | 0           | 19                   | 2           | 0       | 0       | 0                 |
| North Lincolnshire             |                   |                   | _            | _     |                     | _    | _           |                      |             | _       | _       |                   |
| 004                            | 250               | 0                 | 0            | 0     | 1                   | 0    | 2           | 222                  | 19          | 6       | 0       | 0                 |
| North Lincolnshire<br>005      | 19                | 0                 | 0            | 0     | 0                   | 0    | 0           | 19                   | 0           | 0       | 0       | 0                 |
| North Lincolnshire             | 19                |                   | 0            | 0     | 0                   | 0    | 0           | 19                   | 0           | U       |         |                   |
| 006                            | 14                | 0                 | 0            | 0     | 0                   | 0    | 0           | 11                   | 2           | 0       | 1       | 0                 |
| North Lincolnshire             |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| 007                            | 16                | 0                 | 0            | 0     | 0                   | 0    | 0           | 14                   | 2           | 0       | 0       | 0                 |
| North Lincolnshire             |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| 008                            | 5                 | 0                 | 0            | 0     | 0                   | 0    | 0           | 5                    | 0           | 0       | 0       | 0                 |
| North Lincolnshire<br>009      | 25                | 0                 | 0            | 0     | 0                   | 0    | 0           | 23                   | 1           | 0       | 1       | 0                 |
| North Lincolnshire             | 25                | U                 | U            | 0     | 0                   | 0    | 0           | 23                   | 1           | U       | 1       | - 0               |
| 010                            | 16                | 0                 | 0            | 0     | 0                   | 0    | 1           | 12                   | 1           | 2       | 0       | 0                 |
| North Lincolnshire             |                   |                   |              |       |                     |      | _           |                      |             |         |         |                   |
| 011                            | 94                | 0                 | 0            | 0     | 0                   | 0    | 1           | 88                   | 5           | 0       | 0       | 0                 |
| North Lincolnshire             |                   |                   |              |       |                     |      |             |                      |             |         |         |                   |
| 012                            | 10                | 0                 | 0            | 0     | 0                   | 0    | 0           | 10                   | 0           | 0       | 0       | 0                 |
| North Lincolnshire             | 24                |                   | _            | _     | _                   | _    | _           | 30                   | 1           | _       | _       |                   |
| 013                            | 31                | 0                 | 0            | 0     | 0                   | 0    | 0           | 29                   | 2           | 0       | 0       | 0                 |

|                    | All         |           |              |       |           |      |             |             |             |         |         |           |
|--------------------|-------------|-----------|--------------|-------|-----------|------|-------------|-------------|-------------|---------|---------|-----------|
|                    | categories: |           |              |       |           |      |             |             |             |         |         | Other     |
|                    | Method of   | Work      | Underground, |       | Bus,      |      | Motorcycle, |             | Passenger   |         |         | method of |
|                    | travel to   | mainly at | metro, light |       | minibus   |      | scooter or  | Driving a   | in a car or |         |         | travel to |
| Residence          | work        | or from   | rail, tram   | Train | or coach  | Taxi | moped       | car or van  | van         | Bicycle | On foot | work      |
| North Lincolnshire | WOIK        | 01 110111 | Tan, train   | Train | or coacii | TUNI | торси       | car or vari | Vali        | Dicycle | 0111000 | WOIK      |
| 014                | 20          | 0         | 0            | 0     | 0         | 0    | 0           | 18          | 1           | 1       | 0       | 0         |
| North Lincolnshire | 20          | 0         | 0            | 0     | 0         | - 0  | 0           | 10          |             |         | 0       | 0         |
| 015                | 18          | 0         | 0            | 0     | 1         | 0    | 0           | 16          | 1           | 0       | 0       | 0         |
|                    | 10          | U         | U            | U     |           | U    | U           | 10          | 1           | U       | U       | U         |
| North Lincolnshire | 40          | _         |              | _     |           | •    |             |             |             | _       |         |           |
| 016                | 10          | 0         | 0            | 0     | 0         | 0    | 0           | 8           | 1           | 0       | 1       | 0         |
| North Lincolnshire |             |           | _            | _     |           |      |             |             | _           | _       | _       |           |
| 017                | 13          | 0         | 0            | 0     | 0         | 0    | 0           | 10          | 1           | 1       | 1       | 0         |
| North Lincolnshire |             |           |              |       |           |      |             |             |             |         |         |           |
| 018                | 34          | 0         | 0            | 0     | 2         | 0    | 0           | 29          | 1           | 0       | 2       | 0         |
| North Lincolnshire |             |           |              |       |           |      |             |             |             |         |         |           |
| 019                | 22          | 0         | 0            | 0     | 0         | 0    | 0           | 22          | 0           | 0       | 0       | 0         |
| North Lincolnshire |             |           |              |       |           |      |             |             |             |         |         |           |
| 020                | 5           | 0         | 0            | 0     | 0         | 0    | 0           | 5           | 0           | 0       | 0       | 0         |
| North Lincolnshire |             |           |              |       |           |      |             |             |             |         |         |           |
| 021                | 10          | 0         | 1            | 0     | 0         | 0    | 0           | 9           | 0           | 0       | 0       | 0         |
| North Lincolnshire |             |           |              |       |           |      |             |             |             |         |         |           |
| 022                | 20          | 0         | 0            | 0     | 0         | 0    | 0           | 17          | 1           | 0       | 0       | 2         |
| North Lincolnshire | 20          |           |              | -     |           |      |             |             |             |         |         |           |
| 023                | 9           | 0         | 0            | 0     | 0         | 0    | 0           | 8           | 1           | 0       | 0       | 0         |
| York 001           | 1           | 0         | 0            |       | 0         | 0    |             |             |             |         | 0       |           |
|                    |             |           | 0            |       | 0         |      |             |             | 0           |         | 0       |           |
| York 016           | 1           | 0         |              |       | -         | 0    |             |             |             |         |         | -         |
| York 021           | 2           | 0         | 0            |       | 0         | 0    |             |             | 0           |         | 0       |           |
| York 022           | 2           | 0         | 0            |       | 0         | 0    |             |             | 0           |         | 0       |           |
| York 023           | 2           | 0         |              |       | 0         | 0    |             |             | 0           |         | 0       |           |
| Rutland 002        | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Rutland 004        | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Medway 002         | 2           | 0         | 0            | 0     | 0         | 0    | 0           | 2           | 0           | 0       | 0       | 0         |
| Cheshire West and  |             |           |              |       |           |      |             |             |             |         |         |           |
| Chester 032        | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Cheshire West and  |             |           |              |       |           |      |             |             |             |         |         |           |
| Chester 007        | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | o         |
| Cheshire West and  |             |           |              |       |           |      |             |             |             |         |         |           |
| Chester 009        | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Cornwall 033       | 1           | 0         | 0            |       | 0         | 0    |             |             |             |         | 0       |           |
| Cornwall 048       | 2           | 0         | 0            |       | 0         | 0    |             |             | 0           |         | 0       |           |
| Bolsover 006       | 1           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| Chesterfield 010   | 1           | 0         | 0            |       | 0         | 0    |             | _           | 0           |         | 0       |           |
|                    | 1           | U         | U            | U     | U         | - 0  | U           | 1           | U           | U       | 0       | U         |
| Derbyshire Dales   |             | _         |              | _     |           | •    |             |             | _           | _       | _       |           |
| 003                | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
|                    |             |           |              |       |           |      |             |             |             |         |         |           |
| County Durham 033  | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
|                    |             |           |              |       |           |      |             |             |             |         |         |           |
| County Durham 021  | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
|                    |             |           |              |       |           |      |             |             |             |         |         |           |
| County Durham 042  | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Maldon 002         | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Tendring 004       | 1           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 0       | 0         |
| Broxbourne 013     | 1           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| Fylde 004          | 1           | 0         |              |       |           | 0    |             |             |             |         | 0       |           |
| Lancaster 001      | 1           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| Boston 004         | 1           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 001   | 100         | 0         |              |       | 0         | 0    |             |             | 1           |         | 0       |           |
|                    |             |           |              |       |           |      |             |             |             |         |         |           |
| East Lindsey 002   | 7           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 003   | 15          | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 004   | 8           | 0         |              |       |           | 0    |             |             |             |         | 0       |           |
| East Lindsey 005   | 4           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 006   | 2           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 007   | 7           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 008   | 2           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 009   | 8           | 0         | 0            | 0     | 0         | 0    | 0           | 8           | 0           | 0       | 0       | 0         |
| East Lindsey 011   | 2           | 0         | 0            | 0     | 0         | 0    | 0           | 1           | 0           | 0       | 1       | 0         |
| East Lindsey 012   | 2           | 0         | 0            | 0     | 0         | 0    | 0           | 2           | 0           | 0       | 0       | 0         |
| East Lindsey 013   | 1           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 014   | 1           | 0         |              |       | 0         | 0    |             |             |             |         | 0       |           |
| East Lindsey 015   | 1           | 0         |              |       |           | 0    |             |             |             |         | 0       |           |
| East Lindsey 018   | 1           |           |              |       |           | 0    |             |             |             |         |         |           |
| Lust Liliusey U10  | 1           | U         | U            | U     | U         | 0    | 1 0         |             | U           | 0       | U       | ı U       |

| N   | All categories: Method of travel to work 3 2 1 2 2 | Work mainly at or from 0 | Underground,<br>metro, light<br>rail, tram | Tania | Bus,<br>minibus |      | Motorcycle, |            | Passenger   |         |         | Other<br>method of |
|---|--|--------------------------|--|-------|-----------------|------|-------------|------------|-------------|---------|---------|--------------------|
| Residence Lincoln 002 Lincoln 004 Lincoln 005 Lincoln 008 Lincoln 009 Lincoln 011 | Method of travel to work  3 2 1                    | mainly at or from 0      | metro, light rail, tram                    | Tenin | -               |      | Motorcycle, |            | Passenger   |         |         |                    |
| Residence Lincoln 002 Lincoln 004 Lincoln 005 Lincoln 008 Lincoln 009 Lincoln 011 | travel to work  3 2 1 2                            | mainly at or from 0      | metro, light rail, tram                    | Tuein | -               |      | Motorcycle, |            | Passenger   |         |         | method of          |
| Residence Lincoln 002 Lincoln 004 Lincoln 005 Lincoln 008 Lincoln 009 Lincoln 011 | work 3 2 1 2                                       | or from<br>0<br>0        | rail, tram                                 | Tunin | minibus         |      |             |            |             |         |         |                    |
| Lincoln 002 Lincoln 004 Lincoln 005 Lincoln 008 Lincoln 009 Lincoln 011           | 3<br>2<br>1<br>2                                   | 0                        |  | T:    |                 |      | scooter or  | Driving a  | in a car or |         |         | travel to          |
| Lincoln 004 Lincoln 005 Lincoln 008 Lincoln 009 Lincoln 011                       | 2<br>1<br>2  | 0                        | 0  | Train | or coach        | Taxi | moped       | car or van | van         | Bicycle | On foot | work               |
| Lincoln 005<br>Lincoln 008<br>Lincoln 009<br>Lincoln 011                          | 1 2  |                          | U  | 0     | 0               | 0    | 0           | 3          | 0           | 0       | 0       | 0                  |
| Lincoln 005<br>Lincoln 008<br>Lincoln 009<br>Lincoln 011                          | 1 2  |                          | 0  | 0     | 0               | 0    | 0           | 2          | 0           | 0       | 0       | 0                  |
| Lincoln 008<br>Lincoln 009<br>Lincoln 011   | 2  | 0                        | 0  |       | 0               | 0    |             |            | 0           |         | 1       |                    |
| Lincoln 009<br>Lincoln 011  |  | 0                        | 0  |       | 0               | 0    |             |            | 0           |         | 0       |                    |
| Lincoln 011   |  | 0                        | 0  |       | 0               | 0    |             |            | 0           |         | 0       |                    |
|   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| North Kesteven 001  | 3  | 0                        | 0  | 0     | 0               | 0    | 0           | 3          | 0           | 0       | 0       | 0                  |
| North Kesteven 001  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
|   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| 1   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| North Kesteven 003  | 3  | 0                        | 0  | 0     | 0               | 0    | 0           | 3          | 0           | 0       | 0       | 0                  |
|   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| North Kesteven 010  | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| South Holland 009   | 1  | 0                        | 0  |       | 0               | 0    |             |            | 0           |         | 0       |                    |
|   |  | 0                        | 0  | 0     | 0               | 0    |             |            |             | 0       | 2       |                    |
| West Lindsey 001  | 171  |                          |  |       |                 |      |             |            | 10          |         |         |                    |
| West Lindsey 002  | 14   | 0                        | 0  |       | 0               | 0    |             |            | 1           |         | 0       |                    |
| West Lindsey 003  | 24   | 0                        | 0  |       | 0               | 0    |             |            | 0           |         | 1       |                    |
| West Lindsey 004  | 2  | 0                        | 0  |       | 0               | 0    | 0           | 2          | 0           |         | 0       | 0                  |
| West Lindsey 005  | 14   | 0                        | 0  | 0     | 0               | 0    | 0           | 14         | 0           | 0       | 0       | 0                  |
| West Lindsey 006  | 3  | 0                        | 0  | 0     | 0               | 0    | 0           | 3          | 0           | 0       | 0       | 0                  |
| West Lindsey 007  | 6  | 0                        | 0  | 0     | 0               | 0    | 0           |            | 0           | 0       | 0       | 0                  |
| West Lindsey 007  | 9  | 0                        | 0  |       | 0               | 1    |             |            | 0           |         | 0       |                    |
| West Lindsey 010  | 2  | 0                        |  |       | 0               | 0    |             |            | 0           |         | 0       |                    |
|   | 2  | U                        | U  | U     | U               | U    | 0           |            | U           | 0       | U       | - 0                |
| East  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Northamptonshire  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| 004   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Kettering 002   | 2  | 0                        | 0  | 0     | 0               | 0    | 0           | 2          | 0           | 0       | 0       | 0                  |
|   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Northumberland 001  | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 0          | 0           | 0       | 0       | 1                  |
| Hambleton 009   | 1  | 0                        |  |       | 0               | 0    |             |            | 0           |         | 0       |                    |
| Richmondshire 003   | 1  | 0                        | 0  | 0     | 0               | 0    |             |            | 0           |         | 0       |                    |
|   |  | 0                        | 0  |       | 0               |      |             |            | 0           |         | 0       |                    |
| Ryedale 002   | 1  |                          |  |       |                 | 0    |             |            |             |         |         |                    |
| Ryedale 007   | 1  | 0                        | 0  |       | 0               | 0    |             |            | 0           |         | 0       |                    |
| Scarborough 009   | 1  | 0                        | 0  | 0     | 0               | 0    |             |            | 0           |         | 0       |                    |
| Selby 003   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 0          | 1           | 0       | 0       | 0                  |
| Ashfield 016  | 2  | 0                        | 0  | 0     | 0               | 0    | 0           | 2          | 0           | 0       | 0       | 0                  |
| Bassetlaw 004   | 2  | 0                        | 0  | 0     | 0               | 0    | 0           | 2          | 0           | 0       | 0       | 0                  |
| Mansfield 003   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Newark and  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Sherwood 005  | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Cannock Chase 002   | 1  | 0                        | 0  |       | 0               | 0    |             |            | 0           | 0       | 0       |                    |
|   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Cannock Chase 013   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Staffordshire   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Moorlands 001   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Redcar and  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Cleveland 021   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Kingston upon Hull  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| 033   | 4  | 0                        | 0  | 0     | 0               | 0    | 0           | 3          | 1           | 0       | 0       | 0                  |
| East Riding of  | -1   | 3                        | U  | - 3   |                 |      |             | 3          |             | - 0     |         |                    |
|   | _  | _                        | _  |       |                 | ^    | _           | _          | _           | _       | _       |                    |
| Yorkshire 043   | 2  | 0                        |  |       | 0               | 0    |             |            |             |         | 0       |                    |
| Boston 008  | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
|   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| North Kesteven 013  | 1  | 0                        |  |       | 1               | 0    |             |            |             |         | 0       |                    |
| Sheffield 075   | 3  | 0                        | 0  | 0     | 0               | 0    | 0           | 3          | 0           | 0       | 0       | 0                  |
| Leeds 111   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| East Riding of  |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| Yorkshire 044   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Powys 018   | 1  | 0                        |  |       |                 | 0    |             |            |             |         | 0       |                    |
| I OWYS OIO  | 1  | U                        | U  | U     | U               | U    | U           | 1          | U           | U       | U       | - 0                |
| Danibard 200  |  | _                        | _  | _     |                 | _    | _           |            |             |         | _       |                    |
| Pembrokeshire 012   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Neath Port Talbot   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| 006   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |
| Rhondda Cynon Taf   |  |                          |  |       |                 |      |             |            |             |         |         |                    |
| 004   | 1  | 0                        | 0  | 0     | 0               | 0    | 0           | 1          | 0           | 0       | 0       | 0                  |

# Annex H

| DestZoneI[ Or | igZoneIC Ve  | hicleID DailyVe | hicles              |
|---------------|--------------|-----------------|---------------------|
| 1             | 1375         | 1               | 0.49782             |
| 2             | 1375         | 1               | 0.4863              |
| 3             | 1375         | 1               | 0.84728             |
| 4             | 1375         | 1               | 1.0485              |
| 5             | 1375         | 1               | 1.37029             |
| 6             | 1375         | 1               | 0.87098             |
| 7             | 1375         | 1               | 3.57149             |
| 8             | 1375         | 1               | 2.18807             |
| 9             | 1375         | 1               | 5.83754             |
| 10            | 1375         | 1               | 0.29673             |
| 11            | 1375         | 1               | 4.74371             |
| 12            | 1375         | 1               | 2.93793             |
| 13            | 1375         | 1               | 2.2816              |
| 14            | 1375         | 1               | 12.60161<br>2.57467 |
| 15<br>16      | 1375         | 1<br>1          |                     |
| 16<br>17      | 1375<br>1375 | 1               | 2.51538<br>0.54906  |
| 17            | 1375<br>1375 | 1               | 0.54906             |
| 18<br>19      | 1375         | 1               | 3.94099             |
| 20            | 1375         | 1               | 1.68401             |
| 21            | 1375         | 1               | 0.50945             |
| 22            | 1375         | 1               | 0.87431             |
| 23            | 1375         | 1               | 0.37174             |
| 24            | 1375         | 1               | 1.35582             |
| 25            | 1375         | 1               | 1.78036             |
| 26            | 1375         | 1               | 0.60246             |
| 27            | 1375         | 1               | 8.10421             |
| 28            | 1375         | 1               | 0.37043             |
| 29            | 1375         | 1               | 0.42694             |
| 30            | 1375         | 1               | 0.52974             |
| 31            | 1375         | 1               | 0.60682             |
| 32            | 1375         | 1               | 0.45762             |
| 33            | 1375         | 1               | 0.32823             |
| 101           | 1375         | 1               | 3.15752             |
| 102           | 1375         | 1               | 1.48966             |
| 103           | 1375         | 1               | 4.84554             |
| 104           | 1375         | 1               | 1.18249             |
| 105           | 1375         | 1               | 2.4523              |
| 106           | 1375         | 1               | 2.12029             |
| 107           | 1375         | 1               | 0.79567             |
| 108           | 1375         | 1               | 0.82461             |
| 109           | 1375         | 1<br>1          | 3.27356<br>0.48839  |
| 110<br>111    | 1375<br>1375 | 1               | 0.48839             |
| 111           | 1375         | 1               | 0.62552             |
| 113           | 1375         | 1               | 0.48207             |
| 113           | 13/3         | 1               | 0.22741             |

| DestZoneI[ Or | igZoneIDVe | hicleID DailyVe | ehicles  |
|---------------|------------|-----------------|----------|
| 114           | 1375       | 1               | 1.92429  |
| 115           | 1375       | 1               | 1.25443  |
| 116           | 1375       | 1               | 1.69594  |
| 117           | 1375       | 1               | 1.45199  |
| 118           | 1375       | 1               | 0.8218   |
| 119           | 1375       | 1               | 0.28509  |
| 120           | 1375       | 1               | 0.6993   |
| 121           | 1375       | 1               | 0.81846  |
| 122           | 1375       | 1               | 0.23098  |
| 123           | 1375       | 1               | 0.36815  |
| 201           | 1375       | 1               | 2.22802  |
| 202           | 1375       | 1               | 6.44684  |
| 203           | 1375       | 1               | 2.93431  |
| 204           | 1375       | 1               | 3.7256   |
| 205           | 1375       | 1               | 2.56098  |
| 206           | 1375       | 1               | 4.60807  |
| 207           | 1375       | 1               | 4.83518  |
| 208           | 1375       | 1               | 9.78061  |
| 209           | 1375       | 1               | 10.71869 |
| 210           | 1375       | 1               | 8.20028  |
| 211           | 1375       | 1               | 8.18244  |
| 212           | 1375       | 1               | 3.76986  |
| 213           | 1375       | 1               | 7.06594  |
| 214           | 1375       | 1               | 44.69791 |
| 215           | 1375       | 1               | 5.38584  |
| 216           | 1375       | 1               | 2.55514  |
| 217           | 1375       | 1               | 2.43068  |
| 218           | 1375       | 1               | 5.71954  |
| 219           | 1375       | 1               | 4.91755  |
| 220           | 1375       | 1               | 4.82708  |
| 221           | 1375       | 1               | 22.28132 |
| 222           | 1375       | 1               | 4.65479  |
| 223           | 1375       | 1               | 1.28114  |
| 224           | 1375       | 1               | 6.82347  |
| 225           | 1375       | 1               | 1.58056  |
| 226           | 1375       | 1               | 1.87825  |
| 227           | 1375       | 1               | 3.8677   |
| 228           | 1375       | 1               | 1.28935  |
| 229           | 1375       | 1               | 2.04726  |
| 230           | 1375       | 1               | 2.87268  |
| 231           | 1375       | 1               | 1.43029  |
| 232           | 1375       | 1               | 0.75285  |
| 233           | 1375       | 1               | 0.8589   |
| 234           | 1375       | 1               | 2.39805  |
| 235           | 1375       | 1               | 0.95786  |
| 236           | 1375       | 1               | 1.28942  |

| DestZoneI[ C | )rigZoneIDVel | nicleID DailyV | 'ehicles           |
|--------------|---------------|----------------|--------------------|
| 237          | 1375          | 1              | 1.15115            |
| 238          | 1375          | 1              | 1.67521            |
| 239          | 1375          | 1              | 0.4947             |
| 240          | 1375          | 1              | 0.34352            |
| 241          | 1375          | 1              | 1.25857            |
| 242          | 1375          | 1              | 1.03112            |
| 243          | 1375          | 1              | 0.87761            |
| 301          | 1375          | 1              | 17.41437           |
| 302          | 1375          | 1              | 30.93909           |
| 303          | 1375          | 1              | 9.76996            |
| 304          | 1375          | 1              | 15.70913           |
| 305          | 1375          | 1              | 76.83362           |
| 306          | 1375          | 1              | 72.13083           |
| 307          | 1375          | 1              | 6.27366            |
| 308          | 1375          | 1              | 17.33755           |
| 309          | 1375          | 1              | 63.17479           |
| 310          | 1375          | 1              | 29.34244           |
| 311          | 1375          | 1              | 80.37162           |
| 312          | 1375          | 1              | 147.234            |
| 313          | 1375          | 1              | 18.75836           |
| 314          | 1375          | 1              | 61.15471           |
| 315          | 1375          | 1              | 3.94087            |
| 316          | 1375          | 1              | 1.02066            |
| 317          | 1375          | 1              | 1.01096            |
| 318          | 1375          | 1              | 8.93462            |
| 319          | 1375          | 1              | 8.46366            |
| 320          | 1375          | 1              | 0.91013            |
| 321          | 1375          | 1              | 0.78349            |
| 401          | 1375          | 1              | 1.71973            |
| 402          | 1375          | 1              | 6.49738            |
| 403          | 1375          | 1              | 2.30223            |
| 404          | 1375          | 1              | 4.84511            |
| 405          | 1375          | 1              | 2.58467            |
| 406          | 1375          | 1              | 6.93795            |
| 407          | 1375          | 1              | 2.02314            |
| 408          | 1375          | 1              | 2.65627            |
| 409          | 1375          | 1              | 9.69536            |
| 410          | 1375          | 1              | 1.01107            |
| 411          | 1375          | 1              | 2.53117            |
| 412          | 1375          | 1              | 11.25232           |
| 413          | 1375          | 1              | 3.54164            |
| 414          | 1375          | 1              | 11.75393           |
| 415          | 1375          | 1<br>1         | 9.35264            |
| 416          | 1375<br>1375  | 1              | 2.32451<br>12.2703 |
| 417<br>418   | 1375<br>1375  | 1              | 5.01011            |
| 418          | 13/5          | 1              | 5.01011            |

| DestZoneI  | OrigZoneIDVe | hicleID Dailv\ | /ehicles           |
|------------|--------------|----------------|--------------------|
| 419        | 1375         | 1              | 3.37499            |
| 420        | 1375         | 1              | 4.87986            |
| 421        | 1375         | 1              | 43.91382           |
| 422        | 1375         | 1              | 24.05981           |
| 423        | 1375         | 1              | 4.47229            |
| 424        | 1375         | 1              | 7.99327            |
| 425        | 1375         | 1              | 4.277              |
| 426        | 1375         | 1              | 8.73853            |
| 427        | 1375         | 1              | 7.5077             |
| 428        | 1375         | 1              | 2.46577            |
| 429        | 1375         | 1              | 6.43301            |
| 430        | 1375         | 1              | 7.82304            |
| 431        | 1375         | 1              | 31.26177           |
| 432        | 1375         | 1              | 2.94617            |
| 433        | 1375         | 1              | 9.32837            |
| 434        | 1375         | 1              | 5.02218            |
| 435        | 1375         | 1              | 35.72752           |
| 436        | 1375         | 1              | 4.32332            |
| 437        | 1375         | 1              | 88.84654           |
| 438        | 1375         | 1              | 11.90193           |
| 439        | 1375         | 1              | 3.56328            |
| 440        | 1375         | 1              | 7.84877            |
| 501<br>502 | 1375<br>1375 | 1<br>1         | 2.42515<br>2.85387 |
| 502        | 1375         | 1              | 2.85387<br>5.52308 |
| 503        | 1375         | 1              | 1.83964            |
| 505        | 1375         | 1              | 8.2014             |
| 506        | 1375         | 1              | 92.75745           |
| 507        | 1375         | 1              | 4.17712            |
| 508        | 1375         | 1              | 0.65757            |
| 509        | 1375         | 1              | 2.53749            |
| 510        | 1375         | 1              | 1.07497            |
| 511        | 1375         | 1              | 0.5221             |
| 512        | 1375         | 1              | 1.18648            |
| 513        | 1375         | 1              | 1.72219            |
| 514        | 1375         | 1              | 0.25623            |
| 515        | 1375         | 1              | 0.74813            |
| 516        | 1375         | 1              | 30.64851           |
| 517        | 1375         | 1              | 1.38316            |
| 518        | 1375         | 1              | 7.58557            |
| 519        | 1375         | 1              | 7.4206             |
| 520        | 1375         | 1              | 17.76368           |
| 521        | 1375         | 1              | 7.27913            |
| 522        | 1375         | 1              | 1.23571            |
| 523        | 1375         | 1              | 4.81203            |
| 524        | 1375         | 1              | 1.10892            |

| Desiz | Offer Offig. | ZONEIL VEHICIEN | D Daily verificies | •        |
|-------|--------------|-----------------|--------------------|----------|
|       | 525          | 1375            | 1                  | 65.11015 |
|       | 526          | 1375            | 1                  | 3.65349  |
|       | 527          | 1375            | 1                  | 4.05067  |
|       | 528          | 1375            | 1                  | 3.72414  |
|       | 529          | 1375            | 1                  | 5.85183  |
|       | 530          | 1375            | 1                  | 0.75611  |
|       | 531          | 1375            | 1                  | 4.0505   |
|       | 532          | 1375            | 1                  | 57.1461  |
|       | 533          | 1375            | 1                  | 0.80678  |
|       | 534          | 1375            | 1                  | 0.28315  |
|       | 601          | 1375            | 1                  | 0.63923  |
|       | 602          | 1375            | 1                  | 0.54997  |
|       | 603          | 1375            | 1                  | 1.96211  |
|       | 604          | 1375            | 1                  | 0.71894  |
|       | 605          | 1375            | 1                  | 0.71286  |
|       | 606          | 1375            | 1                  | 0.99331  |
|       | 607          | 1375            | 1                  | 3.74344  |
|       | 608          | 1375            | 1                  | 0.38227  |
|       | 609          | 1375            | 1                  | 0.17435  |
|       | 610          | 1375            | 1                  | 0.36166  |
|       | 611          | 1375            | 1                  | 10.7402  |
|       | 612          | 1375            | 1                  | 2.25906  |
|       | 613          | 1375            | 1                  | 23.7985  |
|       | 614          | 1375            | 1                  | 33.89123 |
|       | 615          | 1375            | 1                  | 0.58519  |
|       | 616          | 1375            | 1                  | 0.58323  |
|       | 617          | 1375            | 1                  | 0.33526  |
|       | 618          | 1375            | 1                  | 0.34555  |
|       | 619          | 1375            | 1                  | 0.24196  |
|       | 620          | 1375            | 1                  | 0.26138  |
|       | 621          | 1375            | 1                  | 0.49216  |
|       | 622          | 1375            | 1                  | 0.12901  |
|       | 623          | 1375            | 1                  | 0.21733  |
|       | 624          | 1375            | 1                  | 0.37778  |
|       | 625          | 1375            | 1                  | 0.33968  |
|       | 626          | 1375            | 1                  | 0.20629  |
|       | 627          | 1375            | 1                  | 0.0724   |
|       | 628          | 1375            | 1                  | 0.28489  |
|       | 629          | 1375            | 1                  | 0.25865  |
|       | 630          | 1375            | 1                  | 0.41806  |
|       | 631          | 1375            | 1                  | 0.38545  |
|       | 632          | 1375            | 1                  | 0.37525  |
|       | 633          | 1375            | 1                  | 0.2692   |
|       | 634          | 1375            | 1                  | 0.50429  |
|       | 635          | 1375            | 1                  | 1.10597  |
|       | 636          | 1375            | 1                  | 0.1558   |
|       |              |                 |                    |          |

DestZoneIf OrigZoneIf VehicleID DailyVehicles

| DestZoneIE C | rigZoneIDVel | nicleID DailyV | ehicles  |
|--------------|--------------|----------------|----------|
| 637          | 1375         | 1              | 0.14969  |
| 638          | 1375         | 1              | 0.28975  |
| 639          | 1375         | 1              | 0.18563  |
| 640          | 1375         | 1              | 0.25202  |
| 641          | 1375         | 1              | 0.29217  |
| 642          | 1375         | 1              | 0.14998  |
| 643          | 1375         | 1              | 0.0929   |
| 644          | 1375         | 1              | 0.2411   |
| 645          | 1375         | 1              | 0.00236  |
| 701          | 1375         | 1              | 0.30169  |
| 702          | 1375         | 1              | 0.40311  |
| 703          | 1375         | 1              | 1.78294  |
| 704          | 1375         | 1              | 4.54057  |
| 705          | 1375         | 1              | 4.49418  |
| 706          | 1375         | 1              | 0.95992  |
| 707          | 1375         | 1              | 0.44484  |
| 708          | 1375         | 1              | 0.96046  |
| 709          | 1375         | 1              | 0.80431  |
| 710          | 1375         | 1              | 0.52876  |
| 711          | 1375         | 1              | 0.32453  |
| 712          | 1375         | 1              | 26.19493 |
| 713          | 1375         | 1              | 2.9239   |
| 714          | 1375         | 1              | 0.14504  |
| 715          | 1375         | 1              | 0.25886  |
| 716          | 1375         | 1              | 0.18513  |
| 717          | 1375         | 1              | 1.21381  |
| 718          | 1375         | 1              | 0.20534  |
| 719          | 1375         | 1              | 0.30143  |
| 720          | 1375         | 1              | 0.44977  |
| 721          | 1375         | 1              | 0.7071   |
| 722          | 1375         | 1              | 0.50162  |
| 723          | 1375         | 1              | 0.88089  |
| 724          | 1375         | 1              | 1.1373   |
| 725          | 1375         | 1              | 1.77309  |
| 726          | 1375         | 1              | 1.41896  |
| 727          | 1375         | 1              | 3.30483  |
| 728          | 1375         | 1              | 2.63779  |
| 729          | 1375         | 1              | 3.14316  |
| 730          | 1375         | 1              | 2.61044  |
| 731          | 1375         | 1              | 2.03446  |
| 732          | 1375         | 1              | 3.38848  |
| 733          | 1375         | 1              | 0.39479  |
| 734          | 1375         | 1              | 0.54609  |
| 735          | 1375         | 1              | 0.40423  |
| 736          | 1375         | 1              | 0.52647  |
| 737          | 1375         | 1              | 0.25656  |

| DestZoneI[ O | rigZoneIDVe  | nicleID DailyVehi | cles              |
|--------------|--------------|-------------------|-------------------|
| 738          | 1375         | 1                 | 0.35986           |
| 739          | 1375         | 1                 | 5.4895            |
| 740          | 1375         | 1                 | 2.51481           |
| 741          | 1375         | 1                 | 3.42796           |
| 742          | 1375         | 1                 | 3.89077           |
| 743          | 1375         | 1                 | 1.40977           |
| 744          | 1375         | 1                 | 0.59724           |
| 745          | 1375         | 1                 | 0.52456           |
| 746          | 1375         | 1                 | 1.58435           |
| 747          | 1375         | 1                 | 3.77374           |
| 748          | 1375         | 1                 | 1.4158            |
| 801          | 1375         | 1                 | 0.51629           |
| 802          | 1375         | 1                 | 0.79478           |
| 803          | 1375         | 1                 | 0.39703           |
| 804          | 1375         | 1                 | 0.14625           |
| 805          | 1375         | 1                 | 0.16093           |
| 806          | 1375         | 1                 | 0.04752           |
| 807          | 1375         | 1                 | 0.90692           |
| 808          | 1375         | 1                 | 0.34067           |
| 809          | 1375         | 1                 | 5.50141           |
| 810          | 1375         | 1                 | 0.23219           |
| 811          | 1375         | 1                 | 0.34936           |
| 812          | 1375         | 1                 | 0.41235           |
| 813          | 1375         | 1                 | 0.56257           |
| 814          | 1375         | 1                 | 0.25302           |
| 815          | 1375         | 1                 | 1.66825           |
| 816<br>817   | 1375         | 1                 | 9.50416           |
| 817<br>818   | 1375<br>1375 | 1<br>1            | 7.16302<br>0.3275 |
| 819          | 1375         | 1                 | 0.3275            |
| 820          | 1375         | 1                 | 0.84567           |
| 821          | 1375         | 1                 | 0.902             |
| 822          | 1375         | 1                 | 0.51509           |
| 823          | 1375         | 1                 | 0.3894            |
| 824          | 1375         | 1                 | 0.16421           |
| 825          | 1375         | 1                 | 1.04072           |
| 826          | 1375         | 1                 | 0.25607           |
| 827          | 1375         | 1                 | 0.3479            |
| 828          | 1375         | 1                 | 0.3282            |
| 829          | 1375         | 1                 | 0.75229           |
| 830          | 1375         | 1                 | 0.48607           |
| 831          | 1375         | 1                 | 1.23333           |
| 832          | 1375         | 1                 | 1.11228           |
| 833          | 1375         | 1                 | 1.00038           |
| 834          | 1375         | 1                 | 3.32644           |
| 835          | 1375         | 1                 | 0.19466           |
|              |              |                   |                   |

| DestZoneI[( | OrigZoneIDVeł | nicleID DailyVe | ehicles            |
|-------------|---------------|-----------------|--------------------|
| 836         | 1375          | 1               | 0.18049            |
| 837         | 1375          | 1               | 0.52501            |
| 838         | 1375          | 1               | 0.23732            |
| 839         | 1375          | 1               | 0.26539            |
| 840         | 1375          | 1               | 0.10553            |
| 841         | 1375          | 1               | 0.07418            |
| 842         | 1375          | 1               | 0.07739            |
| 843         | 1375          | 1               | 0.19812            |
| 844         | 1375          | 1               | 0.28174            |
| 845         | 1375          | 1               | 0.08397            |
| 846         | 1375          | 1               | 0.1599             |
| 847         | 1375          | 1               | 0.23407            |
| 848         | 1375          | 1               | 0.45198            |
| 849         | 1375          | 1               | 0.34828            |
| 850         | 1375          | 1<br>1          | 0.2977             |
| 851<br>852  | 1375<br>1375  | 1               | 0.48815<br>0.08944 |
| 852<br>853  | 1375          | 1               | 0.08944            |
| 854         | 1375          | 1               | 0.45062            |
| 855         | 1375          | 1               | 0.62832            |
| 856         | 1375          | 1               | 0.65331            |
| 857         | 1375          | 1               | 0.3377             |
| 858         | 1375          | 1               | 0.86798            |
| 859         | 1375          | 1               | 0.68995            |
| 860         | 1375          | 1               | 2.02932            |
| 861         | 1375          | 1               | 1.47125            |
| 862         | 1375          | 1               | 0.38709            |
| 863         | 1375          | 1               | 2.34175            |
| 864         | 1375          | 1               | 0.81823            |
| 865         | 1375          | 1               | 13.40321           |
| 866         | 1375          | 1               | 0.53452            |
| 867         | 1375          | 1               | 0.18599            |
| 901         | 1375          | 1               | 1.26593            |
| 902         | 1375          | 1               | 1.8511             |
| 903         | 1375          | 1               | 0.8316             |
| 904         | 1375          | 1               | 0.76102            |
| 905         | 1375          | 1               | 0.54798            |
| 906<br>907  | 1375<br>1375  | 1<br>1          | 0.67142<br>0.34889 |
| 907         | 1375          | 1               | 0.34889            |
| 908         | 1375          | 1               | 1.06546            |
| 909         | 1375          | 1               | 3.49503            |
| 911         | 1375          | 1               | 0.78583            |
| 912         | 1375          | 1               | 0.77839            |
| 913         | 1375          | 1               | 0.94214            |
| 914         | 1375          | 1               | 0.20581            |
|             |               |                 |                    |

| DestZoneI[ O | rigZoneIDVe | hicleID DailyV | 'ehicles |
|--------------|-------------|----------------|----------|
| 915          | 1375        | 1              | 0.22569  |
| 916          | 1375        | 1              | 0.95025  |
| 917          | 1375        | 1              | 3.03494  |
| 918          | 1375        | 1              | 4.25312  |
| 919          | 1375        | 1              | 1.03957  |
| 920          | 1375        | 1              | 0.56774  |
| 921          | 1375        | 1              | 0.68255  |
| 922          | 1375        | 1              | 0.87311  |
| 1001         | 1375        | 1              | 3.91121  |
| 1002         | 1375        | 1              | 2.15581  |
| 1003         | 1375        | 1              | 0.99839  |
| 1004         | 1375        | 1              | 0.47936  |
| 1005         | 1375        | 1              | 7.1021   |
| 1006         | 1375        | 1              | 6.30478  |
| 1007         | 1375        | 1              | 14.27451 |
| 1008         | 1375        | 1              | 1.6609   |
| 1009         | 1375        | 1              | 5.5428   |
| 1010         | 1375        | 1              | 1.51471  |
| 1011         | 1375        | 1              | 0.6231   |
| 1012         | 1375        | 1              | 7.93467  |
| 1013         | 1375        | 1              | 25.32266 |
| 1014         | 1375        | 1              | 11.64152 |
| 1015         | 1375        | 1              | 7.01109  |
| 1016         | 1375        | 1              | 0.70715  |
| 1017         | 1375        | 1              | 1.17625  |
| 1018         | 1375        | 1              | 1.94312  |
| 1019         | 1375        | 1              | 0.71317  |
| 1020         | 1375        | 1              | 0.25454  |
| 1021         | 1375        | 1              | 9.61224  |
| 1022         | 1375        | 1              | 2.93399  |
| 1023         | 1375        | 1              | 0.42518  |
| 1024         | 1375        | 1              | 1.41881  |
| 1025         | 1375        | 1              | 1.62781  |
| 1026         | 1375        | 1              | 2.05102  |
| 1027         | 1375        | 1              | 0.33089  |
| 1028         | 1375        | 1              | 0.71729  |
| 1029         | 1375        | 1              | 0.24302  |
| 1030         | 1375        | 1              | 0.09604  |
| 1031         | 1375        | 1              | 0.06308  |
| 1032         | 1375        | 1              | 0.17419  |
| 1201         | 1375        | 1              | 86.38917 |
| 1202         | 1375        | 1              | 33.51865 |
| 1203         | 1375        | 1              | 40.5611  |
| 1204         | 1375        | 1              | 5.39394  |
| 1205         | 1375        | 1              | 12.91988 |
| 1206         | 1375        | 1              | 30.72458 |

| Dest7oneIF   | Orig7oneIDV  | ehicleID | DailyVehicles       |
|--------------|--------------|----------|---------------------|
| 1207         | 1375         | 1        | 20.62896            |
| 1208         | 1375         | 1        | 14.81617            |
| 1209         | 1375         | 1        | 2.86058             |
| 1210         | 1375         | 1        | 23.85177            |
| 1211         | 1375         | 1        | 21.3399             |
| 1212         | 1375         | 1        | 126.068             |
| 1213         | 1375         | 1        | 20.42454            |
| 1214         | 1375         | 1        | 3.15745             |
| 1215         | 1375         | 1        | 51.47229            |
| 1216         | 1375         | 1        | 49.55216            |
| 1217         | 1375         | 1        | 13.19489            |
| 1218         | 1375         | 1        | 5.98276             |
| 1219         | 1375         | 1        | 3.10091             |
| 1220         | 1375         | 1        | 21.53277            |
| 1221         | 1375         | 1        | 25.16275            |
| 1222         | 1375         | 1        | 15.84072            |
| 1223         | 1375         | 1        | 2.75843             |
| 1224         | 1375         | 1        | 10.71992            |
| 1225         | 1375         | 1        | 12.12406            |
| 1226<br>1227 | 1375<br>1375 | 1        | 2.37295<br>2.88294  |
| 1227         | 1375         | 1        | 2.88294<br>69.94055 |
| 1228         | 1375         | 1        | 15.5447             |
| 1230         | 1375         | 1        | 4.08382             |
| 1230         | 1375         | 1        | 1.64987             |
| 1232         | 1375         | 1        | 1.57366             |
| 1233         | 1375         | 1        | 19.14023            |
| 1234         | 1375         | 1        | 1.35488             |
| 1235         | 1375         | 1        | 7.1054              |
| 1236         | 1375         | 1        | 1.28181             |
| 1237         | 1375         | 1        | 15.5977             |
| 1238         | 1375         | 1        | 4.00648             |
| 1239         | 1375         | 1        | 127.682             |
| 1240         | 1375         | 1        | 4.04047             |
| 1241         | 1375         | 1        | 1.20095             |
| 1242         | 1375         | 1        | 6.95734             |
| 1243         | 1375         | 1        | 1.35587             |
| 1244         | 1375         | 1        | 20.22831            |
| 1245         | 1375         | 1        | 4.6844              |
| 1246         | 1375         | 1        | 8.7596              |
| 1247         | 1375         | 1        | 2.06012             |
| 1248         | 1375         | 1        | 0.89316             |
| 1249         | 1375         | 1        | 6.36674             |
| 1250         | 1375         | 1        | 47.67941            |
| 1251         | 1375         | 1        | 23.92566            |
| 1252         | 1375         | 1        | 33.85477            |

| DestZoneII | OrigZoneID' | VehicleID | DailyVehicles |
|------------|-------------|-----------|---------------|
| 1253       | 1375        | 1         | 25.91038      |
| 1254       | 1375        | 1         | 12.62888      |
| 1255       | 1375        | 1         | 14.23971      |
| 1256       | 1375        | 1         | 17.33161      |
| 1301       | 1375        | 1         | 4E-14         |
| 1303       | 1375        | 1         | 2.2E-14       |
| 1307       | 1375        | 1         | 1.90E-15      |
| 1309       | 1375        | 1         | 2E-15         |
| 1310       | 1375        | 1         | 7.50E-15      |
| 1311       | 1375        | 1         | 6E-15         |
| 1312       | 1375        | 1         | 9.10E-15      |
| 1313       | 1375        | 1         | 1.50E-15      |
| 1314       | 1375        | 1         | 4.80E-16      |
| 1323       | 1375        | 1         | 1.20E-15      |
| 1324       | 1375        | 1         | 4.70E-15      |
| 1326       | 1375        | 1         | 1.90E-15      |
| 1327       | 1375        | 1         | 3E-15         |
| 1328       | 1375        | 1         | 1.80E-15      |
| 1329       | 1375        | 1         | 0.45877       |
| 1330       | 1375        | 1         | 13.0519       |
| 1331       | 1375        | 1         | 5.07934       |
| 1333       | 1375        | 1         | 22.06867      |
| 1335       | 1375        | 1         | 9.50E-16      |
| 1338       | 1375        | 1         | 73.92693      |
| 1340       | 1375        | 1         | 15.05172      |
| 1341       | 1375        | 1         | 2.10E-16      |
| 1361       | 1375        | 1         | 2.00E-16      |
| 1366       | 1375        | 1         | 3.70E-15      |
| 1367       | 1375        | 1         | 2.30E-15      |
| 1368       | 1375        | 1         | 2.30E-15      |
| 1372       | 1375        | 1         | 1.10934       |
| 1383       | 1375        | 1         | 1.40E-15      |

| 1<br>2 | ZoneName<br>City of London<br>Westminster     | Region<br>LO<br>LO |
|--------|---|--------------------|
|        | Camden  | LO                 |
|        | Islington                                     | LO                 |
|        | Hackney                                       | LO                 |
|        | Tower Hamlets                                 | LO                 |
|        | Southwark                                     | LO                 |
| -      | Lambeth                                       | LO                 |
|        | Wandsworth                                    | LO                 |
|        | Kensington and Chelsea Hammersmith and Fulham | LO<br>LO           |
|        | Richmond upon Thames                          | LO                 |
|        | Hounslow                                      | LO                 |
|        | Ealing  | LO                 |
|        | Brent   | LO                 |
|        | Hillingdon                                    | LO                 |
|        | Harrow  | LO                 |
|        | Barnet  | LO                 |
|        | Haringey                                      | LO                 |
|        | Enfield                                       | LO                 |
|        | Waltham Forest                                | LO                 |
|        | Newham  | LO                 |
|        | Redbridge                                     | LO                 |
|        | Havering                                      | LO                 |
|        | Barking and Dagenham                          | LO                 |
|        | Greenwich                                     | LO                 |
|        | Bexley  | LO                 |
|        | Lewisham                                      | LO                 |
|        | Bromley                                       | LO                 |
|        | Croydon                                       | LO                 |
|        | Merton  | LO                 |
| 32     | Sutton  | LO                 |
| 33     | Kingston upon Thames                          | LO                 |
|        | Redcar and Cleveland                          | NE                 |
| 102    | Middlesbrough                                 | NE                 |
| 103    | Stockton-on-Tees                              | NE                 |
| 104    | Hartlepool                                    | NE                 |
|        | Darlington                                    | NE                 |
|        | Sedgefield                                    | NE                 |
|        | Easington                                     | NE                 |
|        | Durham  | NE                 |
|        | Sunderland                                    | NE                 |
|        | Chester-le-Street                             | NE                 |
|        | Derwentside                                   | NE                 |
|        | Wear Valley                                   | NE                 |
|        | Teesdale                                      | NE                 |
|        | Gateshead                                     | NE                 |
|        | South Tyneside                                | NE<br>NE           |
|        | Newcastle upon Tyne<br>North Tyneside         | NE<br>NE           |
|        | Blyth Valley                                  | NE<br>NE           |
| 110    | Diyui valley                                  | INE                |

|     | ZoneName                | Region |
|-----|-------------------------|--------|
|     | Wansbeck                | NE     |
|     | Castle Morpeth          | NE     |
|     | Tynedale                | NE     |
|     | 2 Alnwick               | NE     |
|     | Berwick-upon-Tweed      | NE     |
|     | Congleton               | NW     |
|     | 2 Macclesfield          | NW     |
|     | 3 Crewe and Nantwich    | NW     |
|     | Chester                 | NW     |
|     | Vale Royal              | NW     |
|     | Stockport               | NW     |
|     | ' Tameside              | NW     |
|     | 3 Manchester            | NW     |
|     | Oldham                  | NW     |
|     | ) Trafford              | NW     |
|     | Rochdale                | NW     |
|     | ? Bury                  | NW     |
| 213 | 3 Salford               | NW     |
|     | Warrington              | NW     |
| 215 | Halton                  | NW     |
| 216 | Ellesmere Port & Neston | NW     |
|     | ' Wirral                | NW     |
| 218 | B Liverpool             | NW     |
| 219 | Knowsley                | NW     |
| 220 | ) St. Helens            | NW     |
| 221 | Wigan                   | NW     |
| 222 | 2 Bolton                | NW     |
| 223 | Rossendale              | NW     |
| 224 | Burnley                 | NW     |
| 225 | Pendle                  | NW     |
| 226 | Hyndburn                | NW     |
| 227 | Blackburn with Darwen   | NW     |
| 228 | 3 Chorley               | NW     |
| 229 | South Ribble            | NW     |
| 230 | West Lancashire         | NW     |
| 231 | Sefton                  | NW     |
| 232 | ? Fylde                 | NW     |
|     | B Blackpool             | NW     |
| 234 | Preston                 | NW     |
| 235 | Ribble Valley           | NW     |
|     | 6 Wyre                  | NW     |
|     | ' Lancaster             | NW     |
| 238 | South Lakeland          | NW     |
| 239 | Barrow-in-Furness       | NW     |
| 240 | Copeland                | NW     |
|     | Eden                    | NW     |
|     | ? Allerdale             | NW     |
|     | 3 Carlisle              | NW     |
|     | Sheffield               | YH     |
|     | Rotherham               | YH     |
|     | B Barnslev              | YH     |
| 300 | a                       |        |

| ZoneID | ZoneName                   | Region |
|--------|----------------------------|--------|
| 304    | Kirklees                   | YH     |
| 305    | Wakefield                  | YH     |
| 306    | Doncaster                  | YH     |
| 307    | Calderdale                 | YH     |
| 308    | Bradford                   | YH     |
| 309    | Leeds                      | YH     |
| 310    | Selby                      | YH     |
| 311    | North Lincolnshire         | YH     |
| 312    | North East Lincolnshire    | YH     |
|        | Kingston upon Hull City of | YH     |
| 314    | East Riding of Yorkshire   | YH     |
| 315    | York                       | YH     |
| 316    | Ryedale                    | YH     |
| 317    | Scarborough                | YH     |
| 318    | Hambleton                  | YH     |
| 319    | Harrogate                  | YH     |
| 320    | Craven                     | YH     |
| 321    | Richmondshire              | YH     |
| 401    | South Northamptonshire     | EM     |
| 402    | Northampton                | EM     |
| 403    | Wellingborough             | EM     |
| 404    | Daventry                   | EM     |
|        | Kettering                  | EM     |
| 406    | Corby                      | EM     |
| 407    | East Northamptonshire      | EM     |
| 408    | Rutland                    | EM     |
| 409    | Harborough                 | EM     |
| 410    | Oadby and Wigston          | EM     |
| 411    | Blaby                      | EM     |
| 412    | Leicester                  | EM     |
| 413    | Hinckley and Bosworth      | EM     |
| 414    | North West Leicestershire  | EM     |
|        | Charnwood                  | EM     |
| 416    | Melton                     | EM     |
| 417    | South Kesteven             | EM     |
| 418    | South Holland              | EM     |
|        | Boston                     | EM     |
| 420    | North Kesteven             | EM     |
|        | Newark and Sherwood        | EM     |
|        | Rushcliffe                 | EM     |
|        | South Derbyshire           | EM     |
| 424    | Derby                      | EM     |
|        | Erewash                    | EM     |
|        | Broxtowe                   | EM     |
|        | Nottingham                 | EM     |
|        | Gedling                    | EM     |
|        | Derbyshire Dales           | EM     |
|        | Amber Valley               | EM     |
|        | Ashfield                   | EM     |
|        | Mansfield                  | EM     |
| 433    | North East Derbyshire      | EM     |
|        |                            |        |

|     | ZoneName                     | Reg | ion |
|-----|------------------------------|-----|-----|
|     | Chesterfield                 | EM  |     |
|     | Bolsover                     | EM  |     |
|     | High Peak                    | EM  |     |
| 437 | Bassetlaw                    | EM  |     |
| 438 | West Lindsey                 | EM  |     |
| 439 | Lincoln                      | EM  |     |
| 440 | East Lindsey                 | EM  |     |
| 501 | Stratford-on-Avon            | WM  |     |
| 502 | Warwick                      | WM  |     |
| 503 | Rugby                        | WM  |     |
| 504 | Nuneaton and Bedworth        | WM  |     |
| 505 | Coventry                     | WM  |     |
| 506 | North Warwickshire           | WM  |     |
| 507 | Solihull                     | WM  |     |
| 508 | Bromsgrove                   | WM  |     |
| 509 | Redditch                     | WM  |     |
| 510 | Wychavon                     | WM  |     |
|     | Worcester                    | WM  |     |
|     | Malvern Hills                | WM  |     |
| 513 | Herefordshire County of      | WM  |     |
|     | South Shropshire             | WM  |     |
|     | Wyre Forest                  | WM  |     |
|     | Birmingham                   | WM  |     |
|     | Tamworth                     | WM  |     |
|     | Lichfield                    | WM  |     |
|     | Walsall                      | WM  |     |
|     | Sandwell                     | WM  |     |
|     | Dudlev                       | WM  |     |
|     | South Staffordshire          | WM  |     |
|     | Wolverhampton                | WM  |     |
|     | Bridanorth                   | WM  |     |
|     | Cannock Chase                | WM  |     |
|     | East Staffordshire           | WM  |     |
|     | Stafford                     | WM  |     |
|     | Staffordshire Moorlands      | WM  |     |
|     | Stoke-on-Trent               | WM  |     |
|     | Newcastle-under-Lyme         | WM  |     |
|     | Telford and Wrekin           | WM  |     |
|     | Shrewsbury and Atcham        | WM  |     |
|     |                              | WM  |     |
|     | North Shropshire<br>Oswestry | WM  |     |
|     | Cotswold                     | SW  |     |
|     |                              | SW  |     |
|     | Cheltenham                   | SW  |     |
|     | Tewkesbury                   |     |     |
|     | Gloucester                   | SW  |     |
|     | Forest of Dean               | SW  |     |
|     | Stroud                       | SW  |     |
|     | Swindon                      | SW  |     |
|     | Kennet                       | SW  |     |
|     | Salisbury                    | SW  |     |
| 610 | North Wiltshire              | SW  |     |
|     |                              |     |     |

| ZoneID | ZoneName                    | Region |
|--------|-----------------------------|--------|
| 611    | West Wiltshire              | SW     |
| 612    | South Gloucestershire       | SW     |
| 613    | Bristol City of             | SW     |
|        | North Somerset              | SW     |
| 615    | Bath and North East Somerse | SW     |
|        | Mendip                      | SW     |
| 617    | Sedgemoor                   | SW     |
| 618    | East Dorset                 | SW     |
| 619    | Christchurch                | SW     |
| 620    | Bournemouth                 | SW     |
|        | Poole                       | SW     |
| 622    | Purbeck                     | SW     |
| 623    | North Dorset                | SW     |
|        | West Dorset                 | SW     |
| 625    | South Somerset              | SW     |
| 626    | Taunton Deane               | SW     |
|        | West Somerset               | SW     |
| 628    | North Devon                 | SW     |
| 629    | Mid Devon                   | SW     |
| 630    | East Devon                  | SW     |
| 631    | Exeter                      | SW     |
| 632    | Teignbridge                 | SW     |
| 633    | Torbay                      | SW     |
| 634    | South Hams                  | SW     |
| 635    | Plymouth                    | SW     |
| 636    | West Devon                  | SW     |
| 637    | Torridge                    | SW     |
| 638    | North Cornwall              | SW     |
| 639    | Caradon                     | SW     |
| 640    | Restormel                   | SW     |
| 641    | Carrick                     | SW     |
| 642    | Kerrier                     | SW     |
| 643    | Penwith                     | SW     |
| 644    | Weymouth and Portland       | SW     |
|        | Isles of Scilly             | SW     |
| 701    | Three Rivers                | EE     |
| 702    | Watford                     | EE     |
| 703    | Dacorum                     | EE     |
| 704    | St Albans                   | EE     |
| 705    | Hertsmere                   | EE     |
| 706    | Welwyn Hatfield             | EE     |
|        | Broxbourne                  | EE     |
| 708    | East Hertfordshire          | EE     |
| 709    | Harlow                      | EE     |
|        | Epping Forest               | EE     |
|        | Brentwood                   | EE     |
|        | Thurrock                    | EE     |
| –      | Basildon                    | EE     |
|        | Castle Point                | EE     |
|        | Southend-on-Sea             | EE     |
|        | Rochford                    | EE     |
|        |                             |        |

| ZoneID | ZoneName                    | Region |
|--------|-----------------------------|--------|
| 717    | Chelmsford                  | EE     |
| 718    | Maldon                      | EE     |
| 719    | Tendring                    | EE     |
| 720    | Colchester                  | EE     |
| 721    | Braintree                   | EE     |
| 722    | Uttlesford                  | EE     |
| 723    | North Hertfordshire         | EE     |
| 724    | Stevenage                   | EE     |
|        | Luton                       | EE     |
| 726    | South Bedfordshire          | EE     |
| 727    | Mid Bedfordshire            | EE     |
| 728    | Bedford                     | EE     |
| 729    | Huntingdonshire             | EE     |
|        | South Cambridgeshire        | EE     |
|        | Cambridge                   | EE     |
|        | East Cambridgeshire         | EE     |
|        | Forest Heath                | EE     |
|        | St. Edmundsbury             | EE     |
|        | Babergh                     | EE     |
|        | Mid Suffolk                 | EE     |
|        | Suffolk Coastal             | EE     |
|        | Ipswich                     | EE     |
|        | Peterborough                | EE     |
|        | Fenland                     | EE     |
|        | King's Lynn and West Norfol | EE     |
|        | Breckland                   | EE     |
|        | South Norfolk               | EE     |
|        | Waveney                     | EE     |
|        | Great Yarmouth              | EE     |
|        | Broadland                   | EE     |
|        | Norwich                     | EE     |
|        | North Norfolk               | EE     |
|        | Dartford                    | SE     |
|        | Gravesham                   | SE     |
|        | Sevenoaks                   | SE     |
|        | Tandridge                   | SE     |
|        | Reigate and Banstead        | SE     |
|        | Epsom and Ewell             | SE     |
|        | Mole Valley                 | SE     |
|        | Crawley                     | SE     |
|        | Elmbridge                   | SE     |
|        | Guildford                   | SE     |
|        | Woking                      | SE     |
|        | 5                           | SE     |
|        | Spelthorne                  |        |
|        | Runnymede                   | SE     |
|        | Surrey Heath                | SE     |
|        | Slough                      | SE     |
|        | South Bucks                 | SE     |
|        | Windsor and Maidenhead      | SE     |
|        | Bracknell Forest            | SE     |
| 819    | Chiltern                    | SE     |

|     | ZoneName              | Region<br>SE |
|-----|-----------------------|--------------|
|     | Wycombe               |              |
|     | South Oxfordshire     | SE           |
|     | Reading               | SE           |
|     | Wokingham             | SE           |
|     | Hart                  | SE           |
|     | Rushmoor              | SE           |
|     | Waverley              | SE           |
|     | Horsham               | SE           |
|     | Mid Sussex            | SE           |
|     | Wealden               | SE           |
|     | Tunbridge Wells       | SE           |
|     | Tonbridge and Malling | SE           |
|     | Maidstone             | SE           |
|     | Medway                | SE           |
|     | Swale                 | SE           |
|     | Canterbury            | SE           |
|     | Thanet                | SE           |
|     | Dover                 | SE<br>SE     |
|     | Shepway               |              |
|     | Ashford               | SE<br>SE     |
|     | Rother                | SE<br>SE     |
|     | Hastings              | SE<br>SE     |
|     | Eastbourne<br>Lewes   | SE<br>SE     |
|     | Brighton and Hove     | SE<br>SE     |
|     | Adur                  | SE<br>SE     |
|     | Worthing              | SE           |
|     | Arun                  | SE           |
|     | Chichester            | SE           |
|     | East Hampshire        | SE           |
|     | Havant                | SE           |
|     | Portsmouth            | SE           |
|     | Gosport               | SE           |
|     | Fareham               | SE           |
|     | Eastleigh             | SE           |
|     | Southampton           | SE           |
|     | Test Valley           | SE           |
|     | Winchester            | SE           |
|     | Basingstoke and Deane | SE           |
|     | West Berkshire        | SE           |
|     | Vale of White Horse   | SE           |
|     | Oxford                | SE           |
| 862 | West Oxfordshire      | SE           |
| 863 | Cherwell              | SE           |
| 864 | Aylesbury Vale        | SE           |
|     | Milton Keynes         | SE           |
| 866 | New Forest            | SE           |
|     | Isle of Wight         | SE           |
|     | Newport               | W            |
| 902 | Cardiff               | W            |
| 903 | The Vale of Glamorgan | W            |
|     | •                     |              |
|     |                       |              |
|     |                       |              |
|     |                       |              |

|      | ZoneName            | Region |
|------|---------------------|--------|
| 904  | Monmouthshire       | W      |
| 905  | Torfaen             | W      |
| 906  | Caerphilly          | W      |
| 907  | Blaenau Gwent       | W      |
|      | Merthyr Tydfil      | W      |
|      | Rhondda Cynon Taff  | W      |
|      | Bridgend            | W      |
|      | Neath Port Talbot   | W      |
|      | Swansea             | W      |
|      | Carmarthenshire     | W      |
|      | Pembrokeshire       | W      |
|      |                     | W      |
|      | Ceredigion          | W      |
|      | Powys               | • •    |
|      | Wrexham             | W      |
|      | Flintshire          | W      |
| 919  | Denbighshire        | W      |
| 920  | Conwy               | W      |
| 921  | Gwynedd             | W      |
| 922  | Isle of Anglesey    | W      |
|      | Dumfries & Galloway | S      |
|      | Scottish Borders    | S      |
|      | East Lothian        | S      |
|      | Midlothian          | S      |
|      | Edinburgh City of   | S      |
|      | West Lothian        | S      |
|      |                     | S      |
|      | South Lanarkshire   |        |
|      | East Ayrshire       | S      |
|      | South Ayrshire      | S      |
|      | North Ayrshire      | S      |
| 1011 | East Renfrewshire   | S      |
| 1012 | Renfrewshire        | S      |
| 1013 | Glasgow City        | S      |
| 1014 | North Lanarkshire   | S      |
| 1015 | Falkirk             | S      |
| 1016 | East Dunbartonshire | S      |
|      | West Dunbartonshire | S      |
|      | Inverciyde          | S      |
|      | Stirling            | S      |
|      | Clackmannanshire    | S      |
| 1020 |                     | S      |
|      |                     | S      |
|      | Dundee City         |        |
|      | Angus               | S      |
|      | Perth & Kinross     | S      |
|      | Aberdeenshire       | S      |
|      | Aberdeen City       | S      |
|      | Argyll & Bute       | S      |
| 1028 | Highland            | S      |
|      | Moray               | S      |
| 1030 | Eilean Siar         | S      |
| 1031 | Orkney Islands      | S      |
| 1032 | Shetland Islands    | S      |
|      |                     |        |
|      |                     |        |
|      |                     |        |
|      |                     |        |

| ZoneID ZoneName                     | Region |
|-------------------------------------|--------|
| 1111 Heathrow Apt                   | LO     |
| 1112 Gatwick Apt                    | SE     |
| 1113 Stansted Apt                   | EE     |
| 1114 East Midlands Apt              | EM     |
|                                     |        |
| 1115 Manchester Apt                 | NW     |
| 1201 LE1 Lutterworth Leics          | EM     |
| 1202 NN4 Northampton Northants      | EM     |
| 1203 NN1 Kettering Northants        | EM     |
| 1204 AL1 Hatfield Herts             | EE     |
| 1205 MK4 Kempston Beds              | EE     |
| 1206 CV2 Rugby Warwicks             | WM     |
| 1207 PE2 Peterborough               | EE     |
| 1208 CV6 Coventry W Midlands        | WM     |
| 1209 RG1 Bracknell Bracknell Forest | SE     |
|                                     |        |
| 1210 NN6 Dirft Northants            | EM     |
| 1211 B78 Tamworth Warwicks          | WM     |
| 1212 DN3 Doncaster S Yorks          | YΗ     |
| 1213 MK1 Milton Keynes              | SE     |
| 1214 RM1 Purfleet Essex             | EE     |
| 1215 S80 Worksop Notts              | EM     |
| 1216 NG2 Newark Notts               | EM     |
| 1217 NN8 Wellingborough Northants   | EM     |
| 1218 SN3 Swindon                    | SW     |
| 1219 NP2 Caldicot Newport Wales     | W      |
| 1220 WN8 Skelmersdale Lancs         | NW     |
|                                     | NW     |
| 1221 WA1 Merseyside                 |        |
| 1222 WS1 Lichfield Staffs           | WM     |
| 1223 EN9 Waltham Abbey Essex        | EE     |
| 1224 B46 Coleshill Warwicks         | WM     |
| 1225 CV1 Bedworth Warwicks          | WM     |
| 1226 SL3 Langley Slough             | SE     |
| 1227 LU5 Dunstable Beds             | EE     |
| 1228 WF9 Pontefrac W Yorks          | YH     |
| 1229 DE1 Burton-On-Trent Staffs     | WM     |
| 1230 ST1 Stafford Staffs            | WM     |
| 1231 EN1 Hoddesdon Herts            | EE     |
| 1232 OX4 Garsington Oxfords         | SE     |
| 1233 DE7 Derby Leics                | EM     |
|                                     |        |
| 1234 TW1 Feltham London             | LO     |
| 1235 CH6 Ellesmere Port Cheshire    | NW     |
| 1236 UB6 Greenford London           | LO     |
| 1237 LE6 Coalville Leics            | EM     |
| 1238 ST4 Stoke-On-Trent             | WM     |
| 1239 DN1 Scunthorpe North Lincs     | YΗ     |
| 1240 BS1 Bristol S Gloucs           | SW     |
| 1241 DA1 Belvedere London           | LO     |
| 1242 CW9 Northwich Cheshire         | NW     |
| 1243 RM9 Dagenham London            | LO     |
| 1244 M24 Middleton Gtr Manchester   | NW     |
| 1245 CW1 Middlewich Cheshire        | NW     |
|                                     |        |
| 1246 WA7 Runcorn Halton             | NW     |

|      | ZoneName                  | Region |
|------|---------------------------|--------|
|      | ST5 Newcastle Staffs      | WM     |
|      | OX1 Didcot Oxfords        | SE     |
| 1249 | CV9 Atherstone Warwicks   | WM     |
| 1250 | DN6 Doncaster S Yorks     | YΗ     |
| 1251 | DL3 Durham Darlington     | NE     |
| 1252 | EH5 W Lothian             | S      |
| 1253 | FK1 Clackmannanshire      | S      |
| 1254 | KA1 Kilmarnock North Ayrs | S      |
| 1255 | FK3 Falkirk               | S      |
| 1256 | ML1 North Lanarks         | S      |
|      | London Port               | EE     |
| 1302 | Colchester Port           | EE     |
| 1303 | Thamesport Port           | SE     |
| 1304 | Medway Port               | SE     |
| 1305 | Whitstable Port           | SE     |
|      | Ramsgate Port             | SE     |
|      | Dover Port                | SE     |
| 1308 | Folkestone Port           | SE     |
| 1309 | Newhaven Port             | SE     |
| 1310 | Shoreham Port             | SE     |
| 1311 | Portsmouth Port           | SE     |
|      | Southampton Port          | SE     |
|      | Cowes Port                | SE     |
| 1314 | Poole Port                | SW     |
|      | Weymouth Port             | SW     |
|      | Exeter Port               | SW     |
|      | Teignmouth Port           | SW     |
| 1318 | Plymouth Port             | SW     |
|      | Fowey Port                | SW     |
| 1320 | Par Port                  | SW     |
|      | Falmouth Port             | SW     |
|      | Penzance Port             | SW     |
|      | Watchet Port              | SW     |
|      | Avonmouth Port            | SW     |
|      | Sharpness Port            | SW     |
|      | Newport Port              | W      |
|      | Cardiff Port              | W      |
|      | Port Talbot Port          | W      |
|      | Swansea Port              | W      |
|      | Milford Port              | W      |
|      | Fishguard Port            | W      |
|      | Llandulas Port            | W      |
|      | Holyhead Port             | W      |
|      | Mostyn Port               | W      |
|      | Ellesmere Port Port       | NW     |
|      | Runcorn Port              | NW     |
|      | Manchester Port           | NW     |
|      | Liverpool Port            | NW     |
|      | Fleetwood Port            | nw     |
|      | Heysham Port              | NW     |
| 1341 | Barrow-In-Furness Port    | NW     |
|      |                           |        |

| 1342 | Whitehaven Port     | NW          |
|------|---------------------|-------------|
| 1343 | Workington Port     | NW          |
|      | Silloth Port        | NW          |
| 1345 | Ayr Port            | S           |
|      | Irvine Port         | S           |
|      | Ardrossan Port      | S           |
|      | Greenock Port       |             |
|      | Glasgow Port        | S           |
|      | Stornoway Port      | S<br>S<br>S |
|      | Kirkwall Port       | S           |
|      | Lerwick Port        | S           |
|      | Inverness Port      | S           |
|      | Fraserburgh Port    | 0           |
|      | Peterhead Port      | S<br>S      |
|      |                     | S           |
|      | Aberdeen Port       | S           |
|      | Montrose Port       | S           |
|      | Dundee Port         | S           |
|      | Methil Port         |             |
|      | Kirkcaldy Port      | S           |
|      | Grangemouth Port    | S           |
|      | Leith Port          | S           |
|      | Rosyth Port         | S           |
|      | Hound Point Port    | S           |
|      | Blyth Port          | NE          |
|      | Tyne Port           | NE          |
|      | Sunderland Port     | NE          |
| 1368 | Hartlepool Port     | NE          |
| 1369 | Middlesbrough Port  | NE          |
| 1370 | Whitby Port         | NW          |
| 1371 | Scarborough Port    | YΗ          |
| 1372 | Hull Port           | YΗ          |
| 1373 | Goole Port          | YΗ          |
| 1374 | Trent Port          | EE          |
| 1375 | Immingham Port      | YΗ          |
|      | Grimsby Port        | YΗ          |
|      | Boston Port         | EM          |
| 1378 | Wisbech Port        | EE          |
| 1379 | Kings Lynn Port     | EE          |
|      | Great Yarmouth Port | EE          |
|      | Lowestoft Port      | EE          |
|      | Felixstowe Port     | EE          |
|      | Ipswich Port        | EE          |
|      | Harwich Port        | EE          |
|      | Channel Tunnel Port | SE          |
|      | Cairnryan Port      | S           |
|      | Stranraer Port      | S           |
|      | Glensanda           | S           |
| 1000 | Cicioanda           | _           |
|      |                     |             |
|      |                     |             |

Region

| Zone | Location                               | Region   | Distribution       |
|------|--|----------|--------------------|
|      | Thurrock                               | EE       | 0.9%               |
|      | PE2 Peterborough                       | EE       | 0.7%               |
|      | MK4 Kempston Beds                      | EE       | 0.4%               |
| 739  | Peterborough                           | EE       | 0.2%               |
| 1204 | AL1 Hatfield Herts                     | EE       | 0.2%               |
| 437  | Bassetlaw                              | EM       | 3.0%               |
|      | LE1 Lutterworth Leics                  | EM       | 2.9%               |
|      | S80 Worksop Notts                      | EM       | 1.7%               |
|      | NG2 Newark Notts                       | EM       | 1.7%               |
|      | Newark and Sherwood                    | EM       | 1.5%               |
|      | NN1 Kettering Northants                | EM       | 1.4%               |
|      | Bolsover                               | EM       | 1.2%               |
|      | NN4 Northampton Northants              | EM       | 1.1%               |
|      | Ashfield                               | EM       | 1.1%               |
|      | Rushcliffe                             | EM       | 0.8%               |
| -    | NN6 Dirft Northants                    | EM       | 0.8%               |
|      | DE7 Derby Leics<br>LE6 Coalville Leics | EM<br>EM | 0.6%               |
|      | NN8 Wellingborough Northants           | EM       | 0.5%<br>0.4%       |
|      | South Kesteven                         | EM       | 0.4%               |
|      | West Lindsey                           | EM       | 0.4%               |
|      | North West Leicestershire              | EM       | 0.4%               |
| -    | Leicester                              | EM       | 0.4%               |
|      | Harborough                             | EM       | 0.3%               |
|      | Charnwood                              | EM       | 0.3%               |
| 433  | North East Derbyshire                  | EM       | 0.3%               |
|      | Broxtowe                               | EM       | 0.3%               |
| 424  | Derby                                  | EM       | 0.3%               |
| 440  | East Lindsey                           | EM       | 0.3%               |
| 430  | Amber Valley                           | EM       | 0.3%               |
| 427  | Nottingham                             | EM       | 0.3%               |
|      | Corby                                  | EM       | 0.2%               |
|      | Northampton                            | EM       | 0.2%               |
|      | Derbyshire Dales                       | EM       | 0.2%               |
|      | Ealing                                 | LO       | 0.4%               |
|      | Bexley                                 | LO       | 0.3%               |
|      | Wandsworth                             | LO       | 0.2%               |
|      | DL3 Durham Darlington                  | NE       | 0.8%               |
|      | Liverpool Port                         | NW       | 2.5%               |
|      | Warrington                             | NW       | 1.5%               |
|      | WA1 Merseyside<br>Wigan                | NW<br>NW | 0.9%               |
|      | WN8 Skelmersdale Lancs                 | NW       | 0.8%<br>0.7%       |
|      | M24 Middleton Gtr Manchester           | NW       | 0.7%               |
|      | Heysham Port                           | NW       | 0.7%               |
|      | Oldham                                 | NW       | 0.3%               |
| 203  | Olulialli                              | 1444     | U. <del>4</del> /0 |

| Zone    | Location                         | Region   | Distribution |
|---------|----------------------------------|----------|--------------|
| 208     | Manchester                       | NW       | 0.3%         |
| 1246    | WA7 Runcorn Halton               | NW       | 0.3%         |
| 210     | Trafford                         | NW       | 0.3%         |
| 211     | Rochdale                         | NW       | 0.3%         |
| 1235    | CH6 Ellesmere Port Cheshire      | NW       | 0.2%         |
| 213     | Salford                          | NW       | 0.2%         |
| 1242    | CW9 Northwich Cheshire           | NW       | 0.2%         |
| 224     | Burnley                          | NW       | 0.2%         |
| 202     | Macclesfield                     | NW       | 0.2%         |
|         | Liverpool                        | NW       | 0.2%         |
| 215     | Halton                           | NW       | 0.2%         |
|         | EH5 W Lothian                    | S        | 1.1%         |
| 1253    | FK1 Clackmannanshire             | S        | 0.9%         |
|         | Glasgow City                     | S        | 0.9%         |
|         | ML1 North Lanarks                | S        | 0.6%         |
| 1007    | South Lanarkshire                | S        | 0.5%         |
|         | FK3 Falkirk                      | S        | 0.5%         |
|         | KA1 Kilmarnock North Ayrs        | S        | 0.4%         |
|         | North Lanarkshire                | S        | 0.4%         |
| 1021    |                                  | S        | 0.3%         |
|         | Renfrewshire                     | S        | 0.3%         |
|         | Edinburgh City of                | S        | 0.2%         |
|         | Falkirk                          | S        | 0.2%         |
|         | West Lothian                     | S        | 0.2%         |
|         | South Ayrshire                   | S        | 0.2%         |
|         | MK1 Milton Keynes                | SE       | 0.7%         |
| <b></b> | Milton Keynes                    | SE       | 0.5%         |
|         | South Bucks                      | SE       | 0.3%         |
|         | Windsor and Maidenhead           | SE       | 0.2%         |
|         | Elmbridge                        | SE       | 0.2%         |
|         | North Somerset                   | SW       | 1.1%         |
|         | Bristol City of                  | SW       | 0.8%         |
|         | West Wiltshire                   | SW       | 0.4%         |
| -       | SN3 Swindon                      | SW       | 0.2%         |
|         | Holyhead Port                    | W        | 0.7%         |
|         | Milford Port                     | W        | 0.4%         |
|         | North Warwickshire               | WM       | 3.1%         |
|         | Cannock Chase                    | WM       | 2.2%         |
|         | Shrewsbury and Atcham            | WM       | 1.9%         |
|         | CV2 Rugby Warwicks               | WM       | 1.0%         |
|         | Birmingham                       | WM       | 1.0%         |
| -       | B78 Tamworth Warwicks            | WM       | 0.7%         |
|         | Sandwell<br>WS1 Lichfield Staffs | WM       | 0.6%         |
|         | DE1 Burton-On-Trent Staffs       | WM<br>WM | 0.5%         |
|         |                                  | WM       | 0.5%         |
| 1208    | CV6 Coventry W Midlands          | VVIVI    | 0.5%         |

| Zone | Location                   | Region | Distribution |
|------|----------------------------|--------|--------------|
|      | CV1 Bedworth Warwicks      | WM     | 0.4%         |
|      | B46 Coleshill Warwicks     | WM     | 0.4%         |
| 505  | Coventry                   | WM     | 0.3%         |
|      | Lichfield                  | WM     | 0.3%         |
| 519  | Walsall                    | WM     | 0.3%         |
|      | Dudley                     | WM     | 0.2%         |
| 1249 | CV9 Atherstone Warwicks    | WM     | 0.2%         |
| 529  | Stoke-on-Trent             | WM     | 0.2%         |
| 503  | Rugby                      | WM     | 0.2%         |
| 312  | North East Lincolnshire    | YH     | 5.0%         |
| 1239 | DN1 Scunthorpe North Lincs | YH     | 4.3%         |
|      | DN3 Doncaster S Yorks      | YH     | 4.3%         |
| 311  | North Lincolnshire         | YH     | 2.7%         |
| 305  | Wakefield                  | YH     | 2.6%         |
| 306  | Doncaster                  | YH     | 2.4%         |
| 1228 | WF9 Pontefrac W Yorks      | YH     | 2.4%         |
| 309  | Leeds                      | YH     | 2.1%         |
| 314  | East Riding of Yorkshire   | YH     | 2.1%         |
| 1250 | DN6 Doncaster S Yorks      | YH     | 1.6%         |
| 302  | Rotherham                  | YH     | 1.0%         |
| 310  | Selby                      | YH     | 1.0%         |
| 313  | Kingston upon Hull City of | YH     | 0.6%         |
| 301  | Sheffield                  | YH     | 0.6%         |
| 308  | Bradford                   | YH     | 0.6%         |
| 304  | Kirklees                   | YH     | 0.5%         |
| 303  | Barnsley                   | YH     | 0.3%         |
| 318  | Hambleton                  | YH     | 0.3%         |
| 319  | Harrogate                  | YH     | 0.3%         |
| 307  | Calderdale                 | YH     | 0.2%         |

## Annex I

Technical Note 1 – Committed Development Growth (Annex I)



- 1.1 This Technical Note has been produced by DTA to summarise the data used and outline the assumptions made to assess the committed developments on the local highway network and on the junctions assessed in the Transport Assessment.
- 1.2 DTA have engaged with National Highways, North Lincolnshire Council and North East Lincolnshire Council to agree which committed developments and planned transport improvements will be considered alongside the proposed development.
- 1.3 In addition to allowances based on TEMPro (as set out in Table 3 of the Transport Assessment), the Local Highway Authorities have asked for specific developments to be taken into account.
- 1.4 It has been agreed that the following junctions will be assessed:
  - Queens Road/Laporte Road Priority Junction
  - Laporte Road/ Kiln Lane/ Hobson Way Roundabout
  - Kings Road/ A1173 Roundabout
  - A1173/ Kiln Lane Roundabout
  - A1173/ SHIIP Roundabout
  - A160/ Humber Road/ Manby Road Roundabout (Manby Roundabout)
  - A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout (Habrough Roundabout)
  - A180/ A1173 Roundabout
  - A160/ A180 Roundabout (Brocklesby Interchange)
- 1.5 The junction models consider 2025 year of opening and 2032 (as a 10 year from application test). The resulting flows are attached at **Annex TN1 A**.

Technical Note 1 – Committed Development Growth (Annex I)



1.6 The data from the committed developments which have been considered are summarised below. Some of the committed development assessments adopt different peak hours to those assessed for these proposals. For the reasons set out in the TA (Chapter 6) peak hours of 0700-0800 and 1600-1700 have been adopted and where necessary other peak hour periods form the submitted assessments have been adopted to reflect a worst-case scenario.

#### Able Marine Energy Park

1.7 The 24-hour traffic flows and distribution for the Able Marine site were extracted from the text of the Transport Assessment (NEA1114 Report No. 1, September 2011). The Transport Assessment used a gravity model and journey to work proportions from the 2001 Census to distribute the traffic.

#### South Humber Bank Power Station (DM/1070/18/FUL)

1.8 HGV and operational 24-hour flows and the traffic distribution for the South HumberBankPower Station are located in its Transport Assessment (Appendix 9A: Transport Assessment, December 2018) within the ES appendices. The distribution diagrams have been attached at **Annex TN1 B** of this note.

#### North Beck Energy (DM/0026/18/FUL)

1.9 HGV and operational 24-hour flows and the distribution for North Beck Energy are located in its Transport Assessment (2206-01-TA01a, January 2018). The distribution diagrams have been attached at **Annex TN1 C** of this note.

#### Velocy's (DM/0664/19/FUL)

1.10 HGV and operational 24-hour flows and the traffic assignment for Velocy's are contained within its Transport Assessment (CRM.0120.001.TR.001, July 2019). The traffic assignment diagrams are attached in **Annex TN1 D** of this note. The assignment figures were used to estimate the distribution on the relevant links.

Technical Note 1 – Committed Development Growth (Annex I)



#### Stallingborough Interchange (DM/0302/21/REM)

- 1.11 The AM and PM peak hour rates and distribution for Stallingborough Interchange are located in the Transport Assessment addendum (ARUP-TR-01, December 2017) within the ES appendices. The distribution diagrams for the AM and PM peak hours have been attached to this note at **Annex TN1 E**.
- 1.12 The 24hr rates were estimated using conversion rates estimated from similar site trip rates.

#### Queens Road (DM/0147/16/FUL)

1.13 HGV and operational 24-hour flows and the traffic assignment for the Queens Road development are contained within its Transport Assessment (1601-95/TA/01, February 2016). The traffic assignment diagrams are attached in Annex TN1 F of this note. The assignment figures were used to estimate the distribution on the relevant links.

#### New Link Road (DM/0094/18/FUL)

- 1.14 The New Link Road has been scoped out as there are no new trips associated with the development.
- 1.15 The traffic counts for the Port of Immingham were undertaken after the Link Road was opened in March 2021 meaning that the base flows and the development flows already take the Link Road into account.

#### Highfield House (DM/0728/18/OUT)

1.16 HGV and operations peak hour flows and the traffic assignment for Highfield House are contained within its Transport Assessment (HFI-BWB-GEN-XX-RP-TR-0001\_TA-S2-P2, August 2018). The traffic distribution and assignment diagrams are attached in **Annex TN1 G** of this note.

Technical Note 1 – Committed Development Growth (Annex I)



#### Able Logistics Park (PA/2009/0600)

1.17 Operational peak hour flows for Able Logistics Park are contained within the Transport Assessment (TA 04, May 2009) which is Appendix 17.1 of the ES submitted as part of the application. The assignment diagram is attached in Annex TN1 H of this note.

#### Border Control Post

- 1.18 At present vehicles that need to be checked for customs clearance use the Grimsby Border Control Post (BCP), but this will be closed and the new BCP on Queens Road was due to open on 1<sup>st</sup> July 2022 to coincide with when the rules change as result of Brexit.
- 1.19 However, in the ministerial statement (UIN HCWS796) on 28<sup>th</sup> April 2022 it was confirmed that controls requiring checks would not be introduced. In any event, expected use of the facility was forecast by ABP to be less than 30 vehicle per day and therefore it would have had no material impact on the wider traffic modelling.
- 1.20 The BCP has not therefore considered as a committed development is the assessment for the Immingham Eastern Ro-Ro Terminal.

#### <u>Humber Road Tenants Consolidated</u>

1.21 ABP are currently planning a B8 industrial scheme which will be accessed from the West Gate roundabout within the Port Estate. The traffic distribution and assignment have been estimated by DTA and the flow diagrams are attached in **Annex TN1** of this note.

## Annex TN1 A

**Junction Model Matrices** 

|              |           |              |             | Raseline    |              |           |              |             |
|--------------|-----------|--------------|-------------|-------------|--------------|-----------|--------------|-------------|
| PCU          |           |              |             |             |              |           |              |             |
| AM (7-8)     |           |              |             |             | PM (16-17)   |           |              |             |
|              | East Gate | Laporte Road | Queens Road |             |              | East Gate | Laporte Road | Queens Road |
| East Gate    | 0         |              | 53          |             | East Gate    | 0         | 235          | 149         |
| Laporte Road | 212       | 0            | 41          |             | Laporte Road | 39        | 0            | 78          |
| Queens Road  | 215       | 38           | 0           | 1           | Queens Road  | 39        | 29           | 0           |
| HGVs         |           |              |             |             |              |           |              |             |
| AM           |           |              |             |             | PM           |           |              |             |
|              | East Gate | Laporte Road | Queens Road |             |              | East Gate | Laporte Road | Queens Road |
| East Gate    | 0         |              | 37          |             | East Gate    | 0         | 44           | 29          |
| Laporte Road | 31        |              | 9           |             | Laporte Road | 19        | 0            | 7           |
| Queens Road  | 41        | 5            | 0           | 1           | Queens Road  | 23        | 3            | 0           |
|              |           |              | Comm        | itted Devel | opment       |           |              |             |
| PCU          |           |              |             |             |              |           |              |             |
| AM           |           |              |             |             | PM           |           |              |             |
|              | East Gate | Laporte Road | Queens Road |             |              | East Gate | Laporte Road | Queens Road |
| East Gate    |           | 19           |             |             | East Gate    |           | 19           |             |
| Laporte Road | 2         |              | 7           |             | Laporte Road | 2         |              |             |
| Queens Road  | 1         | 3            |             |             | Queens Road  | 1         |              |             |
| HGVs         |           |              |             |             |              |           |              |             |
| AM           |           |              |             |             | PM           |           |              |             |
|              | East Gate | Laporte Road | Queens Road |             |              | East Gate | Laporte Road | Queens Road |
| East Gate    |           |              |             |             | East Gate    |           |              |             |
| Laporte Road |           |              | 7           |             | Laporte Road |           |              |             |
| Queens Road  | 1         | 3            |             |             | Queens Road  | 1         |              |             |
|              |           |              | Propo       | osed Develo | pment        |           |              |             |
| PCU          |           |              |             |             |              |           |              |             |
| AM (7-8)     |           | Immingham    |             |             | PM (17-18)   |           | Stena        |             |
|              |           | Laporte Road |             |             |              |           | Laporte Road |             |
| East Gate    | 0         |              | 108         |             | East Gate    | 0         | 26           | 147         |
| Laporte Road | 27        | 0            | 0           | 1           | Laporte Road | 27        | 0            | 0           |
| Queens Road  | 168       | 0            | 0           | 1           | Queens Road  | 224       | 0            | 0           |
| HGVs         |           |              |             |             |              |           |              |             |
| AM           |           |              |             |             | PM           |           |              |             |

East Gate Laporte Road Queens Road

East Gate Laporte Road Queens Road North East Lincolnshire 001
2021-2025 2021-2032
AM 1.0298 1.0773
PM 1.0291 1.075

|                           |            | l/ Laporte R   | oau         |                           |           |              |             |
|---------------------------|------------|----------------|-------------|---------------------------|-----------|--------------|-------------|
| 2021 Baseline             |            |                |             |                           |           |              |             |
|                           |            |                |             |                           |           |              |             |
| AM                        |            |                |             | PM                        |           |              |             |
|                           |            | Laporte Road   |             |                           |           | Laporte Road |             |
| East Gate                 | 0          | 28             |             | East Gate                 | 0         |              | 14          |
| Laporte Road              | 212        | 0              | 41          | Laporte Road              | 39        |              |             |
| Queens Road               | 215        | 38             | 0           | Queens Road               | 39        | 29           |             |
| HGV %                     |            |                |             |                           |           |              |             |
| AM                        |            |                |             | PM                        |           |              |             |
|                           | East Gate  | Laporte Road   | Queens Road |                           | East Gate | Laporte Road | Queens Road |
| East Gate                 |            | 50%            | 70%         | East Gate                 |           | 19%          | 19          |
| Laporte Road              | 15%        |                | 22%         | Laporte Road              | 49%       |              | 9           |
| Queens Road               | 19%        | 13%            |             | Queens Road               | 59%       | 10%          |             |
| 2021 Baseline             | + Committe | ed             |             |                           |           |              |             |
| PCU                       |            |                |             |                           |           |              |             |
| AM                        |            |                |             | PM                        |           |              |             |
|                           |            | Laporte Road   |             |                           |           | Laporte Road |             |
| East Gate                 | 0          | 47             | 53          | East Gate                 | 0         |              |             |
| Laporte Road              | 214        | 0              | 48          | Laporte Road              | 41        |              |             |
| Queens Road               | 216        | 41             | 0           | Queens Road               | 40        | 29           |             |
| HGV %                     |            |                |             |                           |           |              |             |
| AM                        |            |                |             | PM                        |           |              |             |
|                           | East Gate  | Laporte Road   |             |                           | East Gate | Laporte Road |             |
| East Gate                 |            | 30%            | 70%         | East Gate                 |           | 17%          | 19          |
| Laporte Road              | 14%        |                | 33%         | Laporte Road              | 46%       |              | 9           |
| Queens Road               | 19%        | 20%            |             | Queens Road               | 60%       | 10%          |             |
| 2021 Baseline             | + Committe | ed + Developme | ent         |                           |           |              |             |
| PCU                       |            |                |             |                           |           |              |             |
| AM                        |            |                |             | PM                        |           |              |             |
|                           | East Gate  | Laporte Road   | Queens Road |                           | East Gate | Laporte Road | Queens Road |
| East Gate                 | 0          | 73             | 161         | East Gate                 | 0         | 280          | 29          |
| Laporte Road              | 241        | 0              | 48          | Laporte Road              | 68        | 0            | 7           |
| Queens Road               | 384        | 41             | 0           | Queens Road               | 264       | 29           |             |
| HGV %                     |            |                |             |                           |           |              |             |
| AM                        |            |                |             | PM                        |           |              |             |
|                           | East Gate  | Laporte Road   | Queens Road |                           | East Gate | Laporte Road | Queens Road |
|                           |            |                |             |                           |           | 16%          |             |
| East Gate                 |            | 20%            | 46%         | East Gate                 |           |              |             |
| East Gate<br>Laporte Road | 13%        |                | 46%<br>33%  | Last Gate<br>Laporte Road | 29%       |              | 9           |

| AM   |   |   |  | PM   |   |  |   |
|--|---|---|--|--|---|--|---|
|  | East Gate   | Laporte Road  | Queens Road  |  | East Gate   | Laporte Road   | Queens Road   |
| East Gate  | 0   | 29  | 55   | East Gate  | 0   | 242  | 15  |
| Laporte Road   | 218   | 0   | 42   | Laporte Road   | 40  | 0  | 1   |
| Queens Road  | 221   | 39  | 0  | Queens Road  | 40  | 30   |   |
| HGV %  |   |   |  |  |   |  |   |
| AM   | F+ C-+-   | Laporte Road  | O Band   | PM   | F+ C-+-   | Laporte Road   | O D   |
| Fast Gate  | East Gate   | 50%   | 70%  | Fast Gate  | East Gate   | 19%  | Queens Road   |
| Last Gate<br>Laporte Road  | 15%   | 30/6  | 22%  | Laporte Road   | 49%   | 13/0   | 9   |
| Queens Road  | 19%   | 13%   | 22/0   | Queens Road  | 59%   | 10%  | -   |
| 2025 Baseline  | + Committe  | d   |  |  |   |  |   |
| PCU<br>AM  |   |   |  | PM   |   |  |   |
| 4101   | Fast Gate   | Laporte Road  | Queens Road  | FIVI   | Fast Gate   | Laporte Road   | Oueens Roan   |
| East Gate  | 0   | 48  | 55   | East Gate  | 0   | 261  | 15  |
| Laporte Road   | 220   | 0   | 49   | Laporte Road   | 42  | 0  | -   |
| Queens Road  | 223   | 42  | 0  | Queens Road  | 41  | 30   |   |
| HGV %  |   |   |  |  |   |  |   |
| AM   |   |   |  | PM   |   |  |   |
| East Gate  | East Gate   | Laporte Road<br>30%   | Queens Road<br>70%   | East Gate  | East Gate   | Laporte Road<br>17%  | Queens Road   |
| East Gate<br>Lanorte Road  | 1.4%  | 30%   | 70%  |  | 46%   | 17%  | 19  |
| Laporte Road<br>Oueens Road  | 14%<br>19%  | 20%   | 33%  | Laporte Road<br>Queens Road  | 46%<br>60%  | 10%  | 9   |
|  |   |   |  | Queens Road  | 60%   | 10%  |   |
| 2025 Baseline  | + Committe  | d + Developme   | nt   |  |   |  |   |
| AM   |   |   |  | PM   |   |  |   |
|  |   | Laporte Road  |  |  |   | Laporte Road   | Queens Road   |
| East Gate  | 0   | 74  | 162  | East Gate  | 0   | 287  | 3   |
| Laporte Road   | 247   | 0   | 49   | Laporte Road   | 69  | 0  |   |
| Queens Road  | 391   | 42  | 0  | Queens Road  | 265   | 30   |   |
| HGV %  |   |   |  |  |   |  |   |
| AM   | Eart Gato   | Laporte Road  | Ougons Road  | PM   | East Cate   | Laporte Road   | Ougons Road   |
| East Gate  | Last Gate   | 20%   | 46%  | East Gate  | Last Gate   | 16%  | Queens Roar   |
| Laporte Road   | 13%   | 20%   | 33%  | Laporte Road   | 29%   | 10/6   | 2.  |
| Queens Road  | 28%   | 20%   | 3370   | Queens Road  | 43%   | 10%  |   |
| 2032 Baseline  |   |   |  |  |   |  |   |
| PCU  |   |   |  |  |   |  |   |
| AM   | Fast Gate   | Laporte Road  | Oueens Road  | PM   | Fact Gate   | Laporte Road   | Oueens Roar   |
| Fast Gate  | 0   | 51  | 57   | East Gate  | 0   | 253  | 1   |
|  |   |   | 52   | Laporte Road   | 42  | 0  | -   |
| Laporte Road   | 231   | 0   |  |  |   |  |   |
|  | 231<br>233  | 0<br>44   | 0  | Queens Road  | 42  | 31   |   |
| Queens Road  |   |   |  |  | 42  | 31   |   |
| Queens Road  |   |   |  |  | 42  | 31   |   |
| Queens Road<br>HGV %   | 233   | 44<br>Laporte Road  | 0  | Queens Road  |   | 31<br>Laporte Road   | Queens Road   |
| Queens Road<br>HGV %<br>AM<br>East Gate  | 233<br>East Gate  | 44  | 0<br>Queens Road<br>70%  | Queens Road  PM  East Gate   | East Gate   |  | 19  |
| Queens Road HGV % AM East Gate Laporte Road  | 233<br>East Gate  | 44<br>Laporte Road<br>50%   | 0<br>Queens Road   | Queens Road  PM  East Gate  Laporte Road   | East Gate   | Laporte Road<br>19%  | 19  |
| Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road   | 233<br>East Gate  | 44<br>Laporte Road  | 0<br>Queens Road<br>70%  | Queens Road  PM  East Gate   | East Gate   | Laporte Road   | 19  |
| Queens Road HGV % AM East Gate Laporte Road Queens Road  | 233<br>East Gate<br>15%<br>19%  | Laporte Road 50%  | 0<br>Queens Road<br>70%  | Queens Road  PM  East Gate  Laporte Road   | East Gate   | Laporte Road<br>19%  | 19  |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline  | East Gate 15% 19% + Committe  | 44 Laporte Road 50% 13%   | 0<br>Queens Road<br>70%<br>22%   | Queens Road  PM  East Gate  Laporte Road   | East Gate<br>49%<br>59%   | Laporte Road<br>19%<br>10%   | 15  |
| Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road 2032 Baseline PCU AM   | 233 East Gate 15% 19% + Committe East Gate  | Laporte Road 50% 13% d  | Queens Road 70% 22%  | PM East Gate Laporte Road Queens Road  | East Gate 49% 59% East Gate   | Laporte Road<br>19%<br>10%<br>Laporte Road   | Queens Road   |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline PCU AM East Gate   | 233  East Gate  15% 19%  + Committe  East Gate 0  | Laporte Road 50% 13% d Laporte Road 70  | Queens Road<br>70%<br>22%<br>Queens Road<br>57   | PM East Gate Laporte Road Queens Road PM East Gate   | East Gate 49% 59% East Gate 0   | Laporte Road<br>19%<br>10%<br>Laporte Road<br>272  | Queens Roai   |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road  | 233 East Gate 15% 19% + Committe East Gate 0 233  | Laporte Road 50% 13% d Laporte Road 70 0  | Queens Road<br>70%<br>22%<br>Queens Road<br>57<br>59                                   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road  | East Gate 49% 59% East Gate 0 44  | Laporte Road<br>19%<br>10%<br>Laporte Road<br>272<br>0   | Queens Roai   |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road  | 233  East Gate  15% 19%  + Committe  East Gate 0  | Laporte Road 50% 13% d Laporte Road 70  | Queens Road<br>70%<br>22%<br>Queens Road<br>57   | PM East Gate Laporte Road Queens Road PM East Gate   | East Gate 49% 59% East Gate 0   | Laporte Road<br>19%<br>10%<br>Laporte Road<br>272  | Queens Roai   |
| Queens Road HGV % AM East Gate Laporte Road Queens Road COU AM East Gate Laporte Road Queens Road AM East Gate Laporte Road Queens Road HGV %  | 233 East Gate 15% 19% + Committe East Gate 0 233  | Laporte Road 50% 13% d Laporte Road 70 0  | Queens Road<br>70%<br>22%<br>Queens Road<br>57<br>59                                   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road  | East Gate 49% 59% East Gate 0 44  | Laporte Road<br>19%<br>10%<br>Laporte Road<br>272<br>0   | Queens Roai   |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline PCM East Gate Laporte Road Queens Road HGV % AM M  | 233 East Gate 15% 19% + Committe East Gate 0 233 234  | Laporte Road 50% 13% d Laporte Road 70 0 47   | Queens Road 70% 22%  Queens Road 57 59 0   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road Queens Road  | East Gate 49% 59% East Gate 0 44 43   | Laporte Road<br>19%<br>10%<br>Laporte Road<br>272<br>0   | Queens Roai   |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road HGV % AM East Gate Laporte Road HGV % AM   | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate                                | 44 Laporte Road 50% 13% d Laporte Road 70 0 47  | Queens Road 70% 22% Queens Road 57 59 0  | Queens Road  PM  East Gate Laporter Road Queens Road  PM  East Gate Laporter Road Queens Road  PM  East Gate Laporter Road  PM  East Gate  | East Gate 49% 59% East Gate 0 44 43   | Laporte Road<br>19%<br>10%<br>Laporte Road<br>272<br>0<br>31   | Queens Roai  Queens Roai  |
| Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road East Gate Laporte Road Laporte Road Laporte Road Laporte Road Laporte Road  | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate 14%                            | Laporte Road 50%  13% d  Laporte Road 70 0 47  Laporte Road 30%   | Queens Road 70% 22%  Queens Road 57 59 0   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road  PM  East Gate Laporte Road  | East Gate 49% 59% East Gate 0 44 43 East Gate 46%                           | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17%  | Queens Road Queens Road   |
| Jueens Road  IGV %  AM  East Gate aporte Road Jueens Road  CO32 Baseline  CCU  AM  East Gate aporte Road Jueens Road  IGV %  AM  East Gate aporte Road  IGV %  AM  East Gate aporte Road  IGV %  AM  East Gate aporte Road   | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate                                | Laporte Road 50% 13% d Laporte Road 70 0 47   | Queens Road 70% 22% Queens Road 57 59 0  | Queens Road  PM  East Gate Laporter Road Queens Road  PM  East Gate Laporter Road Queens Road  PM  East Gate Laporter Road  PM  East Gate  | East Gate 49% 59% East Gate 0 44 43   | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road  | Queens Roai  Queens Roai  |
| Queens Road HGV % AM East Gate Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road Lucens Road  | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate 14% 19%                        | Laporte Road 50%  13% d  Laporte Road 70 0 47  Laporte Road 30%   | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%                          | Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road  PM  East Gate Laporte Road  | East Gate 49% 59% East Gate 0 44 43 East Gate 46%                           | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17%  | Queens Roai  Queens Roai  |
| Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road CO32 Baseline CU AM East Gate Laporte Road Queens Road   | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate 14% 19%                        | 44 Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Developmen  | Queens Road<br>70%<br>22%<br>Queens Road<br>57<br>59<br>0<br>Queens Road<br>400<br>33% | Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road Queens Road  PM  East Gate Laporte Road  PM  East Gate Laporte Road  | East Gate 49% 59%  East Gate 0 44 43  East Gate 46% 60%                     | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10%  | Queens Roan 1 Queens Roan 1:  |
| Queens Road HGV % AMM East Gate Laporte Road Queens Road CO32 Baseline- PCU AMM East Gate Laporte Road Queens Road Queens Road Queens Road Queens Road Queens Road Queens Road AMM East Gate Laporte Road Queens Road AMM  | 233  East Gate 15% 19% + Committe  East Gate 0 233 234  East Gate 14% 19% + Committe          | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Development  | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%                          | Queens Road  PM  East Gate Laporte Road Queens Road  | East Gate   | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10%  | Queens Road  Queens Road  Queens Road  Queens Road  Queens Road         |
| Queens Road HGV % MM East Gate Laporte Road Queens Road CO32 Baseline CM MM East Gate Laporte Road Lucens Road HGV % AM East Gate Laporte Road Queens Road CO32 Baseline CCU AM East Gate Laporte Road Queens Road CO32 Baseline CCU AM East Gate Laporte Road Lucens Road East Gate Laporte Road Laporte Road Laporte Road Laporte Road Laporte Road East Gate East Gate East Gate East Gate East Gate  | 233  East Gate 15% + Committe  East Gate 0 233 234  East Gate 14% 19% + Committe              | 44 Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Development Laporte Road  | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%                          | Queens Road  PM  East Gate Laporte Road  PM  East Gate Laporte Road  PM  East Gate | East Gate 49% 59%  East Gate 0 44 43  East Gate 46% 60%                     | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10% Laporte Road 298                           | Queens Roan  Queens Roan  Queens Roan  Queens Roan  Queens Roan         |
| Queens Road HGV % AMM East Gate Laporte Road Queens Road CO32 Baseline- PCU AMM East Gate Laporte Road Queens Road Gueens Road Queens Road Cueens Road Cueens Road Cueens Road Cueens Road AMM East Gate Laporte Road Queens Road Cueens R | 233  East Gate 15% 19% + Committe  East Gate 0 233 234  East Gate 14% 19% + Committe          | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Development  | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%                          | Queens Road  PM  East Gate Laporte Road Queens Road  | East Gate   | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10%  | Queens Roan  Queens Roan  Queens Roan  Queens Roan  Queens Roan         |
| Queens Road HGV % MM East Gate Laporte Road Queens Road  | 233 East Gate 15% + Committe East Gate 0 233 234 East Gate 14% 19% + Committe East Gate 0 259 | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Developmen Laporte Road 96   | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%                          | Queens Road  PM  East Gate Laporte Road Queens Road  | East Gate 0 444 43 East Gate 46% 60% East Gate 0 7.11                       | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10% Laporte Road 288 0                         | Queens Roan  Queens Roan  Queens Roan  Queens Roan  Queens Roan         |
| Queens Road  GOV %  AM M  East Gate Laporte Road Queens Road  BO32 Baseline  PCU  AM M  East Gate Laporte Road Queens Road  COV %  East Gate Laporte Road Queens Road  COV Baseline  COV M  East Gate Laporte Road  Lovens Road  COV Baseline  COV M  East Gate Laporte Road  Lovens Road  COV Baseline  C | 233 East Gate 15% + Committe East Gate 0 233 234 East Gate 14% 19% + Committe East Gate 0 259 | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Developmen Laporte Road 96   | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%                          | Queens Road  PM  East Gate Laporte Road Queens Road  Queens Road   | East Gate 0 444 43 East Gate 46% 60% East Gate 0 7.11                       | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10% Laporte Road 288 0                         | Queens Roan  Queens Roan  Queens Roan  Queens Roan  Queens Roan         |
| Queens Road  GOV %  AM M  East Gate Laporte Road Queens Road  BO32 Baseline  PCU  AM M  East Gate Laporte Road Queens Road  COV %  East Gate Laporte Road Queens Road  COV Baseline  COV M  East Gate Laporte Road  Lovens Road  COV Baseline  COV M  East Gate Laporte Road  Lovens Road  COV Baseline  C | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate 14% 15% + Committe 259 402     | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Developmen Laporte Road 96 0 47  | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 73% 33%  at Queens Road 165 59 0 | Queens Road  PM  East Gate Laporte Road Queens Road  | East Gate 49% 59%  East Gate 0 44 43  East Gate 46% 60%  East Gate 0 71 267 | Laporte Road 19% 10%  Laporte Road 272 0 31  Laporte Road 17% 10%  Laporte Road 0 31  Laporte Road 17% 10% | Queens Road  Queens Road  Queens Road  1  Queens Road  3                |
| Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Ducens Road Concern Road Queens Road Concern Road Queens Road AM East Gate Laporte Road Queens Road Gueens Road MGV % AM East Gate Laporte Road Queens Road AM HGV % AM East Gate Laporte Road Gueens Road AM HGV % AM HGV % AM   | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate 14% 15% + Committe 259 402     | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Developmen Laporte Road 96   | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 73% 33%  at Queens Road 165 59 0 | Queens Road  PM  East Gate Laporte Road Queens Road                                | East Gate 49% 59%  East Gate 0 44 43  East Gate 46% 60%  East Gate 0 71 267 | Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 17% 10% Laporte Road 288 0                         | Queens Roac Queens Roac Queens Roac Queens Roac Queens Roac Queens Roac |
| Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road   | 233 East Gate 15% 19% + Committe East Gate 0 233 234 East Gate 14% 15% + Committe 259 402     | Laporte Road 50% 13% d Laporte Road 70 0 47 Laporte Road 30% 20% d + Developmer Laporte Road 47 Laporte Road 47 Laporte Road 47 Laporte Road Laporte Road 47 Laporte Road 47 Laporte Road | Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%  at Queens Road 165 59 0 | Queens Road  PM  East Gate Laporte Road Queens Road  Queens Road   | East Gate 49% 59%  East Gate 0 44 43  East Gate 46% 60%  East Gate 0 71 267 | Laporte Road 19% Laporte Road 272 0 31 Laporte Road 17% 10% Laporte Road 288 0 31 Laporte Road             | Queens Road  Queens Road  Queens Road  Queens Road                      |

| Laport | e Road/ | Kiln | Lane/ | Hobson | w |
|--------|---------|------|-------|--------|---|
|        |         |      |       |        |   |

North East Lincolshire 007 2021-2025 2021-2032 AM 1.0269 1.0683 PM 1.0255 1.0649

|                     |                      |               |             |              | Baseline            |                     |              |              |              |  |
|---------------------|----------------------|---------------|-------------|--------------|---------------------|---------------------|--------------|--------------|--------------|--|
| PCU                 |                      |               |             |              |                     |                     |              |              |              |  |
| AM (7-8)            |                      |               |             |              | PM (16-17)          |                     |              |              |              |  |
|                     | Air Products Access  | Hobson Way    | Kiln Lane   | Laporte Road |                     | Air Products Access | Hobson Way   | Kiln Lane    | Laporte Road |  |
| Air Products Access | (                    | ) 1           | 1           | 0            | Air Products Access | s (                 | 0            | 4            | . 0          |  |
| Hobson Way          | (                    | 0             | 91          | 287          | Hobson Way          |                     | 0            | 109          | 65           |  |
| Kiln Lane           | 1                    | 1 74          | 2           | 169          | Kiln Lane           |                     | 94           | 4            | 32           |  |
| Laporte Road        | (                    | 38            | 22          | 0            | Laporte Road        |                     | 275          | 183          | 0            |  |
|                     |                      |               |             |              |                     |                     |              |              |              |  |
| HGVs                |                      |               |             |              |                     |                     |              |              |              |  |
| AM                  |                      |               |             |              | PM                  |                     |              |              |              |  |
|                     | Air Products Access  | Hobson Way    | Kiln Lane   | Laporte Road |                     | Air Products Access | Hobson Way   | Kiln Lane    | Laporte Road |  |
| Air Products Access | (                    | . 0           | 0           | . 0          | Air Products Access | s (                 | 0 0          | 0            | . 0          |  |
| Hobson Way          | · ·                  | 0             | 15          | 17           | Hobson Way          |                     | 0            | 26           | 7            |  |
| Kiln Lane           |                      | 17            | o           | 35           | Kiln Lane           |                     | 15           | 1            | 23           |  |
| Laporte Road        |                      |               |             | 0            | Laporte Road        | i                   |              | 41           |              |  |
|                     |                      |               |             |              |                     |                     |              |              |              |  |
|                     |                      |               |             | Commi        | itted Development   |                     |              |              |              |  |
| PCU                 |                      |               |             |              |                     |                     |              |              |              |  |
| AM                  |                      |               |             |              | PM                  |                     |              |              |              |  |
|                     | Air Products Access  | Hohson Way    | Kiln Lane   | Laporte Road |                     | Air Products Access | Hohson Way   | Kiln Lane    | Laporte Road |  |
| Air Products Access |                      | ,             |             |              | Air Products Access |                     | ,            |              |              |  |
| Hobson Way          |                      |               | 44          |              | Hobson Way          |                     |              | 74           |              |  |
| Kiln Lane           |                      | 56            |             | 9            | Kiln Lane           |                     | 15           |              | 2            |  |
| Laporte Road        |                      |               | 22          |              | Laporte Road        |                     |              | 19           |              |  |
| Euporte Noud        |                      |               | **          |              | Esporte Hosa        |                     |              |              |              |  |
| HGVs                |                      |               |             |              |                     |                     |              |              |              |  |
| AM                  |                      |               |             |              | PM                  |                     |              |              |              |  |
|                     | Air Products Access  | Hohson Way    | Kiln Lane   | Laporte Road |                     | Air Products Access | Hobson Way   | Kiln Lane    | Lanorte Road |  |
| Air Products Access | All I Todacci Access | 11003011 1109 | ruini Luine | Euporte Houd | Air Products Access |                     | 11003011 Way | Killi Edilic | Euporte Houd |  |
| Hobson Way          |                      |               | 33          |              | Hobson Way          | •                   |              | 5            |              |  |
| Kiln Lane           |                      | 36            |             | 7            | Kiln Lane           |                     | 4            | -            |              |  |
| Laporte Road        |                      | 50            | 3           |              | Laporte Road        |                     | -            |              |              |  |
| Euporte noud        |                      |               | -           |              | Esporte Hoss        |                     |              |              |              |  |
|                     |                      |               |             | Propo        | sed Development     |                     |              |              |              |  |
| PCU                 |                      |               |             |              |                     |                     |              |              |              |  |
| AM (7-8)            |                      | Immingham     |             |              | PM (17-18)          |                     | Stena        |              |              |  |
| (. 4)               | Air Products Access  | Hobson Way    | Kiln Lane   | Laporte Road | (== ==)             | Air Products Access | Hobson Way   | Kiln Lane    | Laporte Road |  |
| Air Products Access | All I Toddets Access |               |             |              | Air Products Access |                     |              |              |              |  |
| Hobson Way          | ,                    |               |             |              | Hobson Way          |                     |              |              | -            |  |
| Kiln Lane           | ,                    |               |             |              | Kiln Lane           |                     |              |              |              |  |
| Laporte Road        | Č                    |               |             |              | Laporte Road        |                     | 26           |              |              |  |
| Euporte ridau       | ,                    | , 20          | U           | · ·          | Euporte Rodu        | ,                   | , 20         |              | 0            |  |
| HGVs                |                      |               |             |              |                     |                     |              |              |              |  |
| AM                  |                      |               |             |              | PM                  |                     |              |              |              |  |
|                     | Air Products Access  | Hobson Way    | Kiln Lane   | Laporte Road |                     | Air Products Access | Hobson Way   | Kiln Lane    | Laporte Road |  |
| Air Products Access | All Floudicts Access |               |             |              | Air Products Access |                     |              | O O          |              |  |
| Hobson Way          |                      |               |             |              | Hobson Way          | ,                   |              |              |              |  |
| Kiln Lane           |                      |               |             |              | Kiln Lane           |                     |              | 0            |              |  |
| Laporte Road        | (                    |               | -           | -            | Laporte Road        |                     |              | -            |              |  |
| саротте коло        |                      | , 0           | U           | 0            | Laporte Koâd        |                     | , 0          | 0            | U            |  |
|                     |                      |               |             |              |                     |                     |              |              |              |  |

| 2025 Baseline<br>PCU              |                          |                  |                 |                   |                                   |                                    |                 |              |
|-----------------------------------|--------------------------|------------------|-----------------|-------------------|-----------------------------------|------------------------------------|-----------------|--------------|
| AM                                | Air Products Access      | Hobson Way       | Kilo I ano      | Laporte Road      | PM                                | Air Products Access Hobson Way     | Kile I and      | Lanorto Boad |
| Air Products Access               | All Floducts Access      | nouson way       | 1               | 0                 | Air Products Access               | 0 (                                | ) 4             | Laporte Road |
| Hobson Way                        | 0                        |                  |                 | 295               | Hobson Way                        | 0 0                                |                 | 6            |
| Kiln Lane<br>Laporte Road         | 1 0                      |                  | 2 23            | 174<br>0          | Kiln Lane<br>Laporte Road         | 0 96<br>0 282                      |                 | 3            |
| HGV %                             |                          |                  |                 |                   |                                   |                                    |                 |              |
| AM                                | Air Products Access      | Hobson Way       | Kiln Lane       | Laporte Road      | PM                                | Air Products Access Hobson Way     | Kiln Lane       | Laporte Road |
| Air Products Access               | All Floducis Access      | 0%               | 0%              |                   | Air Products Access               | All Florates Access Thousand Way   | 0%              |              |
| Hobson Way<br>Kiln Lane           | 0%                       | 23%              | 16%             | 6%<br>21%         | Hobson Way<br>Kiln Lane           | 16%                                | 24%             | 11<br>72     |
| Laporte Road                      | 0%                       | 23%<br>18%       | 77%             | 21%               | Laporte Road                      | 16%<br>5%                          |                 | /2           |
| 2025 Baseline + Com               | nmitted                  |                  |                 |                   |                                   |                                    |                 |              |
| PCU<br>AM                         |                          |                  |                 |                   | PM                                |                                    |                 |              |
| Air Products Access               | Air Products Access<br>0 | Hobson Way       | Kiln Lane       | Laporte Road<br>0 | Air Products Access               | Air Products Access Hobson Way 0 0 | Kiln Lane<br>4  | Laporte Road |
| Hobson Way                        | 0                        | 0                | 137             | 295               | Hobson Way                        | 0 0                                | 135             | 6            |
| Kiln Lane<br>Laporte Road         | 1 0                      | 132<br>39        | 2<br>45         | 183<br>0          | Kiln Lane<br>Laporte Road         | 0 111<br>0 282                     |                 | 3            |
|                                   | 0                        | 39               | 45              | U                 | Laporte Road                      | 0 282                              | . 207           |              |
| HGV %<br>AM                       |                          |                  |                 |                   | PM                                |                                    |                 |              |
| Air Products Access               | Air Products Access      | Hobson Way<br>0% | Kiln Lane<br>0% | Laporte Road      | Air Products Access               | Air Products Access Hobson Way     | Kiln Lane<br>0% | Laporte Road |
| Hobson Way                        |                          |                  | 36%             | 6%                | Hobson Way                        |                                    | 23%             | 11           |
| Kiln Lane                         | 0%                       | 41%              | 0%              | 24%               | Kiln Lane                         | 17%<br>5%                          | 25%             | 68           |
| Laporte Road                      |                          | 18%              | 45%             |                   | Laporte Road                      | 5%                                 | 20%             |              |
| PCU                               | nmitted + Development    |                  |                 |                   |                                   |                                    |                 |              |
| AM                                | Air Products Access      | Hobson Way       | Kiln Lane       | Laporte Road      | PM                                | Air Products Access Hobson Way     | Kiln Lane       | Laporte Road |
| Air Products Access               | 0                        | 1                | 1               | . 0               | Air Products Access               | 0 0                                | ) 4             |              |
| Hobson Way<br>Kiln Lane           | 0                        |                  |                 | 321               | Hobson Way<br>Kiln Lane           | 0 0<br>0 111                       |                 | 9            |
| Kiln Lane<br>Laporte Road         | 1 0                      |                  | 2<br>45         | 183<br>0          | Kiln Lane<br>Laporte Road         | 0 111<br>0 308                     |                 | 3            |
| HGV %                             | · ·                      |                  |                 | Ü                 | and an in the second              |                                    | 207             |              |
| AM                                | Air Products Access      | Hobson Way       | Kiln Lane       | Laporte Road      | PM                                | Air Products Access Hobson Way     | Kiln Lane       | Laporte Road |
| Air Products Access               | All Products Access      | Hobson Way<br>0% | 0%              |                   | Air Products Access               | All Products Access Hooson Way     | 0%              |              |
| Hobson Way                        |                          |                  | 36%             | 6%                | Hobson Way                        |                                    | 23%             | 8            |
| Kiln Lane<br>Lanorte Road         | 0%                       | 41%              | 0%<br>45%       | 24%               | Kiln Lane<br>Lanorte Road         | 17%                                |                 | 68           |
| 2032 Baseline                     |                          | 11/0             | 45%             |                   | Esporte Nosa                      | 3,                                 | 20%             |              |
| PCU<br>AM                         |                          |                  |                 |                   | PM                                |                                    |                 |              |
| AM                                | Air Products Access      | Hobson Way       | Kiln Lane       | Laporte Road      | PM                                | Air Products Access Hobson Way     | Kiln Lane       | Laporte Road |
| Air Products Access               | 0                        | 1                | 1               | 0<br>307          | Air Products Access               | 0 0                                | ) 4             |              |
| Hobson Way<br>Kiln Lane           | 0                        | 79               |                 | 307<br>181        | Hobson Way<br>Kiln Lane           | 0 0                                |                 |              |
| Laporte Road                      | 0                        |                  | 24              | 0                 | Laporte Road                      | 0 293                              |                 |              |
| HGV %<br>AM                       |                          |                  |                 |                   | PM                                |                                    |                 |              |
|                                   | Air Products Access      | Hobson Way       |                 | Laporte Road      |                                   | Air Products Access Hobson Way     |                 | Laporte Road |
| Air Products Access               |                          | 0%               | 0%<br>16%       | 6%                | Air Products Access               |                                    | 0%<br>24%       | 11           |
| Hobson Way<br>Kiln Lane           | 0%                       | 23%              | 16%<br>0%       | 6%<br>21%         | Hobson Way<br>Kiln Lane           | 16%                                |                 | 11<br>72     |
| Laporte Road                      |                          | 18%              | 77%             |                   | Laporte Road                      | 5%                                 | 22%             |              |
| 2032 Baseline + Com               | nmitted                  |                  |                 |                   |                                   |                                    |                 |              |
| AM                                |                          |                  |                 | Laporte Road      | PM                                |                                    |                 | Laporte Road |
| Air Products Access               | Air Products Access<br>0 | Hobson Way       |                 | Laporte Road      | Air Products Access               | Air Products Access Hobson Way     |                 | Laporte Koad |
| Hobson Way                        | 0                        |                  |                 | 307               | Hobson Way                        | 0 0                                |                 | 6            |
| Kiln Lane<br>Laporte Road         | 1 0                      | 135<br>41        | 2<br>46         | 190<br>0          | Kiln Lane<br>Laporte Road         | 0 115<br>0 293                     |                 | 3            |
| HGV %                             | U                        | 41               | 40              | 0                 | suporte nodu                      | 0 293                              | . 214           |              |
| HGV %<br>AM                       |                          |                  |                 |                   | PM                                |                                    |                 |              |
| Air Products Access               | Air Products Access      | Hobson Way<br>0% | Kiln Lane<br>0% | Laporte Road      | Air Products Access               | Air Products Access Hobson Way     | Kiln Lane<br>0% | Laporte Road |
| Hobson Way                        |                          |                  | 36%             | 6%                | Hobson Way                        |                                    | 23%             | 11           |
| Kiln Lane<br>Laporte Road         | 0%                       | 41%<br>18%       | 0%<br>45%       | 24%               | Kiln Lane<br>Laporte Road         | 17%<br>5%                          |                 | 68           |
| 2032 Baseline + Com               | nmitted + Development    |                  |                 |                   |                                   |                                    |                 |              |
| PCU<br>AM                         |                          |                  |                 |                   | PM                                |                                    |                 |              |
|                                   | Air Products Access      | Hobson Way       | Kiln Lane       | Laporte Road      |                                   | Air Products Access Hobson Way     | Kiln Lane       | Laporte Road |
| Air Products Access<br>Hobson Way | 0                        |                  |                 | 0                 | Air Products Access<br>Hobson Way | 0 0                                |                 | 9            |
| Hobson Way<br>Kiln Lane           | 0                        |                  |                 | 333<br>190        | Hobson Way<br>Kiln Lane           | 0 0                                |                 | 9            |
| Laporte Road                      | 0                        |                  | 46              | 0                 | Laporte Road                      | 0 319                              |                 |              |
| HGV %                             |                          |                  |                 |                   |                                   |                                    |                 |              |
| AM                                | Air Products Access      | Hobson Way       | Kiln Lane       | Laporte Road      | PM                                | Air Products Access Hobson Way     | Kiln Lane       | Laporte Road |
| Air Products Access               |                          | 0%               | 0%              |                   | Air Products Access               |                                    | 0%              |              |
| Hobson Way                        | 096                      | 41%              | 36%             | 6%<br>24%         | Hobson Way                        | 17%                                | 23%             | 8<br>68      |
| Kiln Lane<br>Laporte Road         | 0%                       | 41%<br>11%       | 0%<br>45%       | 24%               | Kiln Lane<br>Laporte Road         | 17%                                |                 | 68           |
|                                   |                          |                  |                 |                   |                                   |                                    |                 |              |

# Kings Road/ A1173 North East Lincolnshire 001 2021-2025 2021-2032 AM 1.0298 1.0773 PM 1.0291 1.075

|               |               |        | base          | iiie          |               |       |               |
|---------------|---------------|--------|---------------|---------------|---------------|-------|---------------|
| PCU           |               |        |               |               |               |       |               |
| AM (7-8)      |               |        |               | PM (16-17)    |               |       |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW | 0             | 37     | 51            | Kings Road NW | 0             | 149   | 147           |
| A1173         | 214           | 1      | 438           | A1173         | 27            | 0     | 232           |
| Kings Road NE | 110           | 153    | 1             | Kings Road NE | 50            | 470   | 1             |
|               |               |        |               |               |               |       |               |
| HGVs          |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW | 0             | 27     | 13            | Kings Road NW | 0             | 25    | 9             |
| A1173         | 26            | 0      | 67            | A1173         | 14            | 0     | 47            |
| Kings Road NE | 11            | 36     | 0             | Kings Road NE | 12            | 51    | 0             |
|               |               |        |               |               |               |       |               |
|               |               |        | Committed D   | evelopment    |               |       |               |
| PCU           |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW |               | 31     |               | Kings Road NW |               | 54    |               |
| A1173         | 61            |        | 1             | A1173         | 32            |       | 1             |
| Kings Road NE |               |        |               | Kings Road NE |               |       |               |
|               |               |        |               |               |               |       |               |
| HGVs          |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW |        | Kings Road NE |               | Kings Road NW |       | Kings Road NE |
| Kings Road NW |               | 2      |               | Kings Road NW |               | 5     |               |
| A1173         | 7             |        | 1             | A1173         | 5             |       | 1             |
| Kings Road NE |               |        |               | Kings Road NE |               |       |               |
|               |               |        |               |               |               |       |               |
|               |               |        | Proposed De   | velopment     |               |       |               |
| PCU           |               |        |               |               |               |       |               |
| AM (7-8)      |               | Imming |               | PM (17-18)    |               | Stena |               |
|               | Kings Road NW |        | Kings Road NE |               | Kings Road NW |       | Kings Road NE |
| Kings Road NW | 0             | -      | 8             | Kings Road NW | 0             | 3     | 8             |
| A1173         | 3             | 0      | 161           | A1173         | 3             | 0     | 216           |
| Kings Road NE | 8             | 100    | 0             | Kings Road NE | 8             | 139   | 0             |
| HGVs          |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
| AW            | W D 14844     |        | 15            | NM            | M B 14844     |       | W B 1415      |
| W B 1000      | Kings Road NW |        |               | W B 1         | Kings Road NW |       | Kings Road NE |
| Kings Road NW | 0             | _      | 0             | Kings Road NW | 0             | 0     | 0             |
| A1173         | 0             | 0      | 66            | A1173         | 0             | 0     | 90            |
| Kings Road NE | 0             | 36     | 0             | Kings Road NE | 0             | 52    | 0             |
|               |               |        |               |               |               |       |               |

| PCU<br>AM  |  |   |  | PM   |   |   |   |
|--|--|---|--|--|---|---|---|
|  | Kings Road NW  | A1173   | Kings Road NE  | LIVI   | Kings Road NW   | A1173   | Kings Road NF   |
| Kings Road NW  | 0  |   | 53   | Kings Road NW  | 0   |   | 1   |
| A1173  | 220  | 1   | 451  | A1173  | 28  | 0   | 2   |
| Kings Road NE  | 113  | 158   | 1  | Kings Road NE  | 51  | 484   | -   |
| HGV %  |  |   |  |  |   |   |   |
| AM   |  |   |  | PM   | W B 1404  |   | W   |
| Kings Road NW  | Kings Road NW  | A1173<br>73%  | Kings Road NE<br>25%   | Kings Road NW  | Kings Road NW   | A1173<br>17%  | Kings Road NE   |
| A1173  | 12%  | 0%  | 15%  | A1173  | 52%   | 1770  | 20  |
| Kings Road NE  | 10%  | 24%   | 0%   | Kings Road NE  | 24%   | 11%   | 0   |
| 2025 Baseline +  | Committed  |   |  |  |   |   |   |
| AM   |  |   |  | PM   |   |   |   |
|  | Kings Road NW  | A1173   | Kings Road NE  |  | Kings Road NW   | A1173   | Kings Road NE   |
| Kings Road NW<br>A1173   | 0<br>281   | 69<br>1   | 53<br>452  | Kings Road NW<br>A1173   | 0   | 207   | 15  |
| Kings Road NE  | 113  | 158   | 452  | Kings Road NE  | 51  | 484   | 24  |
| HGV %  |  |   |  | -  |   |   |   |
| AM   |  |   |  | PM   |   |   |   |
|  | Kings Road NW  |   |  |  | Kings Road NW   |   |   |
| Kings Road NW  |  | 43%   | 25%  | Kings Road NW  |   | 15%   | 69  |
| A1173  | 12%  | 0%  | 16%  | A1173  | 33%   |   | 219   |
| Kings Road NE  | 10%  | 24%   | 0%   | Kings Road NE  | 24%   | 11%   | 05  |
| 2025 Baseline +  | Committed + Deve   | lopmen  | t  |  |   |   |   |
| AM   |  |   |  | PM   |   |   |   |
|  | Kings Road NW  | A1173   |  |  | Kings Road NW   |   |   |
| Kings Road NW  | 0  |   | 60   | Kings Road NW  | 0   |   | 15  |
| A1173  | 284  | 1   | 613  | A1173  | 63  | 0   | 45  |
| Kings Road NE  | 121  | 258   | 1  | Kings Road NE  | 59  | 623   |   |
| HGV %<br>AM  |  |   |  | PM   |   |   |   |
| AIVI   | Kings Road NW  | Δ1173   | Kings Road NF  | PIVI   | Kings Road NW   | Δ1173   | Kings Road NF   |
| Kings Road NW  | MINES HOUGHT   | 41%   | 22%  | Kings Road NW  | Kings Houd IVV  | 15%   | 65  |
| A1173  | 12%  | 0%  | 22%  | A1173  | 31%   |   | 315   |
| Kings Road NE  | 9%   | 29%   | 0%   | Kings Road NE  | 21%   | 17%   | 05  |
| 2032 Baseline  |  |   |  |  |   |   |   |
| PCU<br>AM  |  |   |  | PM   |   |   |   |
|  | Kings Road NW  | A1173   | Kings Road NE  |  | Kings Road NW   | A1173   | Kings Road NE   |
| Kings Road NW  | 0  | ,,,   | 55   | Kings Road NW  | 0   |   | 15  |
| A1173  | 296  | 1   | 473  | A1173  | 29  | 0   | 24  |
| Kings Road NE  | 119  | 165   | 1  | Kings Road NE  | 54  | 505   |   |
| HGV %  |  |   |  |  |   |   |   |
| AM   | Kings Road NW  | A1173   | Kings Road NE  | PM   | Kings Road NW   | A1173   | Kings Road NF   |
| Kings Road NW  |  | 73%   | 25%  | Kings Road NW  |   | 17%   | 65  |
| A1173  | 12%  | 0%  | 15%  | A1173  | 52%   |   | 209   |
| Kings Road NE  | 10%  | 24%   | 0%   | Kings Road NE  | 24%   | 11%   | 05  |
| 2032 Baseline +  | Committed  |   |  |  |   |   |   |
| PCU<br>AM  |  |   |  | PM   |   |   |   |
|  | Kings Road NW  | A1173   | Kings Road NE  | ****   | Kings Road NW   | A1173   | Kings Road NE   |
| Kings Road NW  | 0  |   | 55   | Kings Road NW  | 0   |   | 15  |
| A1173  |  | 1   | 474  | A1173  | 61  | 0   | 25  |
|  | 357  |   | 1  | Kings Road NE  | 54  | 505   |   |
|  | 357<br>119   | 165   |  | KINGS KOND INC   | 34  |   |   |
| Kings Road NE  |  | 165   |  | KINGS ROAD INC   | 34  |   |   |
| Kings Road NE  | 119  |   |  | PM   |   |   |   |
| Kings Road NE<br>HGV %<br>AM   |  | A1173   |  | PM   | Kings Road NW   |   |   |
| Kings Road NE HGV % AM Kings Road NW   | 119  | A1173<br>43%  | 25%  | PM<br>Kings Road NW  | Kings Road NW   | A1173<br>15%  | 69  |
| Kings Road NE  | 119<br>Kings Road NW   | A1173   |  | PM   |   |   |   |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE   | 119 Kings Road NW  | A1173<br>43%<br>0%<br>24%   | 25%<br>16%<br>0%   | PM<br>Kings Road NW<br>A1173   | Kings Road NW   | 15%   | 65<br>219   |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU   | 119 Kings Road NW 12% 10%  | A1173<br>43%<br>0%<br>24%   | 25%<br>16%<br>0%   | PM<br>Kings Road NW<br>A1173<br>Kings Road NE  | Kings Road NW   | 15%   | 69<br>219   |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU   | 119 Kings Road NW 12% 10% Committed + Deve                                       | A1173<br>43%<br>0%<br>24%   | 25%<br>16%<br>0%   | PM<br>Kings Road NW<br>A1173   | Kings Road NW<br>33%<br>24%                               | 15%   | 6:<br>21:<br>0:   |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU AM  | 119 Kings Road NW 12% 10% Committed + Deve                                       | A1173<br>43%<br>0%<br>24%<br>lopmen   | 25%<br>16%<br>0%<br>t  | PM Kings Road NW A1173 Kings Road NE   | Kings Road NW<br>33%<br>24%<br>Kings Road NW              | 15%<br>11%<br>A1173                                 | 69<br>219<br>09<br>Kings Road NE                              |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU AM Kings Road NW  | 119 Kings Road NW 12% 10% Committed + Deve Kings Road NW 0                       | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173  | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63                                     | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW  | Kings Road NW 33% 24% Kings Road NW 0                     | 15%<br>11%<br>A1173<br>217                          | 69<br>219<br>09<br>Kings Road NE<br>16                        |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU AM Kings Road NW A1173  | 119 Kings Road NW 12% 10% Committed + Deve                                       | A1173<br>43%<br>0%<br>24%<br>lopmen   | 25%<br>16%<br>0%<br>t  | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A1173  | Kings Road NW<br>33%<br>24%<br>Kings Road NW              | 15%<br>11%<br>A1173                                 | 69<br>219<br>09<br>Kings Road NE<br>16                        |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU AM Kings Road NW A1173 Kings Road NW  | Kings Road NW  12% 10%  Committed + Deve  Kings Road NW 0 360                    | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173<br>107                                   | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63<br>635                              | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW  | Kings Road NW 33% 24% Kings Road NW 0                     | 15%<br>11%<br>A1173<br>217<br>0                     | 69<br>219<br>09<br>Kings Road NE<br>16                        |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU AM Kings Road NW A1173 Kings Road NW A1173 Kings Road NW A1173 Kings Road NE  | Kings Road NW  12% 10%  Committed + Deve  Kings Road NW 0 360                    | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173<br>107                                   | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63<br>635                              | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A1173  | Kings Road NW 33% 24% Kings Road NW 0                     | 15%<br>11%<br>A1173<br>217<br>0                     | 6<br>21'<br>0<br>Kings Road NE<br>16<br>46                    |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE 2032 Baseline + PCU AM Kings Road NW A1173 Kings Road NW A1173 Kings Road NW A1173 Kings Road NE HGV % AM   | Kings Road NW  12% 10%  Committed + Deve  Kings Road NW 0 360 126                | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173<br>107<br>1<br>265                       | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63<br>635<br>1                         | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A1173 Kings Road NE  | Kings Road NW<br>33%<br>24%<br>Kings Road NW<br>0<br>64   | 15%<br>11%<br>A1173<br>217<br>0<br>645              | 6:<br>21:<br>0:<br>Kings Road NE<br>16<br>46<br>Kings Road NE |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE PCU AM Kings Road NE AL173 AM Kings Road NE HGV % AM Kings Road NE HGV % AM Kings Road NE HGV % AM  | Kings Road NW 12% 10% Committed + Deve Kings Road NW 0 360 126 Kings Road NW     | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173<br>107<br>1<br>265<br>A1173<br>41%       | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63<br>635<br>1<br>Kings Road NE<br>22% | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A1173 Kings Road NW PM Kings Road NW Kings Road NW Kings Road NW | Kings Road NW 33% 24% Kings Road NW 0 64 61               | 15%<br>11%<br>A1173<br>217<br>0<br>645              | 6:<br>21:<br>0:<br>Kings Road NE<br>16<br>46<br>Kings Road NE |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NW 2032 Baseline + PCU AM Kings Road NW A1173 Kings Road NW A1173 Kings Road NW A1173 Kings Road NW A1174 AM Kings Road NW A1174 AM Kings Road NW A1174 AM Kings Road NW | Kings Road NW  12% 10%  Committed + Deve  Kings Road NW 0 360 126  Kings Road NW | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173<br>107<br>1<br>265<br>A1173<br>41%<br>0% | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63<br>635<br>1<br>Kings Road NE<br>22% | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A173                        | Kings Road NW 33% 24% Kings Road NW 0 64 61 Kings Road NW | 15%<br>11%<br>A1173<br>217<br>0 645<br>A1173<br>15% | 65<br>219<br>05<br>Kings Road NE<br>16<br>46<br>Kings Road NE |
| Kings Road NE HGV % AM Kings Road NW A1173 Kings Road NE PCU AM Kings Road NE AM Kings Road NE HGV % AM Kings Road NE HGV % AM Kings Road NE HGV % AM  | Kings Road NW 12% 10% Committed + Deve Kings Road NW 0 360 126 Kings Road NW     | A1173<br>43%<br>0%<br>24%<br>lopmen<br>A1173<br>107<br>1<br>265<br>A1173<br>41%       | 25%<br>16%<br>0%<br>t<br>Kings Road NE<br>63<br>635<br>1<br>Kings Road NE<br>22% | PM Kings Road NW A1173 Kings Road NE PM Kings Road NW A1173 Kings Road NW PM Kings Road NW Kings Road NW Kings Road NW | Kings Road NW 33% 24% Kings Road NW 0 64 61               | 15%<br>11%<br>A1173<br>217<br>0<br>645              | 6:<br>21:<br>0:<br>Kings Road NE<br>16<br>46<br>Kings Road NE |

|           |            |        |         | Do        | aseiine       |           |        |         |         |  |
|-----------|------------|--------|---------|-----------|---------------|-----------|--------|---------|---------|--|
| PCU       |            |        |         |           |               |           |        |         |         |  |
| AM (7-8)  |            |        |         |           | PM (16-17     |           |        |         |         |  |
|           |            |        | A1173 W |           |               | Kiln Lane |        |         |         |  |
| Kiln Lane | 0          | 0      | 81      |           | Kiln Lane     | 0         | 4      | 445     | 89      |  |
| Access    | 0          | 0      | 0       | 0         | Access        | 0         | 0      | 2       | 0       |  |
| A1173 W   | 407        | 2      | 0       | 560       | A1173 W       | 112       | 0      | 0       | 149     |  |
| A1173 N   | 70         | 0      | 113     | 0         | A1173 N       | 74        | 0      | 531     | 0       |  |
| HGVs      |            |        |         |           |               |           |        |         |         |  |
| AM        |            |        |         |           | PM            |           |        |         |         |  |
|           | Kiln Lane  | Access | A1173 W | A1173 N   |               | Kiln Lane | Access | A1173 W | A1173 N |  |
| Kiln Lane | 0          | 0      | 40      | 37        | Kiln Lane     | 0         | 0      | 37      | 23      |  |
| Access    | 0          | 0      | 0       | 0         | Access        | 0         | 0      | 0       | 0       |  |
| A1173 W   | 43         | 0      | 0       | 57        | A1173 W       | 63        | 0      | 0       | 16      |  |
| A1173 N   | 18         | 0      | 44      | 0         | A1173 N       | 31        | 0      | 46      | 0       |  |
|           |            |        |         | Committee | d Development |           |        |         |         |  |
| PCU       |            |        |         |           |               |           |        |         |         |  |
| AM        |            |        |         |           | PM            |           |        |         |         |  |
|           | Kiln Lane  | Access | A1173 W |           |               | Kiln Lane | Access |         |         |  |
| Kiln Lane |            |        | 51      |           | Kiln Lane     |           |        | 27      |         |  |
| Access    |            |        | 43      |           | Access        |           |        | 43      |         |  |
| A1173 W   | 67         |        |         | 178       | A1173 W       | 19        |        |         | 5       |  |
| A1173 N   |            |        | 14      |           | A1173 N       |           |        | 183     |         |  |
| HGVs      |            |        |         |           |               |           |        |         |         |  |
| AM        |            |        |         |           | PM            |           |        |         |         |  |
|           | Kiln Lane  | Access | A1173 W | A1173 N   |               | Kiln Lane | Access | A1173 W | A1173 N |  |
| Kiln Lane |            |        | 36      |           | Kiln Lane     |           |        | 5       |         |  |
| Access    |            |        |         |           | Access        |           |        |         |         |  |
| A1173 W   | 43         |        |         | 0         | A1173 W       | 4         |        |         | 0       |  |
| A1173 N   |            |        | 0       |           | A1173 N       |           |        | 0       |         |  |
|           |            |        |         | Proposed  | Development   |           |        |         |         |  |
| PCU       |            |        |         |           | 014/47 40     |           |        |         |         |  |
| AM (7-8)  | Miles Levi | Imming |         | 44472.01  | PM (17-18     |           | Stena  |         | ****    |  |
|           |            |        | A1173 W |           |               | Kiln Lane |        |         |         |  |
| Kiln Lane | 0          |        |         |           | Kiln Lane     | 0         |        |         |         |  |
| Access    | 0          | -      | -       | 0         | Access        | 0         | -      | -       | -       |  |
| A1173 W   | 0          |        |         |           | A1173 W       | 0         |        |         |         |  |
| A1173 N   | 0          | 0      | 96      | 0         | A1173 N       | 0         | 0      | 132     | 0       |  |
| HGVs      |            |        |         |           |               |           |        |         |         |  |
| AM        |            |        |         |           | PM            |           |        |         |         |  |
|           |            |        | A1173 W |           |               | Kiln Lane |        |         |         |  |
| Kiln Lane | 0          |        |         |           | Kiln Lane     | 0         | 0      | 0       |         |  |
| Access    | 0          |        |         |           | Access        | 0         | 0      |         | 0       |  |
| A1173 W   | 0          |        |         |           | A1173 W       | 0         |        |         |         |  |
| A1172 N   |            | 0      | 20      |           | A1172 N       |           |        | E 2     |         |  |

A1173 N

Baseline

A1173 N

|           | A1173/       | Kiln La  | ane       |         |           |           |        |         |         |           |              |          |          |         |           |           |        |         |         |
|-----------|--------------|----------|-----------|---------|-----------|-----------|--------|---------|---------|-----------|--------------|----------|----------|---------|-----------|-----------|--------|---------|---------|
| 2025 Base |              |          |           |         |           |           |        |         |         | 2032 Base | eline        |          |          |         |           |           |        |         |         |
| PCU       |              |          |           |         |           |           |        |         |         | PCU       |              |          |          |         |           |           |        |         |         |
| AM        |              |          |           |         | PM        |           |        |         |         | AM        |              |          |          |         | PM        |           |        |         |         |
|           | Kiln Lane    | Access   | A1173 W   | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |           | Kiln Lane    | Access   | A1173 W  | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |
| Kiln Lane | 0            | 0        | 83        | 76      | Kiln Lane | 0         | 4      | 456     | 91      | Kiln Lane | 0            |          |          |         | Kiln Lane | 0         | 4      | 474     |         |
| Access    | 0            | 0        | 0         | 0       | Access    | 0         | 0      | 2       | 0       | Access    | 0            | 0        | 0        | 0       | Access    | 0         | 0      | 2       | 0       |
| A1173 W   | 418          | 2        | 0         | 575     | A1173 W   | 115       | 0      | 0       | 153     | A1173 W   | 435          | 2        | . 0      | 598     | A1173 W   | 119       | 0      | C       | 159     |
| A1173 N   | 72           | 0        | 116       | 0       | A1173 N   | 76        | 0      | 545     | 0       | A1173 N   | 75           | 0        | 121      | 0       | A1173 N   | 79        | 0      | 569     | 0       |
| HGV %     |              |          |           |         |           |           |        |         |         | HGV %     |              |          |          |         |           |           |        |         |         |
| AM        |              |          |           |         | PM        |           |        |         |         | AM        |              |          |          |         | PM        |           |        |         |         |
|           | Kiln Lane    | Access   | A1173 W   | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |           | Kiln Lane    | Access   | A1173 W  | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |
| Kiln Lane |              |          | 49%       | 50%     | Kiln Lane |           | 0%     | 8%      | 26%     | Kiln Lane |              |          | 49%      | 50%     | Kiln Lane |           | 0%     | 8%      | 26%     |
| Access    |              |          |           |         | Access    |           |        | 0%      |         | Access    |              |          |          |         | Access    |           |        | 0%      |         |
| A1173 W   | 11%          | 0%       |           | 10%     | A1173 W   | 56%       | 0%     |         | 11%     | A1173 W   | 11%          | 0%       |          | 10%     | A1173 W   | 56%       | 0%     |         | 11%     |
| A1173 N   | 26%          |          | 39%       |         | A1173 N   | 42%       |        | 9%      |         | A1173 N   | 26%          |          | 39%      |         | A1173 N   | 42%       |        | 9%      |         |
| 2025 Base | eline + Comn | nitted   |           |         |           |           |        |         |         | 2032 Base | eline + Comi | nitted   |          |         |           |           |        |         |         |
| PCU       |              |          |           |         |           |           |        |         |         | PCU       |              |          |          |         |           |           |        |         |         |
| AM        |              |          |           |         | PM        |           |        |         |         | AM        |              |          |          |         | PM        |           |        |         |         |
|           | Kiln Lane    | Access   | A1173 W   | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |           | Kiln Lane    | Access   | A1173 W  | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |
| Kiln Lane | 0            | 0        | 134       | 76      | Kiln Lane | 0         | 4      | 484     | 92      | Kiln Lane | 0            | 0        | 138      | 79      | Kiln Lane | 0         | 4      | 501     | 95      |
| Access    | 0            | 0        | 43        | 0       | Access    | 0         | 0      | 45      | 0       | Access    | 0            | 0        | 43       | 0       | Access    | 0         | 0      | 45      | 0       |
| A1173 W   | 485          | 2        | 0         | 753     | A1173 W   | 134       | 0      | 0       | 157     | A1173 W   | 502          | 2        | . 0      | 776     | A1173 W   | 138       | 0      | C       | 163     |
| A1173 N   | 72           | 0        | 130       | 0       | A1173 N   | 76        | 0      | 728     | 0       | A1173 N   | 75           | 0        | 134      | 0       | A1173 N   | 79        | 0      | 748     | 0       |
| HGV %     |              |          |           |         |           |           |        |         |         | HGV %     |              |          |          |         |           |           |        |         |         |
| AM        |              |          |           |         | PM        |           |        |         |         | AM        |              |          |          |         | PM        |           |        |         |         |
|           | Kiln Lane    | Access   | A1173 W   | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |           | Kiln Lane    | Access   | A1173 W  | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |
| Kiln Lane |              |          | 58%       | 50%     | Kiln Lane |           | 0%     | 9%      | 26%     | Kiln Lane |              |          | 58%      | 50%     | Kiln Lane |           | 0%     | 9%      | 26%     |
| Access    |              |          | 0%        |         | Access    |           |        | 0%      |         | Access    |              |          | 0%       |         | Access    |           |        | 0%      |         |
| A1173 W   | 18%          | 0%       |           | 8%      | A1173 W   | 51%       |        |         | 10%     | A1173 W   | 18%          | 0%       |          | 8%      | A1173 W   | 51%       |        |         | 10%     |
| A1173 N   | 26%          |          | 35%       |         | A1173 N   | 42%       |        | 6%      |         | A1173 N   | 26%          |          | 35%      |         | A1173 N   | 42%       |        | 6%      |         |
| 2025 Base | eline + Comn | nitted + | Developme | ent     |           |           |        |         |         | 2032 Base | eline + Comi | nitted + | Developm | ent     |           |           |        |         |         |
| PCU       |              |          |           |         |           |           |        |         |         | PCU       |              |          |          |         |           |           |        |         |         |
| AM        |              |          |           |         | PM        |           |        |         |         | AM        |              |          |          |         | PM        |           |        |         |         |
|           | Kiln Lane    | Access   | A1173 W   | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |           | Kiln Lane    | Access   | A1173 W  | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |
| Kiln Lane | 0            | 0        | 134       | 76      | Kiln Lane | 0         | 4      | 484     | 92      | Kiln Lane | 0            | 0        | 138      | 79      | Kiln Lane | 0         | 4      | 501     | 95      |
| Access    | 0            | 0        | 43        | 0       | Access    | 0         | 0      | 45      | 0       | Access    | 0            | 0        | 43       | 0       | Access    | 0         | 0      | 45      | 0       |
| A1173 W   | 485          | 2        | 0         | 917     | A1173 W   | 134       | 0      | 0       | 377     | A1173 W   | 502          | 2        | . 0      | 940     | A1173 W   | 138       | 0      | 0       | 383     |
| A1173 N   | 72           | 0        | 226       | 0       | A1173 N   | 76        | 0      | 859     | 0       | A1173 N   | 75           | 0        | 230      | 0       | A1173 N   | 79        | 0      | 880     | 0       |
| HGV %     |              |          |           |         |           |           |        |         |         | HGV %     |              |          |          |         |           |           |        |         |         |
| AM        |              |          |           |         | PM        |           |        |         |         | AM        |              |          |          |         | PM        |           |        |         |         |
|           | Kiln Lane    | Access   | A1173 W   | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |           | Kiln Lane    | Access   | A1173 W  | A1173 N |           | Kiln Lane | Access | A1173 W | A1173 N |
| Kiln Lane |              |          | 58%       | 50%     | Kiln Lane |           | 0%     | 9%      | 26%     | Kiln Lane |              |          | 58%      | 50%     | Kiln Lane |           | 0%     | 9%      | 26%     |
| Access    |              |          | 0%        |         | Access    |           |        | 0%      |         | Access    |              |          | 0%       |         | Access    |           |        | 0%      |         |
| A1173 W   | 18%          | 0%       |           | 14%     | A1173 W   | 51%       |        |         | 28%     | A1173 W   | 18%          | 0%       |          | 14%     | A1173 W   | 51%       |        |         | 28%     |
| A1173 N   | 26%          |          | 36%       |         | A1173 N   | 42%       |        | 12%     |         | A1173 N   | 26%          |          | 36%      |         | A1173 N   | 42%       |        | 12%     |         |

| PCU                                      |                |          |                |         | Baseline         |                |         |                |         |
|--|----------------|----------|----------------|---------|------------------|----------------|---------|----------------|---------|
| AM (7-8)                                 |                |          |                |         | PM (16-17)       |                |         |                |         |
|  | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| SHIIP Access S                           | 0              | 75       | 0              | 27      | SHIIP Access S   | 0              | 143     | 0              | 37      |
| A1173 W                                  | 138            | 0        | 25             | 218     | A1173 W          | 102            | 0       | 24             | 1010    |
| SHIIP Access N                           | 0              | 16       | 0              | 6       | SHIIP Access N   | 0              | 28      | 0              | 7       |
| A1173 E                                  | 28             | 988      | 5              | 0       | A1173 E          | 23             | 292     | 5              |         |
| HGVs                                     |                |          |                |         |                  |                |         |                |         |
| AM                                       |                |          |                |         | PM               |                |         |                |         |
|  |                |          | SHIIP Access N |         |                  |                |         | SHIIP Access N |         |
| SHIIP Access S                           | 0              | 15       | 0              | 9       | SHIIP Access S   | 0              |         | 0              |         |
| A1173 W                                  | 10             | 0        | 2              | 88      | A1173 W          | 25             | 0       | 6              | 94      |
| HIIP Access N                            | 0              | 4        | 0              | 2       | SHIIP Access N   | 0              | 3       | 0              | 2       |
| 1173 E                                   | 3              | 106      | 1              | 0       | A1173 E          | 6              | 105     | 2              | 0       |
|  |                |          |                | Commi   | tted Development |                |         |                |         |
| PCU                                      |                |          |                |         |                  |                |         |                |         |
| M  |                |          |                |         | PM               |                |         |                |         |
|  | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| HIIP Access S                            |                |          |                |         | SHIIP Access S   |                |         |                |         |
| 1173 W                                   |                |          |                | 68      | A1173 W          |                |         |                | 19      |
| HIIP Access N                            |                |          |                |         | SHIIP Access N   |                |         |                |         |
| 1173 E                                   |                | 59       |                |         | A1173 E          |                | 44      |                |         |
| HGVs                                     |                |          |                |         |                  |                |         |                |         |
| M  |                |          |                |         | PM               |                |         |                |         |
|  | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| HIIP Access S                            |                |          |                |         | SHIIP Access S   |                |         |                |         |
| 1173 W                                   |                |          |                | 52      | A1173 W          |                |         |                | 15      |
| HIIP Access N                            |                |          |                |         | SHIIP Access N   |                |         |                |         |
| 1173 E                                   |                | 41       |                |         | A1173 E          |                | 16      |                |         |
|  |                |          |                | Propo   | ed Development   |                |         |                |         |
| PCU<br>AM (7-8)                          |                | Immingha |                |         | PM (17-18)       |                | Stena   |                |         |
| IM (7-8)                                 | SHIIP Arress S |          | SHIIP Acress N |         | PM (17-18)       |                |         | SHIIP Acress N |         |
|  | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| HIIP Access S                            |                |          |                |         | SHIIP Access S   |                |         |                |         |
| 1173 W                                   |                |          |                | 164     | A1173 W          |                |         |                | 219     |
| HIIP Access N                            |                |          |                |         | SHIIP Access N   |                |         |                |         |
| 1173 E                                   |                | 96       |                |         | A1173 E          |                | 132     |                |         |
| IGVs                                     |                |          |                |         |                  |                |         |                |         |
|  |                |          |                |         | PM               |                |         |                |         |
| м  | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| М  |                |          |                |         | SHIIP Access S   |                |         |                |         |
|  |                |          |                |         |                  |                |         |                |         |
| HIIP Access S                            |                |          |                | 66      | A1173 W          |                |         |                | 90      |
| HIIP Access S<br>1173 W<br>HIIP Access N |                |          |                | 66      |                  |                |         |                | 90      |

North East Lincolnshire 007 2021-2025 2021-2032 AM 1.0269 1.0683 PM 1.0255 1.0649

|                           |                  | A1173/ S  | HIIP           |           |                           |                |           |                |         |                           |                  |            |                |           |                           |                |           |                |         |  |
|---------------------------|------------------|-----------|----------------|-----------|---------------------------|----------------|-----------|----------------|---------|---------------------------|------------------|------------|----------------|-----------|---------------------------|----------------|-----------|----------------|---------|--|
| 2025 Baseline             |                  |           |                |           |                           |                |           |                |         | 2032 Baseline             |                  |            |                |           |                           |                |           |                |         |  |
| PCU                       |                  |           |                |           |                           |                |           |                |         | PCU                       |                  |            |                |           |                           |                |           |                |         |  |
| AM                        |                  |           |                |           | PM                        |                |           |                |         | AM                        |                  |            |                |           | PM                        |                |           |                |         |  |
|                           | SHIIP Access S   | A1173 W S | HIIP Access N  | A1173 E   |                           | SHIIP Access S | A1173 W S | HIIP Access N  | A1173 E |                           | SHIIP Access S   | A1173 W SH | IIIP Access N  | A1173 E   |                           | SHIIP Access S | A1173 W S | HIIP Access N  | A1173 E |  |
| SHIIP Access S            | 0                | 77        | 0              | 28        | SHIIP Access S            | 0              | 147       | 0              | 38      | SHIIP Access S            | 0                | 80         | 0              | 29        | SHIIP Access S            | 0              | 152       | 0              | 39      |  |
| A1173 W                   | 142              | 0         | 26             | 224       | A1173 W                   | 105            | 0         | 25             |         | A1173 W                   | 147              | 0          | 27             | 233       | A1173 W                   | 109            | 0         | 26             |         |  |
| SHIIP Access N            | 0                | 16        | 0              |           | SHIIP Access N            | 0              | 29        | 0              |         | SHIIP Access N            | 0                | 17         | 0              | 6         | SHIIP Access N            | 0              | 30        | 0              |         |  |
| A1173 E                   | 29               | 1015      | 5              | 0         | A1173 E                   | 24             | 299       | 5              | 0       | A1173 E                   | 30               | 1055       | 5              | 0         | A1173 E                   | 24             | 311       | 5              | 0       |  |
| HGV %                     |                  |           |                |           |                           |                |           |                |         | HGV %                     |                  |            |                |           |                           |                |           |                |         |  |
| AM                        |                  |           |                |           | PM                        |                |           |                |         | AM                        |                  |            |                |           | PM                        |                |           |                |         |  |
|                           | SHIIP Access S   |           | HIIP Access N  |           |                           | SHIIP Access S |           | HIIP Access N  |         |                           | SHIIP Access S   |            | IIIP Access N  |           |                           | SHIIP Access S |           | HIIP Access N  |         |  |
| SHIIP Access S            |                  | 20%       |                | 33%       | SHIIP Access S            |                | 8%        |                | 16%     | SHIIP Access S            |                  | 20%        |                | 33%       | SHIIP Access S            |                | 8%        |                | 16%     |  |
| A1173 W                   | 7%               |           | 8%             | 40%       | A1173 W                   | 25%            |           | 25%            |         | A1173 W                   | 7%               |            | 8%             | 40%       | A1173 W                   | 25%            |           | 25%            |         |  |
| SHIIP Access N            |                  | 25%       |                | 33%       | SHIIP Access N            |                | 11%       |                | 29%     | SHIIP Access N            |                  | 25%        |                | 33%       | SHIIP Access N            |                | 11%       |                | 29%     |  |
| A1173 E                   | 11%              | 11%       | 20%            |           | A1173 E                   | 26%            | 36%       | 40%            |         | A1173 E                   | 11%              | 11%        | 20%            |           | A1173 E                   | 26%            | 36%       | 40%            |         |  |
| 2025 Baseline -           | + Committed      |           |                |           |                           |                |           |                |         | 2032 Baseline -           | + Committed      |            |                |           |                           |                |           |                |         |  |
|                           |                  |           |                |           |                           |                |           |                |         |                           |                  |            |                |           |                           |                |           |                |         |  |
| AM                        |                  |           |                |           | PM                        |                |           |                |         | AM                        |                  |            |                |           | PM                        |                |           |                |         |  |
|                           | SHIIP Access S   |           |                |           |                           | SHIIP Access S |           | HIIP Access N  | A1173 E |                           | SHIIP Access S   |            |                | A1173 E   |                           | SHIIP Access S |           |                | A1173 E |  |
| SHIIP Access S<br>A1173 W | 0<br>142         | 77        | 0<br>26        | 28<br>292 | SHIIP Access S<br>A1173 W | 105            | 147       | 25             |         | SHIIP Access S<br>A1173 W | 0<br>147         | 80         | 0<br>27        | 29<br>301 | SHIIP Access S            | 109            | 152       | 0<br>26        |         |  |
| SHIIP Access N            |                  | 16        | 26             |           | SHIIP Access N            |                | 29        | 25             |         | SHIIP Access N            | 147              | 17         | 0              |           | A1173 W<br>SHIIP Access N | 109            | 30        | 26             |         |  |
|                           | 0                |           | -              |           |                           | 0              |           |                |         |                           |                  |            | 5              | 6         |                           |                |           |                |         |  |
| A1173 E                   | 29               | 1074      | 5              | 0         | A1173 E                   | 24             | 344       | 5              | 0       | A1173 E                   | 30               | 1114       | 5              | 0         | A1173 E                   | 24             | 355       | 5              | 0       |  |
| HGV %                     |                  |           |                |           | PM                        |                |           |                |         | HGV %<br>AM               |                  |            |                |           | PM                        |                |           |                |         |  |
| AUVI                      | SHIIP Access S   | 41172 W C | LIIID Assess N | 41172 E   | rivi                      | SHIIP Access S | 41172W C  | LIIID Assess N | 41172 E | AW                        | SHIIP Access S   | 41172 W CL | IIID Assess N  | 41172 E   | rwi                       | SHIIP Access S | 41172 W C | WILL Assess M  | 41172 E |  |
| SHIIP Access S            | Smill Access 3   | 20%       | HIIF ALCESS IN | 33%       | SHIIP Access S            | SHIIF ALUESS 3 | M11/3 W 3 | HIIF ALUESS IV | 16%     | SHIIP Access S            | Shiir Access 3   | 20%        | IIIF ALLESS IN | 33%       | SHIIP Access S            | SHIIF ALLESS 3 | 8%        | MIIF ALLESS IN | 16%     |  |
| A1173 W                   | 7%               | 20%       | 8%             |           | A1173 W                   | 25%            | 0.70      | 25%            |         | A1173 W                   | 7%               |            | 8%             | 49%       | A1173 W                   | 25%            | 676       | 25%            |         |  |
| SHIIP Access N            | 776              | 25%       | 070            | 33%       | SHIIP Access N            | 2370           | 11%       | 2370           | 29%     | SHIIP Access N            | 770              | 25%        | 676            | 33%       | SHIIP Access N            | 23%            | 11%       | 23%            | 29%     |  |
| A1173 E                   | 11%              |           | 20%            |           | A1173 E                   | 26%            | 36%       | 40%            |         | A1173 E                   | 11%              |            | 20%            | 3379      | A1173 E                   | 26%            | 36%       | 40%            |         |  |
| 2025 Baseline             | + Committed + De | velopment |                |           |                           |                |           |                |         | 2032 Baseline             | + Committed + De | velopment  |                |           |                           |                |           |                |         |  |
| PCU                       |                  |           |                |           |                           |                |           |                |         | PCU                       |                  |            |                |           |                           |                |           |                |         |  |
| AM                        |                  |           |                |           | PM                        |                |           |                |         | AM                        |                  |            |                |           | PM                        |                |           |                |         |  |
|                           | SHIIP Access S   | A1173 W S | HIIP Access N  | A1173 E   |                           | SHIIP Access S | A1173 W S | HIIP Access N  | A1173 E |                           | SHIIP Access S   | A1173 W SH | IIIP Access N  | A1173 E   |                           | SHIIP Access S | A1173 W S | HIIP Access N  | A1173 E |  |
| SHIIP Access S            | 0                | 77        | 0              | 28        | SHIIP Access S            | 0              | 147       | 0              | 38      | SHIIP Access S            | 0                | 80         | 0              | 29        | SHIIP Access S            | 0              | 152       | 0              | 39      |  |
| A1173 W                   | 142              | 0         | 26             | 455       | A1173 W                   | 105            | 0         | 25             | 1274    | A1173 W                   | 147              | 0          | 27             | 464       | A1173 W                   | 109            | 0         | 26             | 1314    |  |
| SHIIP Access N            | 0                | 16        | 0              |           | SHIIP Access N            | 0              | 29        | 0              |         | SHIIP Access N            | 0                | 17         | 0              | 6         | SHIIP Access N            | 0              | 30        | 0              |         |  |
| A1173 E                   | 29               | 1169      | 5              |           | A1173 E                   | 24             | 476       | 5              |         | A1173 E                   | 30               |            | 5              | ō         | A1173 E                   | 24             | 487       | 5              | 0       |  |
| HGV %                     |                  |           |                |           |                           |                |           |                |         | HGV %                     |                  |            |                |           |                           |                |           |                |         |  |
| AM                        |                  |           |                |           | PM                        |                |           |                |         | AM                        |                  |            |                |           | PM                        |                |           |                |         |  |
|                           | SHIIP Access S   | A1173 W S | HIIP Access N  | A1173 E   |                           | SHIIP Access S | A1173 W S | HIIP Access N  | A1173 E |                           | SHIIP Access S   | A1173 W SH | IIIP Access N  | A1173 E   |                           | SHIIP Access S | A1173 W S | HIIP Access N  | A1173 E |  |
| SHIIP Access S            |                  | 20%       |                | 33%       | SHIIP Access S            |                | 8%        |                | 16%     | SHIIP Access S            |                  | 20%        |                | 33%       | SHIIP Access S            |                | 8%        |                | 16%     |  |
| A1173 W                   | 7%               |           | 8%             | 46%       | A1173 W                   | 25%            |           | 25%            | 16%     | A1173 W                   | 7%               |            | 8%             | 46%       | A1173 W                   | 25%            |           | 25%            |         |  |
| SHIIP Access N            |                  | 25%       |                | 33%       | SHIIP Access N            |                | 11%       |                | 29%     | SHIIP Arress N            |                  | 25%        |                | 33%       | SHIIP Access N            |                | 11%       |                | 29%     |  |

|                     |             |            |                     |         |                | Baseline     |                     |             |            |                     |      |              |   |
|---------------------|-------------|------------|---------------------|---------|----------------|--------------|---------------------|-------------|------------|---------------------|------|--------------|---|
| PCU                 |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |
| AM (7-8)            |             |            |                     |         |                |              | PM (16-17)          |             |            |                     |      |              |   |
|                     |             |            | Part Service Access |         | D Conco Access |              |                     |             |            | Port Service Access |      | Conco Access |   |
| Humber Road         | 12          |            |                     | 3 3 3 1 |                |              | Humber Road         | 49          | 303        |                     |      |              | 0 |
| Manby Road          | 330         |            |                     | 23      |                |              | Manby Road          | 115         | 11         |                     |      |              | 0 |
| Part Service Access | . 4         |            |                     |         |                |              | Port Service Access |             | 4          |                     |      |              | 0 |
| A160                | 367         |            |                     | 1 1     |                |              | A160                | 223         | 240        | 4                   |      |              | 2 |
| Conco Access        | 0           |            |                     |         |                |              | Conco Access        | 0           | 2          |                     | 1    |              | 0 |
| HGVs                |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |
| AM                  |             |            |                     |         |                |              | PM                  |             |            |                     |      |              |   |
|                     |             |            | Part Service Access |         | D Conco Access |              |                     |             |            | Port Service Access |      | Conco Access |   |
| Humber Road         | 5           |            |                     | 28      |                |              | Humber Road         | 18          | 65         |                     |      |              | 0 |
| Manby Road          | 74          |            |                     |         |                |              | Manby Road          | 42          | 1 2        |                     |      |              | 0 |
| Part Service Access |             |            |                     |         |                |              | Port Service Access |             | 2          |                     |      |              | 0 |
| A160                | 177         |            |                     | 3 (     |                |              | A160                | 202         |            |                     |      |              | 2 |
| Conco Access        | 0           |            |                     |         |                |              | Conco Access        | 0           | 0          |                     | 1    |              | 0 |
|                     |             |            |                     |         | Comm           | nitted Devel | lapment             |             |            |                     |      |              |   |
| PCU                 |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |
| AM                  |             |            |                     |         |                |              | PM                  |             |            |                     |      |              |   |
|                     |             |            | Part Service Access |         | Conco Access   |              |                     |             |            | Port Service Access |      | Conco Access |   |
| Humber Road         | 2           |            |                     |         |                |              | Humber Road         | 10          | 89         |                     | 298  |              |   |
| Manby Road          | 128         |            |                     | 2       | 5              |              | Manby Road          | 18          |            |                     | 6    |              |   |
| Port Service Access |             |            |                     |         |                |              | Port Service Access |             |            |                     |      |              |   |
| A160                | 310         | 11         |                     |         |                |              | A160                | 4           | 16         |                     |      |              |   |
| Conco Access        |             |            |                     |         |                |              | Conco Access        |             |            |                     |      |              |   |
| HGVs                |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |
| AM                  |             |            |                     |         |                |              | PM                  |             |            |                     |      |              |   |
|                     | Humber Road | Manby Road | Port Service Access | A16     | Conco Access   |              |                     | Humber Road | Manby Road | Port Service Access |      | Conco Access |   |
| Humber Road         |             |            |                     |         |                |              | Humber Road         |             | 0          |                     | 0    |              |   |
| Manby Road          | 0           |            |                     |         |                |              | Manby Road          | 0           |            |                     |      |              |   |
| Port Service Access |             |            |                     |         |                |              | Port Service Access |             |            |                     |      |              |   |
| A160                | 8           |            |                     |         |                |              | A160                | 0           |            |                     |      |              |   |
| Conco Access        |             |            |                     |         |                |              | Conco Access        |             |            |                     |      |              |   |
|                     |             |            |                     |         | Pmn            | osed Develo  | nement .            |             |            |                     |      |              |   |
| PCU                 |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |
| AM (7-8)            |             | Immingham  |                     |         |                |              | PM (17-18)          |             | Stena      |                     |      |              |   |
|                     | Humber Road | Manby Road | Port Service Access | A16     | Conco Access   |              |                     | Humber Road | Manby Road | Port Service Access | A160 | Conco Access |   |
| Humber Road         | 0           |            |                     | 0 1     |                |              | Humber Road         | 0           | 4          |                     | 25   |              | 0 |
| Manby Road          | 4           |            |                     |         |                |              | Manby Road          | 4           | 0          |                     |      |              | 0 |
| Part Service Access | 0           |            |                     |         |                |              | Port Service Access | 0           | 0          |                     | 0    |              | 0 |
| A160                | 30          |            |                     |         |                |              | A160                | 40          |            |                     |      |              | 0 |
| Conco Access        | 0           |            |                     |         |                |              | Conco Access        | 0           | 0          |                     | 0    |              | 0 |
| HGVs                |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |
| AM                  |             |            |                     |         |                |              | PM                  |             |            |                     |      |              |   |
|                     | Humber Road | Manby Road | Port Service Access | A16     | Conco Access   |              |                     | Humber Road | Manby Road | Port Service Access | A160 | Conco Access |   |
| Humber Road         | 0           |            |                     |         |                |              | Humber Road         | 0           |            |                     |      |              | 0 |
| Manby Road          | 0           |            |                     |         |                |              | Manby Road          |             |            |                     |      |              | 0 |
| Port Service Access | 0           |            |                     |         |                |              | Port Service Access |             |            |                     |      |              | 0 |
| A160                | 12          |            |                     |         |                |              | A160                | 16          |            |                     |      |              | 0 |
|                     |             |            |                     |         |                |              |                     |             |            |                     |      |              |   |

| 2021 Baseline                             |                    |                   | 0/ Humber Road/             |      | -,                |                             |                    |                   |                     |      |             |
|---|--------------------|-------------------|-----------------------------|------|-------------------|-----------------------------|--------------------|-------------------|---------------------|------|-------------|
| PCU                                       |                    |                   |                             |      |                   |                             |                    |                   |                     |      |             |
| AM  |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
|   | Humber Road        | Manby Road        | Port Service Access         | A160 | Conco Access      |                             | Humber Road        | Manby Road        | Port Service Access | A160 | Conco Accer |
| Humber Road                               | 12                 | 58                | 1                           | 310  | 0                 | Humber Road                 | 49                 | 303               |                     | 407  |             |
| Manby Road                                | 330                | 3                 | 1                           | 231  |                   | Manby Road                  | 115                | 11                | 1                   | 214  |             |
| Port Service Access                       | 4                  | 0                 | 0                           | 2    | 0                 | Port Service Access         | 0                  | 4                 | 0                   | 6    |             |
| A160                                      | 357                | 150               | 3                           | 9    | 2                 | A160                        | 223                | 240               | 4                   | 5    |             |
| Conco Access                              | 0                  | 0                 | 0                           | 0    | 0                 | Conco Access                | 0                  | 2                 | 0                   | 1    |             |
| HGV %                                     |                    |                   |                             |      |                   |                             |                    |                   |                     |      |             |
| AM  |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
|   |                    |                   | Port Service Access         |      | Conco Access      |                             |                    |                   | Port Service Access |      | Conco Acce  |
| Humber Road                               | 42%                | 38%               | 100%                        | 92%  |                   | Humber Road                 | 37%                | 21%               |                     | 62%  |             |
| Manby Road                                | 22%                | 67%               | 100%                        | 22%  |                   | Manby Road                  | 37%                | 9%                | 100%                |      |             |
| Port Service Access                       | 100%               |                   |                             | 100% |                   | Port Service Access         |                    | 50%               |                     | 67%  |             |
| A160                                      | 48%                | 19%               | 100%                        | 67%  | 100%              | A160                        | 91%                | 20%               | 75%                 | 40%  | 10          |
| Conco Access                              |                    |                   |                             |      |                   | Conco Access                |                    | 0%                |                     | 100% |             |
| 2021 Baseline + Com                       | mitted             |                   |                             |      |                   |                             |                    |                   |                     |      |             |
| PCU<br>AM                                 |                    |                   |                             |      |                   |                             |                    |                   |                     |      |             |
| AM  |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
|   |                    |                   |                             |      | Conco Access      |                             |                    |                   | Port Service Access |      | Conco Acce  |
| Humber Road                               | 14                 | 81                | 1                           | 319  |                   | Humber Road                 | 59                 | 392               | 0                   | 705  |             |
| Manby Road                                | 458                | 3                 | 1                           | 265  | 0                 | Manby Road                  | 133                | 11                | 1                   | 220  |             |
| Port Service Access<br>A160               | . 4                | 0                 | 0                           | 2    | 0 7               | Port Service Access         | 0                  | 4                 | 0                   | 5    |             |
|   | 677                | 191               |                             |      |                   |                             | 227                | 256               |                     |      |             |
| Conco Access                              | 0                  | 0                 | 0                           | 0    | 0                 | Conco Access                | 0                  | 2                 | 0                   | 1    |             |
| HGV %                                     |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
| AM  |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
| Humber Road                               | Humber Road<br>36% | Manby Road<br>27% | Port Service Access<br>100% | 91%  | Conco Access      | Humber Road                 | Humber Road<br>31% | Manby Road<br>17% | Part Service Access | A160 | Conco Acce  |
| Manby Road                                | 16%                | 57%               |                             | 19%  |                   | Manby Road                  | 32%                | 17%               | 100%                |      |             |
| Manoy Koso<br>Port Service Access         | 100%               | 67%               | 100%                        | 100% |                   | Port Service Access         | 32%                | 50%               | 100%                | 67%  |             |
| PORT SERVICE ACCESS<br>A160               | 200%               | 18%               | 100%                        | 57%  | 100%              | A160                        | 89%                | 10%               |                     | 40%  | 10          |
| Conco Access                              | 27%                | 18%               | 100%                        | 67%  | 100%              | Conco Access                | 89%                | 0%                | 75%                 | 100% | 10          |
| 2021 Baseline + Com                       | mitted + Develop   | ment              |                             |      |                   |                             |                    |                   |                     |      |             |
| PCU                                       |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
| ~~  | Managhara Bassal   | Marky Sand        | Port Service Access         | 4160 | Conco Access      | rm                          | Marshau Basel      | Marcha Basel      | Port Service Access | 4160 | Conco Acce  |
| Humber Road                               | number Hosti       | Maney Koas<br>85  | PORT Service Access         | 337  | Conco Access<br>0 | Humber Road                 | number Hoad<br>59  | Manby Hoad        | PORT SERVICE ACCESS | 710  | Curno Acce  |
| Manby Road                                | 462                | 100               | 1                           | 255  | 0                 | Manby Road                  | 137                | 11                | 1                   | 220  |             |
| Port Service Access                       | 402                | 0                 |                             | 200  | 0                 | Port Service Access         | 137                | 4                 |                     | 5    |             |
| A160                                      | 707                | 191               | 3                           | 9    | 2                 | A160                        | 267                | 256               | 4                   | 5    |             |
| A160<br>Conco Access                      | 707                | 191               | 9                           | 9    | 0                 | Conco Access                | 267                | 256<br>2          | 4                   | 1    |             |
| HGV %                                     |                    |                   |                             |      |                   |                             |                    |                   |                     |      |             |
| AM  |                    |                   |                             |      |                   | PM                          |                    |                   |                     |      |             |
|   | Humber Road        | Manby Road        | Port Service Access         | A160 | Conco Access      |                             | Humber Road        | Manby Road        | Port Service Access | A160 | Conco Acce  |
| Humber Road                               | 36%                | 26%               | 100%                        | 88%  |                   | Humber Road                 | 31%                | 16%               |                     | 35%  |             |
|   | 16%                | 67%               | 100%                        | 19%  |                   | Manby Road                  | 31%                | 9%                | 100%                | 20%  |             |
| Manby Road                                |                    |                   |                             |      |                   |                             |                    |                   |                     |      |             |
| Manby Road<br>Boot Service Access         | 10%                |                   |                             | 100% |                   | Port Service Acress         |                    | 50%               |                     | 67%  |             |
| Manby Road<br>Port Service Access<br>A160 |                    | 18%               | 100%                        | 100% | 100%              | Port Service Access<br>A160 | 82%                | 50%<br>19%        | 75%                 |      | 10          |

| AM   |   |   |  |  |   | PM   |  |  |  |  |  |
|--|---|---|--|--|---|--|--|--|--|--|--|
|  | Humber Road   | Manby Road  | Port Service Access  | A160   | Conco Access                            |  | Humber Road  | Manby Road   | Port Service Access  |  | Conco Access   |
| Humber Road  | 13<br>345   | 61  | 1  | 324  | 0                                       | Humber Road<br>Manby Road  | 51<br>120  | 316<br>11  | 0  | 425<br>223   |  |
| Manby Road<br>Port Service Access  | 345   | 0   |  | 241  | 0                                       | Port Service Access  | 120  | 4  |  | 5  | 0  |
| A160   | 383   | 188   | 3  | 9  | 2                                       | A160   | 233  | 250  | 4  | 5  | 2  |
| Conco Access   | 0   | 0   | 0  | 0  | 0                                       | Conco Access   | 0  | 2  | 0  | 1  | 0  |
| HGV %<br>AM  |   |   |  |  |   | PM   |  |  |  |  |  |
| Humber Road  | Humber Road<br>42%  | Manby Road<br>38%   | Port Service Access<br>100%  | A160<br>92%  | Conco Access                            | Humber Road  | Humber Road<br>37%   | Manby Road<br>21%  | Port Service Access  | A160<br>61%  | Conco Access   |
| Manby Road   | 22%   | 67%   | 100%   | 22%  |   | Manby Road   | 37%  | 9%<br>50%  | 100%   | 20%  |  |
| Port Service Access<br>A160  | 100%  | 19%   | 100%   | 100%<br>67%  | 100%                                    | Port Service Access<br>A160  | 92%  | 50%  |  | 67%<br>40%   |  |
| A160<br>Conco Access   | 48%   | 19%   | 100%   | 67%  | 100%                                    | A160<br>Conco Access   | 91%  | 20%  | 75%  | 100%   | 100%   |
| 2025 Baseline + Com  | mitted  |   |  |  |   |  |  |  |  |  |  |
| PCU<br>AM  |   |   |  |  |   | PM   |  |  |  |  |  |
| Humber Enad  | Humber Road   | Manby Road  | Port Service Access  | A160   | Conco Access                            | Humber Board   | Humber Road  | Manby Road   | Port Service Access  | A160   | Conco Access   |
| Manby Road   | 473   | 3   | 1  | 275  | 0                                       | Manby Road   | 138  | 11   | 1  | 229  |  |
| Port Service Access  | 4   | 0   | 0  | 2  | 0                                       | Port Service Access  | 0  | 4  | 0 4  | 6  | 0 2  |
| A160<br>Conco Access   | 693   | 199   | 3 0  | 9  | 2 0                                     | A160<br>Conco Access   | 236  | 266<br>2   | 4 0  | 5  | 2 0  |
|  |   |   | · ·  |  |   | Conco Access   | U  | - 4  |  |  |  |
| HGV %<br>AM  |   |   |  |  |   | PM   |  |  |  |  |  |
| Humber Road  | Humber Road<br>36%  | Manby Road<br>27%   | Port Service Access<br>100%  | A160<br>91%  | Conco Access                            | Humber Board   | Humber Road  | Manby Road<br>17%  | Port Service Access  | A160<br>35%  | Conco Access   |
| Manby Road   | 16%   | 27%<br>67%  | 100%   | 19%  |   | Manby Road   | 31%<br>32%   | 9%   | 100%   | 20%  |  |
| Port Service Access  | 100%  |   |  | 100%   |   | Port Service Access  |  | 50%  |  | 67%  |  |
| A160<br>Conco Access   | 27%   | 18%   | 100%   | 67%  | 100%                                    | A160<br>Conco Access   | 89%  | 19%  | 75%  | 40%  | 100%   |
| 2025 Baseline + Com  | mitted + Develop  |   |  |  |   | Control Process  |  | UN   |  | -wu/k  |  |
| PCU  | mitted + Develop  | mens  |  |  |   |  |  |  |  |  |  |
| AM   | Humber Road   | Manby Road  | Port Service Access  | A160   | Conco Access                            | PM   | Humber Road  | Manby Road   | Port Service Access  | A160   | Conco Access   |
| Humber Road  | 14  | 88  | 1  | 351  | 0                                       | Humber Road  | 61   | 429  | 0  | 747  | 0  |
| Manby Road<br>Port Service Access  | 477   | 3 0   | 1 0  | 275  | 0                                       | Manby Road<br>Port Service Access  | 142  | 11   | 1 0  | 229  |  |
| A160   | 723   | 199   | 3  | 9  | 2                                       | A160   | 276  | 266  | 4  | 5  | 2  |
| Conco Access   | 0   | 0   | 0  | 0  | 0                                       | Conco Access   | 0  | 2  | 0  | 1  |  |
| HGV %<br>AM  |   |   |  |  |   | PM   |  |  |  |  |  |
|  | Humber Road   | Manby Road  | Port Service Access  |  | Conco Access                            |  | Humber Road  | Manby Road   | Port Service Access  | A160   | Conco Access   |
| Humber Road<br>Manby Road  | 36%<br>16%  | 26%<br>67%  | 100%   | 19%  |   | Humber Road<br>Manby Road  | 31%<br>31%   | 16%<br>9%  | 100%   | 35%<br>20%   |  |
| Dort Sensine Arress  | 100%  | 67%   | 100%   | 100%   |   | Port Service Acress  | 31%  | 50%  | 100%   | 67%  |  |
| A160   | 28%   | 18%   | 100%   | 67%  | 100%                                    | A160   | 82%  | 19%  | 75%  | 40%  | 100%   |
| Conco Access   |   |   |  |  |   | Conco Access   |  | 0%   |  | 100%   |  |
| 2032 Baseline<br>PCU   |   |   |  |  |   |  |  |  |  |  |  |
| AM   | Humber Road   |   |  |  |   | PM   |  |  |  |  |  |
|  |   |   |  |  |   | Pile   |  |  |  |  |  |
| Humber Road  |   |   | Port Service Access  |  | Conco Access                            | Humber Road  | Humber Road<br>54  |  | Port Service Access<br>0                                       |  | Conco Access   |
| Humber Road<br>Manby Road  | 13<br>367   | 65  | 1  | 345<br>257   | 0                                       | Humber Road<br>Manby Road  | 54<br>128  | 337<br>12  | 0  | 452<br>238   | 0  |
| Manby Road<br>Port Service Access  | 13<br>367<br>4  | 65<br>3<br>0  | 1<br>1<br>0  | 345<br>257<br>2  | 0                                       | Number Road<br>Manby Road<br>Port Service Access   | 54<br>128<br>0   | 337<br>12<br>4   | 1 0  | 452<br>238<br>7  | 0  |
| Manby Road<br>Port Service Access<br>A 160   | 13<br>367   | 65  | 1  | 345<br>257   | 0                                       | Humber Road<br>Manby Road  | 54<br>128  | 337<br>12  | 0  | 452<br>238   | 0  |
| Manby Road<br>Port Service Access<br>A260<br>Conco Access  | 13<br>367<br>4<br>409   | 65<br>3<br>0<br>200   | 1<br>1<br>0  | 345<br>257<br>2<br>2   | 0 0                                     | Number Road<br>Manby Road<br>Port Service Access<br>A160<br>Conco Access   | 54<br>128<br>0<br>248  | 337<br>12<br>4<br>267  | 1 0  | 452<br>238<br>7<br>6   | 0  |
| Manby Road   | 13<br>367<br>4<br>409<br>0  | 65<br>3<br>0<br>200<br>0  | 1<br>1<br>0<br>3   | 345<br>257<br>2<br>2<br>20<br>0  | 0<br>0<br>2<br>0                        | Humber Road<br>Manby Road<br>Port Service Access<br>A160   | 54<br>128<br>0<br>248<br>0   | 337<br>12<br>4<br>267<br>2   | 0<br>1<br>0<br>4   | 452<br>238<br>7<br>6<br>1  | 0<br>0<br>0<br>2<br>0  |
| Manby Road Port Service Access A260 Conco Access HGV % AM Humber Road  | 13<br>367<br>4<br>409<br>0<br>Humber Road<br>42%  | 65<br>3<br>0<br>200<br>0<br>Manby Road<br>38%   | 1 0 3 0 Port Service Access 100%   | 345<br>257<br>2<br>10<br>0<br>A160<br>92%  | 0 0                                     | Number Road<br>Manby Road<br>Port Service Access<br>A160<br>Cento Access<br>PM<br>Number Road  | 54<br>128<br>0<br>248<br>0<br>Humber Road<br>37%   | 337<br>12<br>4<br>267<br>2<br>Manby Road<br>21%  | 0 1 0 4 0 Port Service Access                                  | 452<br>238<br>7<br>6<br>1<br>A160<br>61%   | 0  |
| Manby Road Port Service Access A260 Conco Access HGV N AM Humber Road Manby Road   | 13<br>367<br>4<br>409<br>0<br>Humber Road<br>42%<br>22%   | 65<br>3<br>0<br>200<br>0  | 1 1 0 3 0 Port Service Access  | 345<br>257<br>2<br>30<br>0<br>A160<br>92%<br>22%   | 0<br>0<br>2<br>0                        | Number Road Manby Road Port Service Access A200 Conco Access PM Number Road Manby Road   | 54<br>128<br>0<br>248<br>0   | 337<br>12<br>4<br>267<br>2<br>Manby Road<br>21%<br>9%  | 0<br>1<br>0<br>4   | 452<br>238<br>7<br>6<br>1<br>A160<br>61%<br>20%  | 0<br>0<br>0<br>2<br>0  |
| Manby Road Port Service Access A160 Control Access HGV N AM Humber Road Manby Road Port Service Access   | 13<br>367<br>4<br>409<br>0<br>Humber Road<br>42%  | 65<br>3<br>0<br>200<br>0<br>Manby Road<br>38%<br>67%  | 1 0 3 0 Port Service Access 100%   | 345<br>257<br>2<br>30<br>0<br>A160<br>92%<br>22%<br>100%   | 0<br>0<br>2<br>0<br>Conco Access        | Number Road Manby Road Port Service Access A400 Cenco Access PM Number Road Manby Road Port Service Access   | 54<br>128<br>0<br>248<br>0<br>Humber Road<br>37%<br>37%  | 337<br>12<br>4<br>267<br>2<br>Manby Road<br>21%<br>90%   | 0 1 0 4 0 Port Service Access                                  | 452<br>238<br>7<br>6<br>1<br>A160<br>61%<br>20%<br>67%   | 0<br>0<br>2<br>0<br>Conco Access   |
| Manby Road Port Service Access A150 Conco Access HGV % AM Humber Road Manby Road Port Service Access A150  | 13<br>367<br>4<br>409<br>0<br>Humber Road<br>42%<br>22%<br>100%   | 65<br>3<br>0<br>200<br>0<br>Manby Road<br>38%   | 1<br>1<br>3<br>0<br>Port Service Access<br>100%  | 345<br>257<br>2<br>30<br>0<br>A160<br>92%<br>22%   | 0<br>0<br>2<br>0                        | Number Road Manby Road Port Service Access A200 Conco Access PM Number Road Manby Road   | 54<br>128<br>0<br>248<br>0<br>Humber Road<br>37%   | 337<br>12<br>4<br>267<br>2<br>Manby Road<br>21%<br>9%  | 0 1 0 4 0 Port Service Access                                  | 452<br>238<br>7<br>6<br>1<br>A160<br>61%<br>20%  | 0<br>0<br>0<br>2<br>0  |
| Manby Road Port Service Access A360 Conco Access HGV % AM Humber Road Manby Road Port Service Access A360 Conco Access 2002 Baseline + Corro   | 13<br>367<br>4<br>409<br>0<br>Humber Road<br>42%<br>22%<br>100%   | 65<br>3<br>0<br>200<br>0<br>Manby Road<br>38%<br>67%  | 1<br>1<br>3<br>0<br>Port Service Access<br>100%  | 345<br>257<br>2<br>30<br>0<br>A160<br>92%<br>22%<br>100%   | 0<br>0<br>2<br>0<br>Conco Access        | Number Road Manby Road Port Service Access ALGO Cenco Access PM Humber Road Manby Road Port Service Access ALGO  | 54<br>128<br>0<br>248<br>0<br>Humber Road<br>37%<br>37%  | 337<br>12<br>4<br>267<br>2<br>Manby Road<br>21%<br>90%   | 0 1 0 4 0 Port Service Access                                  | 452<br>238<br>7<br>6<br>1<br>A160<br>61%<br>20%<br>67%<br>40%  | 0<br>0<br>2<br>0<br>Conco Access   |
| Manby Road Port Senice Access A560 Conco Access HGV % A5M Humber Road Manby Road Port Senice Access A560 Conco Access A560 Conco Access POUS Senice Access POUS Baseline + Corre POU   | 13<br>267<br>4<br>409<br>0<br>Humber Road<br>42%<br>22%<br>100%<br>48%  | 65<br>3<br>0<br>200<br>0<br>Manby Road<br>38%<br>67%  | 1<br>1<br>3<br>0<br>Port Service Access<br>100%  | 345<br>257<br>2<br>10<br>0<br>A160<br>92%<br>22%<br>100%<br>67%  | 0<br>0<br>2<br>0<br>Conco Access        | Number Road Manby Road Port Service Access ALGO Cenco Access PM Humber Road Manby Road Port Service Access ALGO  | 54<br>128<br>0<br>248<br>0<br>Humber Road<br>37%<br>37%  | 337<br>12<br>4<br>2077<br>2<br>Manby Road<br>95%<br>50%<br>20%   | 0 1 0 4 0 Port Service Access                                  | 452<br>238<br>7<br>6<br>1<br>A160<br>61%<br>20%<br>67%<br>40%  | 0<br>0<br>2<br>0<br>Conco Access   |
| Manby Noad Port Senice Access A100 Conco Access HIGV % AM Humber Road Manby Noad Port Senice Access A100 Conco Access A200 Conco Access A201 AM PORT AM  | 13 367 4 409 0 Humber Road 42% 22% 100% 48%   | 65<br>3<br>0<br>200<br>0<br>Manby Road<br>38%<br>67%<br>19%   | 1 1 0 3 3 3 Fort Service Access 100% 100%  | 345<br>257<br>2<br>10<br>0<br>4160<br>92%<br>22%<br>100%<br>67%  | Conco Access  100%                      | Humber Road Manity Road Analy Road Port Service Access A 100 Conce Access  PM Humber Road Manity Road Dot Service Access A 100 Conce Access A 100 Conce Access PM  | 54<br>128<br>0<br>248<br>0<br>Humber Road<br>37%<br>37%<br>92%   | 337<br>12<br>4<br>207<br>2<br>Manby Road<br>21%<br>50%<br>50%<br>0%  | 0 1 0 4 4 0 0 Port Service Access 100%                         | 452<br>238<br>7<br>6<br>1<br>1<br>A160<br>61%<br>20%<br>40%<br>100%  | O O O O O O O O O O O O O O O O O O O  |
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| Manchy Road Pert Service Access Corce Access Corce Access Corce Access AAA AAA AAA AAA AAA AAA AAA AAA AAA   | 13 307 4 400 0 Number Road 425 225 225 4 100 445 4718 100 100 100 100 100 100 100 100 100 1   | 56  | Port Service Access 1000   | 345<br>257<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>2<br>3<br>5<br>6<br>7<br>8<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>100<br>0<br>6<br>7<br>8<br>7<br>8<br>8<br>8<br>7<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>7<br>8<br>8<br>8<br>8<br>7<br>8<br>8<br>8<br>8<br>8<br>8<br>7<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8                               | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Househouse Mand  March Service Access  March Service Access  Grant Access  Grant Access  March Service  March S | 54 128 20 248 0 0 248 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 337 337 337 337 337 337 337 337 337 337  | O 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                        | A160 20% A160 33% A160 A160 A160 A160 A160 A160 A160 A160  | Conto Access  10006  Conto Access  10006  Conto Access  10006  |
| Manchy Road Come Access Come Access Self-Vision Access Come Access Self-Vision Access AAA AAA AAA AAA AAA AAA AAA AAA AAA  | 131 132 14 133 14 135 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18   | Manhy Road  Manhy | 1  | 345<br>237<br>2<br>30<br>0<br>0<br>828<br>100%<br>67%<br>A160<br>91%<br>19%<br>67%<br>A160<br>372<br>230<br>0<br>0   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Househouse Manda Manda Panda Germa Manda Manda Panda Germa Manda M | 94 128 0 0 20 0 18umber Road 56 10 0 215 10 10 115 115 115 115 115 115 115 115   | 337 32 32 32 32 32 32 32 32 32 32 32 32 32   | O 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0                        | 452 238 7 6 1 1 4 160 61% 20% 67% 100% 100% 100% 100% 100% 100% 100% 10  | Conto Access  10006  Conto Access  10006  Conto Access  10006  |
| Manchy Road Prote Society And Society  | 11 1 20 2 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | 6 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | The Service Assets 100%.  Part Service Assets 100%.  Part Service Assets 100%.  Part Service Assets 110%.  Part Service Assets 11 | 345 257 2 10 0 0 A150 67% A150 67% A150 67% A150 67% A150 A150 A150 A150 A150 A150 A150 A150   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Househ Road Marin Service Assess Marin Service Asse | 54 128 20 0 10 10 11 14umber Road 157 17% 17% 10 16 16 10 10 131 137 137 137 14umber Road 15 10 10 10 10 10 10 10 10 10 10 10 10 10  | 33.7 12.1 12.1 12.1 12.1 12.1 12.1 12.1 12   | 0  | A1600 20% A1600 32% A0% A1600 775 244 A1600 A160   | Central Access  100%  Central Access  100% |
| Monely Food of Pert Service Access Caree Acc | 131 132 14 133 14 135 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18   | Manhy Road  Manhy | 1  | 345<br>237<br>2<br>30<br>0<br>0<br>828<br>100%<br>67%<br>A160<br>91%<br>19%<br>67%<br>A160<br>372<br>230<br>0<br>0   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Househouse Manda Manda Panda Germa Manda Manda Panda Germa Manda M | 94 128 0 0 20 0 18umber Road 56 10 0 215 10 10 115 115 115 115 115 115 115 115   | 327 2 2 2 4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2  | 0   1   0   0   0   0   0   0   0   0                          | 452 238 7 6 1 1 6 15 6 15 6 15 6 15 6 15 6 15 6  | Central Access  100%  Central Access  100% |
| Manchy Pand Commandation of Co | 11 137 4 00 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 6 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | The Service Assets 100%.  Part Service Assets 100%.  Part Service Assets 100%.  Part Service Assets 110%.  Part Service Assets 11 | 345 257 2 10 0 0 A160 67% A160 67% A160 67% A160 A160 A160 A160 A160 A160 A160 A160  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Househous Board Marco Ma | 54 128 20 0 10 10 11 14umber Road 157 17% 17% 10 16 16 10 10 131 137 137 137 14umber Road 15 10 10 10 10 10 10 10 10 10 10 10 10 10  | 317 127 127 127 127 127 127 127 127 127 1  | 0  | 452 238 7 6 1 1 4 160 6 15 5 6 15 5 6 15 6 15 6 15 6 15 6  | Central Access  100%  Central Access  100% |

| Humber | Road/ | Rosper | Road |
|--------|-------|--------|------|

North Lincolnshire 004 2021-2025 2021-2032 AM 1.0443 1.1131 PM 1.0434 1.1108

|   |                |             |                     | Baseline  |                  |             |                |
|---|----------------|-------------|---------------------|---|------------------|-------------|----------------|
| PCU<br>AM (7-8)   | Humber Road SW | Rosper Road | Humber Road SE      | PM (16-17)  | Humber Road SW   | Rosner Road | Humber Road SE |
| Humber Road SW  | 0              |             | 380                 | Humber Road SW  | 0                | 178         | 190            |
| Rosper Road   | 0              |             | 201                 | Rosper Road   | 0                | 0           | 345            |
| Humber Road SE  | 0              | 0           | 0                   | Humber Road SE  | 0                | 0           | 0              |
| HGVs  |                |             |                     |   |                  |             |                |
| AM  |                |             |                     | PM  |                  |             |                |
|   | Humber Road SW |             | Humber Road SE      |   | Humber Road SW   | Rosper Road | Humber Road SE |
| Humber Road SW  | 0              | 60          | 195                 | Humber Road SW  | 0                | 97          | 165            |
| Rosper Road   | 0              |             | 138                 | Rosper Road   | 0                | 0           | 119            |
| Humber Road SE  | 0              | 0           | 0                   | Humber Road SE  | 0                | 0           | 0              |
|   |                |             | Committ             | ted Development                                       |                  |             |                |
| PCU<br>AM   | Humber Road SW | Rosper Road | Humber Road SE      | PM  | Humber Road SW   | Rosper Road | Humber Road SE |
| Humber Road SW<br>Rosper Road<br>Humber Road SE               | Humber Road Sw | 353         | 89<br>26            | Humber Road SW<br>Rosper Road<br>Humber Road SE       | Tullibel Road 3W | 24          | 9 318          |
| HGVs<br>AM<br>Humber Road SW<br>Rosper Road<br>Humber Road SF | Humber Road SW | Rosper Road | Humber Road SE<br>8 | PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SF | Humber Road SW   | Rosper Road | Humber Road SE |
| number Road SE  |                |             |                     |   |                  |             |                |
| PCU   |                |             | Propose             | ed Development  |                  |             |                |
| AM (7-8)  |                | Immingham   |                     | PM (17-18)  |                  | Stena       |                |
|   | Humber Road SW | Rosper Road | Humber Road SE      |   | Humber Road SW   | Rosper Road | Humber Road SE |
| Humber Road SW  | 0              | 0           | 30                  | Humber Road SW  | 0                | 0           | 40             |
| Rosper Road   | 0              | 0           | 0                   | Rosper Road   | 0                | 0           | 0              |
| Humber Road SE  | 0              | 0           | 0                   | Humber Road SE  | 0                | 0           | 0              |
| HGVs  |                |             |                     |   |                  |             |                |
| AM  |                |             |                     | PM  |                  |             |                |
|   | Humber Road SW |             | Humber Road SE      |   | Humber Road SW   | Rosper Road | Humber Road SE |
| Humber Road SW  | 0              | 0           | 12                  | Humber Road SW  | 0                | 0           | 16             |
| Rosper Road   | 0              |             | 0                   | Rosper Road   | 0                | 0           | 0              |
| Humber Road SE  | 0              | 0           | 0                   | Humber Road SE  | 0                | 0           | 0              |

| 2025 Baseline   |   |  |   |   |  |   |
|---|---|--|---|---|--|---|
| PCU<br>AM   |   |  |   | PM  |  |   |
| AW  | Humber Road SW  | Rosper Road  | Humber Road SE  | FIVI  | Humber Road SW Rosper Road   | Humber Road SE  |
| Humber Road SW  | 0   | 345  | 397   | Humber Road SW  | 0 186  | 198   |
| Rosper Road   | 0   | 0  | 210   | Rosper Road   | 0 0  | 360   |
| Humber Road SE  | 0   | 0  | 0   | Humber Road SE  | 0 0  | 0   |
| HGV %   |   |  |   |   |  |   |
| AM  |   |  |   | PM  |  |   |
| Humber Road SW  | Humber Road SW  | Rosper Road<br>18%   | Humber Road SE<br>51%   | Humber Road SW  | Humber Road SW Rosper Road<br>54%  | Humber Road SE<br>87%   |
| Rosper Road SW  |   | 18%  | 51%<br>69%  | Rosner Road SW  | 54%  | 34%   |
| Humber Road SE  |   |  |   | Humber Road SE  |  |   |
|   |   |  |   |   |  |   |
| 2025 Baseline + Co<br>PCU   | mmitted   |  |   |   |  |   |
| AM  |   |  |   | PM  |  |   |
|   | Humber Road SW  |  | Humber Road SE  |   |  | Humber Road SE  |
| Humber Road SW  | 0   | 697  | 486   | Humber Road SW  | 0 210  | 207   |
| Rosper Road<br>Humber Road SE   | 0   | 0  | 236<br>0  | Rosper Road<br>Humber Road SE   | 0 0  | 678<br>0  |
| Humber Koad SE  | U   | U  | U   | Humber Koad SE  | 0 0  | U   |
| HGV %   |   |  |   |   |  |   |
| AM  |   |  |   | PM  |  |   |
| Humber Road SW  | Humber Road SW  | Rosper Road<br>9%  | Humber Road SE<br>43%   | Humber Road SW  | Humber Road SW Rosper Road<br>48%  | Humber Road SE<br>83%   |
| Rosper Road SW  |   | 9%   | 43%<br>61%  | Rosper Road   | 48%  | 83%<br>18%  |
| Humber Road SE  |   |  | 01/0  | Humber Road SE  |  | 1070  |
|   |   |  |   |   |  |   |
|   | mmitted + Developm  | ient   |   |   |  |   |
| PCU<br>AM   |   |  |   | PM  |  |   |
| AW  | Humber Road SW  | Rosper Road  | Humber Road SE  | rivi  | Humber Road SW Rosper Road   | Humber Road SE  |
| Humber Road SW  | 0   | 697  | 516   | Humber Road SW  | 0 210  | 247   |
| Rosper Road   | 0   | 0  | 236   | Rosper Road   | 0 0  | 678   |
| Humber Road SE  | 0   | 0  | 0   | Humber Road SE  | 0 0  | 0   |
| HGV %   |   |  |   |   |  |   |
| AM  |   |  |   | PM  |  |   |
|   | Humber Road SW  |  | Humber Road SE  |   | Humber Road SW Rosper Road   |   |
| Humber Road SW<br>Rosper Road   |   | 9%   | 43%<br>61%  | Humber Road SW<br>Rosper Road   | 48%  | 76%<br>18%  |
| Humber Road SE  |   |  | 0170  | Humber Road SE  |  | 10/0  |
|   |   |  |   |   |  |   |
|   |   |  |   |   |  |   |
| 2032 Baseline   |   |  |   |   |  |   |
| 2032 Baseline<br>PCU<br>AM  |   |  |   | PM  |  |   |
| PCU   | Humber Road SW  | Rosper Road  | Humber Road SE  | PM  |  | Humber Road SE  |
| PCU<br>AM<br>Humber Road SW   | 0   | 760  | 522   | Humber Road SW  | 0 198  | 211   |
| PCU<br>AM<br>Humber Road SW<br>Rosper Road  | 0   | 760<br>0   | 522<br>253  | Humber Road SW<br>Rosper Road   | 0 198<br>0 0   | 211<br>383  |
| PCU<br>AM<br>Humber Road SW   | 0   | 760  | 522   | Humber Road SW  | 0 198  | 211   |
| PCU<br>AM<br>Humber Road SW<br>Rosper Road  | 0   | 760<br>0   | 522<br>253  | Humber Road SW<br>Rosper Road   | 0 198<br>0 0   | 211<br>383  |
| PCU<br>AM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE  | 0 0 0   | 760<br>0<br>0  | 522<br>253<br>0   | Humber Road SW<br>Rosper Road   | 0 198<br>0 0<br>0 0  | 211<br>383<br>0   |
| PCU<br>AM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE<br>HGV %<br>AM   | 0   | 760<br>0<br>0<br>Rosper Road   | 522<br>253<br>0<br>Humber Road SE   | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM   | 0 198<br>0 0<br>0 0  | 211<br>383<br>0<br>Humber Road SE   |
| PCU<br>AM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE<br>HGV %<br>AM<br>Humber Road SW   | 0 0 0   | 760<br>0<br>0  | 522<br>253<br>0<br>Humber Road SE<br>51%  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW   | 0 198<br>0 0<br>0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%  |
| PCU<br>AM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE<br>HGV %<br>AM   | 0 0 0   | 760<br>0<br>0<br>Rosper Road   | 522<br>253<br>0<br>Humber Road SE   | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM   | 0 198<br>0 0<br>0 0  | 211<br>383<br>0<br>Humber Road SE   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE   | 0<br>0<br>0<br>Humber Road SW   | 760<br>0<br>0<br>Rosper Road   | 522<br>253<br>0<br>Humber Road SE<br>51%  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road  | 0 198<br>0 0<br>0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE   | 0<br>0<br>0<br>Humber Road SW   | 760<br>0<br>0<br>Rosper Road   | 522<br>253<br>0<br>Humber Road SE<br>51%  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road  | 0 198<br>0 0<br>0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE   | 0<br>0<br>0<br>Humber Road SW   | 760<br>0<br>0<br>Rosper Road   | 522<br>253<br>0<br>Humber Road SE<br>51%  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road  | 0 198<br>0 0<br>0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW 2032 Baseline + Ce PCU  | 0<br>0<br>0<br>Humber Road SW   | 760<br>0<br>0<br>Rosper Road<br>18%  | 522<br>253<br>0<br>Humber Road SE<br>51%  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE  | 0 198<br>0 0<br>0 0<br>0 Humber Road SW Rosper Road S4%  | 211<br>383<br>0<br>Humber Road SE<br>87%  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW 2032 Baseline + Ce PCU  | 0<br>0<br>0<br>Humber Road SW<br>mmitted  | 760<br>0<br>0<br>Rosper Road<br>18%  | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%   | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE  | 0 198<br>0 0<br>0 0<br>0 Humber Road SW Rosper Road S4%  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Ce PCU AM Humber Road SW Rosper Road  | 0<br>0<br>Humber Road SW<br>mmitted<br>Humber Road SW<br>0  | Rosper Road<br>18%<br>Rosper Road<br>1112  | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280   | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE  | 0 198 0 0 0 0 Warner Road SW Rosper Road 54% Humber Road SW Rosper Road 0 222 0 0 222  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Ce AM Humber Road SW  | 0 0 0 0 Humber Road SW mmitted Humber Road SW 0   | 760<br>0<br>0<br>Rosper Road<br>18%<br>Rosper Road<br>1112                                   | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW  | 0 198 0 0 0 0 0 0 White the state of the sta | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%   |
| PCU AM Rosper Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Ce PCU AM Rosper Road Rosper Road   | 0<br>0<br>Humber Road SW<br>mmitted<br>Humber Road SW<br>0  | Rosper Road<br>18%<br>Rosper Road<br>1112  | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280   | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE  | 0 198 0 0 0 0 Warner Road SW Rosper Road 54% Humber Road SW Rosper Road 0 222 0 0 222  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Co PCU AM Humber Road SW Humber Road SW Humber Road SW Humber Road SW   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 760<br>0<br>0<br>Rosper Road<br>18%<br>Rosper Road<br>1112<br>0<br>0                         | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE  | 0 198 0 0 0 0 Washington of the control of the cont | 111<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE   | 0<br>0<br>Humber Road SW<br>mmitted<br>Humber Road SW<br>0  | 760<br>0<br>0<br>Rosper Road<br>18%<br>Rosper Road<br>1112<br>0<br>0                         | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SW   | 0 198 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW HGV % AM Humber Road SW   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 760<br>0<br>0<br>Rosper Road<br>18%<br>Rosper Road<br>1112<br>0<br>0                         | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE PM Humber Road SE PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW   | 0 198 0 0 0 0 Washington of the control of the cont | 111<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 760<br>0<br>0<br>Rosper Road<br>18%<br>Rosper Road<br>1112<br>0<br>0                         | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SE<br>PM<br>Humber Road SW<br>Rosper Road<br>Humber Road SW   | 0 198 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Co PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SE HGV % AM Rosper Road Humber Road SSE  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Rosper Road 1112 0 0 0 Rosper Road 9%  | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE PM Humber Road SE PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road  | 0 198 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SSW Rosper Road  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Rosper Road 1112 0 0 0 Rosper Road 9%  | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE PM Humber Road SE PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road  | 0 198 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE HGV KM Rosper Road Humber Road SW Rosper Road Humber Road SE HGV AM Humber Road SE HGV AM Humber Road SW Rosper Road Humber Road SW  | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Rosper Road 1112 0 0 0 Rosper Road 9%  | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE  | 0 198 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SSE HGV % AM Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SSE 2032 Baseline + Cc   | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Rosper Road 18%  Rosper Road 1112 0 0 Rosper Road 9%   | 522<br>253<br>0<br>Humber Road SE<br>51%<br>69%<br>Humber Road SE<br>611<br>280<br>0  | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SE PM Humber Road SE PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road  | 0 198 0 0 0 0 0 0 Warner Road SW Rosper Road 54% Humber Road SW Rosper Road 0 222 0 0 0 Humber Road SW Rosper Road 48%   | 211<br>383<br>0<br>Humber Road SE<br>87%<br>34%<br>Humber Road SE<br>220<br>701<br>0  |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-   | Humber Road SW  Mmmitted  Humber Road SW  O  O  Humber Road SW  Humber Road SW                                      | Rosper Road 18%  Rosper Road 1112 0 0  Rosper Road 1112 112 Rosper Road 1111                 | 522 253 0  Humber Road SE 51% 69%  Humber Road SE 611 280 0  Humber Road SE 43% 61%   | Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SW  | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Rosper Road Humber Road SE 2002 Baseline + Co PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE PCU AM Humber Road SW Rosper Road  | Humber Road SW  Humber Road SW  Humber Road SW  Humber Road SW  Mumber Road SW  Humber Road SW                      | Rosper Road 18%  Rosper Road 1112 0 0 Rosper Road 9%  Rosper Road 1112 1112                  | 522 253 0 0 Humber Road SE 51% 69% 69% 61% 280 0 0 Humber Road SE 43% 61% 61% 61% 61% 641 280 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road  | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%  Humber Road SE 260 701                             |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SSE HGV % AM Humber Road SSE LGV % AM Humber Road SW Rosper Road | Humber Road SW  Mmmitted  Humber Road SW  O  O  Humber Road SW  Humber Road SW                                      | Rosper Road 18%  Rosper Road 1112 0 0  Rosper Road 1112 112 Rosper Road 1111                 | 522 253 0  Humber Road SE 51% 69%  Humber Road SE 611 280 0  Humber Road SE 43% 61%   | Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SW  | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%   |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE PCU AM Humber Road SW Rosper Road   | Humber Road SW  Humber Road SW  Humber Road SW  Humber Road SW  Mumber Road SW  Humber Road SW                      | Rosper Road 18%  Rosper Road 1112 0 0 Rosper Road 9%  Rosper Road 1112 1112                  | 522 253 0 0 Humber Road SE 51% 69% 69% 61% 280 0 0 Humber Road SE 43% 61% 61% 61% 61% 641 280 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road  | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%  Humber Road SE 260 701                             |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2022 Baseline + Ce PCU AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW AM Humber Road SW Humber Road SW Humber Road SW Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE 2022 Baseline + Ce PCU AM Humber Road SW Rosper Road Humber Road SSE  | Humber Road SW  Humber Road SW  O  0  0  Humber Road SW  Humber Road SW  Mumber Road SW  Humber Road SW  O  0  0  0 | Rosper Road 18%  Rosper Road 1112 0 0  Rosper Road 1112 1112 Rosper Road 9%                  | 522 253 0  Humber Road SE 51% 69%  Humber Road SE 611 280 0  Humber Road SE 61%  Humber Road SE 61%   | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road  | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%  Humber Road SE 070 100  0                          |
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| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE PCU AM Humber Road SE HGV % AM Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SE   | Humber Road SW  Humber Road SW  O  0  0  Humber Road SW  Humber Road SW  Mumber Road SW  Humber Road SW  O  0  0  0 | Rosper Road 18%  Rosper Road 1112 0 0  Rosper Road 1112 1112 Rosper Road 9%                  | 522 253 0 0 Humber Road SE 51% 69% 69% 6 11 280 0 0 Humber Road SE 641 43% 6 11 280 0 0 Humber Road SE 641 1 280 0 0 Humber Road SE 641 4 280 0 0 Humber Road SE 43% 6 11 280 0 0 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SE PM Humber Road SW Rosper Road Humber Road SW | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%  Humber Road SE 600 701 0  Humber Road SE 760 760 0 |
| PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW Rosper Road Humber Road SE 2032 Baseline + Cc PCU AM Humber Road SW Rosper Road Humber Road SE HGV % AM Humber Road SW AM Humber Road SW AM Humber Road SW AM Humber Road SW Rosper Road Humber Road SW   | Humber Road SW  Humber Road SW  O  0  0  Humber Road SW  Humber Road SW  Mumber Road SW  Humber Road SW  O  0  0  0 | Rosper Road 18%  Rosper Road 1112 0 Rosper Road 1112 1112 0 Rosper Road 110 0 Rosper Road 9% | 522 253 0  Humber Road SE 51% 69%  Humber Road SE 611 280 0  Humber Road SE 43% 61%  Humber Road SE 43% 61%   | Humber Road SW Rosper Road Humber Road SE  PM Humber Road SE  PM Humber Road SE  PM Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SE  PM Humber Road SW Rosper Road Humber Road SE  PM Humber Road SE  PM Humber Road SE   | 198  | 211 383 0  Humber Road SE 87% 34%  Humber Road SE 220 701 0  Humber Road SE 83% 18%  Humber Road SE 260 701 0                           |

|   |   |  |   |   |                            | Baseline                                     |   |   |  |  |   |   |
|---|---|--|---|---|----------------------------|--|---|---|--|--|---|---|
| PCU   |   |  |   |   |                            |  |   |   |  |  |   |   |
| AM (7-8)  |   |  |   |   |                            | Ph   | И (16-17)   |   |  |  |   |   |
|   |   | Habrough Road                                |   |   |                            |  |   |   | Habrough Road                                    |  |   |   |
| A160 E  | 1   | 16   |   | 37  | 33                         |  | 160 E   | 10  | 114  | 777  | 66  | 109   |
| Habrough Road   | 145   | 0  |   | 3   | 112                        |  | abrough Road  | 17  | 0  | 39   | 18  | 42  |
| A160 W  | 944   | 38   | 0   | 35  | 246                        |  | 160 W   | 356   | 59   | 0  | 72  | 134   |
| Ulceby Road   | 79  | 8  |   | 0   | 19                         |  | ceby Road   | 31  | 14   | 39   | 0   | 22  |
| E Halton Road   | 46  | 42   | 145   | 9   | 0                          | E  | Halton Road   | 38  | 109  | 198  | 29  | 0   |
| HGVs  |   |  |   |   |                            |  |   |   |  |  |   |   |
| AM  |   |  |   |   |                            | Ph   | d.  |   |  |  |   |   |
|   |   | Habrough Road                                |   |   |                            |  |   |   | Habrough Road                                    |  |   |   |
| A160 E  | 1   | 11   | 343   | 23  | 18                         |  | 160 E   | 10  | 1  | 234  | 28  | 64  |
| Habrough Road   | 194   | 0  | 3   | 1 17  | 5 93                       |  | abrough Road  | 277   | 0  | 0  | 0 23  | 1   |
| A160 W  | 194   | 1  |   | 17  |                            |  | 160 W   |   | 3  |  | 23  |   |
| Ulceby Road   |   | 1  |   |   | 6                          |  | ceby Road   | 16  |  | 15   |   | 11  |
| E Halton Road   | 18  | 3  | 46  | 2   | 0                          | E  | Halton Road   | 16  | 1  | 25   | 4   | 0   |
|   |   |  |   |   | Committ                    | ted Developr                                 | ment  |   |  |  |   |   |
| PCU<br>AM   |   |  |   |   |                            | PA   |   |   |  |  |   |   |
|   | 4160 E  | Habrough Road                                | A160 W  | Lifeolou Road                                   | E Halton Road              | Ph   | -   | A160 E  | Habrough Road                                    | 4160 W   | Hitchin Road  | E Halton Road                               |
| A160 E  | A100 L  | 1  | 326   | OICEUY NOSG                                     | L manion rioso             | 61   | 160 E   | ALCO L  | S. S.  | 138  | Oicedy nosu   | L Handii Noau                               |
|   | 6   |  | 320   |   |                            |  | abrough Road  | 1   | ,  | 138  |   |   |
| Habrough Road<br>A160 W   | 297   |  |   |   |                            |  | abrough Road  | 312   |  |  |   |   |
|   | 237   |  |   |   |                            |  |   | 312   |  |  |   |   |
| Ulceby Road   |   |  |   |   |                            |  | ceby Road   |   |  |  |   |   |
| E Halton Road   |   |  |   |   |                            | E  | Halton Road   |   |  |  |   |   |
| HGVs  |   |  |   |   |                            |  |   |   |  |  |   |   |
| AM  |   |  |   |   |                            | Ph   | d.  |   |  |  |   |   |
|   | A160 E  | Habrough Road                                | A160 W  | Ulceby Road                                     | E Halton Road              |  |   | A160 E  | Habrough Road                                    | A160 W   | Ulceby Road   | E Halton Road                               |
| A160 E  |   | . 0  | 4   |   |                            | A1   | 160 E   |   | . 0  | 0  |   |   |
| Habrough Road   | 0   |  |   |   |                            | Ha   | abrough Road  | 0   |  |  |   |   |
| A160 W  | 8   |  |   |   |                            | A1   | 160 W   | 0   |  |  |   |   |
| Ulceby Road   |   |  |   |   |                            | UI   | ceby Road   |   |  |  |   |   |
| Halton Road   |   |  |   |   |                            |  | Halton Road   |   |  |  |   |   |
|   |   |  |   |   | Propose                    | ed Developm                                  | ent   |   |  |  |   |   |
| PCU<br>AM (7-8)   |   | Imminaham                                    |   |   |                            |  | M (17-18)   |   | Stena  |  |   |   |
|   |   |  |   |   |                            |  |   |   |  |  | Harby Bread   | E Halton Br - 1                             |
| ()  |   |  | A160 W  | History Road                                    |                            |  |   | 4160 E  |  |  |   |   |
|   |   | Habrough Road                                |   |   | E Halton Road              |  |   |   | Habrough Road                                    |  |   |   |
| A160 E  | 0   | Habrough Road<br>2                           | 17  | 0   | 0                          |  | 160 E   | 0   | 2  | 23   |   | 0   |
| A160 E<br>Habrough Road   | 0   | Habrough Road<br>2<br>0                      | 17  | 0   | 0                          | Ha   | 160 E<br>abrough Road   | 0   | 2 0  | 23<br>0  | 0   | 0   |
| A160 E<br>Habrough Road<br>A160 W   | 0<br>0<br>29                                    | Habrough Road<br>2<br>0<br>0                 | 17<br>0<br>0  | 0   | 0                          | Ha<br>A1                                     | 160 E<br>abrough Road<br>160 W  | 0<br>0<br>38                                    | 2<br>0<br>0                                      | 23<br>0<br>0   | 0   | 0   |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road  | 0<br>29<br>0                                    | Habrough Road<br>2<br>0<br>0                 | 17<br>0<br>0  | 0 0   | 0 0                        | A1<br>UI                                     | 160 E<br>abrough Road<br>160 W<br>ceby Road   | 0<br>0<br>38<br>0                               | 2<br>0<br>0                                      | 23<br>0<br>0   | 0 0   | 0 0   |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road  | 0<br>0<br>29                                    | Habrough Road<br>2<br>0<br>0                 | 17<br>0<br>0  | 0   | 0                          | A1<br>UI                                     | 160 E<br>abrough Road<br>160 W  | 0<br>0<br>38                                    | 2<br>0<br>0                                      | 23<br>0<br>0   | 0   | 0   |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road<br>E Halton Road   | 0<br>29<br>0                                    | Habrough Road<br>2<br>0<br>0                 | 17<br>0<br>0  | 0 0   | 0 0                        | Ha<br>Ad<br>Uli<br>E i                       | 160 E<br>abrough Road<br>160 W<br>iceby Road<br>Halton Road                               | 0<br>0<br>38<br>0                               | 2<br>0<br>0                                      | 23<br>0<br>0   | 0 0   | 0 0   |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road<br>E Halton Road   | 0<br>29<br>0<br>0                               | Habrough Road<br>2<br>0<br>0<br>0            | 17<br>0<br>0<br>0   | 0<br>0<br>0<br>0                                | 0<br>0<br>0<br>0           | A1<br>UI                                     | 160 E<br>abrough Road<br>160 W<br>iceby Road<br>Halton Road                               | 0<br>0<br>38<br>0<br>0                          | 2<br>0<br>0<br>0                                 | 23<br>0<br>0<br>0<br>0                               | 0 0 0 0   | 0   |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road<br>E Halton Road<br>HGVs                                   | 0<br>29<br>0<br>0                               | Habrough Road  2 0 0 0 0 Habrough Road       | 17<br>0<br>0<br>0<br>0  | 0<br>0<br>0<br>0<br>0                           | 0<br>0<br>0<br>0<br>0      | A3<br>UI<br>E1                               | L60 E<br>abrough Road<br>L60 W<br>ceby Road<br>Halton Road                                | 0<br>38<br>0<br>0                               | 2<br>0<br>0<br>0<br>0                            | 23<br>0<br>0<br>0<br>0                               | 0<br>0<br>0<br>0<br>0                               | 0<br>0<br>0<br>0                            |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road<br>E Halton Road<br>HGVs<br>AM                             | 0<br>29<br>0<br>0<br>0                          | Habrough Road  2 0 0 0 0 Habrough Road 0     | 17<br>0<br>0<br>0<br>0<br>0   | 0<br>0<br>0<br>0<br>0<br>Uliceby Road           | 0<br>0<br>0<br>0<br>0      | HI<br>A3<br>UI<br>E1                         | L60 E<br>abrough Road<br>L60 W<br>ceby Road<br>Halton Road<br>M                           | 0<br>0<br>38<br>0<br>0<br>0                     | 2<br>0<br>0<br>0<br>0<br>0<br>Habrough Road      | 23<br>0<br>0<br>0<br>0<br>0                          | 0<br>0<br>0<br>0<br>0                               | E Halton Road                               |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road<br>E Halton Road<br>HGVs<br>AM<br>A160 E<br>Habrough Road  | 0<br>29<br>0<br>0<br>0<br>A160 E                | Habrough Road  2 0 0 0 0 Habrough Road 0 0   | 17<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>A160 W   | 0<br>0<br>0<br>0<br>0<br>Uliceby Road<br>0      | 0<br>0<br>0<br>0<br>0      | HI<br>A3<br>UI<br>E1<br>PM<br>A3<br>Hi       | L60 E<br>abrough Road<br>L60 W<br>ceby Road<br>Halton Road<br>M                           | 0<br>0<br>38<br>0<br>0<br>0                     | 2<br>0<br>0<br>0<br>0<br>0<br>Habrough Road      | 23<br>0<br>0<br>0<br>0<br>0<br>0<br>A160 W           | 0<br>0<br>0<br>0<br>0<br>Ulceby Road<br>0           | E Halton Road                               |
| A160 E Habrough Road A160 W Ulceby Road E Halton Road HGVs AM A160 E Habrough Road                          | 0<br>0<br>29<br>0<br>0<br>0<br>A160 E<br>0<br>0 | Habrough Road  2 0 0 0 0 0 Habrough Road 0 0 | 17<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  | 0<br>0<br>0<br>0<br>0<br>Uliceby Road<br>0<br>0 | 0<br>0<br>0<br>0<br>0<br>0 | HI<br>A3<br>UI<br>E1<br>PM<br>A3<br>HI<br>A3 | 160 E<br>abrough Road<br>160 W<br>seeby Road<br>Halton Road<br>W<br>160 E<br>abrough Road | 0<br>0<br>38<br>0<br>0<br>0<br>A160 E<br>0<br>0 | 2<br>0<br>0<br>0<br>0<br>0<br>Habrough Road<br>0 | 23<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 0<br>0<br>0<br>0<br>0<br>0<br>Ulceby Road<br>0<br>0 | 0<br>0<br>0<br>0<br>0<br>E Halton Road<br>0 |
| A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road<br>E Halton Road<br>HGVs<br>AAM<br>A160 E<br>Habrough Road | 0<br>29<br>0<br>0<br>0<br>A160 E                | Habrough Road  2 0 0 0 0 Habrough Road 0 0   | 17<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 | 0<br>0<br>0<br>0<br>0<br>Uliceby Road<br>0      | 0<br>0<br>0<br>0<br>0      | HI<br>A3<br>UI<br>E1<br>PM<br>A3<br>HI<br>A3 | L60 E<br>abrough Road<br>L60 W<br>ceby Road<br>Halton Road<br>M                           | 0<br>0<br>38<br>0<br>0<br>0                     | 2<br>0<br>0<br>0<br>0<br>0<br>Habrough Road      | 23<br>0<br>0<br>0<br>0<br>0<br>0<br>A160 W           | 0<br>0<br>0<br>0<br>0<br>Ulceby Road<br>0           | 0<br>0<br>0<br>0<br>0<br>E Halton Road<br>0 |

North Lincolnshire 004 2021-2025 2021-2032 AM 1.0443 1.1131 PM 1.0434 1.1108

|                         |           |                 | A160/ L   | liceby Road        | / Habrough Ro | oad                   |           |                      |         |                    |                      |
|-------------------------|-----------|-----------------|-----------|--------------------|---------------|-----------------------|-----------|----------------------|---------|--------------------|----------------------|
| 2021 Baseline           |           |                 |           |                    |               |                       |           |                      |         |                    |                      |
| PCU                     |           |                 |           |                    |               |                       |           |                      |         |                    |                      |
| AM                      |           |                 |           |                    |               | PM                    |           |                      |         |                    |                      |
| A160 F                  | A160 E    | Habrough Road   | A160 W    | Ulceby Road<br>37  | E Halton Road | A160 F                | A160 E    | Habrough Road        | A160 W  | Ulceby Road<br>66  | E Halton Road        |
| A160 E<br>Habrough Road | 145       | 16              | 420<br>51 | 37                 | 33<br>112     |                       | 10        | 114                  | 777     | 66<br>18           | 109<br>42            |
|                         | 944       |                 | 51        | 35                 |               | Habrough Road         |           |                      |         | 18                 |                      |
| A160 W<br>Ulceby Road   | 944<br>79 | 38              | 67        | 35                 | 246<br>19     | A160 W<br>Ulceby Road | 356<br>31 | 59<br>14             | 0<br>39 | 72                 | 134<br>22            |
| E Halton Road           | 46        | 42              | 145       | 9                  | 19            | E Halton Road         | 31        | 14                   | 198     | 29                 | 22                   |
| E HARDII ROAG           | 40        | 42              | 140       | 9                  | · ·           | E Halton Road         | 38        | 109                  | 196     | 29                 |                      |
| HGV %                   |           |                 |           |                    |               |                       |           |                      |         |                    |                      |
| AM                      |           |                 |           |                    |               | PM                    |           |                      |         |                    |                      |
|                         |           | Habrough Road   |           |                    | E Halton Road |                       | A160 E    | Habrough Road        |         |                    | E Halton Road        |
| A160 E                  | 100%      | 69%             | 82%       | 62%                | 55%           | A160 E                | 100%      | 1%                   | 30%     | 42%                | 59%                  |
| Habrough Road           | 1%        |                 | 6%        | 33%                | 4%            | Habrough Road         | 6%        |                      | 0%      | 0%                 | 2%                   |
| A160 W                  | 21%       | 3%              |           | 49%                | 13%           | A160 W                | 78%       | 5%                   |         | 32%                | 37%                  |
| Ulceby Road             | 35%       | 13%             | 22%       |                    | 32%           | Ulceby Road           | 52%       | 7%                   | 38%     |                    | 50%                  |
| E Halton Road           | 39%       | 7%              | 32%       | 22%                |               | E Halton Road         | 42%       | 196                  | 13%     | 14%                |                      |
| 2021 Baseline + 0       | Committe  | nd              |           |                    |               |                       |           |                      |         |                    |                      |
| PCU<br>AM               |           |                 |           |                    |               | PM                    |           |                      |         |                    |                      |
| AM                      | ****      | Habrough Road   | A160 W    | Ulceby Road        | E Halton Road | PM                    | A160 E    | Habrough Road        | *****   | Hereby Based       | E Halton Road        |
| A160 E                  | A100 E    | naprougn noad   | 746       | Oliceby Road<br>37 | E Halton Road | A160 E                | 10        | nabrough koad<br>119 | 915     | GENDY ROAD         | 109                  |
| Habrough Road           | 151       | 17              | 51        | 3/                 | 112           | Habrough Road         | 18        | 119                  | 39      | 18                 | 42                   |
| A160 W                  | 1181      | 98              | 51        | 35                 | 112<br>246    | A160 W                | 18<br>668 | 59                   | 39      | 18<br>72           | 134                  |
| Ulceby Road             | 1181      | 38              | 67        | 35                 | 246<br>19     | A160 W<br>Ulceby Road | 31        |                      | 39      | 72                 | 134<br>22            |
| E Halton Road           | 46        | 42              | 145       | 9                  | 19            | E Halton Road         | 38        | 14                   | 198     | 29                 | - 22                 |
|                         |           | **              | 240       |                    |               | E Hallon Hoad         | 30        | 209                  | 230     |                    |                      |
| HGV %<br>AM             |           |                 |           |                    |               | PM                    |           |                      |         |                    |                      |
| Am                      | ****      | Habrough Road   | A160 W    | Ulceby Road        | E Halton Road | rm                    | A160 E    | Habrough Road        | A160 W  | I for the state of | E Halton Road        |
| A160 E                  | 100%      | 65%             | 46%       | 62%                | SS%           | A160 F                | 100%      | nabrough Road        | 26%     | 42%                | E Harton Road<br>59% |
| Habrough Road           | 196       | 03%             | 6%        | 33%                | 25%           | Habrough Road         | 6%        | 176                  | 0%      | 42%                | 39%                  |
| A160 W                  | 17%       | 946             | 076       | 49%                | 13%           | A160 W                | 42%       | 5%                   | 0%      | 32%                | 37%                  |
| Ulceby Road             | 35%       | 19%             | 22%       | 4976               | 32%           | Ulceby Road           | 52%       | 7%                   | 38%     | 32%                | 50%                  |
| E Halton Road           | 39%       | 7%              | 32%       | 22%                | 32%           | E Halton Road         | 42%       | 1%                   | 13%     | 14%                | 50%                  |
|                         |           |                 |           |                    |               |                       |           |                      |         |                    |                      |
| 2021 Baseline + 0       | Committe  | d + Development |           |                    |               |                       |           |                      |         |                    |                      |
| AM                      |           |                 |           |                    |               | PM                    |           |                      |         |                    |                      |
|                         | A160 E    | Habrough Road   | A160 W    | Ulceby Road        | E Halton Road |                       | A160 E    | Habrough Road        |         | Ulceby Road        | E Halton Road        |
| A160 E                  | 1         | 19              | 763       | 37                 | 33            | A160 E                | 10        | 121                  | 938     | 66                 | 109                  |
| Habrough Road           | 151       | 0               | 51        | 3                  | 112           | Habrough Road         | 18        | 0                    | 39      | 18                 | 42                   |
| A160 W                  | 1210      | 38              | 0         | 35                 | 246           | A160 W                | 706       | 59                   | 0       | 72                 | 134                  |
| Ulceby Road             | 79        | 8               | 67        | 0                  | 19            | Ulceby Road           | 31        | 14                   | 39      | 0                  | 22                   |
| E Halton Road           | 46        | 42              | 145       | 9                  | 0             | E Halton Road         | 38        | 109                  | 198     | 29                 | 0                    |
| HGV %                   |           |                 |           |                    |               |                       |           |                      |         |                    |                      |
| AM                      |           |                 |           |                    |               | PM                    |           |                      |         |                    |                      |
|                         |           | Habrough Road   |           |                    | E Halton Road |                       | A160 E    | Habrough Road        |         |                    | E Halton Road        |
| A160 E                  | 100%      | 59%             | 46%       | 62%                | 55%           | A160 E                | 100%      | 1%                   | 26%     | 42%                | 59%                  |
| Habrough Road           | 1%        |                 | 6%        | 33%                | 4%            | Habrough Road         | 6%        |                      | 0%      | 0%                 | 2%                   |
| A160 W                  | 18%       | 3%              |           | 49%                | 13%           | A160 W                | 42%       | 5%                   |         | 32%                | 37%                  |
| Ulceby Road             | 35%       | 13%             | 22%       |                    | 32%           | Ulceby Road           | 52%       | 7%                   | 38%     |                    | 50%                  |
| E Halton Road           | 39%       | 7%              | 32%       | 22%                |               | E Halton Road         | 42%       | 196                  | 13%     | 14%                |                      |
|                         |           |                 |           |                    |               |                       |           |                      |         |                    |                      |

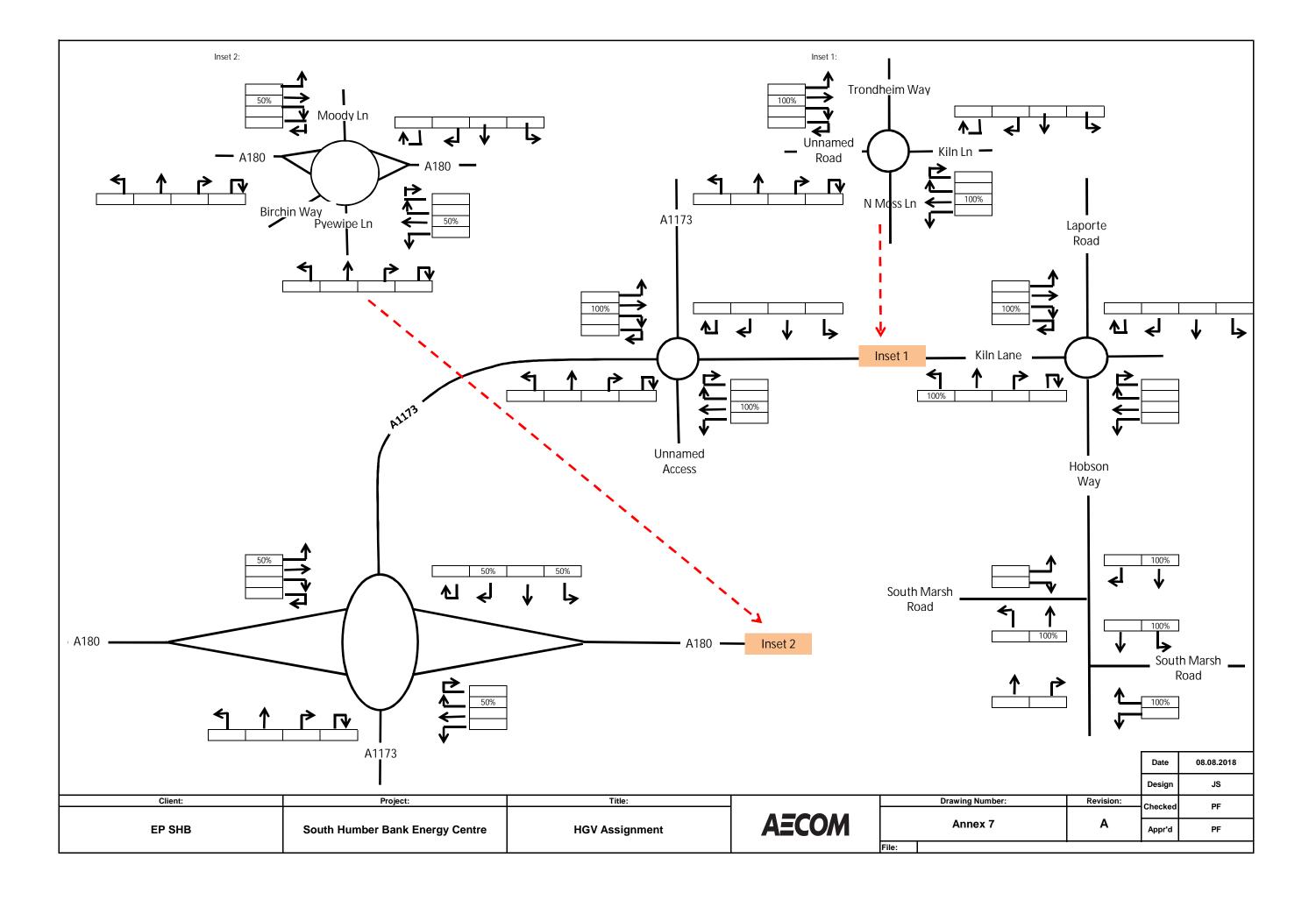
| 25 Baseline<br>U         |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
|--------------------------|--------------|----------------------|---------------|--------------------|----------------------|------------------------------|------------|----------------------|----------------|--------------------|----------------------|
| Ä.                       |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        | A160 W        | Ulceby Road        | E Halton Road        |                              | A160 E     | Habrough Road        |                | Ulceby Road        | E Halton Road        |
| 60 E<br>ibrough Road     | 1<br>151     | 17                   | 439<br>53     | 39                 | 34<br>117            | A160 E<br>Habrough Road      | 10<br>18   | 119<br>0             | 811<br>41      | 69<br>19           | 114<br>44            |
| 60 W                     | 986          | 40                   | 33            | 37                 | 257                  | A160 W                       | 371        | 62                   | 41             | 75                 | 140                  |
| ceby Road                | 82           | 8                    | 70            | 0                  | 20                   | Ulceby Road                  | 32         | 15                   | 41             | 0                  | 23                   |
| Halton Road              | 48           | 44                   | 151           | 9                  | 0                    | E Halton Road                | 40         | 114                  | 207            | 30                 | 0                    |
| 5V %                     |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| 4                        |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        | A160 W        | Ulceby Road        | E Halton Road        |                              | A160 E     | Habrough Road        | A160 W         | Ulceby Road        | E Halton Road        |
| 60 E                     | 100%         | 69%                  | 82%           | 62%                | 55%                  | A160 E                       | 100%       | 1%                   | 30%            | 42%                | 59%                  |
| ibrough Road<br>60 W     | 1%<br>21%    | 3%                   | 6%            | 33%<br>49%         | 4%<br>13%            | Habrough Road<br>A160 W      | 6%<br>78%  | 5%                   | 0%             | 0%<br>32%          | 2%<br>37%            |
| ceby Road                | 35%          | 13%                  | 22%           | 49%                | 32%                  | Ulceby Road                  | 52%        | 7%                   | 38%            | 32%                | 50%                  |
| Halton Road              | 39%          | 7%                   | 32%           | 22%                |                      | E Halton Road                | 42%        | 1%                   | 13%            | 14%                |                      |
| 25 Raseline e Cn         |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
|                          | mmitted      |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| u<br>u                   |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        |               | Ulceby Road        | E Halton Road        |                              | A160 E     | Habrough Road        |                | Ulceby Road        | E Halton Road        |
| 60 E                     | 1            | 18                   | 765           | 39                 | 34                   | A160 E                       | 10         | 124                  | 949            | 69                 | 114                  |
| ibrough Road<br>60 W     | 157<br>1223  | 0<br>40              | 53<br>0       | 3<br>37            | 117<br>257           | Habrough Road<br>A160 W      | 18<br>683  | 0<br>62              | 41             | 19<br>75           | 44<br>140            |
| ceby Road                | 82           | 8                    | 70            | 0                  | 20                   | Ulceby Road                  | 32         | 15                   | 41             | ,,                 | 23                   |
| Halton Road              | 48           | 44                   | 151           | 9                  | 0                    | E Halton Road                | 40         | 114                  | 207            | 30                 | 0                    |
| 5V%                      |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| 3V%<br>A                 |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        | A160 W        |                    | E Halton Road        |                              | A160 E     | Habrough Road        | A160 W         | Ulceby Road        | E Halton Road        |
| 60 E                     | 100%         | 65%                  | 46%           | 62%                | 55%                  | A160 E                       | 100%       | 1%                   | 26%            | 42%                | 59%                  |
| ibrough Road             | 1%           |                      | 6%            | 33%                | 4%                   | Habrough Road                | 6%         |                      | 0%             | 0%                 | 2%                   |
| 60 W                     | 17%<br>35%   | 3%<br>13%            | 22%           | 49%                | 13%<br>32%           | A160 W<br>Ulceby Road        | 42%<br>52% | 5%                   | 38%            | 32%                | 37%<br>50%           |
| ceby Road<br>Halton Road | 39%          | 7%                   | 32%           | 22%                | 32%                  | E Halton Road                | 42%        | 7%<br>1%             | 13%            | 14%                | 50%                  |
|                          |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| 25 Baseline + Co         | mmitted +    | Development          |               |                    |                      |                              |            |                      |                |                    |                      |
| u<br>a                   |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        | A160 W        | Ulceby Road        | E Halton Road        | PM                           | A160 E     | Habrough Road        | A160 W         | Ulceby Road        | E Halton Road        |
| 60 E                     | 1            | 19                   | 782           | 39                 | 34                   | A160 E                       | 10         | 126                  | 972            | 69                 | 114                  |
| ibrough Road             | 157          | 0                    | 53            | 3                  | 117                  | Habrough Road                | 18         | 0                    | 41             | 19                 | 44                   |
| 60 W                     | 1251         | 40                   | 0             | 37                 | 257                  | A160 W                       | 722        | 62                   | 0              | 75                 | 140                  |
| ceby Road<br>Halton Road | 82<br>48     | 8 44                 | 70<br>151     | 0                  | 20                   | Ulceby Road<br>E Halton Road | 32<br>40   | 15<br>114            | 41<br>207      | 0<br>30            | 23<br>0              |
|                          | 40           | **                   | 151           | ,                  |                      | E Hallon Road                | 40         | 114                  | 207            | 30                 |                      |
| 5V %                     |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| А                        | A160 E       |                      |               |                    | E Halton Road        | PM                           | A160 E     |                      | A160 W         |                    |                      |
| 60 E                     | 100%         | Habrough Road<br>50% | A160 W        | Ulceby Road<br>62% | E Hallon Road<br>55% | A160 F                       | 100%       | Habrough Road        | 26%            | Ulceby Road<br>42% | E Halton Road<br>59% |
| ibrough Road             | 1%           | 3974                 | 6%            | 33%                | 4%                   | Hahrniigh Broad              | 6%         | 2.00                 | 0%             | 0%                 | 2%                   |
| 60 W                     | 18%          | 3%                   |               | 49%                | 13%                  | A160 W                       | 42%        | 5%                   |                | 32%                | 37%                  |
| ceby Road                | 35%          | 13%                  | 22%           |                    | 32%                  | Ulceby Road                  | 52%        | 7%                   | 38%            |                    | 50%                  |
| Halton Road              | 39%          | 7%                   | 32%           | 22%                |                      | E Halton Road                | 42%        | 1%                   | 13%            | 14%                |                      |
| 32 Baseline              |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| U                        |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| А                        |              |                      | A160 W        |                    |                      | PM                           |            |                      | 4160 W         |                    |                      |
| 60 E                     | A160 E       | Habrough Road<br>18  | A160 W<br>468 | Ulceby Road<br>41  | E Halton Road<br>37  | A160 E                       | A160 E     | Habrough Road<br>127 | A160 W<br>863  | Ulceby Road<br>73  | E Halton Road<br>121 |
| ibrough Road             | 161          | 0                    | 468<br>57     | 3                  | 125                  | Habrough Road                | 19         | 127                  | 43             | 20                 | 47                   |
| 60 W                     | 1051         | 42                   | 0             | 39                 | 274                  | A160 W                       | 395        | 66                   | 0              | 80                 | 149                  |
| ceby Road                | 88           | 9                    | 75            | 0                  | 21                   | Ulceby Road                  | 34         | 16                   | 43             | 0                  | 24                   |
| Halton Road              | 51           | 47                   | 161           | 10                 | 0                    | E Halton Road                | 42         | 121                  | 220            | 32                 | 0                    |
| 5V%                      |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| A.                       |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        |               | Ulceby Road        | E Halton Road        |                              |            | Habrough Road        |                | Ulceby Road        | E Halton Road        |
| 60 E<br>ibrough Road     | 100%<br>1%   | 69%                  | 82%<br>6%     | 62%<br>33%         | 55%<br>4%            | A160 E<br>Habrough Road      | 100%       | 1%                   | 30%            | 42%<br>0%          | 59%                  |
| 60 W                     | 21%          | 3%                   | 0%            | 49%                | 13%                  | A160 W                       | 78%        | 5%                   | 0%             | 32%                | 2%<br>37%            |
| ceby Road                | 35%          | 13%                  | 22%           |                    | 32%                  | Ulceby Road                  | 52%        | 7%                   | 38%            |                    | 50%                  |
| Halton Road              | 39%          | 7%                   | 32%           | 22%                |                      | E Halton Road                | 42%        | 1%                   | 13%            | 14%                |                      |
| 82 Raseline e Co         | mmitted      |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| U                        |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| A .                      |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
| 60 E                     | A160 E       | Habrough Road<br>19  | A160 W<br>794 | Ulceby Road<br>41  | E Halton Road<br>37  | A160 E                       | A160 E     | Habrough Road<br>132 | A160 W<br>1001 | Ulceby Road<br>73  | E Halton Road<br>121 |
| ibrough Road             | 167          | 19                   | 57            | 3                  | 125                  | Habrough Road                | 19         | 132                  | 43             | 20                 | 47                   |
| 60 W                     | 1288         | 42                   | 0             | 39                 | 274                  | A160 W                       | 707        | 66                   | 0              | 80                 | 149                  |
| ceby Road                | 88           | 9                    | 75            | 0                  | 21                   | Ulceby Road                  | 34         | 16                   | 43             | 0                  | 24                   |
| Halton Road              | 51           | 47                   | 161           | 10                 | 0                    | E Halton Road                | 42         | 121                  | 220            | 32                 | 0                    |
| SV %                     |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| 4                        |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          |              | Habrough Road        |               | Ulceby Road        | E Halton Road        |                              |            | Habrough Road        |                | Ulceby Road        | E Halton Road        |
| 60 E<br>ibrough Road     | 100%         | 65%                  | 46%<br>6%     | 62%<br>33%         | 55%<br>4%            | A160 E<br>Habrough Road      | 100%       | 1%                   | 26%            | 42%<br>0%          | 59%<br>2%            |
| 60 W                     | 17%          | 3%                   | 0.4           | 49%                | 13%                  | A160 W                       | 42%        | 5%                   | 0.4            | 32%                | 37%                  |
| ceby Road<br>Halton Road | 35%          | 13%                  | 22%           |                    | 32%                  | Ulceby Road                  | 52%        | 7%                   | 38%            |                    | 50%                  |
| Halton Road              | 39%          | 7%                   | 32%           | 22%                |                      | E Halton Road                | 42%        | 1%                   | 13%            | 14%                |                      |
| 32 Baseline + Co         |              | B                    |               |                    |                      |                              |            |                      |                |                    |                      |
| U                        | ····minted + | Development          |               |                    |                      |                              |            |                      |                |                    |                      |
| a .                      |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        | A160 W        | Ulceby Road        | E Halton Road        |                              | A160 E     | Habrough Road        | A160 W         | Ulceby Road        | E Halton Road        |
| 60 E<br>ibrough Road     | 1<br>167     | 21<br>0              | 810<br>57     | 41<br>3            | 37<br>125            | A160 E<br>Habrough Road      | 11<br>19   | 133                  | 1024<br>43     | 73<br>20           | 121<br>47            |
| 60 W                     | 1316         | 42                   | 0             | 39                 | 125<br>274           | A160 W                       | 746        | 66                   | 43             | 20<br>80           | 149                  |
| ceby Road                | 88           | 9                    | 75            |                    | 21                   | Ulceby Road                  | 34         | 16                   | 43             | 0                  | 24                   |
| Halton Road              | 51           | 47                   | 161           | 10                 | 0                    | E Halton Road                | 42         | 121                  | 220            | 32                 | 0                    |
| 5V%                      |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
| 4 N                      |              |                      |               |                    |                      | PM                           |            |                      |                |                    |                      |
|                          | A160 E       | Habrough Road        | A160 W        | Ulceby Road        | E Halton Road        |                              | A160 E     | Habrough Road        | A160 W         | Ulceby Road        | E Halton Road        |
| 60 E                     | 100%         | 59%                  | 46%           | 62%                | 55%                  | A160 E                       | 100%       | 1%                   | 26%            | 42%                | 59%                  |
| ibrough Road             | 1%           | 3%                   | 6%            | 33%<br>49%         | 4%                   | Habrough Road<br>A160 W      | 6%<br>42%  | 5%                   | 0%             | 0%<br>32%          | 2%<br>276            |
| 60 W<br>ceby Road        | 35%          | 13%                  | 22%           | 49%                | 13%<br>32%           | Ulceby Road                  | 42%<br>52% | 7%                   | 38%            | 32%                | 37%<br>50%           |
| Halton Road              | 39%          | 7%                   | 32%           | 22%                |                      | E Halton Road                | 42%        | 1%                   | 13%            | 14%                | 2274                 |
|                          |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
|                          |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |
|                          |              |                      |               |                    |                      |                              |            |                      |                |                    |                      |

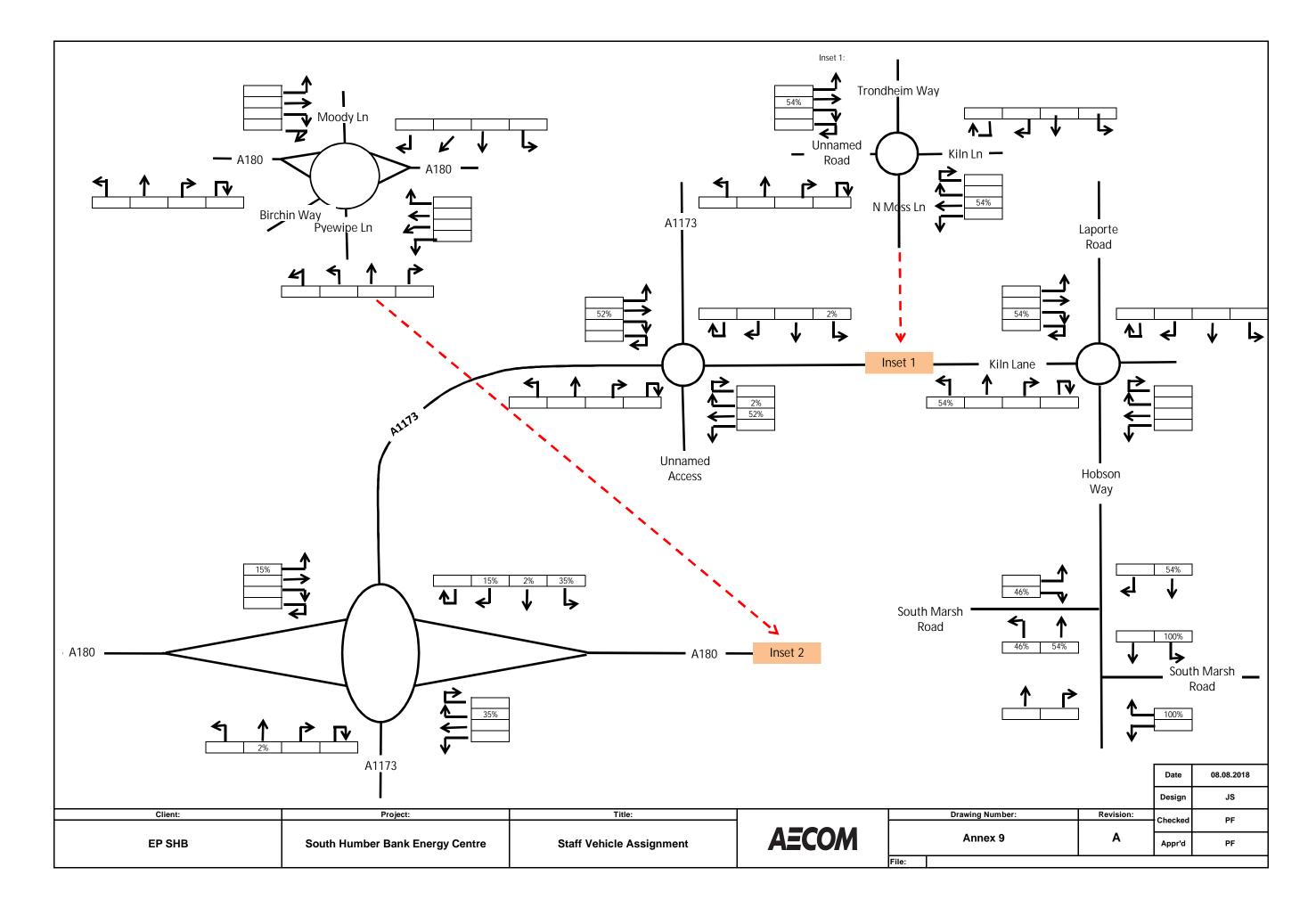
| PCU AMM (7-8)  A1173 N A180 E A1173 S A180 W  A1173 N 0 105 18 69  A180 E 597 0 85 2  A1173 S 114 175 0 85  A180 W 281 0 11 0  HGVs  AM  AIT3 N A180 E A1173 S A180 W  A1173 N 180 E A1173 S A180 W  A1173 N 0 21 8 50 | PM [16:17] A1173 N A180 E A1173 S A180 W A1173 N O 584 146 255 A180 E 151 0 204 0 A1173 S 21 124 0 25 A180 W 93 1 62 0  PM A1173 N A180 E A1173 S A180 W A1173 N 0 14 9 63 | North East Lincolnshire 007<br>202: 2025 2021-2032<br>AM 10:09 1.0683<br>PM 1,0255 1.0649 | 2021 Baseline<br>PCU<br>AM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 105 18 69<br>A180 E 597 0 86 2<br>A1173 S 114 175 0 85<br>A180 W 221 0 11 0<br>HGV%<br>AM A1173 N A180 E A1173 A180 W<br>A1173 N 20% 44% 72% | A180/ A1173  PM  A1173 N A180E A1173 S A180 W  A1173 N 0 584 146 255  A180 E 515 0 204 0  A1173 S 21 124 0 25  A180 W 93 1 62 0  PM  A1173 N A180E A1173 A180 W  A1173 N A10E A1173 S A180 W  A1173 N 256 6% 255 | 2025 Baseline<br>PCU<br>AM A1173 N A180E A1173 S A180 W<br>A1173 N 0 108 18 71<br>A180E 613 0 88 2<br>A1173 S 117 180 0 87<br>A180 W 289 0 11 0<br>HGV %<br>AM A1173 N A180E A173 S A180 W<br>A1173 N 20% 44% 72% | PM A1173 N A180 E A1173 S A180 W A1173 N 0 599 150 262 A180 E E ISS 0 209 0 A1173 S 22 127 0 26 A180 W 51 1 64 0 PM A1173 N A180 W A1173 N 28 6 6 25% | 2022 Baseline PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 112 19 74 A180 E 638 0 92 2 A1173 S 122 197 0 91 A180 W 300 0 12 0 HGV% AM A1173 N A180 E A1173 S A180 W | PM A1173 N A180 E A1173 S A180 W A1173 N 0 622 155 272 A180 E 61 0 217 0 A1173 S 22 132 0 27 A180 W 99 1 66 0 PM A1173 N A180 W A1173 N A180 E 61 25 66 25 6 |
|--|--|---|--|--|---|---|---|--|
| A180 E 30 0 4 0<br>A1173 S 4 2 0 3<br>A180 W 68 0 2 0  | A180 E 18 0 7 0<br>A1173 S 7 1 0 2<br>A180 W 73 0 5 0  |   | A180 E 5% 5% 0%<br>A1173 S 4% 1% 4%<br>A180 W 24% 18%  | A180 E 12% 3%<br>A1173 S 33% 1% 8%<br>A180 W 78% 0% 8%   | A180 E 5% 5% 0%<br>A1173 S 4% 1% 4%<br>A180 W 24% 18%   | A180 E 12% 3%<br>A1173 S 33% 1% 8%<br>A180 W 78% 0% 8%  | A180 E 5% 5% 0%<br>A1173 S 4% 1% 4%<br>A180 W 24% 18%   | A180 E 12% 3%<br>A1173 S 33% 1% 8%<br>A180 W 78% 0% 8%   |
| PCU Committed II AM A1173 N A180 E A1173 S A180 W A1173 N 70 8 65 A180 E 170 17 A1173 18 69 32 A180 W 202 8  | PM A1173 N A180 E A1173 S A180 W A1173 N 162 19 182 A180 E 54 67 A1173 S 10 40 18 A180 C 64 31   |   | 2021 Baseline + Committed PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 175 26 271 A180 E 767 0 103 2 A1173 S 132 244 0 117 A180 W 483 0 19 0   | PM A1173 N A180 E A1173 S A180 W A1173 N 0 746 165 437 A180 E 205 0 271 0 A1173 S 31 164 0 43 A180 W 157 1 93 0  | 2025 Baseline + Committed PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 178 27 273 A180 E 783 0 105 2 A1173 S 135 249 0 119 A180 W 490 0 19 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 760 169 444<br>A180 E 208 0 276 0<br>A1173 32 167 0 44<br>A180 W 160 1 95 0                             | 2032 Baseline + Committed PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 182 27 276 A130 E 808 0 109 2 A1173 S 139 256 0 123 A180 W 502 0 20 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 783 175 454<br>A180 E 214 0 284 0<br>A1173 S 33 172 0 45<br>A180 W 163 1 97 0  |
| HGVs<br>AM A1173 N A180 E A1173 S A180 W<br>A1173 N 23 2 40<br>A180 E 26<br>A1173 S 2<br>A180 W 38   | PM A1173N A180E A1173S A180 W<br>A1173N S 2 19<br>A180E B<br>A11735 4<br>A180 W 38   |   | HGV %<br>AM 1173 N A180 E A1173 S A180 W<br>A1172 N 25% 38% 33%<br>A180 E 7% 4% 0%<br>A1173 S 4% 1% 3%<br>A180 W 22% 11%   | PM A1173 N A180 E A1173 S A180 W A1173 N 3% 6% 19% A180 E 13% 3% 41173 S 34% 1% 5% A180 W 71% 0% 5%  | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 38% 33% A180 E 7% 4% 0% A1173 S 4% 1% 1% 1% 1% 1%  | PM A1173 N A180 E A1173 S A180 W A1173 N A180 E 3173 S A180 W A180 E 35 S A180 E 35 S A180 W 35 S A180 W 725 S 55 S                                   | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 225% 38% 33% A180 E 7% 4% 0% A1173 S 4% 1% 3% A180 W 22% 11%   | PM A1173 N A180 E A1173 S A180 W A1173 N A180 E A1173 S A180 W A180 E A1173 S A180 W A1173 S A180 W  |
| Proposed D AM (7-8) Imminisham A1173 N A180E A1173 S A180 W A1173 N 0 3 4 89 A180E 3 0 0 0 A1173 N 7 0 0 0 A1173 N 1173 S 0 0 0 A180 W 154 0 0 0   | PM (17-18) Stens A1173 N A180 E A1173 S A180 W A1173 N 0 3 5 124 A180 E 3 0 0 0 A1173 S 9 0 0 0 A1873 S 9 0 0 0  |   | 2021 Baseline + Committed + Development PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 178 30 360 A180 E 770 0 103 2 A1173 S 128 244 0 117 A180 W 637 0 19 0   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 749 171 561<br>A180 E 207 0 271 0<br>A1173 S 41 164 0 43<br>A180 W 364 1 93 0  | 2025 Baseline + Committed + Development PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 181 30 362 A180 E 786 0 105 2 A1173 S 141 249 0 119 A180 W 644 0 19 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 763 175 567<br>A180 E 211 0 276 0<br>A1173 S 41 167 0 44<br>A180 W 367 1 95 0                           | 2032 Baseline + Committed + Development PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 185 31 365 A130 E 811 0 109 2 A1173 S 146 256 0 123 A180 W 656 0 20 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 786 1180 577<br>A180 E 217 0 284 0<br>A1173 S 42 172 0 45<br>A180 W 370 1 97 0   |
| HGVs<br>AM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 0 2 35<br>A180 E 0 0 0 0 0<br>A1173 S 3 0 0 0<br>A180 W 63 0 0 0   | PM A1173 N A180 E A1173 S A180 W A1173 N 0 0 0 2 50 A180 E 0 0 0 0 A1173 S 4 0 0 0 A1173 S 4 0 0 0 A1173 S 4 0 0 0 A180 W 86 0 0 0   |   | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 39% 35% A180 E 7% 4% 0% A1173 S 6% 1% 3% A180 W 26% 11%   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 3% 8% 23%<br>A180 E 13% 3% 5%<br>A1173 S 36% 1% 5%<br>A180 W 54% 0% 5%   | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 39% 35% A180 E 7% 4% 0% A1173 S 6% 1% 3% A180 W 26% 111%   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 3% 8% 23%<br>A180 E 13% 3%<br>A1173 S 36% 1% 5%<br>A180 W 54% 0% 5%                                       | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 225% 39% 35% A180 E 7% 4% 0% A1173 S 6% 1% 3% A180 W 26% 11%   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 3% 8% 22%<br>A180 E 13% 3%<br>A1173 S 36% 1% 5%<br>A180 W 54% 0% 5%  |

|                                      |                                      |                                     |                                      | A160/ A180                           |                                      |                                      |                                      |                                      |
|--------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Baselin                              | ne                                   |                                     | 2021 Baseline                        |                                      | 2025 Baseline                        |                                      | 2032 Baseline                        |                                      |
| PCU                                  |                                      | North East Lincolnshire 001         | PCU                                  |                                      | PCU                                  |                                      | PCU                                  |                                      |
| AM (7-8)                             | PM (16-17)                           | 2021-2025 2021-2032                 | AM                                   | PM                                   | AM                                   | PM                                   | AM                                   | PM                                   |
| A160 A180 E A180 W<br>A160 0 140 538 | A160 A180 E A180 W<br>A160 0 346 707 | AM 1.0298 1.0773<br>PM 1.0291 1.075 | A160 A180 E A180 W<br>A160 0 140 538 | A160 A180 E A180 W<br>A160 0 346 707 | A160 A180 E A180 W<br>A160 0 144 554 | A160 A180 E A180 W<br>A160 0 356 728 | A160 A180 E A180 W<br>A160 0 151 580 | A160 A180 E A180 W<br>A160 0 372 760 |
| A160 0 140 538<br>A180 E 447 0 0     | A180 E 140 2 0                       | PM 1.0291 1.075                     | A180 U 140 538<br>A180 E 447 O O     | A180 E 140 2 0                       | A180 U 144 554<br>A180 E 460 U U     | A180 U 356 728<br>A180 E 144 2 0     | A180 U 151 580<br>A180 E 482 U 0     | A180 U 372 760<br>A180 E 151 2 0     |
| A180 E 447 0 0<br>A180 W 817 0 1     | A180 E 140 2 0<br>A180 W 488 0 0     |                                     | A180 E 447 0 0<br>A180 W 817 0 1     | A180 E 140 2 0<br>A180 W 488 0 0     | A180 W 841 0 1                       | A180 E 144 2 0<br>A180 W 502 0 0     | A180 E 482 0 0<br>A180 W 880 0 1     | A180 E 151 2 0<br>A180 W 525 0 0     |
| A180 W 817 0 1                       | A180 W 488 U U                       |                                     | A180 W 817 0 1                       | A180 W 488 0 0                       | A180 W 841 U I                       | A180 W 502 0 0                       | A180 W 880 0 1                       | A180 W 525 U U                       |
| HGVs                                 |                                      |                                     | HGV %                                |                                      | HGV %                                |                                      | HGV %                                |                                      |
| AM                                   | PM                                   |                                     | AM                                   | PM                                   | AM                                   | PM                                   | AM                                   | PM                                   |
| A160 A180 E A180 W                   | A160 A180 E A180 W                   |                                     | A160 A180 E A180 W                   |
| A160 0 20 393                        | A160 0 12 264                        |                                     | A160 14% 73%                         | A160 3% 37%                          | A160 14% 73%                         | A160 3% 37%                          | A160 14% 73%                         | A160 3% 37%                          |
| A180 E 12 0 0                        | A180 E 13 0 0                        |                                     | A180 E 3%                            | A180 E 9% 0%                         | A180 E 3%                            | A180 E 9% 0%                         | A180 E 3%                            | A180 E 9% 0%                         |
| A180 W 234 0 0                       | A180 W 341 0 0                       |                                     | A180 W 29% 0%                        | A180 W 70%                           | A180 W 29% 0%                        | A180 W 70%                           | A180 W 29% 0%                        | A180 W 70%                           |
| Committed De                         | velopment                            |                                     | 2021 Baseline + Committed            |                                      | 2025 Baseline + Committed            |                                      | 2032 Baseline + Committed            |                                      |
| PCU                                  |                                      |                                     | PCU                                  |                                      | PCU                                  |                                      | PCU                                  |                                      |
| AM                                   | PM                                   |                                     | AM                                   | PM                                   | AM                                   | PM                                   | AM                                   | PM                                   |
| A160 A180 E A180 W                   | A160 A180 E A180 W                   |                                     | A160 A180 E A180 W                   |
| A160 8 48                            | A160 25 113                          |                                     | A160 0 148 585.69                    | A160 0 371 820.23                    | A160 0 152 602                       | A160 0 381 841                       | A160 0 159 627                       | A160 0 397 873                       |
| A180 E 43 368                        | A180 E 7 200                         |                                     | A180 E 490 0 368                     | A180 E 147 2 200                     | A180 E 503 0 368                     | A180 E 151 2 200                     | A180 E 525 0 368                     | A180 E 158 2 200                     |
| A180 W 194 210                       | A180 W 34 366                        |                                     | A180 W 1011 210 1                    | A180 W 522 366 0                     | A180 W 1035 210 1                    | A180 W 536 366 0                     | A180 W 1074 210 1                    | A180 W 559 366 0                     |
| HGVs                                 |                                      |                                     | HGV %                                |                                      | HGV %                                |                                      | HGV %                                |                                      |
| AM                                   | PM                                   |                                     | AM                                   | PM                                   | AM                                   | PM                                   | AM                                   | PM                                   |
| A160 A180 E A180 W                   | A160 A180 E A180 W                   |                                     | A160 A180 E A180 W                   |
| A160 A160 E A160 W                   | A160 A160 E A160 W                   |                                     | A160 A180 E A180 W                   | A160 A160 A160 W                     | A160 A160 E A160 W                   | A160 A160 E A160 W                   | A160 A160 E A160 W                   | A160 A160 A160 W                     |
| A180 E 40                            | A180 E 19                            |                                     | A180 E 2% 11%                        | A180 E 9% 0% 10%                     | A180 E 2% 11%                        | A180 E 9% 0% 10%                     | A180 E 2% 11%                        | A180 E 9% 0% 10%                     |
| A180 W 8 38                          | A180 W 0 38                          |                                     | A180 W 24% 18% 0%                    | A180 W 65% 11%                       | A180 W 24% 18% 0%                    | A180 W 65% 11%                       | A180 W 24% 18% 0%                    | A180 W 65% 11%                       |
| A100 W 0 30                          | A180 W 0 38                          |                                     | A100 W 24% 10% 0%                    | A160 W 05% 11%                       | A100 W 24% 10% U%                    | A180 W 65% 11%                       | A180 W 24% 16% U%                    | A180 W 63% 11%                       |
| Proposed Dev                         | elopment                             |                                     | 2021 Baseline + Committed + Developm | ent                                  | 2025 Baseline + Committed + Developm | ent                                  | 2032 Baseline + Committed + Developm | ent                                  |
| PCU                                  |                                      |                                     | PCU                                  |                                      | PCU                                  |                                      | PCU                                  |                                      |
| AM (7-8) Immingham                   | PM (17-18) Stena                     |                                     | AM                                   | PM                                   | AM                                   | PM                                   | AM                                   | PM                                   |
| A160 A180 E A180 W                   | A160 A180 E A180 W                   |                                     | A160 A180 E A180 W                   |
| A160 0 17 0                          | A160 0 23 0                          |                                     | A160 0 165 586                       | A160 0 394 820                       | A160 0 169 602                       | A160 0 404 841                       | A160 0 175 627                       | A160 0 420 873                       |
| A180 E 29 0 154                      | A180 E 38 0 207                      |                                     | A180 E 519 0 521                     | A180 E 185 2 407                     | A180 E 532 0 521                     | A180 E 190 2 407                     | A180 E 553 0 521                     | A180 E 196 2 407                     |
| A180 W 0 89 0                        | A180 W 0 124 0                       |                                     | A180 W 1011 299 1                    | A180 W 522 490 0                     | A180 W 1035 299 1                    | A180 W 536 490 0                     | A180 W 1074 299 1                    | A180 W 559 490 0                     |
| HGVs                                 |                                      |                                     | HGV %                                |                                      | HGV %                                |                                      | HGV %                                |                                      |
| AM                                   | PM                                   |                                     | AM                                   | PM                                   | AM                                   | PM                                   | AM                                   | PM                                   |
| A160 A180 E A180 W                   | A160 A180 E A180 W                   |                                     | A160 A180 E A180 W                   |
| A160 0 6 0                           | A160 0 9 0                           |                                     | A160 16% 68%                         | A160 5% 32%                          | A160 16% 68%                         | A160 5% 32%                          | A160 16% 68%                         | A160 5% 32%                          |
| A180 E 12 0 63                       | A180 E 16 0 86                       |                                     | A180 E 5% 20%                        | A180 E 16% 0% 26%                    | A180 E 5% 20%                        | A180 E 16% 0% 26%                    | A180 E 5% 20%                        | A180 E 16% 0% 26%                    |
| A180 W 0 35 0                        | A180 W 0 50 0                        |                                     | A180 W 24% 24% 0%                    | A180 W 65% 18%                       | A180 W 24% 24% 0%                    | A180 W 65% 18%                       | A180 W 24% 24% 0%                    | A180 W 65% 18%                       |
|                                      |                                      |                                     | 0/0                                  |                                      |                                      |                                      |                                      |                                      |

#### **Annex TN1 B**

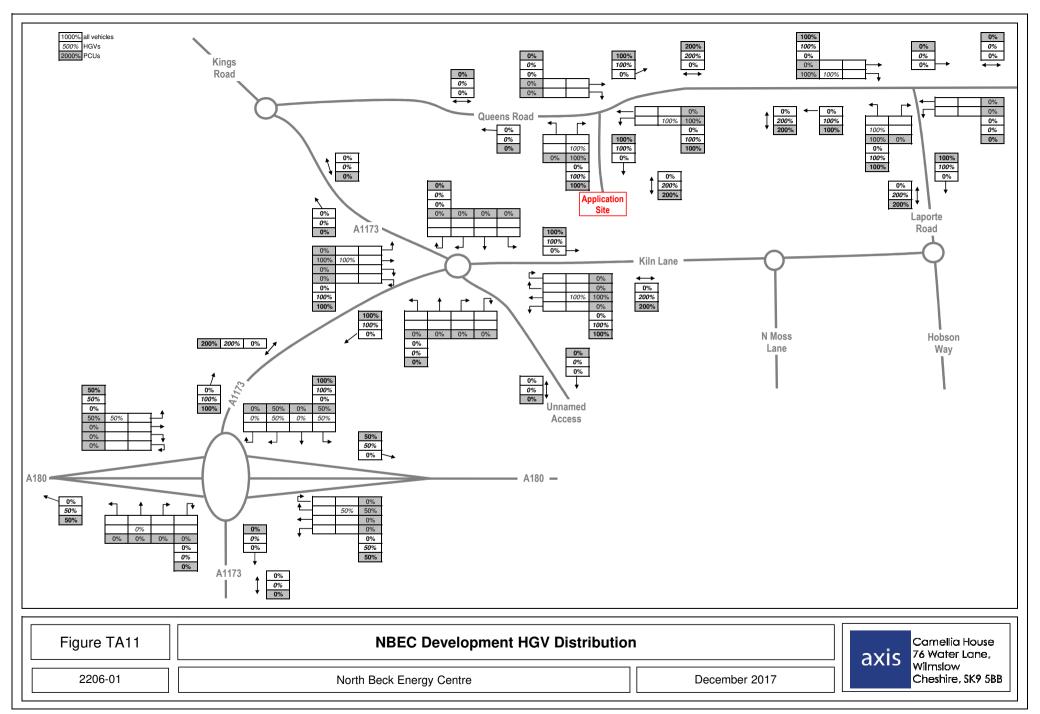
South Humber Bank Power Station

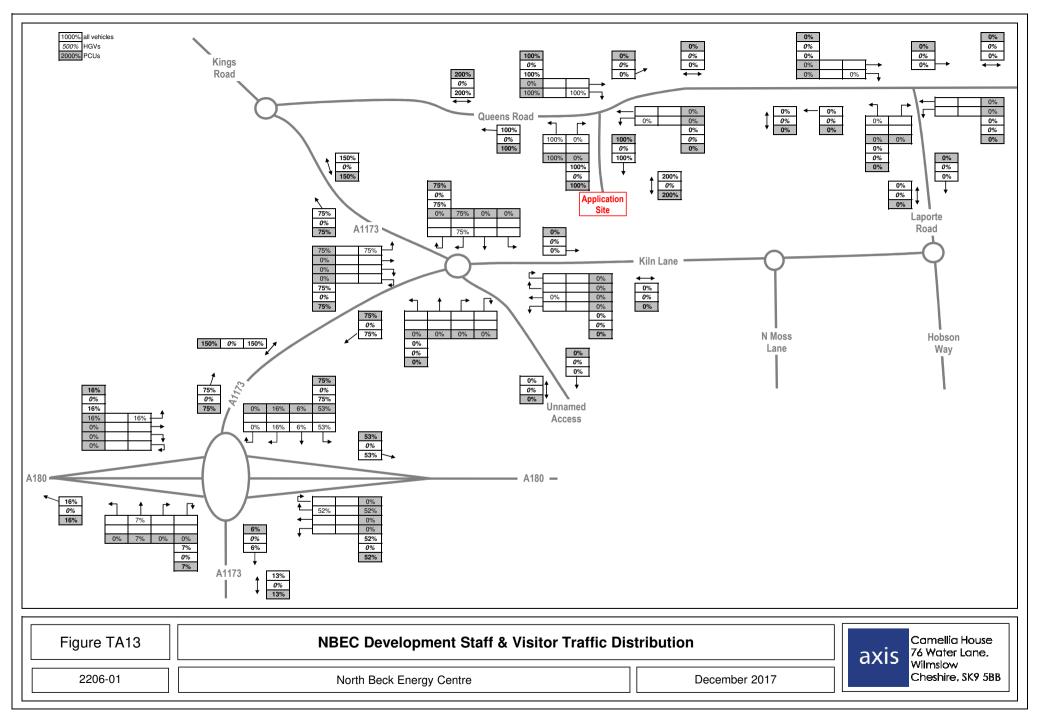




## **Annex TN1 C**

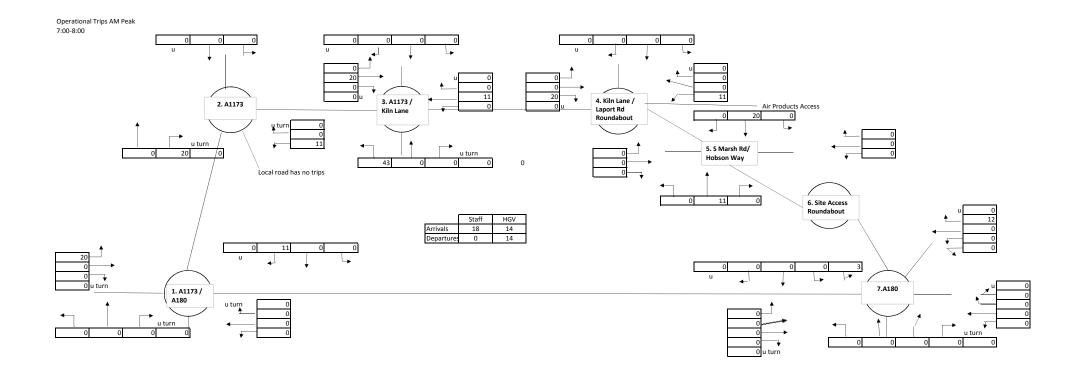
North Beck Energy

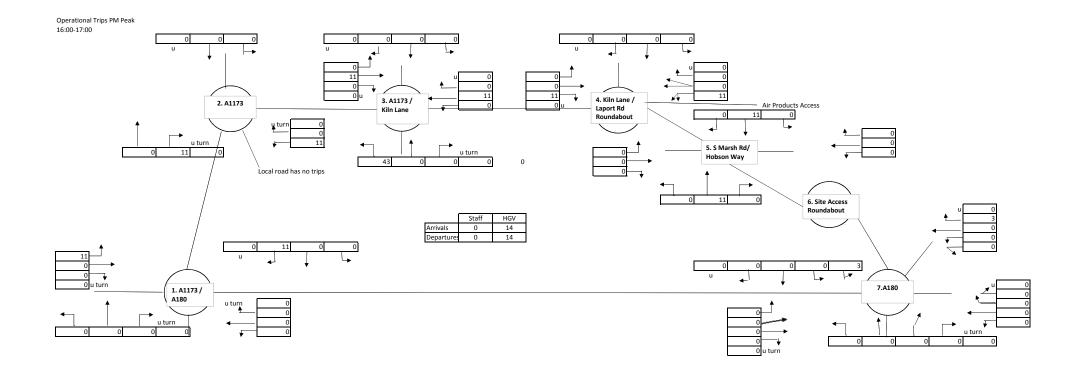




## Annex TN1 D

Velocy's

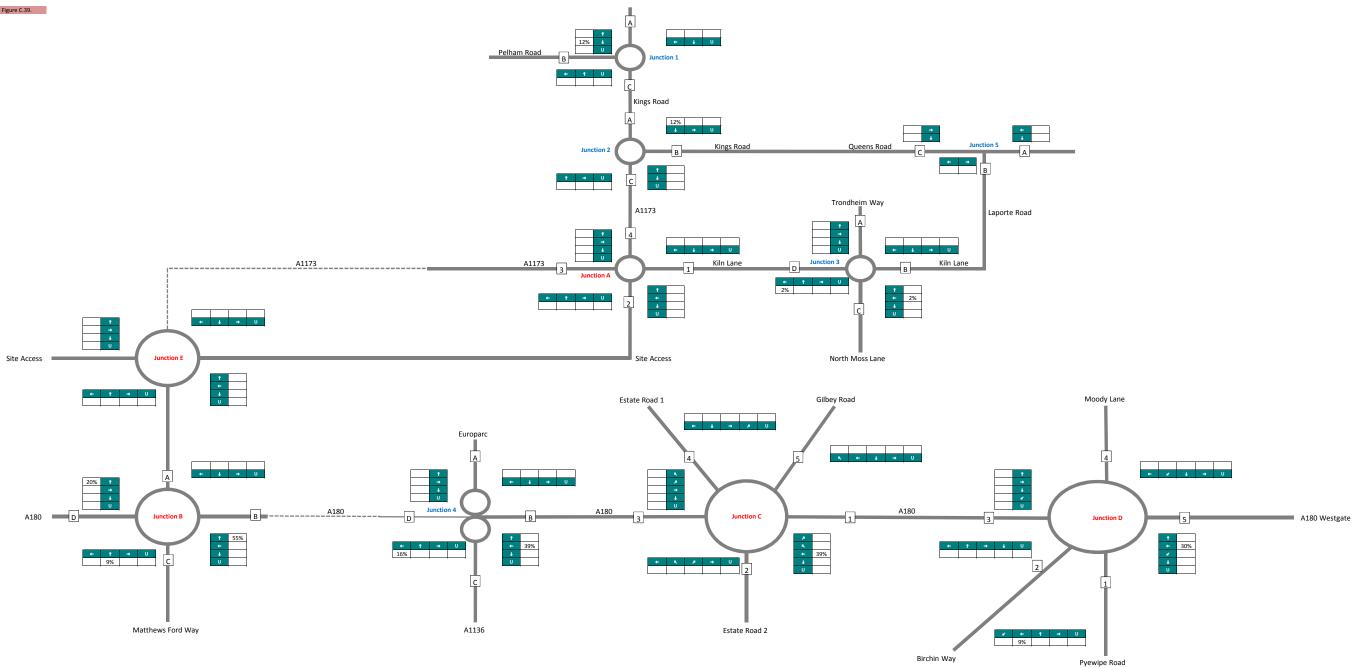




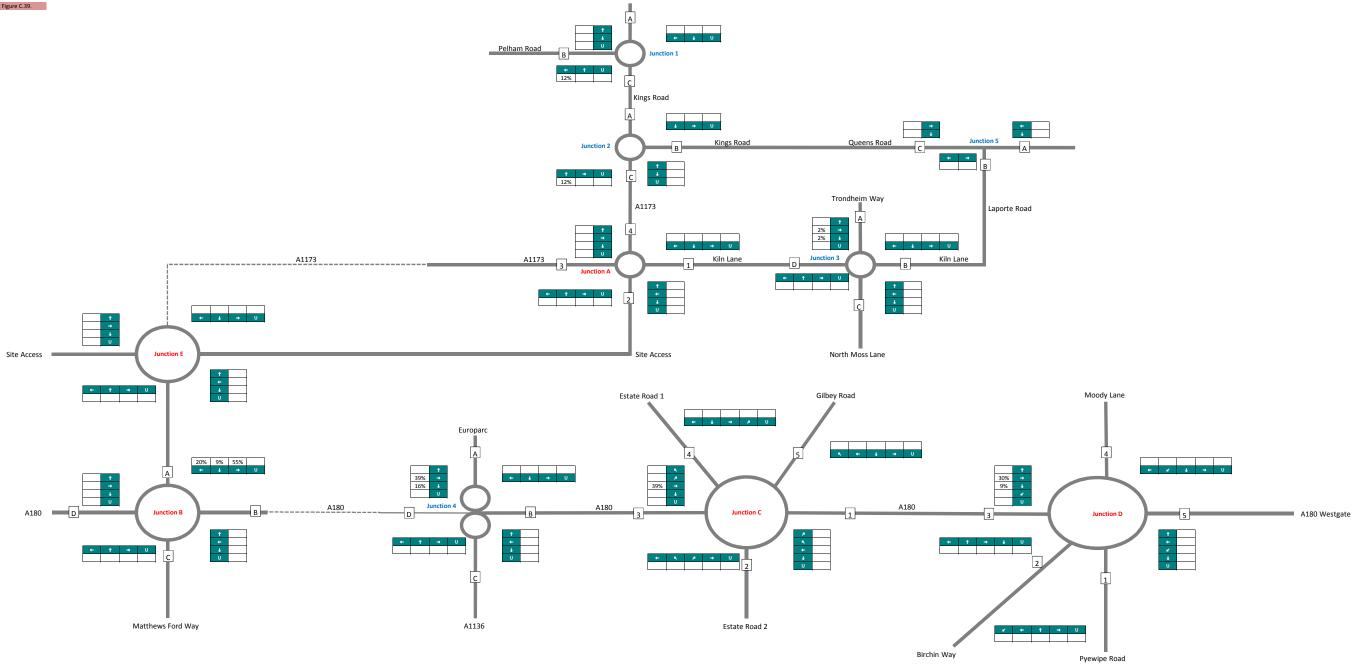
## Annex TN1 E

Stallingborough Interchange

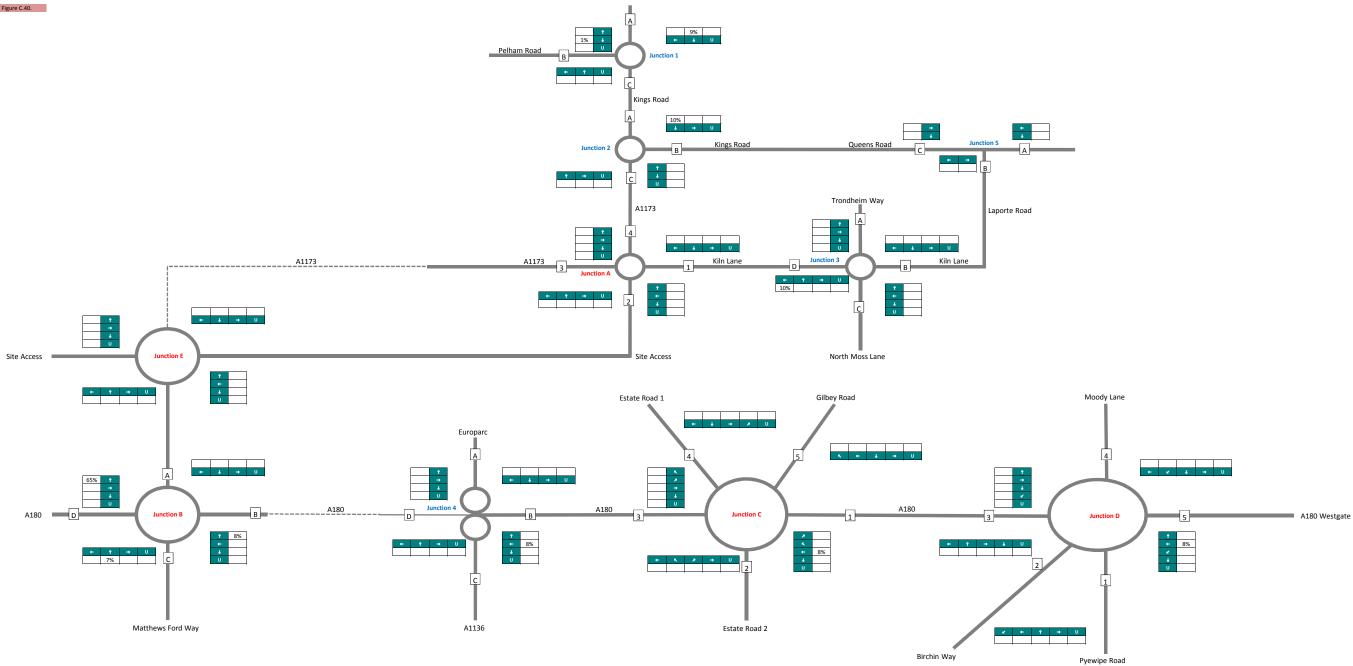




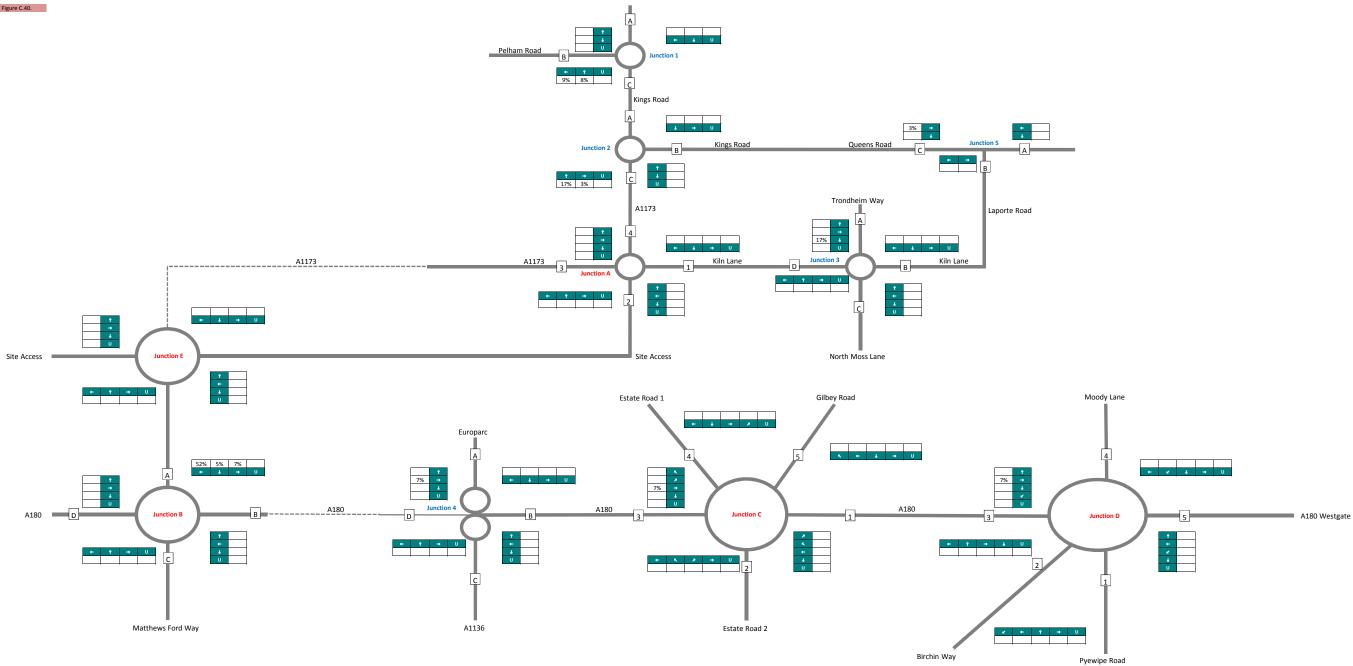






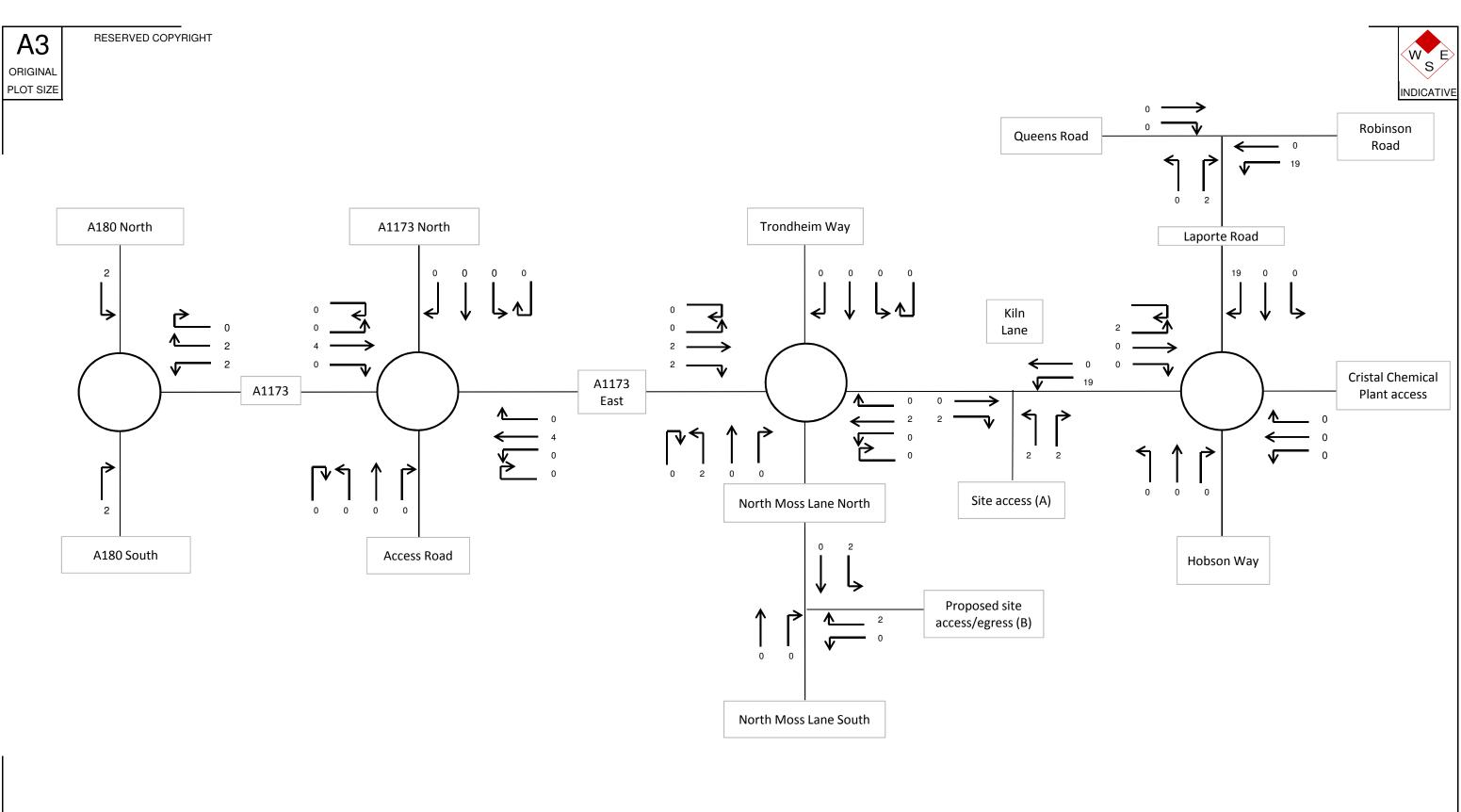






#### **Annex TN1 F**

**Queens Road** 



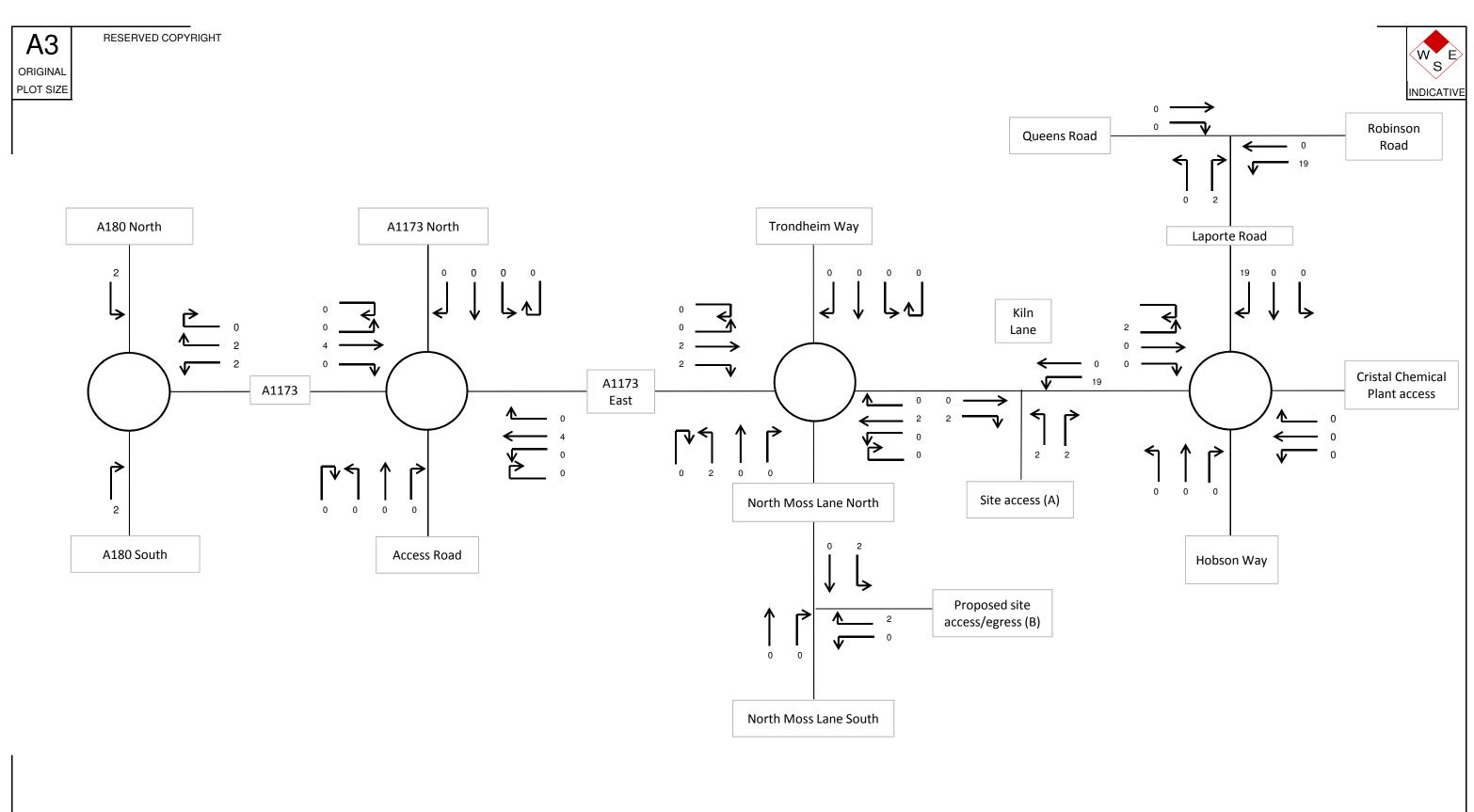
Traffic Flow: Total

Bristol
Cambridge
Cardiff
London
Welwyn Garden City

Transport Planning Assoc
Studio Four
37 Broadwater Road
Welwyn Garden City
AL7 3AX

01707 385 200 www.tpa.uk.com

|    |                                | Date:       | Status: | JS:         |         | Scale: |
|----|--------------------------------|-------------|---------|-------------|---------|--------|
|    | AM peak development trips      | 06/03/15    | 11      | NFORMATIO   | N       | NTS    |
| 25 |                                | Prepared By | : (     | Checked By: | Approv  | ed By: |
|    | Kiln Lane, Stallingborough     | МО          |         | SM          |         | JH     |
|    |                                | Project No: | F       | Figure No:  | Revisio | n:     |
|    | Greatline Developments Limited | 1501-99     | 9       | 5.1         | 197     | -      |



Traffic Flow: Total

Cambridge
Cardiff
London
Welwyn Garden City

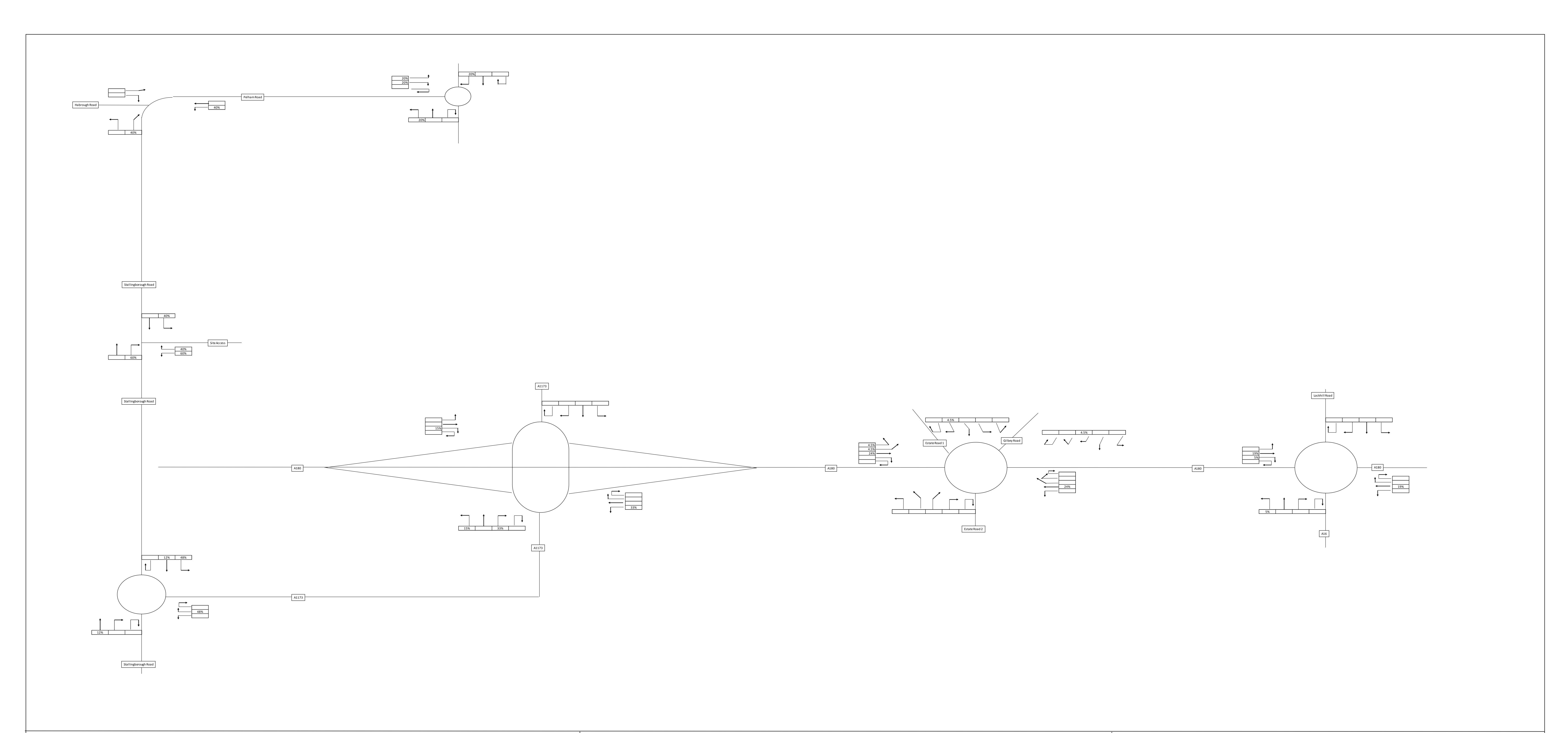
Studio Four
37 Broadwater Road
Welwyn Garden City
AL7 3AX

01707 385 200 www.tpa.uk.com Transport Planning Associates

|       |                                | Date: Status: |     | us:         |          | Scale:              |
|-------|--------------------------------|---------------|-----|-------------|----------|---------------------|
|       | PM peak development trips      | 06/03/15      | 11  | NFORMATION  | 1        | NTS                 |
| iates | Kiln Lane, Stallingborough     | Prepared By:  | : ( | Checked By: | Approve  | ed By:<br><b>JH</b> |
| -     |                                | Project No:   | F   | igure No:   | Revisior | <br>n:              |
|       | Greatline Developments Limited | 1501-99       | •   | 5.2         | 198      | -                   |

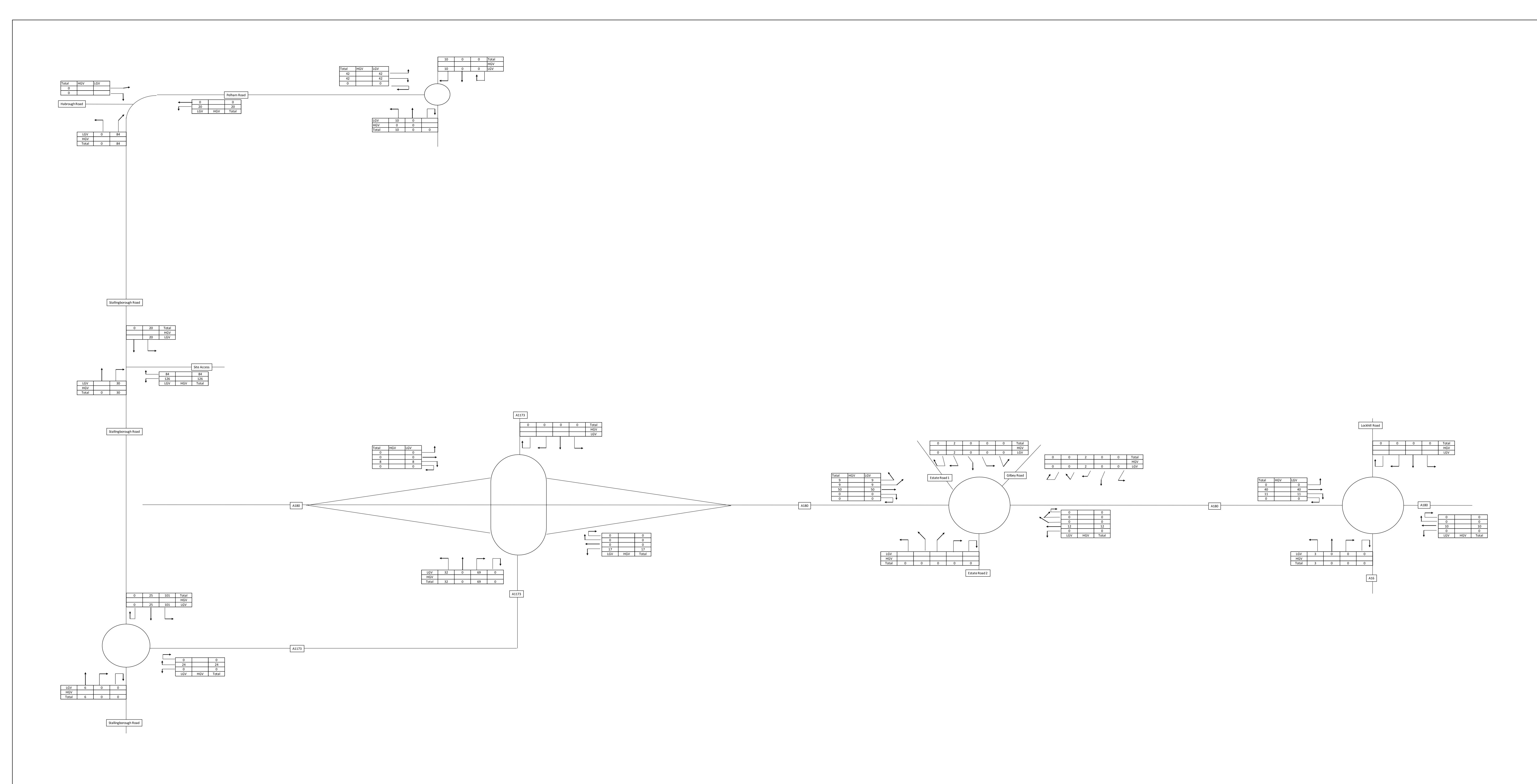
## Annex TN1 G

Highfield House



| BWB                        | BWB Consulting Ltd<br>Fifth Floor<br>Waterfront House<br>35 Station Street<br>Nottingham<br>NG2 3DQ |
|----------------------------|---|
| CONSULTANCY   ENVIRONMENT  | Tel: 0115 924 1100  |
| INFRASTRUCTURE   BUILDINGS | FAX: 0115 950 3966  |

| Project | Land East of Stallingk | orough Road, Imm | ingham   | Title PERCENTAGE DISTRIBUTION |                           |   |  |  |
|---------|------------------------|------------------|----------|-------------------------------|---------------------------|---|--|--|
| Drawn   | SF                     | Approved         | PW       | Project No.                   | NTT2574                   |   |  |  |
| Checked | ST                     | Date             | 23.08.18 | Scale <b>NTS</b>              | Drg. No.  DIAGRAM 3  Rev. | 1 |  |  |

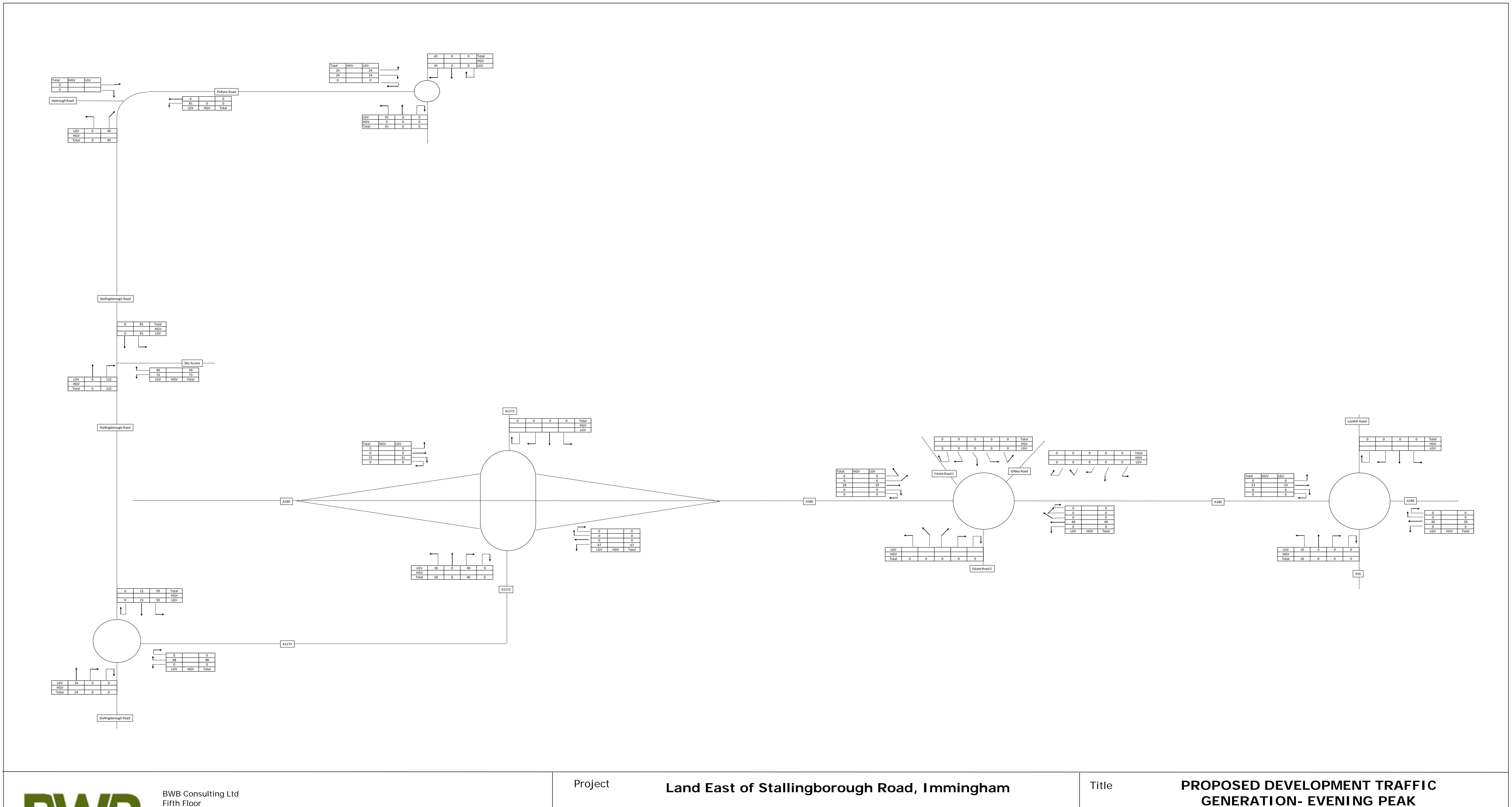




BWB Consulting Ltd
Fifth Floor
Waterfront House
35 Station Street
Nottingham
NG2 3DQ

Tel: 0115 924 1100
FAX: 0115 950 3966

| Project | Land East of Stallin | ngborough Road, Im | mingham  | Title PROPOSED DEVELOPMENT TRAF GENERATION -MORNING PEA |                     |      |  |  |  |
|---------|----------------------|--------------------|----------|---|---------------------|------|--|--|--|
| Drawn   | SF                   | Approved           | PW       | Project No.   | NTT2574             |      |  |  |  |
| Checked | ST                   | Date               | 23.08.18 | Scale <b>NTS</b>  | Drg. No.  DIAGRAM 4 | Rev. |  |  |  |

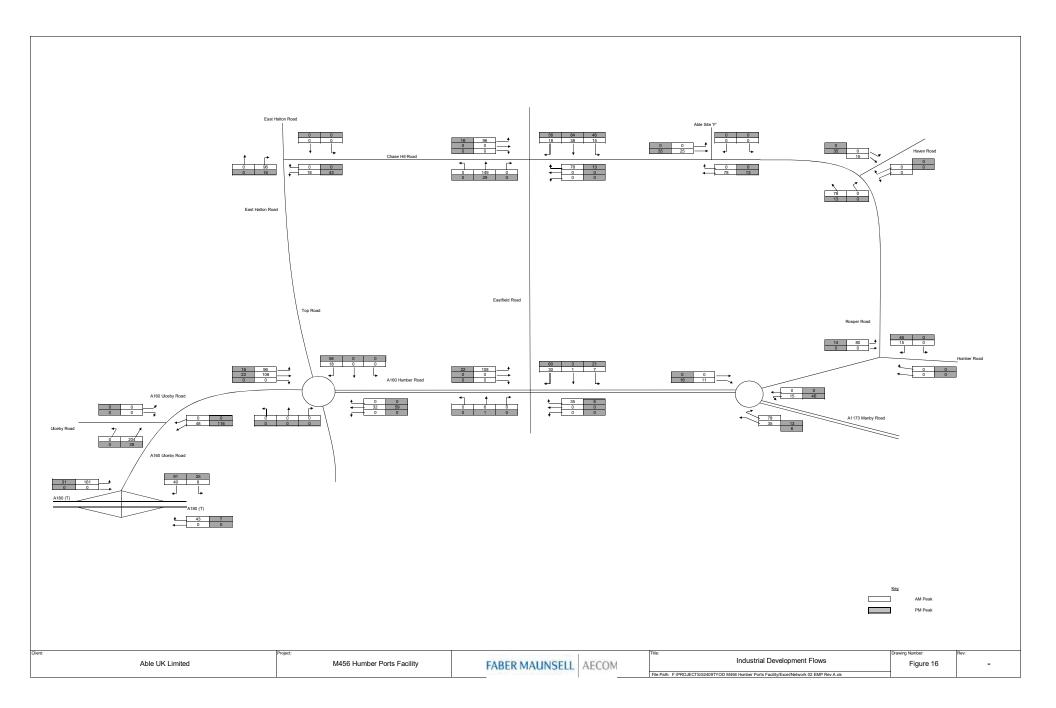




| Project <b>La</b> | nd East of Stallingk | orough Road, Imr | Title PROPOSED DEVELOPMENT TRAFFIC GENERATION- EVENING PEAK |                     |                              |  |  |  |
|-------------------|----------------------|------------------|---|---------------------|------------------------------|--|--|--|
| Drawn             | SF                   | Approved         | PW  | Project No. NTT2574 |                              |  |  |  |
| Checked           | ST                   | Date             | 23.08.18  | Scale <b>NTS</b>    | Drg. No.  DIAGRAM 5  Rev.  1 |  |  |  |

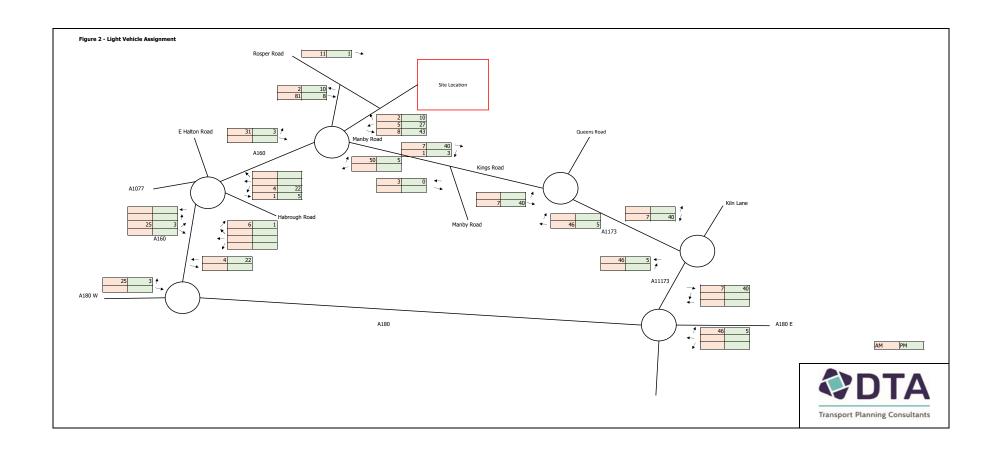
## Annex TN1 H

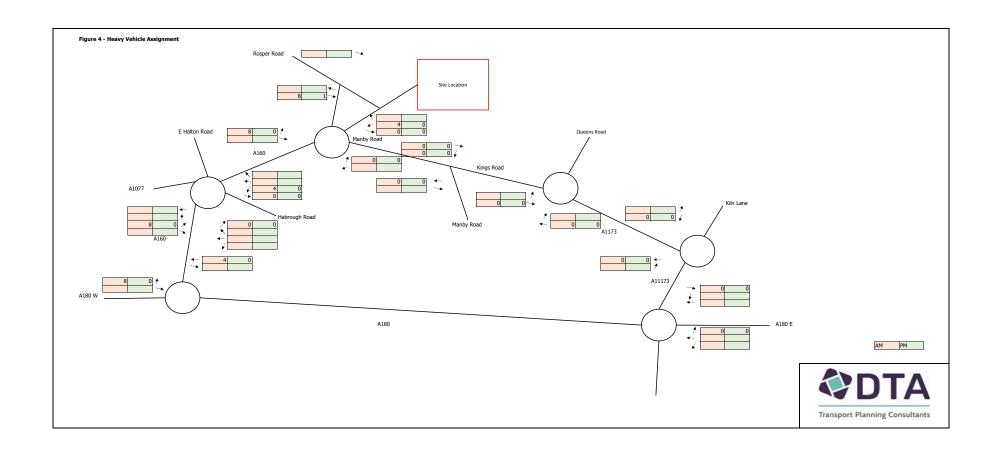
Able Logistics Park



## Annex TN1 I

ABP Project – Humber Road





#### **Annex J**

Racelin

| PCU          |           |                    |                    |                           |           |                    |                   |
|--------------|-----------|--------------------|--------------------|---------------------------|-----------|--------------------|-------------------|
| AM (7-8)     |           |                    |                    | PM (16-17)                |           |                    |                   |
|              | East Gate | Laporte Road       | Queens Road        |                           | East Gate | Laporte Road       | Queens Road       |
| East Gate    | 0         | 28                 | 53                 | East Gate                 | 0         | 235                | 149               |
| Laporte Road | 212       | 0                  | 41                 | Laporte Road              | 39        | 0                  | 78                |
| Queens Road  | 215       | 38                 | 0                  | Queens Road               | 39        | 29                 | 0                 |
|              |           |                    |                    |                           |           |                    |                   |
| HGVs         |           |                    |                    |                           |           |                    |                   |
| AM           |           |                    |                    | PM                        |           |                    |                   |
|              | East Gate | Laporte Road       | Queens Road        |                           | East Gate | Laporte Road       | Queens Road       |
| East Gate    | 0         | 14                 | 37                 | East Gate                 | 0         | 44                 | 29                |
| Laporte Road | 31        | 0                  | 9                  | Laporte Road              | 19        | 0                  | 7                 |
| Queens Road  | 41        | 5                  | 0                  | Queens Road               | 23        | 3                  | 0                 |
|              |           |                    |                    |                           |           |                    |                   |
|              |           |                    | Commit             | ted Development           |           |                    |                   |
| PCU          |           |                    |                    |                           |           |                    |                   |
| AM           |           |                    |                    | PM                        |           |                    |                   |
|              | East Gate | Laporte Road       | Queens Road        |                           | East Gate | Laporte Road       | Queens Road       |
| East Gate    |           | 19                 |                    | East Gate                 |           | 19                 |                   |
| Laporte Road | 2         |                    | 7                  | Laporte Road              | 2         |                    |                   |
| Queens Road  | 1         | 3                  |                    | Queens Road               | 1         |                    |                   |
|              |           |                    |                    |                           |           |                    |                   |
| HGVs         |           |                    |                    |                           |           |                    |                   |
| AM           |           |                    |                    | PM                        |           |                    |                   |
|              | East Gate | Laporte Road       | Queens Road        |                           | East Gate | Laporte Road       | Queens Road       |
| East Gate    |           |                    |                    | East Gate                 |           |                    |                   |
| Laporte Road |           |                    | 7                  | Laporte Road              |           |                    |                   |
| Queens Road  | 1         | 3                  |                    | Queens Road               | 1         |                    |                   |
|              |           |                    |                    |                           |           |                    |                   |
|              |           |                    | Proposi            | ed Development            |           |                    |                   |
| PCU          |           |                    |                    |                           |           |                    |                   |
| AM (7-8)     |           | Immingham          |                    | PM (17-18)                |           | Stena              |                   |
|              | East Gate | Laporte Road<br>26 | Queens Koad<br>108 |                           | East Gate | Laporte Road<br>26 |                   |
| East Gate    | -         |                    |                    | East Gate                 | -         |                    | 147               |
| Laporte Road | 27        | 0                  | 0                  | Laporte Road              | 27        | 0                  | 0                 |
| Queens Road  | 168       | 0                  | 0                  | Queens Road               | 224       | 0                  | 0                 |
| HGVs         |           |                    |                    |                           |           |                    |                   |
| AM           |           |                    |                    | PM                        |           |                    |                   |
| AW           | F C       | Laporte Road       | 0                  | rM                        | F C       | Laporte Road       | 0                 |
| East Gate    | East Gate | Laporte Koad       | Queens Koad<br>36  | East Gate                 | East Gate | Laporte Koad       | Queens Road<br>52 |
| Laporte Road | 0         | 0                  | 36                 | Last Gate<br>Laporte Road | 1         | 0                  | 52                |
| Queens Road  | 66        | 0                  | 0                  | Queens Road               | 90        | 0                  | 0                 |
| queens Road  | 66        | U                  | U                  | queens koad               | 90        | U                  | U                 |

Queens Road/ Laporte Road

North East Lincolnshire 001 2021-2025 2021-2032 AM 1.0298 1.0773 PM 1.0291 1.075

| Que                                      | ens noac   | , Lapoite it   | oau         |                             |            |                     |             |
|--|------------|----------------|-------------|-----------------------------|------------|---------------------|-------------|
| 2021 Baseline                            |            |                |             |                             |            |                     |             |
| PCU                                      |            |                |             |                             |            |                     |             |
| AM                                       |            |                |             | PM                          |            |                     |             |
|  |            | Laporte Road   |             |                             |            | Laporte Road        | Queens Road |
| East Gate                                | 0          | 28             | 53          | East Gate                   | 0          |                     | 149         |
| Laporte Road                             | 212        | 0              | 41          | Laporte Road                | 39         |                     | 71          |
| Queens Road                              | 215        | 38             | 0           | Queens Road                 | 39         | 29                  | (           |
| HGV %                                    |            |                |             |                             |            |                     |             |
| AM                                       |            |                |             | PM                          |            |                     |             |
|  | East Gate  | Laporte Road   | Queens Road |                             | East Gate  | Laporte Road        | Queens Road |
| East Gate                                |            | 50%            | 70%         | East Gate                   |            | 19%                 | 199         |
| Laporte Road                             | 15%        |                | 22%         | Laporte Road                | 49%        |                     | 99          |
| Queens Road                              | 19%        | 13%            |             | Queens Road                 | 59%        | 10%                 |             |
| 2021 Baseline                            | + Committe | ed             |             |                             |            |                     |             |
| PCU                                      |            |                |             |                             |            |                     |             |
| AM                                       |            |                |             | PM                          |            |                     |             |
|  |            | Laporte Road   |             |                             |            | Laporte Road        |             |
| East Gate                                | 0          | 47             | 53          | East Gate                   | 0          |                     | 149         |
| Laporte Road                             | 214        | 0              | 48          | Laporte Road                | 41         |                     | 78          |
| Queens Road                              | 216        | 41             | 0           | Queens Road                 | 40         | 29                  | (           |
| HGV %                                    |            |                |             |                             |            |                     |             |
| AM                                       |            |                |             | PM                          |            |                     |             |
|  | East Gate  | Laporte Road   |             |                             | East Gate  | Laporte Road        |             |
| East Gate                                |            | 30%            | 70%         | East Gate                   |            | 17%                 | 199         |
| Laporte Road                             | 14%        |                | 33%         | Laporte Road                | 46%        |                     | 99          |
| Queens Road                              | 19%        | 20%            |             | Queens Road                 | 60%        | 10%                 |             |
|  | + Committe | ed + Developme | ent         |                             |            |                     |             |
| PCU<br>AM                                |            |                |             | PM                          |            |                     |             |
| AM                                       | F C        | Laporte Road   | 0           | PМ                          | F+ C-+-    |                     | O           |
| F C                                      | East Gate  | Laporte Road   |             | F C                         | East Gate  | Laporte Road<br>280 | Queens Road |
| East Gate                                | -          |                |             | East Gate                   | -          |                     |             |
| Laporte Road                             | 241        | 0              | 48          | Laporte Road                | 68         |                     | 78          |
| Queens Road                              | 384        | 41             | 0           | Queens Road                 | 264        | 29                  | (           |
| HGV %                                    |            |                |             |                             |            |                     |             |
| AM                                       |            |                |             | PM                          |            |                     |             |
|  | Fast Gate  | Laporte Road   |             |                             | East Gate  | Laporte Road        |             |
|  |            |                |             | East Gate                   |            | 16%                 | 279         |
|  |            | 20%            | 46%         |                             |            |                     |             |
| East Gate<br>Laporte Road<br>Queens Road | 13%        |                | 46%<br>33%  | Laporte Road<br>Queens Road | 29%<br>43% |                     | 99          |

| 2025 Baseline  |  |  |  |  |   |   |  |
|--|--|--|--|--|---|---|--|
| PCU<br>AM  |  |  |  | 014  |   |   |  |
| AM   | Fact Gate  | Lanorte Road   | Queens Road  | PM   | Fact Gate   | Laporte Road  | Ougens Road  |
| East Gate  | 0  | 29   | 55   | East Gate  | 0   | 242   | 153  |
| Laporte Road   | 218  | 0  | 42   | East Gate<br>Laporte Road<br>Queens Road   | 40  | 0   | 80   |
| Queens Road  | 221  | 39   | 55<br>42<br>0  | Queens Road  | 40  | 30  | 0  |
| HGV %  |  |  |  |  |   |   |  |
|  |  |  |  | PM   |   |   |  |
|  | East Gate  | Laporte Road<br>50%  | Queens Road  |  | East Gate   | Laporte Road  | Queens Road  |
| East Gate  |  | 50%  | 70%<br>22%   | East Gate  |   | 19%   | 19%  |
| Laporte Road   | 15%  |  | 22%  | Laporte Road   | 49%   |   |  |
| East Gate<br>Laporte Road<br>Queens Road   | 19%  | 13%  |  | East Gate<br>Laporte Road<br>Queens Road   | 59%   | 10%   |  |
| 2025 Baseline  |  |  |  |  |   |   |  |
| PCU  |  |  |  |  |   |   |  |
| AM   |  | Laporte Road<br>48   |  | PM   |   |   |  |
|  | East Gate  | Laporte Road   | Queens Road  | East Gate  | East Gate   | Laporte Road  | Queens Road  |
| Last Gate<br>Laporte Road  | 220  | 48   | 55<br>49   | East Gate<br>Laporte Road  | 42  | 261   | 153  |
| Queens Road  |  | 42   | 0  | Queens Road  | 41  | 30  | 80<br>0  |
|  |  |  |  |  |   |   |  |
| HGV %  |  |  |  |  |   |   |  |
| AM   | F+ C-+-  | Laporte Road   | O Bd   | PM   | F+ C-+-   | Laporte Road  | 0  |
| East Gate  | East Gate  | raborre koad   | 70%  | Fact Gate  |   |   |  |
| Laporte Road   | 14%  | 30%<br>20%   | 70%<br>33%   | East Gate<br>Laporte Road<br>Queens Road   | 46%   | 17%   | 9%   |
| Queens Road  | 19%  | 20%  |  | Queens Road  | 60%   | 10%   |  |
|  |  |  |  |  |   |   |  |
| 2025 Baseline  | + Committe   | d + Developmer   | nt   |  |   |   |  |
| PCU  |  |  |  | PM   |   |   |  |
| AIVI   | Fast Gate  | Laporte Road<br>74   | Queens Road  | PIVI   | Fast Gate   | Lanorte Road  | Queens Road  |
| East Gate  | 0  | 74   | 162  | East Gate  | 0   | 287   | 300  |
| Laporte Road<br>Queens Road  | 247  | 0  | 49   | PM<br>East Gate<br>Laporte Road<br>Queens Road   | 69  | 0   | 80   |
| Queens Road  | 391  | 42   | 0  | Queens Road  | 265   | 30  | 0  |
|  |  |  |  |  |   |   |  |
| HGV %  |  |  |  | PM.  |   |   |  |
|  | East Gate  | Laporte Road<br>20%  | Queens Road  | PM<br>East Gate  | East Gate   | Laporte Road  | Queens Road  |
| Eart Cate  |  | 20%  | 46%<br>33%   | East Gate  |   | 16%   | 27%  |
| Last Gate  |  |  |  |  |   |   | 9%   |
| Laporte Road   | 13%  |  | 33%  | Laporte Road   | 29%   |   |  |
| Laporte Road<br>Queens Road  | 13%  |  | 33%  | Queens Road  | 43%   | 10%   |  |
| Laporte Road   | 13%  |  | 33%  | Queens Road  | 43%   | 10%   |  |
| Laporte Road Queens Road  2032 Baseline PCU  | 13%<br>28%   | 20%  |  | Queens Road  | 43%   | 10%   |  |
| Laporte Road Queens Road  2032 Baseline PCU  | 13%<br>28%   | 20%  |  | Queens Road  | 43%   | 10%   |  |
| Laporte Road<br>Queens Road<br>2032 Baseline<br>PCU<br>AM  | 13%<br>28%<br>Fast Gate  | 20%  | Queens Road  | Queens Road PM   | 43%   | 10%   | 0  |
| Laporte Road<br>Queens Road<br>2032 Baseline<br>PCU<br>AM  | 13%<br>28%<br>Fast Gate  | 20%  | Queens Road  | Queens Road PM   | 43%   | 10%   | Queens Road<br>160   |
| Laporte Road Queens Road  2032 Baseline PCU AM  East Gate Laporte Road   | 13%<br>28%<br>East Gate<br>0<br>231  | 20%<br>Laporte Road<br>51<br>0   | Queens Road<br>57<br>52  | Queens Road  PM  East Gate Laporte Road  | 43%<br>East Gate<br>0<br>42   | Laporte Road 253  | Queens Road<br>160<br>84   |
| Queens Road  Queens Road  2032 Baseline PCU  AM  East Gate Laporte Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231  | 20%<br>Laporte Road<br>51<br>0   | Queens Road<br>57<br>52  | Queens Road  PM  East Gate Laporte Road  | 43%<br>East Gate<br>0<br>42   | Laporte Road 253  | Queens Road<br>160<br>84   |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233   | 20%<br>Laporte Road<br>51<br>0<br>44   | Queens Road<br>57<br>52<br>0   | PM East Gate Laporte Road Queens Road  | 43%<br>East Gate<br>0<br>42   | Laporte Road 253  | Queens Road<br>160<br>84   |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233   | 20%<br>Laporte Road<br>51<br>0<br>44   | Queens Road<br>57<br>52<br>0   | Queens Road  PM  East Gate Laporte Road  Queens Road  PM   | 43%<br>East Gate<br>0<br>42<br>42   | Laporte Road 253 0 31   | Queens Road<br>160<br>84<br>0  |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233   | 20%<br>Laporte Road<br>51<br>0<br>44   | Queens Road<br>57<br>52<br>0   | Queens Road  PM  East Gate Laporte Road  Queens Road  PM   | 43%<br>East Gate<br>0<br>42<br>42   | Laporte Road 253 0 31 Laporte Road  | Queens Road 160 84 0   |
| Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM  | 13%<br>28%<br>East Gate<br>0<br>231<br>233   | 20%<br>Laporte Road<br>51<br>0<br>44   | Queens Road<br>57<br>52<br>0   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  Fact Gate   | East Gate 0 42 42 East Gate   | Laporte Road 253 0 31  Laporte Road 19%   | Queens Road<br>160<br>84<br>0<br>Queens Road<br>19%  |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233   | 20%  Laporte Road 51 0 44  Laporte Road 50%  | Queens Road 57 52 0  Queens Road 70% 22%   | Queens Road  PM  East Gate Laporte Road  Queens Road  PM   | East Gate 0 42 42 East Gate   | Laporte Road 253 0 31  Laporte Road 19%   | Queens Road<br>160<br>84<br>0<br>Queens Road<br>19%  |
| Laporte Road Queens Road 2032 Baseline PCU AM  East Gate Laporte Road Queens Road HGV % AM  East Gate Laporte Road Queens Road   | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%   | 20% Laporte Road 51 0 44  Laporte Road 50%   | Queens Road 57 52 0  Queens Road 70% 22%   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  Fact Gate   | East Gate 0 42 42 East Gate   | Laporte Road 253 0 31  Laporte Road 19%   | Queens Road<br>160<br>84<br>0<br>Queens Road<br>19%  |
| Laporte Road Queens Road 2032 Baseline PCM AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road   | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%   | 20% Laporte Road 51 0 44  Laporte Road 50%   | Queens Road 57 52 0  Queens Road 70% 22%   | Queens Road  PM  East Gate Laporte Road Queens Road  PM  Fact Gate   | East Gate 0 42 42 East Gate   | Laporte Road 253 0 31  Laporte Road 19%   | Queens Road<br>160<br>84<br>0<br>Queens Road<br>19%  |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%  | 20% Laporte Road 51 0 44  Laporte Road 50% 13% d   | Queens Road<br>57<br>52<br>0<br>Queens Road<br>70%<br>22%  | PM East Gate Laporte Road  PM East Gate Laporte Road  PM East Gate Laporte Road  Queens Road   | East Gate 0 42 42 East Gate   | Laporte Road 253 0 31  Laporte Road 19%   | Queens Road<br>160<br>84<br>0<br>Queens Road<br>19%  |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%  | 20% Laporte Road 51 0 44  Laporte Road 50% 13% d   | Queens Road<br>57<br>52<br>0<br>Queens Road<br>70%<br>22%  | Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road  | 43%  East Gate 0 42 42  East Gate 49% 59%   | Laporte Road 253 0 31 Laporte Road 19%  | Queens Road<br>160<br>84<br>0<br>Queens Road<br>19%<br>9%  |
| Laporte Road Queens Road Queens Road PCU AM East Gate Laporte Road Queens Road HOV % AM East Gate Laporte Road Queens Road Queens Road AM East Gate Laporte Road Queens Road East Gate Laporte Road Queens Road East Gate Laporte Road Road East Gate Laporte Road Road East Gate EAST Gate  | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%<br>+ Committee   | Laporte Road 51 0 44  Laporte Road 50% 13% d   | Queens Road 57 52 0 Queens Road 70% 22%  | Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road  | East Gate 0 42 42 East Gate 49% 59%   | Laporte Road 253 0 31 Laporte Road 19% 10%  | Queens Road 160 84 0 Queens Road 19% 9%  |
| Laporte Road Queens Road Queens Road PCU AM East Gate Laporte Road Queens Road HOV % AM East Gate Laporte Road Queens Road Queens Road AM East Gate Laporte Road Queens Road East Gate Laporte Road Queens Road East Gate Laporte Road Road East Gate Laporte Road Road East Gate EAST Gate  | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%<br>+ Committee   | Laporte Road 51 0 44 Laporte Road 50% 13% d Laporte Road 70 0  | Queens Road 57 52 0  Queens Road 70% 22%  Queens Road 57 57  | Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  | East Gate 0 42 42 East Gate 49% 59% East Gate 0 444   | Laporte Road 253 0 31  Laporte Road 19% 10%   | Queens Road 160 84 0 Queens Road 19% 9% Queens Road 160 844  |
| Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road  | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%<br>+ Committee   | Laporte Road 51 0 44 Laporte Road 50% 13% d Laporte Road 70 0  | Queens Road 57 52 0 Queens Road 70% 22%  | Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road  | East Gate 0 42 42 East Gate 49% 59%   | Laporte Road 253 0 31 Laporte Road 19% 10% Laporte Road 272 0 0   | Queens Road 160 84 0 Queens Road 19% 9% Queens Road 160 844  |
| Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Queens Road East Gate Laporte Road Queens Road Queens Road Queens Road Queens Road   | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%<br>+ Committee   | Laporte Road 51 0 44 Laporte Road 50% 13% d Laporte Road 70 0  | Queens Road 57 52 0  Queens Road 70% 22%  Queens Road 57 57  | Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  | East Gate 0 42 42 East Gate 49% 59% East Gate 0 444   | Laporte Road 253 0 31  Laporte Road 19% 10%   | Queens Road 160 84 0 Queens Road 19% 9% Queens Road 160 844  |
| Laporte Road Queens Road Laporte Road Queens Road ME East Gate Laporte Road Queens Road HGV %  East Gate Laporte Road Queens Road East Gate Laporte Road Queens Road HGV %  AM  East Gate Laporte Road Queens Road HGV %  HGV %  | 13%<br>28%<br>East Gate<br>0<br>231<br>233<br>East Gate<br>15%<br>19%<br>+ Committee   | Laporte Road 51 0 44 Laporte Road 50% 13% d Laporte Road 70 0  | Queens Road 57 52 0  Queens Road 70% 22%  Queens Road 57 57  | Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road  PM  East Gate Laporte Road  Queens Road   | East Gate 0 42 42 East Gate 49% 59% East Gate 0 444   | Laporte Road 253 0 31  Laporte Road 19% 10%   | Queens Road 160 84 0 Queens Road 19% 9% Queens Road 160 844  |
| Laporte Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road 2032 Baseline PCU AM East Gate Laporte Road Queens Road HGV % AM HGV % AM HGV % AM  | East Gate 0 231 233 East Gate 15% 19% + Committe East Gate 0 233 234   | 20%  Laporte Road 51 0 44  Laporte Road 50% 13% d  Laporte Road 70 0 47  | Queens Road 57 52 2 0 0 Queens Road 70% 22% Queens Road 57 59 0  | PM East Gate Laporte Road Queens Road  | East Gate 0 42 42 East Gate 49% 59% East Gate 49% 44 43   | Laporte Road 253 0 31  Laporte Road 19% 10%   | Queens Road 160 84 4 Queens Road 19% 9% Queens Road 160 84 0   |
| Laporte Road Queens Road Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Road Road Laporte Road Road Road Road Road Road Road Road  | East Gate 0 231 233 East Gate 15% 19% + Committe East Gate 0 233 234   | 20%  Laporte Road 51 0 44  Laporte Road 50% 13% d  Laporte Road 70 0 47  | Queens Road 57 52 2 0 0 Queens Road 70% 22% Queens Road 57 59 0  | PM East Gate Laporte Road Queens Road  | East Gate 0 42 42 East Gate 49% 59%  East Gate 0 44 43  | Laporte Road 253 0 31 Laporte Road 19% 10% Laporte Road 272 0 31 Laporte Road 277 10%   | Queens Road 160 84 40 Queens Road 19% 9% Queens Road 160 84 0 Queens Road  |
| Laporte Road Queens Road AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Cueens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Gueens Road HGV % AM East Gate Laporte Road HGV % AM East Gate Laporte Road Laporte Road Laporte Road Laporte Road Laporte Road HGV % AM East Gate Laporte Road   | 13% 28%  East Gate 0 231 233  East Gate 15% 19%  Committee  East Gate 0 233 234  East Gate 14%   | 20%  Laporte Road 51 0 44  Laporte Road 50% 13% d  Laporte Road 70 0 47  Laporte Road 30%  | Queens Road  | PM East Gate Laporte Road Queens Road  | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43 East Gate 46%   | Laporte Road 253 0 31  Laporte Road 19%  Laporte Road 272 0 31  Laporte Road 17%  | Queens Road 160 84 0 Queens Road 19% 9% Queens Road 160 84 0   |
| Laporte Road Queens Road Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Road Road Laporte Road Road Road Road Road Road Road Road  | 13% 28%  East Gate 0 231 233  East Gate 15% 19%  Committee  East Gate 0 233 234  East Gate 14%   | 20%  Laporte Road 51 0 44  Laporte Road 50% 13% d  Laporte Road 70 0 47  Laporte Road 30%  | Queens Road  | PM East Gate Laporte Road Queens Road  | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43 East Gate 46%   | Laporte Road 253 0 31  Laporte Road 19% 10%  Laporte Road 277 0 31  Laporte Road 277 10%  | Queens Road 160 84 40 Queens Road 19% 9% Queens Road 160 84 0 Queens Road  |
| Laporte Road Queens Road AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Queens Road Gueens Road AM East Gate Laporte Road Queens Road Queens Road   | 13%, 28%  East Gate 0 231, 233  East Gate 15%, 19%  + Committee 0 233, 234  East Gate 14%, 19%   | 20%  Laporte Road 51 0 44  Laporte Road 50% 13%  d  Laporte Road 7 0 0 47  Laporte Road 30% 20%  | Queens Road 70% 22%  Queens Road 70% 22%  Queens Road 770 33%  | PM East Gate Laporte Road Queens Road  | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43 East Gate 46%   | Laporte Road 253 0 31  Laporte Road 19%  Laporte Road 272 0 31  Laporte Road 17%  | Queens Road 160 84 40 Queens Road 19% 9% Queens Road 160 84 0 Queens Road  |
| Laporte Road Queens Road Laporte Road Queens Road Laporte Road UQUEEN Road HGV % AM  East Gate Laporte Road Queens Road Gueens Road Queens Road AM  East Gate Laporte Road Queens Road   | 13% 28%  East Gate 0 231 233  East Gate 15% + Committe  East Gate 14% 234  East Gate 14% 4 Committe  | 20%  Laporte Road 51 0 44  Laporte Road 50% 13% d  Laporte Road 7 0 47  Laporte Road 30% 20% d + Development   | Queens Road 70% 22%  Queens Road 70% 22%  Queens Road 770 33%  | PM East Gate Laporte Road Queens Road   | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43 East Gate 46%   | Laporte Road 253 0 31 Laporte Road 19% Laporte Road 272 0 31 Laporte Road   | Queens Road 160 84 40 Queens Road 19% 9% Queens Road 160 84 0 Queens Road  |
| Laporte Road Queens Road Laporte Road Queens Road Laporte Road UQUEEN Road HGV % AM  East Gate Laporte Road Queens Road Gueens Road Queens Road AM  East Gate Laporte Road Queens Road   | 13% 28%  East Gate 0 231 233  East Gate 15% + Committe  East Gate 14% 234  East Gate 14% 4 Committe  | 20%  Laporte Road 51 0 44  Laporte Road 50% 13% d  Laporte Road 7 0 47  Laporte Road 30% 20% d + Development   | Queens Road 70% 22%  Queens Road 70% 22%  Queens Road 770 33%  | PM East Gate Laporte Road Queens Road  | 43%  East Gate 0 42 42 42  East Gate 0 0 44 43  East Gate 0 49%  59%  East Gate 0 44 43  East Gate 0 60%  | Laporte Road 253 0 31  Laporte Road 19% 10%  Laporte Road 17% 10 Laporte Road 17% 10%   | Queens Road 160 84 0 0 Queens Road 19% 9% Queens Road 160 84 0 0 Queens Road 160 99 99 99 99 99 99 99 99 99 99 99 99 99  |
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| Laporte Road Queens Road Laporte Road Queens Road Laporte Road UQUEEN Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Queens Road Queens Road Queens Road Queens Road Laporte Road Queens Road Queens Road Queens Road Queens Road Queens Road Laporte Road Queens Road Queens Road Laporte Road Queens Road   | 13%, 28%  East Gate 0 231, 233  East Gate 15%, 19% 19% 19% 19% 19% 19% 19% 19% 19% 19%   | 20%  Laporte Road 51 64  Laporte Road 70 67 47  Laporte Road 30% 20% d + Developmer Laporte Road 96  | Queens Road 57 52 0 0  Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 70% 33%  It Queens Road 70% 33%   | Queens Road  PM  East Gate Laporte Road  Road           | East Gate 43%  East Gate 49% 59%  East Gate 46% 60%  East Gate 0 717  | Laporte Road 253 0 31  Laporte Road 19% 10%  Laporte Road 17% 10%  Laporte Road 17% 10%   | Queens Road 160 84 99% Queens Road 160 84 0 Queens Road 160 84 0 Queens Road 19% 9% Queens Road 307 9% Queens Road 307 80 Queen |
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| Laporte Road Queens Road AM East Gate Laporte Road Queens Road Queens Road Laporte Road Laporte Road Queens Road  | 13%, 28%.  East Gate 0 231, 233  East Gate 15%, 19%.  + Committe  East Gate 14%, 19%.  + Committe  East Gate 23, 234  East Gate 24%, 19%.  | 20%  Laporte Road 51 044  Laporte Road 50% 13%  d  Laporte Road 70 047  Laporte Road 30% 20% d + Developmer Laporte Road 96 07 47  | Queens Road 57 52 0 0  Queens Road 770% 22%  Queens Road 70% 33%  At Queens Road 70% 33%  At Queens Road 70% 33%   | PM  East Gate Laporte Road  PM  East Gate Laporte Road  Queens Road  PM  PM  East Gate Laporte Road  PM  PM  East Gate Laporte Road  Queens Road  PM | ### 43%  East Gate  42  | 10%  Laporte Road 253 0 31  Laporte Road 19%  Laporte Road 19%  Laporte Road 17% 10%  Laporte Road 17% 10%  Laporte Road 17% 10%                          | Queens Road 160 84 99% 99% Queens Road 160 84 0 0 Queens Road 160 84 0 Queens Road 19% 9% 9% Queens Road 19% 9% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |
| Laporte Road Queens Road Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM HGV % HGV % AM HGV % AM HGV % HGV % HGV  | 13%, 28%.  East Gate 0 0 2313, 233  East Gate 15% + Committe 0 233, 234  East Gate 14%, 19% + Committe 10 243, 244  East Gate 2 244  East Gate | 20%  Laporte Road 51 04  Laporte Road 50% 13%  d  Laporte Road 70 0 47  Laporte Road 30% 20% d + Developmer Laporte Road 47  Laporte Road 40 Laporte Road 30% 41 Laporte Road 42 Laporte Road 47 Laporte Road 47 Laporte Road 47 Laporte Road 47   | Queens Road 57 52 0 0  Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 33%  It Queens Road 165 59 0 0  | PM East Gate Laporte Road Queens Road   | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43% East Gate 0 71 267 East Gate | Laporte Road 253 0 31  Laporte Road 19% 10%  Laporte Road 17% 10%  Laporte Road 17% 10%  Laporte Road 17% 10%   | Queens Road 160 84 0 0 Queens Road 19% 9% Queens Road 160 99% Queens Road 19% 9% Queens Road 0 0 Queens Road 0 Que |
| Laporte Road Queens Road Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM East Gate Laporte Road Queens Road HGV % AM HGV % HGV % AM HGV % AM HGV % HGV % HGV  | 13%, 28%.  East Gate 0 0 2313, 233  East Gate 15% + Committe 0 233, 234  East Gate 14%, 19% + Committe 10 243, 244  East Gate 2 244  East Gate | 20%  Laporte Road 51 044  Laporte Road 70 047  Laporte Road 20% 4 + Developmer Laporte Road 90 10 11  Laporte Road 11  Laporte Road 12  Laporte Road 14  Laporte Road 15  Laporte Road 15  Laporte Road 15  Laporte Road 16  Laporte Road 17  Laporte Road 18  Laporte Road 19  Laporte Road 10  Laport | Queens Road 57 52 0 Queens Road 70% 22%  Queens Road 70% 33% 4t  Queens Road 165 59 0  Queens Road   | PM East Gate Laporte Road Queens Road   | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43% East Gate 0 71 267 East Gate | 10%  Laporte Road 253 0 31  Laporte Road 19% 10%  Laporte Road 272 0 31  Laporte Road 17% 10%  Laporte Road 288 0 0 31  Laporte Road 288 Laporte Road 18% | Queens Road 160 84 99% 99% Queens Road 160 84 0 0 Queens Road 160 84 0 Queens Road 19% 9% 9% Queens Road 19% 9% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |
| Laporte Road Queens Road AM East Gate Laporte Road Queens Road Queens Road Laporte Road Laporte Road Queens Road   | 13%, 28%.  East Gate 0 0 2313, 233  East Gate 15% + Committe 0 233, 234  East Gate 14%, 19% + Committe 10 243, 244  East Gate 2 244  East Gate | 20%  Laporte Road 51 04  Laporte Road 50% 13%  d  Laporte Road 70 0 47  Laporte Road 30% 20% d + Developmer Laporte Road 47  Laporte Road 30% 47  Laporte Road 20%   | Queens Road 57 52 0 0  Queens Road 70% 22%  Queens Road 57 59 0  Queens Road 33%  It Queens Road 165 59 0 0  | PM East Gate Laporte Road Queens Road   | East Gate 0 42 42 East Gate 49% 59% East Gate 0 44 43% East Gate 0 71 267 East Gate | Laporte Road 253 0 31  Laporte Road 19% 10%  Laporte Road 17% 10%  Laporte Road 17% 10%  Laporte Road 17% 10%   | Queens Road 160 84 99% Queens Road 160 84 0 0 Queens Road 160 84 0 Queens Road 19% 9% Queens Road 307 84 Queens Road 80 Queens |

Laporte Road/ Kiln Lane/ Hobson Way

North East Lincolshire 007 2021-2025 2021-2032 AM 1.0269 1.0683 PM 1.0255 1.0649

|                     |                     |            |           |              | Baseline          |                     |            |           |                   |
|---------------------|---------------------|------------|-----------|--------------|-------------------|---------------------|------------|-----------|-------------------|
| PCU                 |                     |            |           |              |                   |                     |            |           |                   |
| AM (7-8)            |                     |            |           |              | PM (16-17)        |                     |            |           |                   |
|                     | Air Products Access | Hobson Way | Kiln Lane | Laporte Road |                   | Air Products Access | Hobson Way | Kiln Lane | Laporte Road      |
| Air Products Access |                     | 0 1        | 1         | 0            | Air Products Acce | ess (               | 0          | 4         | 0                 |
| Hobson Way          |                     | 0 0        | 91        | 287          | Hobson Way        | (                   | 0          | 109       | 65                |
| Kiln Lane           |                     | 1 74       | 2         | 169          | Kiln Lane         | (                   | 94         | 4         | 32                |
| Laporte Road        |                     | 0 38       | 22        | 0            | Laporte Road      | (                   | 275        | 183       | 0                 |
| HGVs                |                     |            |           |              |                   |                     |            |           |                   |
| AM                  |                     |            |           |              | PM                |                     |            |           |                   |
| AW                  | Air Products Access | Hobson Way | Vile Lane | Laporte Road | PIWI              | Air Products Access | Hobson Way | Vilo Lano | Laporte Road      |
| Air Products Access |                     | nooson way |           |              | Air Products Acce |                     |            | Kiin Lane | Laporte Road<br>0 |
| Hobson Way          |                     | 0 0        |           |              | Hobson Way        | 55                  |            |           | 7                 |
| Kiln Lane           |                     | 0 0        | 12        |              | Kiln Lane         | (                   |            | 1         | 23                |
| Laporte Road        |                     | 0 1/       |           |              | Laporte Road      |                     |            |           | 23                |
| сарогте коао        |                     | ,          | 1/        | U            | гарогте коао      |                     | , 15       | 41        | U                 |
|                     |                     |            |           | Commi        | itted Development |                     |            |           |                   |
| PCU<br>AM           |                     |            |           |              | PM                |                     |            |           |                   |
| AW                  |                     |            |           |              | PIVI              |                     |            |           |                   |
|                     | Air Products Access | Hobson Way | Kiln Lane | Laporte Road | Air Products Acce | Air Products Access | Hobson Way | Kiln Lane | Laporte Road      |
| Air Products Access |                     |            |           |              |                   | iss                 |            |           |                   |
| Hobson Way          |                     |            | 44        | _            | Hobson Way        |                     |            | 24        | _                 |
| Kiln Lane           |                     | 56         |           | 9            | Kiln Lane         |                     | 15         |           | 2                 |
| Laporte Road        |                     |            | 22        |              | Laporte Road      |                     |            | 19        |                   |
| HGVs                |                     |            |           |              |                   |                     |            |           |                   |
| AM                  |                     |            |           |              | PM                |                     |            |           |                   |
|                     | Air Products Access | Hobson Way | Kiln Lane | Laporte Road |                   | Air Products Access | Hobson Way | Kiln Lane | Laporte Road      |
| Air Products Access |                     |            |           |              | Air Products Acce | ess                 |            |           |                   |
| Hobson Way          |                     |            | 33        |              | Hobson Way        |                     |            | 5         |                   |
| Kiln Lane           |                     | 36         |           | 7            | Kiln Lane         |                     | 4          |           |                   |
| Laporte Road        |                     |            | 3         |              | Laporte Road      |                     |            |           |                   |
|                     |                     |            |           | Propo        | sed Development   |                     |            |           |                   |
| PCU                 |                     |            |           |              |                   |                     |            |           |                   |
| AM (7-8)            |                     | Immingham  |           |              | PM (17-18)        |                     | Stena      |           |                   |
|                     | Air Products Access | Hobson Way |           | Laporte Road |                   | Air Products Access | Hobson Way |           | Laporte Road      |
| Air Products Access |                     | 0 0        |           |              | Air Products Acce |                     |            |           | 0                 |
| Hobson Way          |                     | 0 0        |           |              | Hobson Way        | (                   |            |           | 27                |
| Kiln Lane           |                     | 0 0        |           |              | Kiln Lane         | (                   | 0          |           | 0                 |
| Laporte Road        |                     | 0 26       | 0         | 0            | Laporte Road      | (                   | 26         | 0         | 0                 |
| HGVs                |                     |            |           |              |                   |                     |            |           |                   |
| AM                  |                     |            |           |              | PM                |                     |            |           |                   |
|                     | Air Products Access | Hobson Way | Kiln Lane | Laporte Road |                   | Air Products Access | Hobson Way | Kiln Lane | Laporte Road      |
| Air Products Access |                     | 0 0        |           |              | Air Products Acce |                     |            |           | 0                 |
| Hobson Way          |                     | 0 0        | 0         |              | Hobson Way        |                     |            | 0         | 1                 |
| Kiln Lane           |                     | 0 0        | ō         | 0            | Kiln Lane         | ·                   |            | ō         | 0                 |
| Laporte Road        |                     | 0 0        | 0         | 0            | Laporte Road      |                     |            | 0         | 0                 |
|                     |                     |            | -         | -            | . ,               | -                   | -          | -         | -                 |

| PCU<br>AM   |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
|---|--------------------------|------------------|------------------------|-------------------|-----------------------------------|---------------------|-------------------------|------------------------|--------------|
|   | Air Products Access      | Hobson Way       |                        |                   |                                   | Air Products Access | Hobson Way              |                        |              |
| Air Products Access                                     | 0                        | 1                | 1                      | 0                 | Air Products Access               |                     | 0 0                     | 4                      | (            |
| Hobson Way<br>Kiln Lane                                 | 0                        | 0<br>76          | 93<br>2                | 295<br>174        | Hobson Way<br>Kiln Lane           |                     | 0 0                     | 112<br>4               | 67<br>33     |
| Laporte Road  | 0                        | 39               | 23                     | 0                 | Laporte Road                      |                     | 0 282                   | 188                    | (            |
| HGV %   |                          |                  |                        |                   |                                   |                     |                         |                        |              |
| AM  | Air Products Access      | Hobson Way       | Kiln Lane              | Laporte Road      | PM                                | Air Products Access | Hobson Way              | Kiln Lane              | Laporte Road |
| Air Products Access                                     |                          | 0%               | 0%                     |                   | Air Products Access               |                     |                         | 0%                     | .,           |
| Hobson Way  |                          | 23%              | 16%                    | 6%                | Hobson Way                        |                     |                         | 24%                    | 119          |
| Kiln Lane<br>Laporte Road                               | 0%                       | 23%<br>18%       | 0%<br>77%              | 21%               | Kiln Lane<br>Laporte Road         |                     | 16%<br>5%               | 25%<br>22%             | 729          |
| 2025 Baseline + Com                                     | mitted                   |                  |                        |                   |                                   |                     |                         |                        |              |
| AM  | Air Products Access      | Hobson Way       | Kiln Lane              | Laporte Road      | PM                                | Air Products Access | Hobson Way              | Kiln Lane              | Laporte Road |
| Air Products Access                                     | 0                        | 1                | 1                      | 0                 | Air Products Access               |                     | 0 0                     | 4                      |              |
| Hobson Way  | 0                        | 0                | 137                    | 295               | Hobson Way                        |                     | 0 0                     | 135                    | 67           |
| Kiln Lane<br>Laporte Road                               | 1 0                      | 132<br>39        | 2<br>45                | 183<br>0          | Kiln Lane<br>Laporte Road         |                     | 0 111<br>0 282          | 4<br>207               | 35           |
| HGV %   |                          |                  |                        |                   |                                   |                     |                         |                        |              |
| AM  |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
| Air Products Access                                     | Air Products Access      | Hobson Way<br>0% | Kiln Lane<br>0%        | Laporte Road      | Air Products Access               | Air Products Access | Hobson Way              | Kiln Lane<br>0%        | Laporte Road |
| Hobson Way  |                          |                  | 36%                    | 6%                | Hobson Way                        |                     |                         | 23%                    | 119          |
| Kiln Lane   | 0%                       | 41%              | 0%                     | 24%               | Kiln Lane                         |                     | 17%                     | 25%                    | 689          |
| Laporte Road  |                          | 18%              | 45%                    |                   | Laporte Road                      |                     | 5%                      | 20%                    |              |
| 2025 Baseline + Com                                     | mitted + Development     |                  |                        |                   |                                   |                     |                         |                        |              |
| AM  | Attaches described       | Haban III        | Mile I                 |                   | PM                                | All Books of the    | Hebra 200               | Mile /                 |              |
| Air Products Access                                     | Air Products Access<br>0 | Hobson Way<br>1  | Kiln Lane<br>1         | Laporte Road<br>0 | Air Products Access               | Air Products Access | Hobson Way<br>0 0       | Kiln Lane<br>4         | Laporte Road |
| Hobson Way  | 0                        | 0                | 137                    | 321               | Hobson Way                        |                     | 0 0                     | 135                    | 94           |
| Kiln Lane   | 1                        | 132              | 2                      | 183               | Kiln Lane                         |                     | 0 111                   | 4                      | 35           |
| Laporte Road  | 0                        | 65               | 45                     | 0                 | Laporte Road                      |                     | 0 308                   | 207                    | (            |
| HGV %   |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
|   | Air Products Access      |                  |                        | Laporte Road      |                                   | Air Products Access | Hobson Way              |                        | Laporte Road |
| Air Products Access<br>Hobson Way                       |                          | 0%               | 0%<br>36%              | 6%                | Air Products Access<br>Hobson Way |                     |                         | 0%<br>23%              | 89           |
| Kiln Lane   | 0%                       | 41%              | 36%                    | 24%               | Kiln Lane                         |                     | 17%                     | 25%                    | 689          |
| Laporte Road  |                          | 11%              | 45%                    |                   | Laporte Road                      |                     | 5%                      | 20%                    |              |
| 2032 Baseline   |                          |                  |                        |                   |                                   |                     |                         |                        |              |
| PCU<br>AM   |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
|   |                          |                  |                        | Laporte Road      |                                   | Air Products Access | Hobson Way              |                        |              |
| Air Products Access<br>Hobson Way                       | 0                        | 1 0              | 1<br>97                | 0<br>307          | Air Products Access<br>Hobson Way |                     | 0 0                     |                        | 69           |
| Kiln Lane   | 1                        | 79               | 2                      | 181               | Kiln Lane                         |                     | 0 100                   | 4                      | 34           |
| Laporte Road  | 0                        | 41               | 24                     | 0                 | Laporte Road                      |                     | 0 293                   | 195                    | (            |
| HGV %   |                          |                  |                        |                   |                                   |                     |                         |                        |              |
| AM  | Air Products Access      | Hobson Way       | Kiln Lane              | Laporte Road      | PM                                | Air Products Access | Hobson Way              | Kiln Lane              | Laporte Road |
| Air Products Access                                     |                          | 0%               | 0%                     |                   | Air Products Access               |                     |                         | 0%                     |              |
| Hobson Way<br>Kiln Lane                                 | 0%                       | 23%              | 16%<br>0%              | 6%<br>21%         | Hobson Way<br>Kiln Lane           |                     | 16%                     | 24%<br>25%             | 119<br>729   |
| Laporte Road  | U%                       | 18%              | 77%                    | 2176              | Laporte Road                      |                     | 5%                      | 22%                    | 72%          |
| 2032 Baseline + Com                                     | mitted                   |                  |                        |                   |                                   |                     |                         |                        |              |
| PCU   | eu                       |                  |                        |                   |                                   |                     |                         |                        |              |
| AM  | Air Products Access      | Hobson Way       | Kiln Lane              | Laporte Road      | PM                                | Air Products Access | Hobson Way              | Kiln Lane              | Laporte Road |
| Air Products Access                                     | 0                        | 1                | 1                      | . 0               | Air Products Access               |                     | 0 0                     | 4                      |              |
| Hobson Way  | 0                        | 0                | 141                    | 307               | Hobson Way                        |                     | 0 0                     | 140                    | 69           |
| Kiln Lane<br>Laporte Road                               | 1 0                      | 135<br>41        | 2<br>46                | 190<br>0          | Kiln Lane<br>Laporte Road         |                     | 0 115<br>0 293          | 4<br>214               | 36           |
| HGV %   |                          |                  |                        |                   | •                                 |                     |                         |                        |              |
| AM  |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
| Air Products Access                                     | Air Products Access      | Hobson Way       | Kiln Lane              | Laporte Road      | Air Products Access               | Air Products Access | Hobson Way              | Kiln Lane              | Laporte Road |
| Hobson Way  |                          | U76              | 36%                    | 6%                | Hobson Way                        |                     |                         | 23%                    | 119          |
| Kiln Lane<br>Laporte Road                               | 0%                       | 41%<br>18%       | 0%<br>45%              | 24%               | Kiln Lane<br>Laporte Road         |                     | 17%<br>5%               | 25%<br>20%             | 689          |
| 2032 Baseline + Com                                     | mitted + Development     | 16%              | 4376                   |                   | Espoite Nosu                      |                     | 576                     | 20%                    |              |
| PCU<br>AM   |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
|   | Air Products Access      |                  |                        | Laporte Road      |                                   | Air Products Access |                         |                        | Laporte Road |
| Air Products Access                                     | 0                        | 1                | 1                      | 0                 | Air Products Access               |                     | 0 0                     | 4                      |              |
| Hobson Way<br>Kiln Lane                                 | 0                        | 0<br>135         | 141<br>2               | 333<br>190        | Hobson Way<br>Kiln Lane           |                     | 0 0 0 115               | 140<br>4               | 96<br>36     |
|   | 0                        | 135              | 46                     | 190               | Laporte Road                      |                     | 0 115                   | 214                    | 36           |
|   |                          |                  |                        |                   |                                   |                     |                         |                        |              |
| Laporte Road  |                          |                  |                        |                   |                                   |                     |                         |                        |              |
| Laporte Road<br>HGV %                                   |                          |                  |                        |                   | PM                                |                     |                         |                        |              |
| Laporte Road<br>HGV %<br>AM                             | Air Products Access      |                  |                        | Laporte Road      |                                   | Air Products Access | Hobson Way              |                        | Laporte Road |
| Laporte Road  HGV %  AM  Air Products Access Hobson Way | Air Products Access      | Hobson Way<br>0% | Kiln Lane<br>0%<br>36% | Laporte Road      | PM Air Products Access Hobson Way | Air Products Access | Hobson Way              | Kiln Lane<br>0%<br>23% | Laporte Road |
| Laporte Road  HGV %  AM  Air Products Access            | Air Products Access      |                  | 0%                     |                   | Air Products Access               | Air Products Access | Hobson Way<br>17%<br>5% | 0%                     |              |

# Kings Road/ A1173 North East Lincolnshire 001 2021-2025 2021-2032 AM 1.0298 1.0773 PM 1.0291 1.075

|               |               |        | base          | iiie          |               |       |               |
|---------------|---------------|--------|---------------|---------------|---------------|-------|---------------|
| PCU           |               |        |               |               |               |       |               |
| AM (7-8)      |               |        |               | PM (16-17)    |               |       |               |
|               | Kings Road NW |        |               |               | Kings Road NW |       |               |
| Kings Road NW | 0             | 37     | 51            | Kings Road NW | 0             | 149   | 147           |
| A1173         | 214           | 1      | 438           | A1173         | 27            | 0     | 232           |
| Kings Road NE | 110           | 153    | 1             | Kings Road NE | 50            | 470   | 1             |
| HGVs          |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW |        |               |               | Kings Road NW |       |               |
| Kings Road NW | 0             |        | 13            | Kings Road NW | 0             | 25    | 9             |
| A1173         | 26            | 0      | 67            | A1173         | 14            | -     | 47            |
| Kings Road NE | 11            | 36     | 0             | Kings Road NE | 12            | 51    | 0             |
|               |               |        | Committed D   | evelopment    |               |       |               |
| PCU           |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW |               | 31     |               | Kings Road NW |               | 54    |               |
| A1173         | 61            |        | 1             | A1173         | 32            |       | 1             |
| Kings Road NE |               |        |               | Kings Road NE |               |       |               |
| HGVs          |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW |               | 2      |               | Kings Road NW |               | 5     |               |
| A1173         | 7             |        | 1             | A1173         | 5             |       | 1             |
| Kings Road NE |               |        |               | Kings Road NE |               |       |               |
|               |               |        | Proposed De   | velopment     |               |       |               |
| PCU           |               |        |               |               |               |       |               |
| AM (7-8)      |               | Imming | gham          | PM (17-18)    |               | Stena |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW | 0             | 3      | 8             | Kings Road NW | 0             | 3     | 8             |
| A1173         | 3             | 0      | 161           | A1173         | 3             | 0     | 216           |
| Kings Road NE | 8             | 100    | 0             | Kings Road NE | 8             | 139   | 0             |
| HGVs          |               |        |               |               |               |       |               |
| AM            |               |        |               | PM            |               |       |               |
|               | Kings Road NW | A1173  | Kings Road NE |               | Kings Road NW | A1173 | Kings Road NE |
| Kings Road NW | 0             |        | 0             | Kings Road NW | 0             | 0     | 0             |
| A1173         | 0             | 0      | 66            | A1173         | 0             | 0     | 90            |
| Kings Road NE | 0             |        | 0             | Kings Road NE | 0             | 52    | 0             |
| J. 100.11     | -             |        | -             | 5             | -             |       | -             |

| 2025 Baseline<br>PCU<br>AM                                      |   |                    |                      | PM                     |                    |              |                          |
|---|---|--------------------|----------------------|------------------------|--------------------|--------------|--------------------------|
|   | Kings Road NW   |                    |                      |                        | Kings Road NW      |              |                          |
| Kings Road NW   | 0   |                    | 53                   | Kings Road NW          | 0                  |              | 1                        |
| A1173   | 220   | 1                  | 451<br>1             | A1173                  | 28                 | 0            | 2                        |
| Kings Road NE   | 113   | 158                | 1                    | Kings Road NE          | 51                 | 484          |                          |
| HGV %<br>AM   |   |                    |                      | PM                     |                    |              |                          |
|   | Kings Road NW   |                    |                      |                        | Kings Road NW      |              |                          |
| Kings Road NW   |   | 73%                | 25%                  | Kings Road NW          |                    | 17%          | 6                        |
| A1173<br>Kings Road NE  | 12%<br>10%  | 0%<br>24%          | 15%                  | A1173<br>Kings Road NE | 52%<br>24%         | 11%          | 20                       |
| 2025 Baseline +   |   | 24/0               | 070                  | King J Nodu NE         | 2470               | 11/0         |                          |
| PCU   | committee   |                    |                      |                        |                    |              |                          |
| AM  | Kings Road NW   | A1172              | Vinar Pond NE        | PM                     | Kings Road NW      | A1172        | Vings Pond NE            |
| Kings Road NW   | O Contract of the contract of |                    | 53                   | Kings Road NW          | O CITIES ROBULIAVE |              | 1!                       |
| A1173   | 281   |                    | 452                  | A1173                  | 60                 | 0            | 24                       |
| Kings Road NE   | 113   | 158                | 1                    | Kings Road NE          | 51                 | 484          |                          |
| HGV %   |   |                    |                      |                        |                    |              |                          |
| AM  | Kings Road NW   | A1172              | Vinar Pond NE        | PM                     | Kings Road NW      | A1172        | Vings Pond NE            |
| Kings Road NW   | WM DEUN cgilin  | A1173<br>43%       | Kings Road NE<br>25% | Kings Road NW          | WIND BOOM SAILIY   | A1173        | Kings Road NE            |
| A1173   | 12%   | 0%                 | 16%                  | A1173                  | 33%                | 23/0         | 21                       |
| Kings Road NE   | 10%   | 24%                | 0%                   | Kings Road NE          | 24%                | 11%          | 0                        |
|   | Committed + Deve  | lopmen             | t                    |                        |                    |              |                          |
| PCU<br>AM   |   |                    |                      | PM                     |                    |              |                          |
|   | Kings Road NW   | A1173              | Kings Road NE        | FIMI                   | Kings Road NW      | A1173        | Kings Road NE            |
| Kings Road NW   | 0   |                    | 60                   | Kings Road NW          | 0                  | 210          | 15                       |
| A1173   | 284   | 1                  | 613                  | A1173                  | 63                 | 0            | 45                       |
| Kings Road NE   | 121   | 258                | 1                    | Kings Road NE          | 59                 | 623          |                          |
| HGV %<br>AM   |   |                    |                      | PM                     |                    |              |                          |
| AM  | Kings Road NW   | Δ1173              | Kings Road NF        | PIVI                   | Kings Road NW      | Δ1173        | Kings Road NF            |
| Kings Road NW   | Kings Houd IVV  | 41%                | 22%                  | Kings Road NW          | Kings Houd IVV     | 15%          | 6                        |
| A1173   | 12%   | 0%                 | 22%                  | A1173                  | 31%                |              | 319                      |
| Kings Road NE   | 9%  | 29%                | 0%                   | Kings Road NE          | 21%                | 17%          | 0                        |
| 2032 Baseline<br>PCU  |   |                    |                      |                        |                    |              |                          |
| AM  |   |                    |                      | PM                     |                    |              |                          |
|   |   |                    | Kings Road NE        |                        | Kings Road NW      |              |                          |
| Kings Road NW<br>A1173  | 0<br>296  | 73<br>1            | 55<br>473            | Kings Road NW<br>A1173 | 0<br>29            | 160<br>0     | 15<br>24                 |
| Kings Road NE   | 119   | 165                | 1                    | Kings Road NE          | 54                 | 505          | 24                       |
| -   |   |                    |                      |                        |                    |              |                          |
| HGV %<br>AM   |   |                    |                      | PM                     |                    |              |                          |
|   | Kings Road NW   | A1173              | Kings Road NE        |                        | Kings Road NW      | A1173        | Kings Road NE            |
| Kings Road NW   |   | 73%                | 25%                  | Kings Road NW          |                    | 17%          | 6                        |
| A1173<br>Kings Road NE  | 12%<br>10%  | 0%<br>24%          | 15%                  | A1173<br>Kings Road NE | 52%<br>24%         | 11%          | 20                       |
| 0   |   | 2470               | 0/8                  | Kings Road IVE         | 24/0               | 11/0         | 0.                       |
| 2032 Baseline +<br>PCU  | Committed   |                    |                      |                        |                    |              |                          |
| AM  |   |                    |                      | PM                     |                    |              |                          |
|   | Kings Road NW   |                    | Kings Road NE        |                        | Kings Road NW      |              | Kings Road NE            |
| Kings Road NW<br>A1173  | 357   | 104                | 474                  | Kings Road NW<br>A1173 | 61                 | 214          | 25                       |
| Kings Road NE   | 119   | 165                | 1                    | Kings Road NE          | 54                 | 505          |                          |
| HGV %   |   |                    |                      |                        |                    |              |                          |
| AM  | Kings Road NW   | 41177              | Vinne Dand NE        | PM                     | Kings Road NW      | 41173        | Viene Deed NE            |
| Kings Road NW   | Kings Koad NW   | A11/3<br>43%       | KINGS KOAD NE<br>25% | Kings Road NW          | Kings Koad NW      | A11/3        | Kings Koad NE            |
| A1173   | 12%   | 0%                 | 16%                  | A1173                  | 33%                | 13/0         | 219                      |
| Kings Road NE   | 10%   | 24%                | 0%                   | Kings Road NE          | 24%                | 11%          | 0                        |
|   | Committed + Deve  | lopmen             | t                    |                        |                    |              |                          |
| PCU<br>AM   |   |                    |                      | PM                     |                    |              |                          |
| •   | Kings Road NW   | A1173              | Kings Road NE        |                        | Kings Road NW      | A1173        | Kings Road NE            |
|   | 0   | 107                | 63                   | Kings Road NW          | 0                  | 217          | 16                       |
|   | _   | 1                  | 635                  | A1173                  | 64                 | 0            | 46                       |
| A1173   | 360   |                    | 1                    | Kings Road NE          | 61                 | 645          |                          |
| Kings Road NW<br>A1173<br>Kings Road NE                         | 360<br>126  | 265                | =                    |                        |                    |              |                          |
| A1173<br>Kings Road NE<br>HGV %                                 |   | 265                | -                    | -                      |                    |              |                          |
| A1173<br>Kings Road NE  | 126   |                    | Kings Road NE        | PM                     | Kings Road MA      | A1172        | Kings Pood AF            |
| A1173<br>Kings Road NE<br>HGV %                                 |   |                    | Kings Road NE        | -                      | Kings Road NW      | A1173<br>15% |                          |
| A1173<br>Kings Road NE<br>HGV %<br>AM<br>Kings Road NW<br>A1173 | 126<br>Kings Road NW  | A1173<br>41%<br>0% | 22%<br>22%           | PM Kings Road NW A1173 | 31%                | 15%          | Kings Road NE<br>6<br>31 |
| A1173<br>Kings Road NE<br>HGV %<br>AM<br>Kings Road NW          | 126<br>Kings Road NW  | A1173<br>41%       | 22%                  | PM<br>Kings Road NW    |                    |              | 6                        |

|                 |            |          |         |         | Daseillie          |           |        |           |         |                             |
|-----------------|------------|----------|---------|---------|--------------------|-----------|--------|-----------|---------|-----------------------------|
| PCU             |            |          |         |         |                    |           |        |           |         | North East Lincolnshire 007 |
| AM (7-8)        |            |          |         |         | PM (16-17          | ")        |        |           |         | 2021-2025 2021-             |
|                 | Kiln Lane  | Access   | A1173 W | A1173 N |                    | Kiln Lane | Access | A1173 W   | A1173 N | AM 1.0269 1.0               |
| Kiln Lane       | 0          | 0        | 81      | 74      | Kiln Lane          | 0         | 4      | 445       | 89      | PM 1.0255 1.0               |
| Access          | 0          | 0        | 0       | 0       | Access             | 0         | 0      | 2         | 0       |                             |
| A1173 W         | 407        | 2        | . 0     | 560     | A1173 W            | 112       | 0      | 0         | 149     |                             |
| A1173 N         | 70         | 0        | 113     | 0       | A1173 N            | 74        | 0      | 531       | 0       |                             |
|                 |            |          |         |         |                    |           |        |           |         |                             |
| HGVs            |            |          |         |         |                    |           |        |           |         |                             |
| AM              |            |          |         |         | PM                 |           |        |           |         |                             |
|                 | Kiln Lane  | Access   | A1173 W | A1173 N |                    | Kiln Lane | Access | A1173 W   | A1173 N |                             |
| Kiln Lane       | 0          | 0        | 40      | 37      | Kiln Lane          | 0         | 0      | 37        | 23      |                             |
| Access          | 0          | 0        | 0       | 0       | Access             | 0         | 0      | 0         | 0       |                             |
| A1173 W         | 43         | 0        | 0       | 57      | A1173 W            | 63        | 0      | 0         | 16      |                             |
| A1173 N         | 18         | 0        | 44      | 0       | A1173 N            | 31        | 0      | 46        | 0       |                             |
|                 |            |          |         |         |                    |           |        |           |         |                             |
|                 |            |          |         | Commit  | ted Development    |           |        |           |         |                             |
| PCU             |            |          |         |         |                    |           |        |           |         |                             |
| AM              |            |          |         |         | PM                 |           |        |           |         |                             |
|                 | Kiln Lane  | Access   | A1173 W |         |                    | Kiln Lane | Access |           |         |                             |
| Kiln Lane       |            |          | 51      |         | Kiln Lane          |           |        | 27        | 0       |                             |
| Access          |            |          | 43      |         | Access             |           |        | 43        |         |                             |
| A1173 W         | 67         |          |         | 178     | A1173 W            | 19        |        |           | 5       |                             |
| A1173 N         |            |          | 14      |         | A1173 N            |           |        | 183       |         |                             |
|                 |            |          |         |         |                    |           |        |           |         |                             |
| HGVs            |            |          |         |         |                    |           |        |           |         |                             |
| AM              |            |          |         |         | PM                 |           |        |           |         |                             |
|                 | Kiln Lane  | Access   | A1173 W | A1173 N |                    | Kiln Lane | Access |           | A1173 N |                             |
| Kiln Lane       |            |          | 36      |         | Kiln Lane          |           |        | 5         |         |                             |
| Access          |            |          |         |         | Access             |           |        |           |         |                             |
| A1173 W         | 43         |          |         | 0       | A1173 W            | 4         |        |           | 0       |                             |
| A1173 N         |            |          | 0       |         | A1173 N            |           |        | 0         |         |                             |
|                 |            |          |         |         |                    |           |        |           |         |                             |
| DCI I           |            |          |         | Propos  | ed Development     |           |        |           |         |                             |
| PCU<br>AM (7-8) |            | Image: - |         |         | DN4 /47 44         | 2)        | Stena  |           |         |                             |
| MIVI (7-8)      | Mile Leave | Imming   |         | *****   | PM (17-18          |           |        | *****     |         |                             |
| Miles I e e e   |            |          | A1173 W |         | Mile Leve          | Kiln Lane |        |           |         |                             |
| Kiln Lane       | 0          |          |         |         | Kiln Lane          | 0         |        |           |         |                             |
| Access          | 0          |          |         |         | Access             | 0         |        |           | 0       |                             |
| A1173 W         | 0          |          |         |         | A1173 W            | 0         |        |           |         |                             |
| A1173 N         | 0          | 0        | 96      | 0       | A1173 N            | 0         | 0      | 132       | 0       |                             |
| HGVs            |            |          |         |         |                    |           |        |           |         |                             |
| AM              |            |          |         |         | PM                 |           |        |           |         |                             |
| CIVI            | Kiln Lann  | Accors   | A1173 W | A1172 N | rivi               | Kiln Lane | Accors | A1172 \A/ | A1172 N |                             |
| Kiln Lane       | KIIN Lane  |          |         |         | Kiln Lane          | Kiin Lane |        |           | A11/3 N |                             |
|                 |            |          |         |         |                    |           | 0      |           |         |                             |
| Access          | 0          |          |         |         | Access             | 0         |        |           | 0       |                             |
| A1173 W         | 0          |          |         |         | A1173 W<br>A1173 N | 0         | 0      | 0         | 90      |                             |
| A1173 N         | 0          |          |         |         |                    | 0         |        | 52        | 0       |                             |

Baseline

| No.   Part   P   |            | A1173/           | Kiln I a | ine        |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
|--|------------|------------------|----------|------------|---------|------------|-------------|--------|----------|---------|------------|-------------|----------|------------|---------|------------|-------------|--------|---------|---------|
| Feb    | 2025 Base  |                  | 20       |            |         |            |             |        |          |         | 2032 Base  | eline       |          |            |         |            |             |        |         |         |
| Min  |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| Min  |            |                  |          |            |         | PM         |             |        |          |         |            |             |          |            |         | PM         |             |        |         |         |
| No   No   No   No   No   No   No   No  | Aivi       | Viln Lano        | Accore   | A1172 W/   | A1172 N | rivi       | Viln Lano   | Accore | A1172 W/ | A1172 N | Alvi       | Viln Lano   | Accore   | A1172 W    | A1172 N | FIVE       | Viln Lano   | Accore | A1172 W | A1172 N |
| Access   10  | Kiln Lane  |                  |          |            |         | Kiln Lane  |             |        |          |         | Kiln I ano |             |          |            |         | Kiln Lane  |             |        |         |         |
| A173   M   A18   |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| HGY    |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| May  |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| Mile   | MII/3 IV   | 12               | U        | 110        | U       | A11/3 N    | /6          | 0      | 343      | U       | A11/5 N    | /5          |          | 121        |         | A11/3 N    | /9          | U      | 303     | U       |
| Mile   | HGV %      |                  |          |            |         |            |             |        |          |         | HGV %      |             |          |            |         |            |             |        |         |         |
| No   |            |                  |          |            |         | DM         |             |        |          |         |            |             |          |            |         | DM         |             |        |         |         |
| Nit lane   | Aivi       | Viln Lano        | Accore   | A1172 W/   | A1172 N | rivi       | Viln Lano   | Accore | A1172 W/ | A1172 N | Alvi       | Viln Lano   | Accore   | A1172 W    | A1172 N | FIVE       | Viln Lano   | Accore | A1172 W | A1172 N |
| Access   | Viln Lano  | KIIII Laile      | Access   |            |         | Viln Lano  | KIIII Laile |        |          |         | Viln Lano  | Killi Lalle | Access   |            |         | Viln Lane  | KIIII Laire |        |         |         |
| A1173 W   11%   08%   10%   A1173 W   25%   08%   11%   A1173 W   25%   08%   11%   A1173 W   25%   26%   39%   10%   A1173 W   32%   08%   13%   39%   10%   13%   39%   10%   13%    |            |                  |          | 4370       | 3070    |            |             | 076    |          | 2070    |            |             |          | 4370       | 30%     |            |             | 070    |         | 2070    |
| A173 N   |            | 11%              | 0%       |            | 10%     |            | 56%         | 0%     | 0,0      | 11%     |            | 11%         | 0%       |            | 10%     |            | 56%         | 0%     | 0,0     | 11%     |
| PCU   AM   |            |                  | 0,0      | 20%        | 2070    |            |             | 0,0    | 0%       | 1170    |            |             |          |            |         |            |             |        | 006     | 11/0    |
| PCU  | AII/JIN    | 20/0             |          | 3370       |         | AII/JIV    | 4270        |        | 370      |         | AII/JIV    | 20/0        |          | 3370       |         | AII/JIV    | 42/0        |        | 370     |         |
| PCU  | 2025 Baco  | line + Comn      | sitted   |            |         |            |             |        |          |         | 2022 Bar   | olino + Com | mittad   |            |         |            |             |        |         |         |
| Militane   Access   Al173 W   Al173 N   Al17   |            | illie + Collilli | iitteu   |            |         |            |             |        |          |         |            | enne + conn | iiitteu  |            |         |            |             |        |         |         |
| No   |            |                  |          |            |         | DM         |             |        |          |         |            |             |          |            |         | DM         |             |        |         |         |
| Kiln Lane  | Aivi       | Viln Lano        | Accore   | A1172 W/   | A1172 N | rivi       | Viln Lano   | Accore | A1172 W/ | A1172 N | Alvi       | Viln Lano   | Accore   | A1172 W    | A1172 N | FIVE       | Viln Lano   | Accore | A1172 W | A1172 N |
| Access   0   | Kiln Lane  |                  |          |            |         | Kiln Lane  |             |        |          |         | Kiln I ano |             |          |            |         | Kiln Lane  |             |        |         |         |
| A1173 W  |            |                  |          |            |         |            | -           |        |          |         |            |             |          |            |         |            |             |        |         |         |
| HGV %   AIT 3 N  |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| Holy %   AM  |            |                  |          |            |         |            |             | -      |          |         |            |             |          |            |         |            |             |        |         |         |
| March   Marc   | AII/JIN    | 12               |          | 130        | · ·     | AII/JIV    | 70          |        | 720      | U       | AII/JIV    | ,,          |          | 134        |         | AII/JIV    | /3          |        | 740     |         |
| March   Marc   | HGV %      |                  |          |            |         |            |             |        |          |         | HGV %      |             |          |            |         |            |             |        |         |         |
| No   |            |                  |          |            |         | PM         |             |        |          |         |            |             |          |            |         | PM         |             |        |         |         |
| Kilh Lane  | 7441       | Kiln Lane        | Arress   | A1173 W    | A1173 N |            | Kiln Lane   | Acress | A1173 W  | A1173 N | 744        | Kiln Lane   | Access   | A1173 W    | A1173 N |            | Kiln Lane   | Access | A1173 W | A1173 N |
| Access   O%  | Kiln I ane |                  |          |            |         | Kiln Lane  |             |        |          |         | Kiln I ano |             |          |            |         | Kiln Lane  |             |        |         |         |
| A1173 W   18%   0%   28%   35%   A1173 W   51%   51%   6%   A1173 W   26%   35%   A1173 W   51%   6%   6%  |            |                  |          |            | 3070    |            |             | 0,0    |          | 2070    |            |             |          |            |         |            |             | 0,0    |         | 2070    |
| A1173 N 26% 35% A1173 N 42% 66% FOR A1173 N 26% 35% A1173 N 42% 66% FOR A1173 N 26% 35% A1173 N 42% 66% FOR A1173 N 4173 N 42% 66% FOR A1173 N 4173 N 4173 N 42% 66% FOR A1173 N 4173 N 42% 66% FOR A1173 N 4173 N 41 |            | 18%              | 0%       | 0,0        | 8%      |            | 51%         |        | 0,0      | 10%     |            | 18%         | 0%       |            |         |            | 51%         |        | 0,0     | 10%     |
| Policy   P   |            |                  |          | 35%        |         |            |             |        | 6%       |         |            |             |          |            |         |            |             |        | 6%      |         |
| PCJ    | /122/3/10  | 2070             |          | 3370       |         | 7127311    | 42/0        |        | 0,0      |         | 7127311    | 20/0        |          | 3370       |         | 7127311    | 42/0        |        | 0,0     |         |
| PCJ    | 2025 Race  | line + Comn      | itted +  | Dovelonme  | int     |            |             |        |          |         | 2032 Rass  | oline + Com | mitted + | Develonm   | ont     |            |             |        |         |         |
| AM   PM   FM   FM   FM   FM   FM   FM   F  |            |                  |          | Developine |         |            |             |        |          |         |            |             |          | Developiii | Cit     |            |             |        |         |         |
| Note      |            |                  |          |            |         | PM         |             |        |          |         |            |             |          |            |         | PM         |             |        |         |         |
| Kiln Lane 0 0 134 76 Kiln Lane 0 4 484 92 Kiln Lane 0 0 138 79 Kiln Lane 0 4 501 95 Access 0 0 0 43 0 Access 0 0 0 45 0 Access 0 0 0 45 0 Access 0 0 43 0 Access 0 0 45 0 Access 0 0 43 0 Access 0 0 0 45 0 Access 0 0 43 0 Access 0 0 0 45 0 Access 0 0 43 0 Access 0 0 0 45 0 Access 0 0 43 0 Access 0 0 0 45 0 Access 0 Access 0 0 45 0 Access 0 0 45 0 Access  |            | Kiln I ano       | Arress   | Δ1173 W/   | Δ1173 N |            | Kiln Lane   | Arress | Δ1173 W  | Δ1173 N |            | Kiln Lane   | Arress   | Δ1173 W    | Δ1173 N |            | Kiln Lane   | Arress | Δ1173 W | Δ1173 N |
| Access 0 0 0 43 0 Access 0 0 0 45 0 Access 0 0 0 43 0 Access 0 0 0 45 0 Access 0 0 0 43 0 Access 0 0 0 45 0 Access 0 0 0 Access 0 0 0 45 0 Access 0 0 0 45 0 Access 0 0 0 Access 0 | Kiln Lane  |                  |          |            |         | Kiln Lane  |             |        |          |         | Kiln Lane  |             |          |            |         | Kiln Lane  |             |        |         |         |
| A1173 W 485 2 0 917 A1173 W 134 0 0 0 859 0 A1173 W 502 2 0 940 A1173 W 138 0 0 383 A1173 W 131    A1173 M 485 2 0 226 0 0 A1173 M 75 0 859 0 A1173 M 75 0 230 0 A1173 M 79 0 880 0 880 0 A1173 M 75 |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| A1173 N 72 0 226 0 A1173 N 76 0 859 0 A1173 N 75 0 230 0 A1173 N 79 0 880 0  HGV % AM Kiln Lane  |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| HGV % AM  Kiln Lane Acces   1173 W Al173 N   PM  Kiln Lane   Acces   58%   50%   Kiln Lane   Acces   Al173 W Al173 N   Acces   Al173 W Al173 N   Kiln Lane   Acces   Acces   Acces   Acces   Acces   Acces   Acces   Acces   Acces   Al173 W Al173 N   Acces   Acces   Acces   Al173 W Al173 N   Acces   Acces   Acces   Al173 W Al173 N   Al173 N   Acces   Acces   Acces   Al173 W Al173 N   |            |                  |          |            |         |            |             |        |          |         |            |             |          |            |         |            |             |        |         |         |
| AM   | /122/3/10  |                  |          | 220        |         | 7127311    | ,,,         |        | 033      |         | 7127311    | ,,,         |          | 250        |         | 7127311    |             | ·      | 000     |         |
| AM   | HGV %      |                  |          |            |         |            |             |        |          |         | HGV %      |             |          |            |         |            |             |        |         |         |
| Kin Lane   Access   A173 W   A1173 W   Sin Lane   Access   A173 W   A1173 W   Sin Lane   Access   A1173 W   A1173 W   A1173 W   A1173 W   Access   A1173 W   |            |                  |          |            |         | DM         |             |        |          |         |            |             |          |            |         | DM         |             |        |         |         |
| Kiln Lane S8% 50% Kiln Lane 0% 9% 26% Kiln Lane 58% 50% Kiln Lane 0% 9% 26% Access 0%  | 7441       | Kiln I ano       | Arress   | Δ1173 W    | Δ1173 N | rivi       | Kiln Lane   | Arress | Δ1173 W  | Δ1173 N | AW         | Kiln Lane   | Arress   | Δ1173 W    | Δ1173 N | FIVE       | Kiln Lane   | Arross | Δ1173 W | Δ1173 N |
| Access 0% Access 0% Access 0% Access 0% Access 0% Access 0% A1173 W 18% 0% 14% A1173 W 51% 28% A1173 W 18% 0% 14% A1173 W 51% 28%  | Kiln Lane  |                  | 33       |            |         | Kiln I ano | conc        |        |          |         | Kiln I ano | Luile       | . 100033 |            |         | Kiln I ano | confe       |        |         |         |
| A1173 W 18% 0% 14% A1173 W 51% 28% A1173 W 18% 0% 14% A1173 W 51% 28%  |            |                  |          |            | 2070    |            |             | 0,0    |          | -370    |            |             |          |            |         |            |             | 0,0    |         | 2070    |
|  |            | 18%              | 0%       | 3/6        | 14%     |            | 51%         |        | 070      | 28%     |            | 18%         | 0%       |            |         |            | 51%         |        | 3,6     | 28%     |
|  | A1173 N    | 26%              | 0,0      | 36%        | -470    | A1173 N    | 42%         |        | 12%      | -370    | A1173 N    | 26%         |          | 36%        |         | A1173 N    | 42%         |        | 12%     | 2070    |

| PCU            |                |          |                |         | Baseline         |                |         |                |         |
|----------------|----------------|----------|----------------|---------|------------------|----------------|---------|----------------|---------|
| AM (7-8)       |                |          |                |         | PM (16-17)       |                |         |                |         |
|                | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| SHIIP Access S | 0              | 75       | 0              | 27      | SHIIP Access S   | 0              | 143     | 0              | 37      |
| A1173 W        | 138            | 0        | 25             | 218     | A1173 W          | 102            | 0       | 24             | 1010    |
| SHIIP Access N | 0              | 16       | 0              | 6       | SHIIP Access N   | 0              | 28      | 0              | 7       |
| A1173 E        | 28             | 988      | 5              | 0       | A1173 E          | 23             | 292     | 5              | 0       |
| HGVs           |                |          |                |         |                  |                |         |                |         |
| AM             |                |          |                |         | PM               |                |         |                |         |
|                | SHIIP Access S |          | SHIIP Access N |         |                  | SHIIP Access S |         | SHIIP Access N |         |
| SHIIP Access S | 0              | 15       | 0              | 9       | SHIIP Access S   | 0              | 12      | 0              | 6       |
| A1173 W        | 10             | 0        | 2              | 88      | A1173 W          | 25             | 0       | 6              |         |
| SHIIP Access N | 0              | 4        | 0              | 2       | SHIIP Access N   | 0              | 3       | 0              |         |
| A1173 E        | 3              | 106      | 1              | 0       | A1173 E          | 6              | 105     | 2              | 0       |
|                |                |          |                | Commit  | tted Development |                |         |                |         |
| PCU            |                |          |                |         |                  |                |         |                |         |
| AM             |                |          |                |         | PM               |                |         |                |         |
|                | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| SHIIP Access S |                |          |                |         | SHIIP Access S   |                |         |                |         |
| A1173 W        |                |          |                | 68      | A1173 W          |                |         |                | 19      |
| SHIIP Access N |                |          |                |         | SHIIP Access N   |                |         |                |         |
| A1173 E        |                | 59       |                |         | A1173 E          |                | 44      |                |         |
| HGVs           |                |          |                |         |                  |                |         |                |         |
| AM             |                |          |                |         | PM               |                |         |                |         |
|                | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| SHIIP Access S |                |          |                |         | SHIIP Access S   |                |         |                |         |
| A1173 W        |                |          |                | 52      | A1173 W          |                |         |                | 15      |
| SHIIP Access N |                |          |                |         | SHIIP Access N   |                |         |                |         |
| A1173 E        |                | 41       |                |         | A1173 E          |                | 16      |                |         |
|                |                |          |                | Propos  | ed Development   |                |         |                |         |
| PCU            |                |          |                |         |                  |                |         |                |         |
| AM (7-8)       |                | Immingha |                |         | PM (17-18)       |                | Stena   |                |         |
|                | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| SHIIP Access S |                |          |                |         | SHIIP Access S   |                |         |                |         |
| A1173 W        |                |          |                | 164     | A1173 W          |                |         |                | 219     |
| SHIIP Access N |                |          |                |         | SHIIP Access N   |                |         |                |         |
| A1173 E        |                | 96       |                |         | A1173 E          |                | 132     |                |         |
| HGVs           |                |          |                |         |                  |                |         |                |         |
| AM             |                |          |                |         | PM               |                |         |                |         |
|                | SHIIP Access S | A1173 W  | SHIIP Access N | A1173 E |                  | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
| SHIIP Access S |                |          |                |         | SHIIP Access S   |                |         |                |         |
| A1173 W        |                |          |                | 66      | A1173 W          |                |         |                | 90      |
| SHIIP Access N |                |          |                |         | SHIIP Access N   |                |         |                |         |
| A1173 E        |                | 36       |                |         | A1173 E          |                | 52      |                |         |

North East Lincolnshire 007 2021-2025 2021-2032 AM 1.0269 1.0683 PM 1.0255 1.0649

|                |                  | A1173/ S  | HIIP           |       |                |                |       |                |     |        |                 |                |      |                |         |         |                |                |       |               |      |         |
|----------------|------------------|-----------|----------------|-------|----------------|----------------|-------|----------------|-----|--------|-----------------|----------------|------|----------------|---------|---------|----------------|----------------|-------|---------------|------|---------|
| 2025 Baseline  |                  |           |                |       |                |                |       |                |     |        | 2032 Baseline   |                |      |                |         |         |                |                |       |               |      |         |
| PCU            |                  |           |                |       |                |                |       |                |     |        | PCU             |                |      |                |         |         |                |                |       |               |      |         |
| AM             |                  |           |                |       | PM             |                |       |                |     |        | AM              |                |      |                |         |         | PM             |                |       |               |      |         |
|                | SHIIP Access S   | A1173 W 9 | SHIIP Access N | A1173 | E              | SHIIP Access S | A1173 | W SHIIP Access | N A | 1173 E |                 | SHIIP Access S | A    | 1173 W SHIIP A | coess N | A1173 E |                | SHIIP Access S | A1173 | W SHIIP Acce  | ss N | A1173 E |
| SHIIP Access S | 0                | 77        |                | 0 2   | 8 SHIIP Acces  | S (            | ) 1   | 47             | 0   | 38     | SHIIP Access S  | 0              | 0    | 80             | 0       | 29      | SHIIP Access S | 0              | 1     | 2             | 0    | 39      |
| A1173 W        | 142              | 0         | 26             | 6 22  | 4 A1173 W      | 10             | 5     | 0              | 25  | 1036   | A1173 W         | 147            | 7    | 0              | 27      | 233     | A1173 W        | 109            |       | 0             | 26   | 1076    |
| SHIIP Access N | 0                | 16        |                | 0     | 6 SHIIP Acces: | N (            |       | 29             | 0   | 7      | SHIIP Access N  | 0              | 0    | 17             | 0       | 6       | SHIIP Access N | 0              |       | 10            | 0    | 7       |
| A1173 E        | 29               | 1015      | 9              | 5     | 0 A1173 E      | 2              | 4 2   | 99             | 5   | 0      | A1173 E         | 30             | 0    | 1055           | 5       | 0       | A1173 E        | 24             | 3     | 1             | 5    | 0       |
| HGV %          |                  |           |                |       |                |                |       |                |     |        | HGV %           |                |      |                |         |         |                |                |       |               |      |         |
| AM             |                  |           |                |       | PM             |                |       |                |     |        | AM              |                |      |                |         |         | PM             |                |       |               |      |         |
|                | SHIIP Access S   | 41173 W S | HIIP Access N  | Δ1173 |                | SHIIP Acress S | Δ1173 | W SHIIP Access | N A | 1173 F |                 | SHIIP Acress S | . Δ  | 1173 W SHIIP A | ness N  | Δ1173 F |                | SHIIP Access S | Δ1173 | W SHIIP Acce  | ee N | 41173 F |
| SHIIP Access S |                  | 20%       |                | 339   |                |                |       | B%             |     | 16%    | SHIIP Access S  |                |      | 20%            |         | 33%     | SHIIP Access S |                |       | %             |      | 16%     |
| A1173 W        | 7%               |           | 89             |       |                | 259            |       |                | 25% | 9%     | A1173 W         | 7%             | 16   |                | 8%      |         | A1173 W        | 25%            |       |               | 25%  | 9%      |
| SHIIP Access N |                  | 25%       |                | 339   |                |                |       | 1%             |     | 29%    | SHIIP Access N  |                |      | 25%            |         | 33%     | SHIIP Access N |                | 11    | 96            |      | 29%     |
| A1173 E        | 11%              | 11%       | 209            |       | A1173 E        | 269            |       |                | 10% | 2370   | A1173 E         | 11%            | 16   | 11%            | 20%     |         | A1173 E        | 26%            | 36    |               | 40%  | 23/4    |
| 2025 Baseline  | + Committed      |           |                |       |                |                |       |                |     |        | 2032 Baseline + | Committed      |      |                |         |         |                |                |       |               |      |         |
| PCU            |                  |           |                |       |                |                |       |                |     |        | PCU             |                |      |                |         |         |                |                |       |               |      |         |
| AM             |                  |           |                |       | PM             |                |       |                |     |        | AM              |                |      |                |         |         | PM             |                |       |               |      |         |
| Aun            | SHIIP Access S   | A1172 W S | WIID Access N  | A1172 |                | SHIID Access S | A1172 | W SHIIP Access | N A | 1172 E |                 | SHIIP Acress S |      | 1173 W SHIIP A | core N  | A1172 E |                | SHIIP Access S | A1172 | A/ SHIID Acce | er N | A1173 E |
| SHIIP Access S | 0                | 77        |                | 0 2   |                |                |       | 47             | 0   | 38     | SHIIP Access S  | O O            |      | 80             | 0       |         | SHIIP Access S | 0              | 1     |               | 0    | 39      |
| A1173 W        | 142              | 0         | 26             |       |                | 10             |       | 0              | 25  | 1055   | A1173 W         | 147            |      | 0              | 27      |         | A1173 W        | 109            |       | 0             | 26   | 1095    |
| SHIIP Access N | 0                | 16        |                |       | 6 SHIIP Acces  |                |       | 29             | 0   | 7      | SHIIP Access N  | 0              |      | 17             | 0       |         | SHIIP Access N | 0              |       | 10            | 0    | 7       |
| A1173 E        | 29               | 1074      |                |       | 0 A1173 E      | 2              |       | 44             | 5   | 0      | A1173 E         | 30             |      | 1114           | 5       |         | A1173 E        | 24             | 3     |               | 5    | ,       |
|                |                  |           |                |       |                |                |       |                |     |        |                 |                |      |                |         |         |                |                |       |               |      |         |
| HGV %          |                  |           |                |       |                |                |       |                |     |        | HGV %           |                |      |                |         |         |                |                |       |               |      |         |
| AM             |                  |           |                |       | PM             |                |       |                |     |        | AM              |                |      |                |         |         | PM             |                |       |               |      |         |
|                | SHIIP Access S   | A1173 W 9 | HIIP Access N  | A1173 | E              | SHIIP Access S | A1173 | W SHIIP Access | N A | 1173 E |                 | SHIIP Access S | A    | 1173 W SHIIP A | cess N  | A1173 E |                | SHIIP Access S | A1173 | W SHIIP Acce  | ss N | A1173 E |
| SHIIP Access S |                  | 20%       |                | 339   | % SHIIP Acces  | s S            |       | 8%             |     | 16%    | SHIIP Access S  |                |      | 20%            |         | 33%     | SHIIP Access S |                | 8     | %             |      | 16%     |
| A1173 W        | 7%               |           | 89             | 6 499 | 6 A1173 W      | 259            | 6     |                | 25% | 11%    | A1173 W         | 7%             | 16   |                | 8%      | 49%     | A1173 W        | 25%            |       |               | 25%  | 11%     |
| SHIIP Access N |                  | 25%       |                | 339   | % SHIIP Acces  | i N            | 1     | 1%             |     | 29%    | SHIIP Access N  |                |      | 25%            |         | 33%     | SHIIP Access N |                | 11    | %             |      | 29%     |
| A1173 E        | 11%              | 14%       | 209            | 6     | A1173 E        | 269            | 6 3   | 6% 4           | 10% |        | A1173 E         | 11%            | 16   | 14%            | 20%     |         | A1173 E        | 26%            | 36    | %             | 40%  |         |
|                |                  |           |                |       |                |                |       |                |     |        |                 |                |      |                |         |         |                |                |       |               |      |         |
|                | + Committed + De | velopment |                |       |                |                |       |                |     |        | 2032 Baseline + | Committed + D  | Deve | elopment       |         |         |                |                |       |               |      |         |
| PCU<br>AM      |                  |           |                |       | PM             |                |       |                |     |        | PCU<br>AM       |                |      |                |         |         | PM             |                |       |               |      |         |
| AM             |                  |           |                |       |                |                |       |                |     |        | AM              |                |      |                |         |         | PM             |                |       |               |      |         |
|                | SHIIP Access S   |           |                |       |                |                |       | W SHIIP Access |     |        |                 |                |      | 1173 W SHIIP A |         |         |                | SHIIP Access S |       |               |      |         |
| SHIIP Access S | 0                | 77        | (              |       |                |                |       | 47             | 0   | 38     | SHIIP Access S  | 0              |      | 80             | 0       |         | SHIIP Access S | 0              | 1     |               | 0    | 39      |
| A1173 W        | 142              | 0         | 26             |       |                | 10             |       | 0              | 25  | 1274   | A1173 W         | 147            |      | 0              | 27      |         | A1173 W        | 109            |       | 0             | 26   | 1314    |
| SHIIP Access N | 0                | 16        |                |       | 6 SHIIP Acces: |                |       | 29             | 0   | 7      | SHIIP Access N  | 0              |      | 17             | 0       |         | SHIIP Access N | 0              |       | 10            | 0    | 7       |
| A1173 E        | 29               | 1169      |                | 5     | 0 A1173 E      | 2              | 1 4   | 76             | 5   | 0      | A1173 E         | 30             | 0    | 1210           | 5       | 0       | A1173 E        | 24             | 4     | 17            | 5    | 0       |
| HGV %          |                  |           |                |       |                |                |       |                |     |        | HGV %           |                |      |                |         |         |                |                |       |               |      |         |
| AM             |                  |           |                |       | PM             |                |       |                |     |        | AM              |                |      |                |         |         | PM             |                |       |               |      |         |
|                | SHIIP Access S   |           | HIIP Access N  |       |                |                | A1173 | W SHIIP Access | N A |        |                 | SHIIP Access S | A    | 1173 W SHIIP A | cess N  |         |                | SHIIP Access S | A1173 | W SHIIP Acce  | ss N |         |
| SHIIP Access S |                  | 20%       |                | 339   | % SHIIP Acces  | :S             |       | B%             |     | 16%    | SHIIP Access S  |                |      | 20%            |         | 33%     | SHIIP Access S |                | 8     | %             |      | 16%     |
| A1173 W        | 7%               |           | 89             | 6 469 | % A1173 W      | 259            | 6     |                | 25% | 16%    | A1173 W         | 7%             | %    |                | 8%      | 46%     | A1173 W        | 25%            |       |               | 25%  | 16%     |
| SHIIP Access N |                  | 25%       |                | 339   | % SHIIP Acces  | N N            | 1     | 1%             |     | 29%    | SHIIP Access N  |                |      | 25%            |         | 33%     | SHIIP Access N |                | 11    | %             |      | 29%     |
|                |                  |           |                |       |                |                |       |                |     |        |                 |                |      |                |         |         |                |                |       |               |      |         |

|                                   |                   |              |                     |      |              | Baseline     |                                   |                  |                |                     |      |                   |
|-----------------------------------|-------------------|--------------|---------------------|------|--------------|--------------|-----------------------------------|------------------|----------------|---------------------|------|-------------------|
| PCU                               |                   |              |                     |      |              |              |                                   |                  |                |                     |      |                   |
| AM (7-8)                          |                   |              |                     |      |              |              | PM (16-17)                        |                  |                |                     |      |                   |
|                                   |                   |              | Port Service Access |      | Conco Access |              |                                   |                  |                | Port Service Access |      | Conco Access      |
| Humber Road                       | 12                | 58           |                     | 310  |              |              | Humber Road                       | 49               | 303            | 0                   |      | 0                 |
| Manby Road<br>Port Service Access | 330               |              | :                   |      |              |              | Manby Road<br>Port Service Access | 115              | 11             | 1                   | 214  |                   |
| Port Service Access               | 367               | 180          |                     |      |              |              | Port Service Access<br>A160       | 223              | 240            |                     | 5    |                   |
|                                   |                   |              |                     |      |              |              |                                   |                  | 240            |                     | 5    |                   |
| Conco Access                      | 0                 |              |                     | 0 0  |              |              | Conco Access                      | 0                | 2              | 0                   | 1    | 0                 |
| HGVs                              |                   |              |                     |      |              |              |                                   |                  |                |                     |      |                   |
| AM                                |                   |              |                     |      |              |              | PM                                |                  |                |                     |      |                   |
|                                   |                   |              | Port Service Access |      |              |              |                                   |                  |                | Port Service Access |      |                   |
| Humber Road                       | 5                 |              |                     | 285  |              |              | Humber Road                       | 28               | 65             | 0                   | 247  | 0                 |
| Manby Road                        | 74                | . 2          |                     |      |              |              | Manby Road                        | 42               | 1              | 1                   | 43   | 0                 |
| Part Service Access               | 4                 |              |                     |      |              |              | Port Service Access               | 0                | 2              |                     | 4    |                   |
| A160                              | 177               | 34           | 1                   |      |              |              | A160                              | 202              | 46             | 3                   | 2    |                   |
| Conco Access                      | 0                 |              |                     | 0 0  |              |              | Conco Access                      | 0                | 0              | 0                   | 1    | 0                 |
| PCU                               |                   |              |                     |      | Comm         | sitted Devel | opment                            |                  |                |                     |      |                   |
| AM                                |                   |              |                     |      |              |              | PM                                |                  |                |                     |      |                   |
|                                   | Humber Road       | Manby Road   | Port Service Access | A160 | Conco Access |              |                                   | Humber Road      | Manby Road     | Port Service Access | A150 | Conco Access      |
| Humber Road                       | 2                 | 23           |                     |      |              |              | Humber Road                       | 10               | 89             |                     | 298  |                   |
| Manby Road                        | 128               |              |                     | 32   |              |              | Manby Road                        | 18               |                |                     | 6    |                   |
| Port Service Access               |                   |              |                     |      |              |              | Port Service Access               |                  |                |                     |      |                   |
| A160                              | 310               | - 11         |                     |      |              |              | A160                              | 4                | 16             |                     |      |                   |
| Conco Access                      |                   |              |                     |      |              |              | Conco Access                      |                  |                |                     |      |                   |
| HENN                              |                   |              |                     |      |              |              |                                   |                  |                |                     |      |                   |
| AM                                |                   |              |                     |      |              |              | PM                                |                  |                |                     |      |                   |
| - Ann                             | Marshau Road      | Marshy Based | Port Service Access | 4166 | Conco Access |              | P MI                              | Monthly Band     | Marrier Street | Port Service Access | 4160 | Conco Access      |
| Humber Road                       | Hamber House      | numby road   |                     |      |              |              | Humber Road                       | Humber Nous      | manney scale   |                     | 0    |                   |
| Manby Road                        |                   |              |                     |      |              |              | Manby Road                        |                  | -              |                     |      |                   |
| Port Service Access               |                   |              |                     |      |              |              | Port Service Access               |                  |                |                     |      |                   |
| A160                              |                   |              |                     |      |              |              | A160                              |                  |                |                     |      |                   |
| Conco Acoess                      |                   |              |                     |      |              |              | Conco Access                      |                  |                |                     |      |                   |
| Conco Acoess                      |                   |              |                     |      |              |              | Conco Access                      |                  |                |                     |      |                   |
| PCU                               |                   |              |                     |      | Prop         | osed Develo  | pment                             |                  |                |                     |      |                   |
| PCU<br>AM (7-8)                   |                   | Imminsham    |                     |      |              |              | PM (17-18)                        |                  | Stena          |                     |      |                   |
|                                   | Marshau Road      |              | Port Service Access | 4166 | Conco Access |              |                                   | Monthly Band     |                | Port Service Access | 4160 | Conco Access      |
| Humber Road                       | number stoad<br>0 |              |                     | 2 18 |              |              | Humber Road                       | number road<br>0 | Maney Road     | PORT SHIVING ACCUSS | 25   | Conco Access<br>0 |
| Manby Road                        |                   |              |                     |      |              |              | Manby Road                        | 4                | 9              |                     | - 45 |                   |
| Port Service Access               |                   |              |                     |      |              |              | Port Service Access               | 4                | 0              |                     |      |                   |
| A160                              | 10                |              |                     |      |              |              | A160                              | 40               | 0              |                     |      |                   |
| A160<br>Conco Acoess              | 30                |              |                     |      |              |              | Conco Access                      | 40               | 0              |                     | 0    |                   |
|                                   | 0                 | ۰            |                     |      |              |              | LONCO ACCESS                      |                  | 0              |                     | 0    | 0                 |
| HGVs                              |                   |              |                     |      |              |              |                                   |                  |                |                     |      |                   |
| AM                                |                   |              |                     |      |              |              | PM                                |                  |                |                     |      |                   |
|                                   |                   |              | Port Service Access |      | Conco Access |              |                                   |                  |                | Port Service Access |      | Conco Access      |
| Humber Road                       | 0                 |              |                     |      |              |              | Humber Road                       | 0                | 0              |                     | 9    |                   |
|                                   | 0                 |              |                     |      |              |              | Manby Road                        | 0                | 0              |                     | 0    |                   |
|                                   |                   |              |                     |      |              |              |                                   |                  |                |                     |      |                   |
| Manby Road<br>Port Service Access | 0                 |              |                     |      |              |              | Port Service Access               | 0                | 0              |                     | 0    |                   |
|                                   | 0<br>12           |              |                     |      |              |              | Port Service Access<br>A160       | 0<br>16          | 0              |                     | 0    | 0                 |

| 2021 Saseline  |                  | AID               | 0/ Humber Road/             |             | by Hous      |                           |                    |                   |                     |             |             |
|--|------------------|-------------------|-----------------------------|-------------|--------------|---------------------------|--------------------|-------------------|---------------------|-------------|-------------|
| PCU  |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| AM   |                  |                   |                             |             |              | PM                        |                    |                   |                     |             |             |
|  | Humber Road      | Manby Road        | Port Service Access         | A160        | Conco Access |                           | Humber Road        | Manby Road        | Port Service Access | A160        | Conco Accer |
| Humber Road  | 12               | 58                | 1                           | 310         | 0            | Humber Road               | 49                 | 303               | 0                   | 407         |             |
| Manby Road   | 330              | 3                 | 1                           | 231         |              | Manby Road                | 115                | 11                | 1                   | 214         |             |
| Port Service Access  | 4                | 0                 | 0                           | 2           | 0            | Part Service Access       |                    | 4                 | 0                   | 6           |             |
| A160   | 367              | 150               | 3                           | 9           | 2            | A160                      | 223                | 240               | 4                   | 5           |             |
| Conco Access   | 0                | 0                 |                             | 0           | 0            | Conco Access              | 0                  | 2                 | 0                   | 1           |             |
| HGV %  |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| AM.  |                  |                   |                             |             |              | PM                        |                    |                   |                     |             |             |
|  | Humber Road      | Marby Road        | Port Service Access         | A160        | Conco Access |                           | Humber Road        | Manby Road        | Port Service Access | A160        | Conto Acce  |
| Humber Road  | 42%              | 38%               | 100%                        | 92%         |              | Humber Road               | 37%                | 21%               |                     | 61%         |             |
| Manby Road   | 22%              | 67%               | 100%                        | 22%         |              | Manby Road                | 37%                | 9%                | 100%                | 20%         |             |
| Port Service Access  | 100%             | 07.4              | 200.9                       | 100%        |              | Port Service Access       | 47.00              | 50%               | 20074               | 67%         |             |
| A160   | 48%              | 19%               | 100%                        |             | 100%         | A160                      | 91%                | 20%               | 75%                 |             | 10          |
| Conco Access   | 40.0             | 25%               | 200.0                       | 2776        | 20074        | Conco Access              | ***                | 0%                | 728                 | 100%        |             |
| 2021 Baseline + Com  | mitted           |                   |                             |             |              |                           |                    |                   |                     |             |             |
| PCU  |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| AM   |                  |                   |                             |             |              | PM                        |                    |                   |                     |             |             |
|  | Humber Road      | Manby Road        | Port Service Access         | A160        | Conco Access |                           | Humber Road        | Manby Road        | Port Service Access | A160        | Conto Acor  |
| Humber Road  | 14               | 81                | 1                           | 329         | 0            | Humber Road               | 59                 | 392               | 0                   | 705         |             |
| Manby Road   | 458              | 3                 | 1                           | 265         |              | Manby Road                | 133                | 11                | 1                   | 220         |             |
| Port Service Access  | 4                |                   |                             | 2           |              | Port Service Access       |                    | - 4               |                     | 6           |             |
| A160   | 677              | 191               | 3                           | 9           | 2            | A160                      | 227                | 256               | 4                   | 5           |             |
| Conco Access   |                  | 0                 |                             | 0           | 0            | Conco Access              | 0                  | 2                 |                     | 1           |             |
| HGV %  |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| AM.  |                  |                   |                             |             |              | PM                        |                    |                   |                     |             |             |
|  | Humber Road      | Manby Road        | Port Service Access         | A160        | Conco Access |                           | Humber Road        | Manby Road        | Port Service Access | A160        | Conto Acce  |
| Humber Road  | 36%              | 27%               | 100%                        | 91%         |              | Humber Road               | 31%                | 17%               |                     | 35%         |             |
| Manby Road   | 16%              | 67%               | 100%                        | 19%         |              | Manby Road                | 32%                | 9%                | 100%                | 20%         |             |
| Port Service Access  | 100%             | 07.4              | 200.9                       | 100%        |              | Port Service Access       | 32.0               | 50%               | 20074               | 67%         |             |
| A160   | 27%              | 18%               | 100%                        |             | 100%         | A160                      | 89%                | 19%               | 75%                 |             | 10          |
| Conco Access   |                  |                   |                             |             |              | Conco Access              | -                  | 0%                |                     | 100%        | -           |
| 1021 Baseline + Com  | mitted + Develop | ment              |                             |             |              |                           |                    |                   |                     |             |             |
| PCU  |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| AM   |                  |                   |                             |             |              | PM                        |                    |                   |                     |             |             |
|  | Humber Road      | Manby Road        | Port Service Access         | A160        | Conco Access |                           | Humber Road        | Manby Road        | Port Service Access | A160        | Conco Acce  |
| tumber Road  | 14               | 85                | 1                           | 337         | 0            | Humber Road               | 59                 | 395               | 0                   | 730         |             |
| Manby Road   | 462              | 3                 | 1                           | 265         | 0            | Manby Road                | 137                | 11                | 1                   | 220         |             |
| Port Service Access  | 4                | 0                 | 0                           | 2           | 0            | Part Service Access       | 0                  | 4                 | 0                   | 6           |             |
|  | 707              | 191               | 3                           | 9           | 2            | A160                      | 267                | 256               | 4                   | 5           |             |
| A160   | 0                | 0                 | 0                           | 0           | 0            | Conco Access              | 0                  | 2                 | 0                   | 1           |             |
|  |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| Conco Access   |                  |                   |                             |             |              |                           |                    |                   |                     |             |             |
| Conco Access   |                  |                   |                             |             |              | PM                        |                    |                   |                     |             |             |
| Conco Access   | Humber Road      | Manby Road        | Port Service Access         | A160        | Conco Access | PM                        | Humber Road        | Manby Road        | Port Service Access | A160        | Conco Acco  |
| Conco Access<br>HGV %<br>AM  | Humber Road      | Manby Road<br>26% | Port Service Access<br>100% | A160<br>88% | Conco Access | PM<br>Humber Road         | Humber Road<br>31% | Manby Road<br>16% | Port Service Access | A160<br>35% | Conco Acco  |
| Conco Access HGV % AM Humber Road  |                  |                   |                             |             | Conco Access |                           |                    |                   | Port Service Access |             | Conco Acce  |
| Conco Access HGV % AM Humber Road Manby Road                               | 36%              | 26%               | 100%                        | 88%         | Conco Access | Humber Road               | 31%                | 16%               |                     | 35%         | Conco Acos  |
| A160 Conco Access HGV % AM Humber Road Manby Road Port Service Access A160 | 36%<br>16%       | 26%               | 100%                        | 19%<br>100% | Conco Access | Humber Road<br>Manby Road | 31%                | 16%<br>9%         |                     | 35%<br>20%  | Conto Acce  |

| 2025 Baseline                     |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
|-----------------------------------|--------------------|-------------------|-----------------------------|-------------|-------------------|-----------------------------------|--------------------|-------------------|--------------------------|-------------|-------------------|
| PCU                               |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                | Humber Road        | Manhy Boad        | Enri Senire Arress          | A160        | Conro Arress      | PM                                | Humber Bread       | Manhy Board       | Port Service Access      | A160        | Conm Arress       |
| Humber Road                       | 13                 | 61                | 1                           | 324         | 0                 | Humber Road                       | 51                 | 316               | 0                        | 425         | 0                 |
| Manby Road<br>Port Service Access | 345<br>4           | 3 0               | 1 0                         | 241<br>2    | 0                 | Manby Road<br>Port Service Access | 120                | 11                | 1 0                      | 223<br>6    | 0                 |
| A160                              | 383                | 188               | 3                           | 9           | 2                 | A160                              | 233                | 250               | 4                        | 5           | 2                 |
| Conco Access                      | 0                  | 0                 | 0                           | 0           | 0                 | Conco Access                      | 0                  | 2                 | 0                        | 1           | 0                 |
| HGV %                             |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
| Humber Road                       | Humber Road<br>42% | Manby Road<br>38% | Port Service Access<br>100% | 92%         | Conco Access      | Humber Road                       | Humber Road<br>37% | Manby Road<br>21% | Port Service Access      | A160<br>61% | Conco Access      |
| Manby Road                        | 22%                | 67%               | 100%                        | 22%         |                   | Manby Road                        | 37%                | 9%                | 100%                     | 20%         |                   |
|                                   | 100%               | 19%               | 100%                        | 100%        | 100%              | Part Service Access               | 92%                |                   |                          | 67%         |                   |
| A160<br>Conco Access              | 48%                | 19%               | 100%                        | 67%         | 100%              | A160                              | 91%                | 20%               | 75%                      | 40%         | 100%              |
|                                   |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| 2025 Baseline + Com<br>PCU        | mitted             |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
| Humber Road                       | Humber Road<br>14  | Manby Road<br>84  | Port Service Access<br>1    | A160<br>332 | Conco Access<br>0 | Humber Board                      | Humber Road<br>61  | Manby Road        | Port Service Access<br>0 | A160<br>723 | Conco Access<br>0 |
| Manby Road                        | 473                | 3                 | 1                           | 275         |                   | Manby Road                        | 138                | 405               | 1                        | 229         |                   |
| Port Service Access<br>A160       | 693                | 199               | 0                           | 2 9         | 0 2               | Port Service Access<br>A160       | 236                | 4<br>200          | 0                        | 5           | 0 2               |
| Conco Access                      | 693                | 199               | 3                           | 9           | 2 0               | A160<br>Conco Access              | 236                | 266               | 4                        | 1           | 0                 |
|                                   |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| HGV %<br>AM                       |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
|                                   | Humber Road        | Manby Road        | Port Service Access         | A160        | Conco Access      | PM                                | Humber Road        | Manby Road        | Port Service Access      | A160        | Conco Access      |
| Humber Road                       | 36%                | 27%               | 100%                        | 91%         |                   | Humber Road                       | 31%                | 17%               |                          | 35%         |                   |
| Manby Road<br>Port Service Access | 16%<br>100%        | 67%               | 100%                        | 19%<br>100% |                   | Manby Road<br>Port Service Access | 32%                | 50%               | 100%                     | 20%<br>67%  |                   |
| A160                              | 27%                | 18%               | 100%                        | 67%         | 100%              | A160                              | 89%                | 19%               | 75%                      | 40%         | 100%              |
| Conco Access                      |                    |                   |                             |             |                   | Conco Access                      |                    | 0%                |                          | 100%        |                   |
| 2025 Baseline + Com               | mitted + Develop   | ament             |                             |             |                   |                                   |                    |                   |                          |             |                   |
| PCU                               | ,                  |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                | Humber Road        | Manby Road        | Seed Francisco Assessor     | A160        | Conco Access      | PM                                | Humber Road        | Manby Road        | Port Service Access      | A160        | Comm Assess       |
| Humber Road                       | 1.4                | 88                | 1                           | 353         | 0                 | Humber Road                       | 61                 | 400               |                          | 747         | 0                 |
| Manby Road<br>Port Service Acress | 477                | 3                 | 1 0                         | 275         | 0                 | Manby Road<br>Doct Service Access | 142                | 11                | 1                        | 229         |                   |
| Port Service Access<br>A160       | 723                | 199               | 3                           | 9           | 2                 | Port Service Access<br>A160       | 276                | 255               | 4                        | 5           | 2                 |
| Conco Access                      | 0                  | 0                 | ō                           | 0           | 0                 | Conco Access                      | 0                  | 2                 |                          | 1           | ō                 |
| HGV %                             |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
| Humber Road                       | Humber Road<br>36% | Manby Road<br>26% | Port Service Access<br>100% | A150<br>58% | Conco Access      | Humber Road                       | Humber Road<br>31% | Manby Road<br>15% | Port Service Access      | A160<br>35% | Conco Access      |
| Manby Road                        | 16%                | 67%               | 100%                        | 19%         |                   | Manby Road                        | 31%                | 9%                | 100%                     | 20%         |                   |
| Port Service Access               | 100%               |                   |                             | 100%        |                   | Port Service Access               |                    | 50%               |                          | 67%         |                   |
| A160<br>Conco Access              | 28%                | 18%               | 100%                        | 67%         | 100%              | A160<br>Conco Acoesa              | 82%                | 19%               | 75%                      | 40%<br>100% | 100%              |
|                                   |                    |                   |                             |             |                   | CONTO POLEM                       |                    | 0.4               |                          | 200.4       |                   |
| 2032 Baseline                     |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| PCU<br>AM                         |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
|                                   | Humber Road        | Manby Road        | Port Service Access         | A160        |                   |                                   | Humber Road        | Manby Road        | Part Service Access      | A160        | Conco Access      |
| Humber Road<br>Manby Road         | 13<br>367          | 65                | 1                           | 345<br>257  | 0                 | Humber Road<br>Manby Road         | 54<br>128          | 337               | 0                        | 452<br>238  | 0                 |
| Port Service Access               | 4                  | 0                 |                             | 2           |                   | Part Service Access               |                    | 4                 | 0                        | 7           |                   |
| A160<br>Conco Access              | 409                | 200               | 3 0                         | 10          | 2 0               | A160<br>Conco Access              | 248<br>0           | 267<br>2          | 4 0                      | 5           | 2 0               |
| Conco Access                      | 0                  | 0                 | U                           |             | 0                 | Conco Access                      | U                  | - 4               |                          |             |                   |
| HGV %                             |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                | Humber Road        | Manby Road        | Port Service Access         | A160        | Conco Access      | PM                                | Humber Road        | Manby Road        | Port Service Access      | A160        | Conco Access      |
| Humber Road                       | 42%                | 38%               | 100%                        | 92%         | COILD ALLESS      | Humber Road                       | 37%                | 21%               |                          | 61%         | CUITE PLUES       |
| Manby Road                        | 22%<br>100%        | 67%               | 100%                        | 22%         |                   | Manby Road                        | 37%                | 9%<br>50%         | 100%                     | 20%         |                   |
| Port Service Access<br>A160       | 100%               | 19%               | 100%                        | 100%<br>67% | 100%              | Port Service Access<br>A160       | 92%                | 20%               | 75%                      | 40%         | 100%              |
| Conco Access                      |                    |                   |                             |             |                   | Conco Access                      |                    | 0%                |                          | 100%        |                   |
| 2032 Baseline + Com               | mitted             |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| PCU                               |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                | Humber Road        |                   |                             | A160        |                   | PM                                |                    |                   | Port Service Access      | A160        |                   |
| Humber Road                       | number soad        | Maney Koas        | PORT Service Access         | 354         | Conco Access<br>0 | Humber Road                       | number soad<br>64  | Manby Hoad<br>425 | PORT SERVICE ACCESS      | 750         | CONCO ACCUSS      |
| Manby Road                        | 495                | 3                 | 1                           | 292         | 0                 | Manby Road                        | 146                | 12                | 1                        | 244         | 0                 |
| Port Service Access<br>A360       | 4<br>718           | 0<br>211          | 0                           | 2 20        | 0 2               | Port Service Access<br>A160       | 0<br>251           | 4<br>283          | 0                        | 7           | 2                 |
| Conco Access                      | 718                | 0                 |                             | 0           | 0                 | Conco Access                      | 251                | 283               |                          | 1           | 0                 |
| HGV %                             |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
|                                   | Humber Road        | Manby Road        | Port Service Access         | A160        | Conco Access      |                                   | Humber Road        | Manby Road        | Port Service Access      | A160        | Conco Access      |
| Humber Road<br>Manby Road         | 36%<br>16%         | 27%<br>67%        | 100%<br>100%                | 91%<br>19%  |                   | Humber Road<br>Manby Road         | 31%<br>32%         | 17%<br>9%         | 100%                     | 35%         |                   |
| Port Service Access               | 100%               |                   |                             | 100%        |                   | Port Service Access               |                    | 50%               |                          | 67%         |                   |
| A160<br>Conco Access              | 27%                | 18%               | 100%                        | 67%         | 100%              | A160<br>Conco Access              | 89%                | 19%               | 75%                      | 40%         | 100%              |
| Curred Access                     |                    |                   |                             |             |                   | CONCO ACCESS                      |                    | 0%                |                          | 200%        |                   |
| 2032 Baseline + Com               | mitted + Develop   | pment             |                             |             |                   |                                   |                    |                   |                          |             |                   |
| PCU<br>AM                         |                    |                   |                             |             |                   | PM                                |                    |                   |                          |             |                   |
|                                   | Humber Road        | Manby Road        | Port Service Access         | A160        | Conco Access      |                                   | Humber Road        | Manby Road        | Port Service Access      | A160        | Conco Access      |
| Humber Road                       | 15                 | 92                | 1                           | 372         | 0                 | Humber Road                       | 64                 | 429               |                          | 775         |                   |
| Manby Road<br>Port Service Access | 499                | 3 0               | 1 0                         | 292<br>2    | 0                 | Manby Road<br>Port Service Access | 150                | 12                | 1 0                      | 244<br>7    |                   |
| A160                              | 749                | 211               | 0                           | 20          | 0 2               | A160                              | 291                | 283               | 0 4                      | 6           | 0 2               |
| Conco Access                      | 0                  | 0                 | 0                           | 0           | 0                 | Conco Access                      | 0                  | 2                 | 0                        | 1           | 0                 |
| HGV %                             |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
| AM                                | Humber Boarl       |                   |                             |             |                   | PM                                | Humber Broad       | Manhy Road        |                          | A160        | Conco Access      |
| Humber Road                       | Humber Road<br>36% | Manby Road<br>26% | Port Service Access<br>100% | A150<br>E8% | Conco Access      | Humber Road                       | Humber Road<br>31% | Manby Road<br>16% | Port Service Access      | A160        | Lonco Access      |
| Manby Road                        | 16%                | 67%               | 100%                        | 19%         |                   | Manby Road                        | 31%                | 9%                | 100%                     | 20%         |                   |
| Port Service Access               | 100%<br>28%        | 18%               | 100%                        | 100%        | 100%              | Port Service Access               | 82%                | 50%               | 75%                      | 67%         | 100%              |
| A160<br>Conco Access              | 28%                | 18%               | 100%                        | 67%         | 100%              | A160<br>Conco Access              | 82%                | 19%               | 75%                      | 40%         | 100%              |
|                                   |                    |                   |                             |             |                   |                                   |                    | 0.4               |                          |             |                   |
|                                   |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |
|                                   |                    |                   |                             |             |                   |                                   |                    |                   |                          |             |                   |

| Humber Road/ Rosper Road |
|--------------------------|
|--------------------------|

North Lincolnshire 004 2021-2025 2021-2032 AM 1.0443 1.1131 PM 1.0434 1.1108

|                |                |             |                | Baseline         |                |             |                |
|----------------|----------------|-------------|----------------|------------------|----------------|-------------|----------------|
| PCU            |                |             |                |                  |                |             |                |
| AM (7-8)       |                |             |                | PM (16-17)       |                |             |                |
|                | Humber Road SW | Rosper Road | Humber Road SE |                  | Humber Road SW | Rosper Road | Humber Road SE |
| Humber Road SW | 0              | 330         | 380            | Humber Road SW   | 0              | 178         | 190            |
| Rosper Road    | 0              | 0           | 201            | Rosper Road      | 0              | 0           | 345            |
| Humber Road SE | C              | 0           | 0              | Humber Road SE   | 0              | 0           | 0              |
| HGVs           |                |             |                |                  |                |             |                |
| AM             |                |             |                | PM               |                |             |                |
|                | Humber Road SW |             | Humber Road SE |                  | Humber Road SW |             | Humber Road SE |
| Humber Road SW | C              |             | 195            | Humber Road SW   | 0              | 97          | 165            |
| Rosper Road    | C              |             | 138            | Rosper Road      | 0              |             | 119            |
| Humber Road SE | C              | 0           | 0              | Humber Road SE   | 0              | 0           | 0              |
|                |                |             | Commit         | tted Development |                |             |                |
| PCU            |                |             |                |                  |                |             |                |
| AM             |                |             |                | PM               |                |             |                |
|                | Humber Road SW |             | Humber Road SE |                  | Humber Road SW |             | Humber Road SE |
| Humber Road SW |                | 353         | 89             | Humber Road SW   |                | 24          | 9              |
| Rosper Road    |                |             | 26             | Rosper Road      |                |             | 318            |
| Humber Road SE |                |             |                | Humber Road SE   |                |             |                |
| HGVs           |                |             |                |                  |                |             |                |
| AM             |                |             |                | PM               |                |             |                |
|                | Humber Road SW | Rosper Road | Humber Road SE |                  | Humber Road SW | Rosper Road |                |
| Humber Road SW |                |             | 8              | Humber Road SW   |                |             | 1              |
| Rosper Road    |                |             |                | Rosper Road      |                |             |                |
| Humber Road SE |                |             |                | Humber Road SE   |                |             |                |
|                |                |             | Propos         | sed Development  |                |             |                |
| PCU            |                |             |                |                  |                |             |                |
| AM (7-8)       |                | Immingham   |                | PM (17-18)       |                | Stena       |                |
|                | Humber Road SW | Rosper Road | Humber Road SE |                  | Humber Road SW | Rosper Road | Humber Road SE |
| Humber Road SW | C              |             |                | Humber Road SW   | 0              | 0           | 40             |
| Rosper Road    | C              |             | 0              | Rosper Road      | 0              | 0           | 0              |
| Humber Road SE | C              | 0           | 0              | Humber Road SE   | 0              | 0           | 0              |
| HGVs           |                |             |                |                  |                |             |                |
| AM             |                |             |                | PM               |                |             |                |
|                | Humber Road SW |             | Humber Road SE |                  | Humber Road SW | Rosper Road | Humber Road SE |
| Humber Road SW | C              | -           |                | Humber Road SW   | 0              | 0           | 16             |
| Rosper Road    | C              | -           | 0              | Rosper Road      | 0              | -           | 0              |
| Humber Road SE | C              | 0           | 0              | Humber Road SE   | 0              | 0           | 0              |
|                |                |             |                |                  |                |             |                |

| 2025 Baseline                 |                     |                   |                       |                               |                |                    |                       |
|-------------------------------|---------------------|-------------------|-----------------------|-------------------------------|----------------|--------------------|-----------------------|
| PCII                          |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
|                               |                     |                   | Humber Road SE        |                               |                |                    | Humber Road SE        |
| Humber Road SW                | 0                   | 345               | 397                   | Humber Road SW                | 0              | 186                | 198                   |
| Rosper Road                   | 0                   | 0                 | 210                   | Rosper Road                   | 0              | 0                  | 360                   |
| Humber Road SE                | 0                   | 0                 | 0                     | Humber Road SE                | 0              | 0                  | 0                     |
| HGV %                         |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW      |                   | Humber Road SE<br>51% |                               | Humber Road SW |                    | Humber Road SE        |
| Humber Road SW<br>Rosper Road |                     | 18%               | 51%<br>69%            | Humber Road SW<br>Rosper Road |                | 54%                | 87%<br>34%            |
| Humber Road SE                |                     |                   | 0370                  | Humber Road SE                |                |                    | 34/0                  |
|                               |                     |                   |                       |                               |                |                    |                       |
| 2025 Baseline + Co            | mmitted             |                   |                       |                               |                |                    |                       |
| PCU<br>AM                     |                     |                   |                       | PM                            |                |                    |                       |
| AW                            | Humber Road SW      | Rosper Road       | Humber Road SE        | rivi                          | Humber Road SW | Rosper Road        | Humber Road SE        |
| Humber Road SW                | 0                   | 697               | 486                   | Humber Road SW                | 0              | 210                | 207                   |
| Rosper Road                   | 0                   | 0                 | 236                   | Rosper Road                   | 0              | 0                  | 678                   |
| Humber Road SE                | 0                   | 0                 | 0                     | Humber Road SE                | 0              | 0                  | 0                     |
| HGV %                         |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW      | Rosper Road       | Humber Road SE        |                               | Humber Road SW |                    | Humber Road SE        |
| Humber Road SW                |                     | 9%                | 43%                   | Humber Road SW                |                | 48%                | 83%                   |
| Rosper Road                   |                     |                   | 61%                   | Rosper Road                   |                |                    | 18%                   |
| Humber Road SE                |                     |                   |                       | Humber Road SE                |                |                    |                       |
| 2025 Baseline + Co            | mmitted + Developm  | ient              |                       |                               |                |                    |                       |
| PCU                           |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW<br>0 |                   | Humber Road SE<br>516 |                               |                |                    | Humber Road SE        |
| Humber Road SW<br>Rosper Road | 0                   | 697<br>0          | 236                   | Humber Road SW<br>Rosper Road | 0              | 210<br>0           | 247<br>678            |
| Humber Road SE                | 0                   | 0                 | 0                     | Humber Road SE                | 0              | 0                  | 0/8                   |
|                               |                     |                   |                       |                               |                |                    |                       |
| HGV %                         |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
| Humber Road SW                | Humber Road SW      | Rosper Road<br>9% | Humber Road SE<br>43% | Humber Road SW                | Humber Road SW | Rosper Road<br>48% | Humber Road SE<br>76% |
| Rosper Road SW                |                     | 9%                | 43%<br>61%            | Rosper Road SW                |                | 48%                | 18%                   |
| Humber Road SE                |                     |                   | ****                  | Humber Road SE                |                |                    |                       |
|                               |                     |                   |                       |                               |                |                    |                       |
| 2032 Baseline                 |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
| AW                            | Humber Road SW      | Rosper Road       | Humber Road SE        | rivi                          | Humber Road SW | Rosper Road        | Humber Road SE        |
| Humber Road SW                | 0                   | 760               | 522                   | Humber Road SW                | 0              | 198                | 211                   |
| Rosper Road                   | 0                   | 0                 | 253                   | Rosper Road                   | 0              | 0                  | 383                   |
| Humber Road SE                | 0                   | 0                 | 0                     | Humber Road SE                | 0              | 0                  | 0                     |
| HGV %                         |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW      | Rosper Road       | Humber Road SE        |                               | Humber Road SW | Rosper Road        | Humber Road SE        |
| Humber Road SW                |                     | 18%               | 51%                   | Humber Road SW                |                | 54%                | 87%                   |
| Rosper Road                   |                     |                   | 69%                   | Rosper Road                   |                |                    | 34%                   |
| Humber Road SE                |                     |                   |                       | Humber Road SE                |                |                    |                       |
| 2032 Baseline + Co            | mmitted             |                   |                       |                               |                |                    |                       |
| PCU                           |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW      |                   | Humber Road SE        |                               |                |                    | Humber Road SE        |
| Humber Road SW<br>Rosper Road | 0                   | 1112              | 611<br>280            | Humber Road SW<br>Rosper Road | 0              | 222                | 220<br>701            |
| Humber Road SE                | 0                   | 0                 | 0                     | Humber Road SE                | 0              | 0                  | 0                     |
|                               |                     |                   |                       |                               |                |                    |                       |
| HGV %                         |                     |                   |                       |                               |                |                    |                       |
| AM                            |                     |                   |                       | PM                            |                |                    |                       |
| Humber Road SW                | Humber Road SW      | Rosper Road<br>9% | Humber Road SE<br>43% | Humber Road SW                | Humber Road SW | Rosper Road<br>48% | Humber Road SE<br>83% |
| Rosper Road                   |                     | 370               | 61%                   | Rosper Road                   |                | 4070               | 18%                   |
| Humber Road SE                |                     |                   |                       | Humber Road SE                |                |                    |                       |
|                               |                     |                   |                       |                               |                |                    |                       |
|                               | mmitted + Developm  | ent               |                       |                               |                |                    |                       |
| PCU<br>AM                     |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW      | Rosper Road       | Humber Road SE        |                               | Humber Road SW | Rosper Road        | Humber Road SE        |
| Humber Road SW                | 0                   | 1112              | 641                   | Humber Road SW                | 0              | 222                | 260                   |
| Rosper Road                   | 0                   | 0                 | 280                   | Rosper Road                   | 0              | 0                  | 701                   |
| Humber Road SE                | 0                   | 0                 | 0                     | Humber Road SE                | 0              | 0                  | 0                     |
| HGV %                         |                     |                   |                       |                               |                |                    |                       |
| HGV %                         |                     |                   |                       | PM                            |                |                    |                       |
|                               | Humber Road SW      | Rosper Road       | Humber Road SE        |                               | Humber Road SW | Rosper Road        | Humber Road SE        |
| Humber Road SW                |                     | 9%                | 43%                   | Humber Road SW                |                | 48%                | 76%                   |
| Rosper Road                   |                     |                   | 61%                   | D D 1                         |                |                    | 4.007                 |
|                               |                     |                   | 0176                  | Rosper Road                   |                |                    | 18%                   |
| Humber Road SE                |                     |                   | 0176                  | Humber Road SE                |                |                    | 18%                   |

|                              |          |               |        |               |                | Baseline    |                              |        |                |           |              |               |
|------------------------------|----------|---------------|--------|---------------|----------------|-------------|------------------------------|--------|----------------|-----------|--------------|---------------|
| PCU                          |          |               |        |               |                |             |                              |        |                |           |              |               |
| AM (7-8)                     |          |               |        |               |                |             | PM (16-17)                   |        |                |           |              |               |
|                              |          | Habrough Road |        |               |                |             |                              |        | Habrough Road  |           |              |               |
| A160 E                       | 1        |               |        | 37            | 33             |             | A160 E                       | 10     | 114            | 777       | 66           | 109           |
| Habrough Road                | 145      | 0             |        | 3             |                |             | Habrough Road                | 17     | 0              | 39        | 18           | 42            |
| A160 W                       | 944      | 38            | 0      | 35            |                |             | A160 W                       | 356    | 59             | 0         | 72           | 134           |
| Ulceby Road<br>F Halton Road | 79<br>46 | 8<br>42       | 145    | 0             |                |             | Ulceby Road<br>F Halton Road | 31     | 14             | 39<br>198 | 0            | 22            |
| E Halton Road                | 46       | 42            | 145    | 9             | 0              |             | E Halton Road                | 38     | 109            | 198       | 29           |               |
| HGVs                         |          |               |        |               |                |             |                              |        |                |           |              |               |
| AM                           |          |               |        |               |                |             | PM                           |        |                |           |              |               |
| AIII                         | A160 F   | Habrough Road | A160 W | Lifreby Board | E Halton Road  |             | 7.00                         | 4160 F | Habrough Road  | 4160 W    | Hilrehy Road | E Halton Road |
| A160 F                       | 1        | 11            | 343    | 23            | 18             |             | A160 F                       | 10     | 1              | 234       | 28           | 64            |
| Habrough Road                | ,        |               | 3      | 1             | 5              |             | Habrough Road                | 1      | 0              |           | 0            | 1             |
| A160 W                       | 194      | 1             | ō      | 17            | 33             |             | A160 W                       | 277    | 3              |           | 23           | 50            |
| Ulceby Road                  | 28       | 1             | 15     | 0             | 6              |             | Ulceby Road                  | 16     | 1              | 15        | 0            | 11            |
| E Halton Road                | 18       | 3             | 46     | 2             | 0              |             | E Halton Road                | 16     | 1              | 25        | 4            | 0             |
|                              |          |               |        |               |                |             |                              |        |                |           |              |               |
|                              |          |               |        |               | Comm           | itted Devel | lopment                      |        |                |           |              |               |
| PCU                          |          |               |        |               |                |             |                              |        |                |           |              |               |
| AM                           |          |               |        |               |                |             | PM                           |        |                |           |              |               |
|                              | A160 E   | Habrough Road |        | Ulceby Road   | E Halton Road  |             |                              | A160 E |                |           | Ulceby Road  | E Halton Road |
| A160 E                       |          | 1             | 326    |               |                |             | A160 E                       |        | 5              | 138       |              |               |
| Habrough Road                | 6        |               |        |               |                |             | Habrough Road                | 1      |                |           |              |               |
| A160 W                       | 237      |               |        |               |                |             | A160 W                       | 312    |                |           |              |               |
| Ulceby Road                  |          |               |        |               |                |             | Ulceby Road<br>F Halton Road |        |                |           |              |               |
| E Halton Road                |          |               |        |               |                |             | E Halton Road                |        |                |           |              |               |
| HGVs                         |          |               |        |               |                |             |                              |        |                |           |              |               |
| AM                           |          |               |        |               |                |             | PM                           |        |                |           |              |               |
| AIII                         | 4160 E   | Habrough Road | A160 W | History Road  | E Halton Board |             | 7.00                         | A160 E | Habrough Road  | ATENW     | Hiteshu Road | E Holma Road  |
| A160 E                       | A100 L   | 0             |        | Cicedy Hosa   | L manion rioso |             | A160 E                       | ALGO L | 0              | 0         | Oncedy nosts | L Handii Noau |
| Habrough Road                | 0        | -             |        |               |                |             | Habrough Road                | 0      | -              | -         |              |               |
| A160 W                       |          |               |        |               |                |             | A160 W                       | 0      |                |           |              |               |
| Ulceby Road                  | _        |               |        |               |                |             | Ulceby Road                  | _      |                |           |              |               |
| E Halton Road                |          |               |        |               |                |             | E Halton Road                |        |                |           |              |               |
|                              |          |               |        |               |                |             |                              |        |                |           |              |               |
|                              |          |               |        |               | Propo          | sed Develo  | pment                        |        |                |           |              |               |
| PCU                          |          |               |        |               |                |             |                              |        |                |           |              |               |
| AM (7-8)                     |          | Immingham     |        |               |                |             | PM (17-18)                   |        | Stena          |           |              |               |
|                              |          | Habrough Road |        | Ulceby Road   | E Halton Road  |             |                              |        | Habrough Road  |           | Ulceby Road  | E Halton Road |
| A160 E                       | 0        | 2             |        | 0             |                |             | A160 E                       | 0      | 2              | 23        | 0            | 0             |
| Habrough Road                | 29       | 0             |        | 0             |                |             | Habrough Road                | 98     | 0              | 0         | 0            |               |
| A160 W                       |          |               |        | 0             |                |             | A160 W                       |        |                |           | 0            |               |
| Ulceby Road                  | 0        | 0             |        | 0             |                |             | Ulceby Road                  | 0      | 0              | 0         | 0            | 0             |
| E Halton Road                | 0        | 0             | 0      | 0             | 0              |             | E Halton Road                | 0      | 0              | 0         | 0            | 0             |
| HGW                          |          |               |        |               |                |             |                              |        |                |           |              |               |
| AM                           |          |               |        |               |                |             | PM                           |        |                |           |              |               |
| ~                            | A160 F   | Habrough Road | A160 W | Lifrehy Board | E Halton Road  |             |                              | 4160 F | Habrough Road  | 4160 W    | Hilnehy Road | E Halton Road |
| A160 E                       | 0        |               |        | O CERTA NOSC  |                |             | A160 E                       | 0      | naurougii noau | 9         | 0            |               |
| Habrough Road                | 0        |               |        | 0             |                |             | Habrough Road                |        | 0              | ő         | 0            |               |
| A160 W                       | 12       | Ö             |        | 0             |                |             | A160 W                       | 16     | 0              | 0         | 0            |               |
| Ulceby Road                  |          |               |        | 0             |                |             | Ulceby Road                  | 0      | 0              | 0         | 0            | 0             |
| Citaban Band                 |          |               | -      | -             |                |             | Citatera Band                |        |                | -         | -            |               |

North Lincolnshire 004 2021-2025 2021-2032 AM 1.0443 1.1131 PM 1.0434 1.1108

A160/ Ulceby Road/ Habrough Road n Road 33 112 246 19 0 A160 E 1 100% 6% 78% 52% 42% gh Road A160 W Ulceby Road E H 69% 82% 62% 6% 33% 3% 49% 13% 22% 7% 32% 22% 55% 4% 13% 32% 1% 30% 0% 5% 7% 38% 1% 13% 42% 0% 32% 14% 1alton Road 33 112 246 19 0 A260 E Habrough Road A260 W Ulceby Road E Halton Road Ulceby Road 62% 33% 49% 22% iton Road 55% 4% 13% 32% ugh Road A160 W Ulcel 65% 46% 6% 3% 13% 22% 7% 32% A160 E 100% 6% 42% 52% 42% by Road E 42% 0% 32% A 160 E Habrough Road A 160 W Ulceby Road E Halton Road h Road A160 W Ulcs 1% 26% 0% 5% 7% 38% 1% 13% A160 E Habrough Road A160 W Ulceby Road E Halton Road h Road A160 W Uld 19 763 0 51 38 0 8 67 42 145 33 112 246 19 0 121 938 0 39 59 0 14 39 109 198 MOV S.

AM

AIGS | National Alson Underly load | Evaluate board

AIGS | 2005 | 4600 | 4500 | 4500 | 4500 |

AIGS | 2005 | 4500 | 4500 |

AIGS | 2005 | 4500 | 4500 |

AIGS | 2005 | 4500 |

AIGS | 2005 | 4500 |

AIGS | 2005 | 2005 |

Ulcesy load | 2005 | 2005 |

Lincary load | 2005 | 2005 |

AIGS | 2005 | 2005 | A160 E Habrough Road A160 W Urcely Road E Halton Road 100% 15% 26% 42% 55% 61 6% 0% 0% 23% 37% 52% 7% 38% 32% 37% 52% 7% 38% 50% 14% A160 E Habrough Road A160 W Ulceby Road E Halton Road

| PCU<br>AM  |  |   |  |  |  | PM  |  |  |   |  |   |
|--|--|---|--|--|--|---|--|--|---|--|---|
| AM<br>A160 E   | A160 E   | Habrough Road   | A160 W<br>439  | Ulceby Road<br>39  | E Halton Road<br>34  | PM<br>A160 E  | A160 E<br>10   | Habrough Road  | A160 W<br>811   | Ulceby Road<br>69  | E Halton Road<br>114  |
| 160 E<br>Fabrough Road   | 1<br>151   | 17  | 439<br>53  | 39   | 34<br>117  | A160 E<br>Habrough Road   | 10<br>18   | 119  | 811<br>41   | 69<br>19   | 114   |
| 160 W  | 986  | 40  | 0  | 37   | 257  | A160 W  | 371  | 62   | 0   | 75   | 140   |
| Hoeby Road<br>Halton Road  | 82<br>48   | 8<br>44   | 70<br>151  | 9  | 20<br>0  | Ulceby Road<br>E Halton Road  | 32<br>40   | 15<br>114  | 41<br>207   | 30   | 23<br>0   |
| HGV %  |  |   |  |  |  | PM  |  |  |   |  |   |
|  | A160 E   | Habrough Road   | A160 W   |  | E Halton Road  |   | A160 E   | Habrough Road  | A160 W  | Ulceby Road  | E Halton Road   |
| A160 E<br>Habrough Road  | 100%<br>1%   | 69%   | 82%<br>6%  | 62%<br>33%   | 55%<br>4%  | A160 E<br>Habrough Road   | 100%   | 1%   | 30%   | 42%  | 59%<br>2%   |
|  | 21%  | 3%  |  | 49%  | 13%  | A160 W  | 78%  | 5%   |   | 32%  | 37%   |
| Ulceby Road<br>E Halton Road   | 35%<br>39%   | 13%<br>7%   | 22%<br>32%   | 22%  | 32%  | Ulceby Road<br>E Halton Road  | 52%<br>42%   | 7%<br>1%   | 38%<br>13%  | 14%  | 50%   |
| 2025 Baseline + Co   | mmitted  |   |  |  |  |   |  |  |   |  |   |
| AM   |  |   |  |  |  | PM  |  |  |   |  |   |
| A160 E   | A160 E   | Habrough Road<br>18   | A160 W<br>765  | Ulceby Road<br>39  | E Halton Road<br>34  | A160 E  | A160 E<br>10   | Habrough Road<br>124   | A160 W<br>949   | Ulceby Road<br>69  | E Halton Road<br>114  |
| Habrough Road  | 157  | 0   | 53   | 39   | 117  | Habrough Road   | 18   | 124  | 41  | 19   | 44  |
| A160 W   | 1223   | 40  | 70   | 37   | 257<br>20  | A160 W  | 683<br>32  | 62<br>15   | 0<br>41   | 75<br>0  | 140   |
| Ulceby Road<br>E Halton Road   | 48   | 44  | 151  | 9  | 0  | Ulceby Road<br>E Halton Road  | 40   | 15   | 207   | 30   | 23<br>0   |
| HGV%<br>AM   |  |   |  |  |  | PM  |  |  |   |  |   |
|  | A160 E   | Habrough Road   | A160 W   | Ulceby Road  | E Halton Road  |   | A160 E   | Habrough Road  | A160 W  | Ulceby Road  | E Halton Road   |
| A160 E<br>Habrough Road  | 100%   | 65%   | 46%  | 62%  | 55%  | A160 E<br>Habrough Road   | 100%   | 1%   | 26%   | 42%  | 59%<br>2%   |
| A160 W   | 17%  | 3%  |  | 49%  | 13%  | A160 W  | 42%  | 5%   |   | 32%  | 37%   |
| Ulceby Road<br>E Halton Road   | 35%<br>39%   | 13%<br>7%   | 22%<br>32%   | 22%  | 32%  | Ulceby Road<br>E Halton Road  | 52%<br>42%   | 7%<br>1%   | 38%<br>13%  | 14%  | 50%   |
| 2025 Baseline + Co   | ommitted +   | Development   |  |  |  |   |  |  |   |  |   |
| PCU<br>AM  |  | Habarrak Basa'  | MACON:   | Market Barri   | F 11-11 0 4  | PM  | 4450-  | Habaran Baran  | *****   | Harby Bay 1  | Fileber Ber   |
| A160 E   | A160 E   | Habrough Road<br>19   | A160 W<br>782  | Ulceby Road<br>39  | E Halton Road<br>34  | A160 E  | A160 E<br>10   | Habrough Road<br>126   | A160 W<br>972   | Ulceby Road<br>69  | E Halton Road<br>114  |
| Habrough Road  | 157  | 0   | 53   | 3  | 117  | Habrough Road   | 18   | 0  | 41  | 19   | 44  |
| A160 W<br>Ulceby Road  | 1251   | 40  | 0  | 37<br>0  | 257<br>20  | A160 W<br>Ulceby Road   | 722  | 62<br>15   | 0   | 75<br>0  | 140   |
| E Halton Road  | 48   | 44  | 151  | 9  | 0  | E Halton Road   | 40   | 114  | 207   | 30   | 23<br>0   |
| HGV %<br>AM  |  |   |  |  |  | PM  |  |  |   |  |   |
|  | A160 E   | Habrough Road<br>59%  | A160 W   | Ulceby Road  | E Halton Road  |   | A160 E   | Habrough Road<br>1%  | A160 W  | Ulceby Road  | E Halton Road   |
| A160 E<br>Habrough Road  | 100%   | 59%   | 46%  | 62%<br>33%   | 55%  | A160 E<br>Habrough Road   | 100%   | 1%   | 26%   | 42%  | 59%<br>2%   |
| A160 W   | 18%  | 3%  |  | 49%  | 13%  |   | 42%  | 5%   |   | 32%  | 37%   |
| Ulceby Road<br>E Halton Road   | 35%<br>39%   | 13%<br>7%   | 22%<br>32%   | 22%  | 32%  | Ulceby Road<br>E Halton Road  | 52%<br>42%   | 7%<br>1%   | 38%<br>13%  | 14%  | 50%   |
| 2032 Baseline<br>PCU   |  |   |  |  |  |   |  |  |   |  |   |
| AM   |  |   |  |  |  | PM  |  |  |   |  |   |
| A160 E   | A160 E   | Habrough Road   | A160 W<br>468  | Ulceby Road<br>41  | E Halton Road  | A160 E  | A160 E   | Habrough Road<br>127   | A160 W<br>863   | Ulceby Road<br>73  | E Halton Road<br>121  |
| Habrough Road  | 161  | 0   | 57   | 3  | 125  | Habrough Road   | 19   | 0  | 43  | 20   | 47  |
| A160 W   | 1051<br>88   | 42  | 0<br>75  | 39<br>0  | 274<br>21  | A160 W  | 395<br>34  | 66<br>16   | 0<br>43   | 80   | 149<br>24   |
| Ulceby Road<br>E Halton Road   | 51   | 47  | 161  | 10   | 0  | Ulceby Road<br>E Halton Road  | 42   | 121  | 220   | 32   | 0   |
| HGV%<br>AM   |  |   |  |  |  | PM  |  |  |   |  |   |
|  |  | Habrough Road   | A160 W   |  | E Halton Road  |   |  | Habrough Road  | A160 W  | Ulceby Road  | E Halton Road   |
| A160 E<br>Hahmush Road   | 100%   | 69%   | 82%  | 62%  | 55%  | A160 E<br>Habrough Road   | 100%   | 1%   | 30%   | 42%  | 59%   |
| Habrough Road<br>A160 W  | 21%  | 3%  |  | 49%  | 13%  | A160 W  | 78%  | 5%   |   | 32%  | 37%   |
| Ulceby Road<br>E Halton Road   | 35%<br>39%   | 13%<br>7%   | 22%<br>32%   | 22%  | 32%  | Ulceby Road<br>E Halton Road  | 52%<br>42%   | 7%<br>1%   | 38%<br>13%  | 14%  | 50%   |
| 2032 Baseline + Co   | mmitted  |   |  |  |  |   |  |  |   |  |   |
| PCU<br>AM  | A160 E   | Habrough Road   | A160 W   | Ulceby Road  | E Halton Road  | PM  | A160 E   |  | A160 W  | Ulceby Road  | E Halton Road   |
| A160 E   | A100 E   |   |  | 41   | E Hatton Road<br>37  |   | A100 E   | Habrough Road<br>132   | 1001  | 73   | E Halton Road<br>121  |
| Habrough Road  |  | 19  |  |  |  |   |  |  |   |  |   |
| riabilougii nosuu  | 167  | 19  | 794<br>57  | 3  | 125  | A160 E<br>Habrough Road   | 19   | 0  | 43  | 20   | 47  |
| A160 W   | 1288   | 19<br>0<br>42   | 57<br>0  | 3<br>39  | 125<br>274   | Habrough Road<br>A160 W   | 19<br>707  | 0 66   | 0   | 80   | 149   |
| A160 W<br>Ulceby Road  | 167<br>1288<br>88<br>51  | 19  | 57   | 3  | 125  |   | 19   | 0  | 43<br>0<br>43<br>220  | 20<br>80<br>0<br>32  | 47<br>149<br>24<br>0  |
| A160 W<br>Ulceby Road<br>E Halton Road<br>HGV %<br>AM  | 1288<br>88<br>51   | 19<br>0<br>42<br>9<br>47  | 57<br>0<br>75<br>161   | 3<br>39<br>0<br>10   | 125<br>274<br>21<br>0  | Habrough Road<br>A160 W<br>Ulceby Road  | 19<br>707<br>34<br>42  | 0<br>66<br>16<br>121   | 0<br>43<br>220  | 80<br>0<br>32  | 149<br>24<br>0  |
| A160 W<br>Ulceby Road<br>E Halton Road<br>HGV %<br>AM  | 1288<br>88<br>51<br>A160 E   | 19<br>0<br>42<br>9<br>47<br>Habrouah Road   | 57<br>0<br>75<br>161<br>A160 W   | 39<br>0<br>10  | 125<br>274<br>21<br>0  | Habrough Road<br>A 160 W<br>Ulceby Road<br>E Halton Road<br>PM  | 19<br>707<br>34<br>42<br>A160 E  | 0<br>66<br>16<br>121<br>Habrough Road  | 0<br>43<br>220<br>A160 W  | 80<br>0<br>32<br>Ulceby Road   | 149<br>24<br>0<br>E Halton Road   |
| A160 W<br>Ulceby Road<br>E Halton Road<br>HGV %<br>AM<br>A160 E<br>Habrough Road   | 1288<br>88<br>51   | 19<br>0<br>42<br>9<br>47<br>Habrough Road<br>65%  | 57<br>0<br>75<br>161   | 39<br>0<br>10<br>10<br>Ulceby Road<br>62%<br>33%   | 125<br>274<br>21<br>0<br>E Halton Road<br>55%<br>4%  | Habrough Road A160 W Ulceby Road E Halton Road  PM A160 E Habrough Road   | 19<br>707<br>34<br>42<br>A160 E<br>100%<br>6%                              | 0<br>66<br>16<br>121<br>Habrough Road  | 0<br>43<br>220  | 80<br>0<br>32<br>Uliceby Road<br>42%<br>0%   | 149<br>24<br>0<br>E Halton Road<br>59%<br>2%  |
| A160 W<br>Ulceby Road<br>E Halton Road<br>HGV %<br>AM<br>A160 E<br>Habrough Road<br>A160 W   | 1288<br>88<br>51<br>A160 E<br>100%<br>1%   | 19<br>0<br>42<br>9<br>47<br>Habrough Road<br>65%  | 57<br>0<br>75<br>161<br>A160 W<br>46%<br>6%  | 39<br>0<br>10<br>Ulceby Road<br>62%  | 125<br>274<br>21<br>0<br>E Halton Road<br>55%<br>4%  | Habrough Road A160 W Ulcoby Road E Halton Road  PM A160 E Habrough Road A160 W  | 19<br>707<br>34<br>42<br>A160 E<br>100%<br>6%<br>42%                       | 0<br>66<br>16<br>121<br>Habrough Road  | 0<br>43<br>220<br>A160 W<br>26%<br>0%   | 80<br>0<br>32<br>Ulceby Road<br>42%  | 149<br>24<br>0<br>E Halton Road<br>59%<br>2%<br>37%   |
| A160 W<br>Ulceby Road<br>E Halton Road<br>HGV %<br>AM<br>A160 E<br>Habrough Road<br>A160 W<br>Ulceby Road  | 1288<br>88<br>51<br>A160 E<br>100%<br>1%   | 19<br>0<br>42<br>9<br>47<br>Habrough Road<br>65%  | 57<br>0<br>75<br>161<br>A160 W<br>46%  | 39<br>0<br>10<br>10<br>Ulceby Road<br>62%<br>33%   | 125<br>274<br>21<br>0<br>E Halton Road<br>55%<br>4%  | Habrough Road A160 W Ulceby Road E Halton Road  PM A160 E Habrough Road   | 19<br>707<br>34<br>42<br>A160 E<br>100%<br>6%                              | 0<br>66<br>16<br>121<br>Habrough Road  | 0<br>43<br>220<br>A160 W<br>26%   | 80<br>0<br>32<br>Uliceby Road<br>42%<br>0%   | 149<br>24<br>0<br>E Halton Road<br>59%<br>2%  |
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| A150 W Good Person of the Control of | 1288<br>88<br>51<br>A160 E<br>100%<br>11%<br>35%<br>39%<br>emmitted +<br>1167<br>1316<br>88<br>51            | 19 0 42 42 47 Habrough Road 65% 3% 13% 7% Development Habrough Road 42 42                                   | 57<br>07<br>161<br>A160 W 46%<br>6%<br>22%<br>32%<br>A160 W 810<br>57<br>0 75<br>161               | 3 39 0 10 10 10 10 10 10 10 10 10 10 10 10 1   | 125 224 21 0 E Halton Road 55% 55% 55% 55% 52% E Halton Road 57 221 0 E Halton Road 55% 55% 55% 55% 55% 55% 55% 55% 55% 55 | Halarough Road A160 W UC W UC W UC W Halaron Road  PM A160 E Halarongh Road A160 W Uckey Noad E Halarongh Road A160 W A160 E Halarongh Road A160 E Halarongh Road A160 E Halarongh Road A160 E | 19 7077 34 42 42 42% 42% 42% 42% 42% 42% 42% 42%                           | 0 666 16 121 Habrough Road 1% 5% 7% 1% Habrough Road 133 0 666   | 0 43 220 A160 W 26% 0% 13% A160 W 1024 43 220 A160 W 26% A3 220 A160 W 26% A3 220 A160 W 26%  | 80<br>0 32<br>Ulkeby Road<br>42%<br>0%<br>32%<br>Ulkeby Road<br>73<br>20<br>90<br>0 32   | 149 24 20 0 0 E Halton Road 50% 50% 50% E Halton Road 121 149 149 24 E Halton Road              |
| A150 W Littleby Road E Halton Road HGV % AAM A150 E Halton Road Littleby Road E Halton Road Littleby Road E Halton Road Littleby Road E Halton Road A150 E Halton Road Halto W Littleby Road E Halton Road HALTO W Littleby Road E Halton Road HALTO W | 1288<br>88<br>51<br>A160 E<br>100%<br>17%<br>35%<br>39%<br>committed +<br>A160 E<br>1167<br>1316<br>88<br>51 | 19  | 57<br>0<br>75<br>161<br>A160 W<br>46%<br>6%<br>22%<br>32%<br>A160 W<br>810<br>75<br>161            | 3 39 0 0 10 10 Liceby Road 67% 33% 49% 22% Liceby Road 41 3 39 0 0 10 Liceby Road 67% 53% 53% 53% 53% 53% 53% 53% 53% 53% 53 | 125 224 21 0 0 E Halton Road 55% 32% E Halton Road 27 224 21 0 0 E Halton Road 55% 45% 55% 55% 55% 55% 55% 55% 55% 55%     | Haldrough Road A100 V U U U U U U U U U U U U U U U U U U U   | 19 707 734 42 A160 E 110 19 746 34 42 A160 E 110 19 746 34 42 A160 E 1100% | 0 66 66 16 122 121 121 121 121 121 121 12  | 0<br>43<br>220<br>A160 W<br>26%<br>0%<br>38%<br>13%<br>A160 W<br>1024<br>43<br>220            | 80 0 32 Uliceby Road 42%   Uliceby Road 73 20 20 80 0 32 2 Uliceby Road 22%   Uliceby Road 22%   Uliceby Road 22%   Uliceby Road 22%   0 0 % | 149 24 24 24 24 24 24 24 25 25 25 25 25 25 25 25 25 25 25 25 25                                 |
| A150 W Littleby Road E Halton Road HGV % AMA A160 E Haltor Road A150 W Littleby Road E Halton Road A150 W Littleby Road E Halton Road A150 W A160 E Halton Road A160 W Littleby Road E Halton Road A160 W Littleby Road E Halton Road A160 W HALTON Road A160 W Littleby Road E Halton Road A160 W HALTON ROAD A160 W HALTON ROAD HALTON R | 1288<br>88<br>51<br>A160 E<br>100%<br>11%<br>35%<br>39%<br>emmitted +<br>1167<br>1316<br>88<br>51            | 19 0 42 42 47 47 48 48 48 48 48 48 48 48 48 48 48 48 48   | 57<br>07<br>161<br>A160 W 46%<br>6%<br>22%<br>32%<br>A160 W 810<br>57<br>0 75<br>161               | 3 39 0 10 10 10 10 10 10 10 10 10 10 10 10 1   | 125 224 21 0 E Halton Road 55% 55% 55% 55% 52% E Halton Road 57 221 0 E Halton Road 55% 55% 55% 55% 55% 55% 55% 55% 55% 55 | Halarough Road A160 W UC W UC W UC W Halaron Road  PM A160 E Halarongh Road A160 W Uckey Noad E Halarongh Road A160 W A160 E Halarongh Road A160 E Halarongh Road A160 E Halarongh Road A160 E | 19 7077 34 42 42 42% 42% 42% 42% 42% 42% 42% 42%                           | 0 66 6 16 121 Habrough Road 15/15 15 | 0 43 220 A160 W 26% 0% 13% A160 W 1024 43 220 A160 W 26% A3 220 A160 W 26% A3 220 A160 W 26%  | 80<br>0 32<br>Ulkeby Road<br>42%<br>0%<br>32%<br>Ulkeby Road<br>73<br>20<br>90<br>0 32   | 149 24 20 0 0 E Halton Road 50% 50% 50% E Halton Road 121 149 149 24 E Halton Road              |

| PCU AMM (7-8) A1173 N A180 E A1173 S A180 W A1173 N 0 105 18 69 A180 E 597 0 85 2 A1173 S 114 175 0 85 A180 W 281 0 11 0 HGVs AM A1173 N A180 E A1173 S A180 W A1173 N 0 21 8 50 | PM [16:17] A1173 N A180 E A1173 S A180 W A1173 N O 584 146 255 A180 E 151 0 204 0 A1173 S 21 124 0 25 A180 W 93 1 62 0  PM A1173 N A180 E A1173 S A180 W A1173 N 0 14 9 63 | North East Lincolnshire 007<br>202: 2025 2021-2032<br>AM 10:09 1.0683<br>PM 1,0255 1.0649 | 2021 Baseline<br>PCU<br>AM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 105 18 69<br>A180 E 597 0 86 2<br>A1173 S 114 175 0 85<br>A180 W 221 0 11 0<br>HGV%<br>AM A1173 N A180 E A1173 A180 W<br>A1173 N 20% 44% 72% | A180/ A1173  PM  A1173 N A180E A1173 S A180 W  A1173 N 0 584 146 255  A180 E 515 0 204 0  A1173 S 21 124 0 25  A180 W 93 1 62 0  PM  A1173 N A180E A1173 A180 W  A1173 N A180E A1173 S A180 W  A1173 N 256 6% 255 | 2025 Baseline<br>PCU<br>AM A1173 N A180E A1173 S A180 W<br>A1173 N 0 108 18 71<br>A180E 613 0 88 2<br>A1173 S 117 180 0 87<br>A180 W 289 0 11 0<br>HGV %<br>AM A1173 N A180E A173 S A180 W<br>A1173 N 20% 44% 72% | PM A1173 N A180 E A1173 S A180 W A1173 N 0 599 150 262 A180 E E ISS 0 209 0 A1173 S 22 127 0 26 A180 W 51 1 64 0 PM A1173 N A180 W A1173 N 28 6 16 25 56 | 2022 Baseline PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 112 19 74 A180 E 638 0 92 2 A1173 S 122 197 0 91 A180 W 300 0 12 0 HGV% AM A1173 N A180 E A1173 S A180 W | PM A1173 N A180 E A1173 S A180 W A1173 N 0 622 155 272 A180 E 61 0 217 0 A1173 S 22 132 0 27 A180 W 99 1 66 0 PM A1173 N A180 W A1173 N A180 E 61 25 66 25 6 |
|--|--|---|--|---|---|--|---|--|
| A180 E 30 0 4 0<br>A1173 S 4 2 0 3<br>A180 W 68 0 2 0  | A180 E 18 0 7 0<br>A1173 S 7 1 0 2<br>A180 W 73 0 5 0  |   | A180 E 5% 5% 0%<br>A1173 S 4% 1% 4%<br>A180 W 24% 18%  | A180 E 12% 3%<br>A1173 S 33% 1% 8%<br>A180 W 78% 0% 8%  | A180 E 5% 5% 0%<br>A1173 S 4% 1% 4%<br>A180 W 24% 18%   | A180 E 12% 3%<br>A1173 S 33% 1% 8%<br>A180 W 78% 0% 8%   | A180 E 5% 5% 0%<br>A1173 S 4% 1% 4%<br>A180 W 24% 18%   | A180 E 12% 3%<br>A1173 S 33% 1% 8%<br>A180 W 78% 0% 8%   |
| PCU Committed II AM A1173 N A180 E A1173 S A180 W A1173 N 70 8 65 A180 E 170 17 A1173 18 69 32 A180 W 202 8  | PM A1173 N A180 E A1173 S A180 W A1173 N 162 19 182 A180 E 54 67 A1173 S 10 40 18 A180 C 64 31   |   | 2021 Baseline + Committed PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 175 26 271 A180 E 767 0 103 2 A1173 S 132 244 0 117 A180 W 483 0 19 0   | PM A1173 N A180 E A1173 S A180 W A1173 N 0 746 165 437 A180 E 205 0 271 0 A1173 S 31 164 0 43 A180 W 157 1 93 0   | 2025 Baseline + Committed PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 178 27 273 A180 E 783 0 105 2 A1173 S 135 249 0 119 A180 W 490 0 19 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 760 169 444<br>A180 E 208 0 276 0<br>A1173 32 167 0 44<br>A180 W 160 1 95 0                                | 2032 Baseline + Committed PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 182 27 276 A130 E 808 0 109 2 A1173 S 139 256 0 123 A180 W 502 0 20 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 783 175 454<br>A180 E 214 0 284 0<br>A1173 S 33 172 0 45<br>A180 W 163 1 97 0  |
| HGVs<br>AM A1173 N A180 E A1173 S A180 W<br>A1173 N 23 2 40<br>A180 E 26<br>A1173 S 2<br>A180 W 38   | PM A1173N A180E A1173S A180 W<br>A1173N S 2 19<br>A180E B<br>A11735 4<br>A180 W 38   |   | HGV %<br>AM 1173 N A180 E A1173 S A180 W<br>A1172 N 25% 38% 33%<br>A180 E 7% 4% 0%<br>A1173 S 4% 1% 3%<br>A180 W 22% 11%   | PM A1173 N A180 E A1173 S A180 W A1173 N 3% 6% 19% A180 E 13% 3% 41173 S 34% 1% 5% A180 W 71% 0% 5%   | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 38% 33% A180 E 7% 4% 0% A1173 S 4% 1% 1% 1% 1% 1%  | PM A1173 N A180 E A1173 S A180 W A1173 N A180 E 3173 S A180 W A180 E 35 S A180 E 35 S A180 W 35 S A180 W 725 S 55 S                                      | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 225% 38% 33% A180 E 7% 4% 0% A1173 S 4% 1% 3% A180 W 22% 11%   | PM A1173 N A180 E A1173 S A180 W A1173 N A180 E A1173 S A180 W A180 E A1173 S A180 W A1173 S A180 W  |
| Proposed D AM (7-8) Imminisham A1173 N A180E A1173 S A180 W A1173 N 0 3 4 89 A180E 3 0 0 0 A1173 N 7 0 0 0 A1173 N 1173 S 0 0 0 A180 W 154 0 0 0                                 | PM (17-18) Stens A1173 N A180 E A1173 S A180 W A1173 N 0 3 5 124 A180 E 3 0 0 0 A1173 S 9 0 0 0 A1873 S 9 0 0 0  |   | 2021 Baseline + Committed + Development PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 178 30 360 A180 E 770 0 103 2 A1173 S 128 244 0 117 A180 W 637 0 19 0   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 749 171 561<br>A180 E 207 0 271 0<br>A1173 S 41 164 0 43<br>A180 W 364 1 93 0   | 2025 Baseline + Committed + Development PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 181 30 362 A180 E 786 0 105 2 A1173 S 141 249 0 119 A180 W 644 0 19 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 763 175 567<br>A180 E 211 0 276 0<br>A1173 S 41 167 0 44<br>A180 W 367 1 95 0                              | 2032 Baseline + Committed + Development PCU AM A1173 N A180 E A1173 S A180 W A1173 N 0 185 31 365 A130 E 811 0 109 2 A1173 S 146 256 0 123 A180 W 656 0 20 0  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 786 1180 577<br>A180 E 217 0 284 0<br>A1173 S 42 172 0 45<br>A180 W 370 1 97 0   |
| HGVs<br>AM A1173 N A180 E A1173 S A180 W<br>A1173 N 0 0 2 35<br>A180 E 0 0 0 0 0<br>A1173 S 3 0 0 0<br>A180 W 63 0 0 0   | PM A1173 N A180 E A1173 S A180 W A1173 N 0 0 0 2 50 A180 E 0 0 0 0 A1173 S 4 0 0 0 A1173 S 4 0 0 0 A1173 S 4 0 0 0 A180 W 86 0 0 0   |   | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 39% 35% A180 E 7% 4% 0% A1173 S 6% 1% 3% A180 W 26% 11%   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 3% 8% 23%<br>A180 E 13% 3% 5%<br>A1173 S 36% 1% 5%<br>A180 W 54% 0% 5%  | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 39% 35% A180 E 7% 4% 0% A1173 S 6% 1% 3% A180 W 26% 111%   | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 3% 8% 23%<br>A180 E 13% 3%<br>A1173 S 36% 1% 5%<br>A180 W 54% 0% 5%  | HGV % AM A1173 N A180 E A1173 S A180 W A1173 N 25% 39% 35% A180 E 7% 4% 0% A1173 S 6% 1% 3% A180 W 26% 11%  | PM A1173 N A180 E A1173 S A180 W<br>A1173 N 3% 8% 22%<br>A180 E 13% 3%<br>A1173 S 36% 1% 5%<br>A180 W 54% 0% 5%  |

|                                |                                      |   |                                      | A160/ A180                           |                                       |                                      |                                      |                          |
|--------------------------------|--------------------------------------|---|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|--------------------------|
| Baselin                        | ne                                   |   | 2021 Baseline                        |                                      | 2025 Baseline                         |                                      | 2032 Baseline                        |                          |
| PCU                            |                                      | North East Lincolnshire 001             | PCU                                  |                                      | PCU                                   |                                      | PCU                                  |                          |
| AM (7-8)<br>A160 A180 E A180 W | PM (16-17)<br>A160 A180 E A180 W     | 2021-2025 2021-2032<br>AM 1.0298 1.0773 | AM                                   | PM                                   | AM                                    | PM                                   | AM                                   | PM<br>A160 A180 E A180 W |
| A160 0 140 538                 | A160 A180 E A180 W<br>A160 0 346 707 | PM 1.0298 1.0773<br>PM 1.0291 1.075     | A160 A180 E A180 W<br>A160 0 140 538 | A160 A180 E A180 W<br>A160 0 346 707 | A160 A180 E A180 W<br>A160 0 144 554  | A160 A180 E A180 W<br>A160 0 356 728 | A160 A180 E A180 W<br>A160 0 151 580 | A160 0 372 760           |
| A180 E 447 0 0                 | A180 E 140 2 0                       | FW 1.0251 1.075                         | A180 E 447 0 0                       | A180 E 140 2 0                       | A180 E 460 0 0                        | A180 E 144 2 0                       | A180 E 482 0 0                       | A180 E 151 2 0           |
| A180 W 817 0 1                 | A180 W 488 0 0                       |   | A180 W 817 0 1                       | A180 W 488 0 0                       | A180 W 841 0 1                        | A180 W 502 0 0                       | A180 W 880 0 1                       | A180 W 525 0 0           |
| 7,100 17 0 1                   | 71200 11 400 0 0                     |   | 7100 17 0 1                          | 7100 17 400 0 0                      | 7100 17 0 1                           | 7100 11 302 0 0                      | 7200 11 000 0 1                      | 7100 W 323 0 0           |
| HGVs                           |                                      |   | HGV %                                |                                      | HGV %                                 |                                      | HGV %                                |                          |
| AM                             | PM                                   |   | AM                                   | PM                                   | AM                                    | PM                                   | AM                                   | PM                       |
| A160 A180 E A180 W             | A160 A180 E A180 W                   |   | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W                    | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W       |
| A160 0 20 393                  | A160 0 12 264                        |   | A160 14% 73%                         | A160 3% 37%                          | A160 14% 73%                          | A160 3% 37%                          | A160 14% 73%                         | A160 3% 37%              |
| A180 E 12 0 0                  | A180 E 13 0 0                        |   | A180 E 3%                            | A180 E 9% 0%                         | A180 E 3%                             | A180 E 9% 0%                         | A180 E 3%                            | A180 E 9% 0%             |
| A180 W 234 0 0                 | A180 W 341 0 0                       |   | A180 W 29% 0%                        | A180 W 70%                           | A180 W 29% 0%                         | A180 W 70%                           | A180 W 29% 0%                        | A180 W 70%               |
| Committed Dev                  | velopment                            |   | 2021 Baseline + Committed            |                                      | 2025 Baseline + Committed             |                                      | 2032 Baseline + Committed            |                          |
| PCU                            |                                      |   | PCU                                  |                                      | PCU                                   |                                      | PCU                                  |                          |
| AM                             | PM                                   |   | AM                                   | PM                                   | AM                                    | PM                                   | AM                                   | PM                       |
| A160 A180 E A180 W             | A160 A180 E A180 W                   |   | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W                    | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W       |
| A160 8 48                      | A160 25 113                          |   | A160 0 148 585.69                    | A160 0 371 820.23                    | A160 0 152 602                        | A160 0 381 841                       | A160 0 159 627                       | A160 0 397 873           |
| A180 E 43                      | A180 E 7                             |   | A180 E 490 0 0                       | A180 E 147 2 0                       | A180 E 503 0 0                        | A180 E 151 2 0                       | A180 E 525 0 0                       | A180 E 158 2 0           |
| A180 W 194                     | A180 W 34                            |   | A180 W 1011 0 1                      | A180 W 522 0 0                       | A180 W 1035 0 1                       | A180 W 536 0 0                       | A180 W 1074 0 1                      | A180 W 559 0 0           |
|                                |                                      |   |                                      |                                      |                                       |                                      |                                      |                          |
| HGVs                           |                                      |   | HGV %                                |                                      | HGV %                                 |                                      | HGV %                                |                          |
| AM                             | PM                                   |   | AM                                   | PM                                   | AM                                    | PM                                   | AM                                   | PM                       |
| A160 A180 E A180 W             | A160 A180 E A180 W                   |   | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W                    | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W       |
| A160 4                         | A160 0                               |   | A160 14% 68%                         | A160 3% 32%                          | A160 14% 68%                          | A160 3% 32%                          | A160 14% 68%                         | A160 3% 32%              |
| A180 E                         | A180 E                               |   | A180 E 2%                            | A180 E 9% 0%                         | A180 E 2%                             | A180 E 9% 0%                         | A180 E 2%                            | A180 E 9% 0%             |
| A180 W 8                       | A180 W 0                             |   | A180 W 24% 0%                        | A180 W 65%                           | A180 W 24% 0%                         | A180 W 65%                           | A180 W 24% 0%                        | A180 W 65%               |
| Proposed Dev                   | elopment                             |   | 2021 Baseline + Committed + Developm | ent                                  | 2025 Baseline + Committed + Developme | ent                                  | 2032 Baseline + Committed + Developm | nent                     |
| PCU                            |                                      |   | PCU                                  |                                      | PCU                                   |                                      | PCU                                  |                          |
| AM (7-8) Immingham             | PM (17-18) Stena                     |   | AM                                   | PM                                   | AM                                    | PM                                   | AM                                   | PM                       |
| A160 A180 E A180 W             | A160 A180 E A180 W                   |   | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W                    | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W       |
| A160 0 17 0                    | A160 0 23 0                          |   | A160 0 165 586                       | A160 0 394 820                       | A160 0 169 602                        | A160 0 404 841                       | A160 0 175 627                       | A160 0 420 873           |
| A180 E 29 0 0                  | A180 E 38 0 0                        |   | A180 E 519 0 0                       | A180 E 185 2 0                       | A180 E 532 0 0                        | A180 E 190 2 0                       | A180 E 553 0 0                       | A180 E 196 2 0           |
| A180 W 0 0 0                   | A180 W 0 0 0                         |   | A180 W 1011 0 1                      | A180 W 522 0 0                       | A180 W 1035 0 1                       | A180 W 536 0 0                       | A180 W 1074 0 1                      | A180 W 559 0 0           |
| HGVs                           |                                      |   | HGV %                                |                                      | HGV %                                 |                                      | HGV %                                |                          |
| AM                             | PM                                   |   | AM                                   | PM                                   | AM                                    | PM                                   | AM                                   | PM                       |
| A160 A180 E A180 W             | A160 A180 E A180 W                   |   | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W                    | A160 A180 E A180 W                   | A160 A180 E A180 W                   | A160 A180 E A180 W       |
| A160 0 6 0                     | A160 0 9 0                           |   | A160 16% 68%                         | A160 5% 32%                          | A160 16% 68%                          | A160 5% 32%                          | A160 16% 68%                         | A160 5% 32%              |
| A180 E 12 0 0                  | A180 E 16 0 0                        |   | A180 E 5%                            | A180 E 16% 0%                        | A180 E 5%                             | A180 E 16% 0%                        | A180 E 5%                            | A180 E 16% 0%            |
| A180 W 0 0 0                   | A180 W 0 0 0                         |   | A180 W 24% 0%                        | A180 W 65%                           | A180 W 24% 0%                         | A180 W 65%                           | A180 W 24% 0%                        | A180 W 65%               |
|                                |                                      |   |                                      |                                      |                                       |                                      |                                      |                          |

# Annex K

Technical Note 2 – Junction Modelling Assessments (Annex K)



- 1.1 This Technical Note has been produced by DTA to summarise the results of the Junction Capacity Assessments carried out for the Transport Assessment.
- 1.2 DTA have engaged with National Highways, North Lincolnshire Council and North East Lincolnshire Council to agree which junctions should be considered alongside the proposed development.
- 1.3 The assessments have taken into account growth (TN 1) and operation of the individual junctions has been tested using the industry standard modelling tool of TRL Junctions. The junctions have been assessed for the opening year of 2025 and future year of 2032. The input junction flows are provided in Appendix TN1 A of Technical Note 1 (Appendix E of the TA).
- 1.4 It has been assumed that the majority of the traffic (85%) will use East Gate, with a sensitivity assessment of 15% using West Gate.
- 1.5 The operation of the individual junctions has been tested using the industry standard modelling tool of TRL Junctions.
- 1.6 Junctions models the performance of priority junctions and roundabouts in isolation from other junctions within the network. The arrival pattern is normally profiled using the ODTAB to replicate unconstrained demand although in practice where the individual junctions are within an urban network external constraints may make this unrealistic.
- 1.7 There are three key performance metrics which are output from the modelling on the Junctions software. These are the forecast queue length (in vehicles), the average delay (in seconds) and the ratio of flow to capacity (RFC). Convention is that the modelled period is sub-divided into 15-minute time segments and the highest (worst) results during the modelled period are reported.

Technical Note 2 – Junction Modelling Assessments (Annex K)



- 1.8 A junction is considered to be operating at capacity when the Ratio of Flow to Capacity (RFC) is 1. However, generally once the RFC is above 0.85 the junction operational results become less stable due to an exponential relationship within the modelling formula inherent in the modelling software. Therefore, if an RFC above 0.85 is forecast closer scrutiny and consideration is required.
- 1.9 The baseline modelling has been checked against the queues in Annex BD2 of the TA and have been appropriately validated.

## Queens Road/Laporte Road Priority Junction

1.10 The Queens Road/ Laporte Road Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in Table 1 below with the full output attached in Annex TN2 A.

Table 1 - Queens Road/Laporte Road Junction Assessment Summary

|             |         | AM        |             |           | PM        |      |  |  |  |  |
|-------------|---------|-----------|-------------|-----------|-----------|------|--|--|--|--|
|             | Q (PCU) | Delay (s) | RFC         | Q (PCU)   | Delay (s) | RFC  |  |  |  |  |
| 2021 Base   |         |           |             |           |           |      |  |  |  |  |
| Stream B-C  | 0.1     | 8.18      | 0.08        | 0.2       | 6.48      | 0.12 |  |  |  |  |
| Stream B-A  | 0.7     | 10.91     | 0.38        | 0.1       | 11.08     | 0.08 |  |  |  |  |
| Stream C-AB | 0.1     | 5.91      | 0.06        | 0.1       | 6.39      | 0.05 |  |  |  |  |
|             |         | 20        | 025 Base    |           |           |      |  |  |  |  |
| Stream B-C  | 0.1     | 8.27      | 0.08        | 0.2       | 6.52      | 0.13 |  |  |  |  |
| Stream B-A  | 0.7     | 11.16     | 0.39        | 0.1       | 11.15     | 0.08 |  |  |  |  |
| Stream C-AB | 0.1     | 6.37      | 0.06        | 0.1       | 6.49      | 0.05 |  |  |  |  |
|             |         | 2025 Ba   | se + Comm   | itted     |           |      |  |  |  |  |
| Stream B-C  | 0.1     | 9.21      | 0.09        | 0.2       | 6.57      | 0.13 |  |  |  |  |
| Stream B-A  | 0.8     | 11.32     | 0.40        | 0.1       | 10.99     | 0.09 |  |  |  |  |
| Stream C-AB | 0.1     | 6.37      | 0.06        | 0.1       | 6.49      | 0.05 |  |  |  |  |
|             | 2025    | Base + Co | mmitted + D | evelopmen | t         |      |  |  |  |  |
| Stream B-C  | 0.2     | 10.54     | 0.11        | 0.2       | 7.47      | 0.14 |  |  |  |  |
| Stream B-A  | 1.1     | 14.95     | 0.50        | 0.3       | 11.97     | 0.16 |  |  |  |  |
| Stream C-AB | 0.1     | 6.71      | 0.07        | 0.1       | 7.00      | 0.06 |  |  |  |  |

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|                |                       | 20         | 032 Base    |           |       |      |  |  |  |  |
|----------------|-----------------------|------------|-------------|-----------|-------|------|--|--|--|--|
| Stream B-C     | 0.1                   | 8.60       | 0.10        | 0.2       | 6.61  | 0.13 |  |  |  |  |
| Stream B-A     | 0.8                   | 11.94      | 0.42        | 0.1       | 11.29 | 0.09 |  |  |  |  |
| Stream C-AB    | 0.1                   | 6.03       | 0.07        | 0.1       | 6.50  | 0.05 |  |  |  |  |
|                | 2032 Base + Committed |            |             |           |       |      |  |  |  |  |
| Stream B-C     | 0.2                   | 9.60       | 0.12        | 0.2       | 6.66  | 0.14 |  |  |  |  |
| Stream B-A     | 0.9                   | 12.13      | 0.43        | 0.1       | 11.13 | 0.09 |  |  |  |  |
| Stream C-AB    | 0.1                   | 6.49       | 0.07        | 0.1       | 6.55  | 0.05 |  |  |  |  |
|                | 2032                  | Base + Co  | mmitted + D | evelopmen | t     |      |  |  |  |  |
| Stream B-C     | 0.2                   | 11.19      | 0.13        | 0.2       | 7.58  | 0.15 |  |  |  |  |
| Stream B-A     | 1.3                   | 16.33      | 0.53        | 0.3       | 12.17 | 0.17 |  |  |  |  |
| Stream C-AB    | 0.1                   | 6.84       | 0.08        | 0.1       | 7.07  | 0.06 |  |  |  |  |
| NB: A – East G | Sate; B – La          | porte Road | ; C – Queer | s Road    |       |      |  |  |  |  |

- 1.11 As can be seen above, the maximum RFC of 0.53 is reached during the 2032 Base + Committed + Development is in the AM peak period for traffic movements from Laporte Road to East Gate. This indicates that the development traffic will not have a severe impact on the Queens Road/Laporte Road Priority Junction.
- 1.12 Due to concerns raised during the consultation period, a sensitivity test of 100% of development traffic using East Gate has been undertaken at the Queens Road/ Laporte Road junction. A summary of the results can be seen in **Table 2** below with the full output attached in **Annex TN2 A**.

**Table 2** - Queens Road/Laporte Road Junction Assessment Summary (Sensitivity)

|             |         | AM        |          | PM      |           |      |  |  |  |
|-------------|---------|-----------|----------|---------|-----------|------|--|--|--|
|             | Q (PCU) | Delay (s) | RFC      | Q (PCU) | Delay (s) | RFC  |  |  |  |
| 2021 Base   |         |           |          |         |           |      |  |  |  |
| Stream B-C  | 0.1     | 8.18      | 0.08     | 0.2     | 6.48      | 0.12 |  |  |  |
| Stream B-A  | 0.7     | 10.91     | 0.38     | 0.1     | 11.08     | 0.08 |  |  |  |
| Stream C-AB | 0.1     | 5.91      | 0.06     | 0.1     | 6.39      | 0.05 |  |  |  |
|             |         | 20        | 025 Base |         |           |      |  |  |  |
| Stream B-C  | 0.1     | 8.27      | 0.08     | 0.2     | 6.52      | 0.13 |  |  |  |
| Stream B-A  | 0.7     | 11.16     | 0.39     | 0.1     | 11.15     | 80.0 |  |  |  |
| Stream C-AB | 0.1     | 5.93      | 0.06     | 0.1     | 6.43      | 0.05 |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



|                |              | 2025 Ba    | se + Comm   | itted     |       |      |
|----------------|--------------|------------|-------------|-----------|-------|------|
| Stream B-C     | 0.1          | 9.21       | 0.09        | 0.2       | 6.57  | 0.13 |
| Stream B-A     | 0.8          | 11.32      | 0.40        | 0.1       | 10.99 | 0.09 |
| Stream C-AB    | 0.1          | 6.37       | 0.06        | 0.1       | 6.49  | 0.05 |
|                | 2025         | Base + Co  | mmitted + D | evelopmen | t     |      |
| Stream B-C     | 0.2          | 10.71      | 0.11        | 0.2       | 7.54  | 0.14 |
| Stream B-A     | 1.2          | 15.53      | 0.51        | 0.3       | 12.35 | 0.17 |
| Stream C-AB    | 0.1          | 6.76       | 0.07        | 0.1       | 7.06  | 0.06 |
|                |              | 20         | 032 Base    |           |       |      |
| Stream B-C     | 0.1          | 8.60       | 0.10        | 0.2       | 6.61  | 0.13 |
| Stream B-A     | 0.8          | 11.94      | 0.42        | 0.1       | 11.29 | 0.09 |
| Stream C-AB    | 0.1          | 6.03       | 0.07        | 0.1       | 6.50  | 0.05 |
|                |              | 2032 Ba    | se + Comm   | itted     |       |      |
| Stream B-C     | 0.2          | 9.60       | 0.12        | 0.2       | 666   | 0.14 |
| Stream B-A     | 0.9          | 12.13      | 0.43        | 0.2       | 11.35 | 0.09 |
| Stream C-AB    | 0.1          | 6.49       | 0.07        | 0.1       | 6.55  | 0.05 |
|                | 2032         | Base + Co  | mmitted + D | evelopmen | t     |      |
| Stream B-C     | 0.2          | 11.41      | 0.13        | 0.2       | 7.65  | 0.15 |
| Stream B-A     | 1.3          | 17.02      | 0.54        | 0.3       | 12.55 | 0.17 |
| Stream C-AB    | 0.1          | 6.88       | 0.08        | 0.1       | 7.13  | 0.06 |
| NB: A – East G | Sate; B – La | porte Road | ; C – Queer | is Road   |       |      |

1.13 As can be seen above, if 100% of traffic used East Gate to access the proposed development the maximum RFC of the Queens Road/ Laporte Road junction increases by 0.01 to 0.54 during the 2032 Base + Committed + Development is in the AM peak period for traffic movements from Laporte Road to East Gate.

# Laporte Road/Kiln Lane/ Hobson Way Roundabout

1.14 The Laporte Road/ Kiln Lane/ Hobson Way Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 3** below with the full output attached in **Annex TN2 B**.

Technical Note 2 – Junction Modelling Assessments (Annex K)



Table 3 - Laporte Road/ Kiln Lane/ Hobson Way Junction Assessment Summary

|                                     |            | AM           |            |         | PM           |      |  |  |  |  |
|-------------------------------------|------------|--------------|------------|---------|--------------|------|--|--|--|--|
|                                     | Q<br>(PCU) | Delay<br>(s) | RFC        | Q (PCU) | Delay<br>(s) | RFC  |  |  |  |  |
|                                     |            | 2021 I       | Base       |         |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.3        | 2.28         | 0.20       | 0.1     | 2.37         | 0.10 |  |  |  |  |
| Kiln Lane                           | 0.2        | 2.77         | 0.15       | 0.1     | 2.44         | 0.07 |  |  |  |  |
| Laporte Road                        | 0.0        | 2.30         | 0.03       | 0.3     | 2.42         | 0.23 |  |  |  |  |
|                                     |            | 2025 I       | Base       |         |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.3        | 2.29         | 0.20       | 0.1     | 2.38         | 0.10 |  |  |  |  |
| Kiln Lane                           | 0.2        | 2.80         | 0.15       | 0.1     | 2.45         | 0.07 |  |  |  |  |
| Laporte Road                        | 0.0        | 2.30         | 0.03       | 0.4     | 2.44         | 0.24 |  |  |  |  |
| 2025 Base + Committed               |            |              |            |         |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.3        | 2.51         | 0.23       | 0.2     | 2.43         | 0.11 |  |  |  |  |
| Kiln Lane                           | 0.3        | 3.15         | 0.19       | 0.1     | 2.46         | 0.08 |  |  |  |  |
| Laporte Road                        | 0.1        | 2.32         | 0.04       | 0.4     | 2.49         | 0.25 |  |  |  |  |
| 2025 Base + Committed + Development |            |              |            |         |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.4        | 2.55         | 0.24       | 0.2     | 2.42         | 0.13 |  |  |  |  |
| Kiln Lane                           | 0.3        | 3.19         | 0.19       | 0.1     | 2.49         | 0.08 |  |  |  |  |
| Laporte Road                        | 0.1        | 2.20         | 0.06       | 0.4     | 2.52         | 0.26 |  |  |  |  |
|                                     |            | 2032 l       | l          | l       |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.3        | 2.32         | 0.21       | 0.1     | 2.39         | 0.10 |  |  |  |  |
| Kiln Lane                           | 0.2        | 2.83         | 0.16       | 0.1     | 2.45         | 0.08 |  |  |  |  |
| Laporte Road                        | 0.0        | 2.31         | 0.03       | 0.4     | 2.48         | 0.25 |  |  |  |  |
|                                     |            |              | Committe   |         |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.3        | 2.54         | 0.23       | 0.2     | 2.45         | 0.12 |  |  |  |  |
| Kiln Lane                           | 0.3        | 3.19         | 0.20       | 0.1     | 2.47         | 0.09 |  |  |  |  |
| Laporte Road                        | 0.1        | 2.32         | 0.05       | 0.4     | 2.52         | 0.26 |  |  |  |  |
|                                     |            |              | tted + Dev |         |              |      |  |  |  |  |
| Air Products Access                 | 0.0        | 0.00         | 0.00       | 0.0     | 0.00         | 0.00 |  |  |  |  |
| Hobson Way                          | 0.4        | 2.57         | 0.25       | 0.2     | 2.44         | 0.13 |  |  |  |  |
| Kiln Lane                           | 0.3        | 3.23         | 0.20       | 0.1     | 2.50         | 0.09 |  |  |  |  |
| Laporte Road                        | 0.1        | 2.21         | 0.06       | 0.4     | 2.56         | 0.27 |  |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



1.15 As can be seen above, the maximum RFC of 0.27 is reached during the 2032 Base + Committed + Development is in the PM peak period for traffic movements on the Laporte Road arm. This indicates that the development traffic will not have a severe impact on the Laporte Road/ Kiln Lane/ Hobson Way Roundabout.

# Kings Road/ A1173 Roundabout

1.16 The Kings Road/ A1173 Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 4** below with the full output attached in **Annex TN2 C**.

**Table 4** - Kings Road/ A1173 Junction Assessment Summary

|                       |           | AM           |             |           | PM           |      |  |  |  |  |
|-----------------------|-----------|--------------|-------------|-----------|--------------|------|--|--|--|--|
|                       | Q (PCU)   | Delay<br>(s) | RFC         | Q (PCU)   | Delay<br>(s) | RFC  |  |  |  |  |
|                       |           | 202          | 1 Base      |           |              |      |  |  |  |  |
| Kings Road NE         | 0.2       | 2.94         | 0.17        | 0.6       | 3.75         | 0.35 |  |  |  |  |
| A1173                 | 0.8       | 4.17         | 0.42        | 0.2       | 3.02         | 0.16 |  |  |  |  |
| Kings Road NW         | 0.1       | 3.88         | 0.07        | 0.3       | 3.25         | 0.21 |  |  |  |  |
|                       |           | 202          | 5 Base      |           |              |      |  |  |  |  |
| Kings Road NE         | 0.2       | 2.96         | 0.17        | 0.6       | 3.82         | 0.36 |  |  |  |  |
| A1173                 | 0.9       | 4.27         | 0.43        | 0.2       | 3.04         | 0.17 |  |  |  |  |
| Kings Road NW         | 0.1       | 3.91         | 0.07        | 0.3       | 3.28         | 0.22 |  |  |  |  |
| 2025 Base + Committed |           |              |             |           |              |      |  |  |  |  |
| Kings Road NE         | 0.2       | 3.01         | 0.18        | 0.6       | 3.97         | 0.37 |  |  |  |  |
| A1173                 | 1.0       | 4.61         | 0.48        | 0.3       | 3.13         | 0.19 |  |  |  |  |
| Kings Road NW         | 0.1       | 3.83         | 0.10        | 0.4       | 3.45         | 0.25 |  |  |  |  |
|                       | 2025 Ba   | se + Comn    | nitted + De | velopment |              |      |  |  |  |  |
| Kings Road NE         | 0.4       | 3.28         | 0.24        | 1.0       | 4.96         | 0.47 |  |  |  |  |
| A1173                 | 1.6       | 6.05         | 0.58        | 0.6       | 4.03         | 0.33 |  |  |  |  |
| Kings Road NW         | 0.1       | 3.62         | 0.05        | 0.5       | 4.03         | 0.29 |  |  |  |  |
|                       | 2032 Base |              |             |           |              |      |  |  |  |  |
| Kings Road NE         | 0.3       | 3.05         | 0.18        | 0.7       | 3.94         | 0.38 |  |  |  |  |
| A1173                 | 1.2       | 4.96         | 0.51        | 0.3       | 3.07         | 0.18 |  |  |  |  |
| Kings Road NW         | 0.2       | 4.33         | 0.11        | 0.3       | 3.35         | 0.23 |  |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



| 2032 Base + Committed |         |           |             |           |      |      |  |  |
|-----------------------|---------|-----------|-------------|-----------|------|------|--|--|
| Kings Road NE         | 0.3     | 3.10      | 0.19        | 0.7       | 4.10 | 0.39 |  |  |
| A1173                 | 1.3     | 5.27      | 0.54        | 0.3       | 3.16 | 0.20 |  |  |
| Kings Road NW         | 0.2     | 4.06      | 0.13        | 0.4       | 3.52 | 0.26 |  |  |
|                       | 2032 Ba | se + Comr | nitted + De | velopment |      |      |  |  |
| Kings Road NE         | 0.4     | 3.49      | 0.25        | 1.1       | 5.04 | 0.48 |  |  |
| A1173                 | 2.1     | 6.96      | 0.64        | 0.6       | 4.03 | 0.33 |  |  |
| Kings Road NW         | 0.2     | 4.47      | 0.14        | 0.5       | 4.06 | 0.29 |  |  |

1.17 As can be seen above, the maximum RFC of 0.64 is reached during the 2032 Base + Committed + Development is in the AM peak period for traffic movements on the A1173 arm. This indicates that the development traffic will not have a severe impact on the Kings Road/ A1173 Roundabout.

## A1173/Kiln Lane Roundabout

1.18 The A1173/ Kiln Lane Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 5** below with the full output attached in **Annex TN2 D**.

**Table 5** - A1173/ Kiln Lane Junction Assessment Summary

|           |           | AM        |            |         | PM        |      |  |  |  |  |  |
|-----------|-----------|-----------|------------|---------|-----------|------|--|--|--|--|--|
|           | Q (PCU)   | Delay (s) | RFC        | Q (PCU) | Delay (s) | RFC  |  |  |  |  |  |
|           | 2021 Base |           |            |         |           |      |  |  |  |  |  |
| Kiln Lane | 0.2       | 3.22      | 0.09       | 0.7     | 4.24      | 0.39 |  |  |  |  |  |
| Access    | 0.0       | 0.00      | 0.00       | 0.0     | 0.00      | 0.00 |  |  |  |  |  |
| A1173 W   | 1.5       | 4.94      | 0.57       | 0.2     | 2.90      | 0.15 |  |  |  |  |  |
| A1173 N   | 0.2       | 3.59      | 0.13       | 0.7     | 3.68      | 0.38 |  |  |  |  |  |
|           |           | 2         | 025 Base   |         |           |      |  |  |  |  |  |
| Kiln Lane | 0.2       | 3.24      | 0.10       | 0.7     | 4.32      | 0.40 |  |  |  |  |  |
| Access    | 0.0       | 0.00      | 0.00       | 0.0     | 0.00      | 0.00 |  |  |  |  |  |
| A1173 W   | 1.6       | 5.13      | 0.59       | 0.2     | 2.92      | 0.16 |  |  |  |  |  |
| A1173 N   | 0.2       | 3.62      | 0.13       | 0.7     | 3.75      | 0.39 |  |  |  |  |  |
|           |           | 2025 Ba   | ase + Comm | nitted  |           |      |  |  |  |  |  |
| Kiln Lane | 0.2       | 3.50      | 0.13       | 0.9     | 5.37      | 0.46 |  |  |  |  |  |
| Access    | 0.0       | 2.96      | 0.04       | 0.1     | 6.15      | 80.0 |  |  |  |  |  |
| A1173 W   | 3.0       | 7.96      | 0.73       | 0.3     | 2.94      | 0.17 |  |  |  |  |  |
| A1173 N   | 0.2       | 3.75      | 0.15       | 1.1     | 4.53      | 0.51 |  |  |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



|           | 202 | 5 Base + Co | ommitted + [ | Developmer | nt   |      |
|-----------|-----|-------------|--------------|------------|------|------|
| Kiln Lane | 0.2 | 3.66        | 0.13         | 1.1        | 6.17 | 0.50 |
| Access    | 0.0 | 3.12        | 0.04         | 0.1        | 7.20 | 0.09 |
| A1173 W   | 5.3 | 12.71       | 0.83         | 0.6        | 3.71 | 0.30 |
| A1173 N   | 0.4 | 4.15        | 0.22         | 1.6        | 5.71 | 0.59 |
|           |     | 2           | 2032 Base    |            |      |      |
| Kiln Lane | 0.2 | 3.26        | 0.10         | 0.8        | 4.55 | 0.42 |
| Access    | 0.0 | 0.00        | 0.00         | 0.0        | 0.00 | 0.00 |
| A1173 W   | 1.7 | 5.46        | 0.61         | 0.2        | 2.94 | 0.16 |
| A1173 N   | 0.2 | 3.68        | 0.14         | 0.8        | 3.85 | 0.40 |
|           |     | 2032 Ba     | ase + Comm   | nitted     |      |      |
| Kiln Lane | 0.2 | 3.52        | 0.13         | 1.0        | 5.64 | 0.48 |
| Access    | 0.0 | 2.97        | 0.04         | 0.1        | 6.43 | 0.08 |
| A1173 W   | 3.4 | 8.76        | 0.75         | 0.3        | 2.97 | 0.18 |
| A1173 N   | 0.2 | 3.81        | 0.16         | 1.2        | 4.69 | 0.52 |
|           | 203 | 2 Base + Co | ommitted + [ | Developmer | nt   |      |
| Kiln Lane | 0.2 | 3.69        | 0.14         | 1.2        | 6.55 | 0.52 |
| Access    | 0.0 | 3.14        | 0.04         | 0.1        | 7.60 | 0.09 |
| A1173 W   | 6.3 | 14.75       | 0.85         | 0.6        | 3.75 | 0.31 |
| A1173 N   | 0.4 | 4.23        | 0.23         | 1.7        | 5.96 | 0.61 |

1.19 As can be seen above, the maximum RFC of 0.85 is reached during the 2032 Base + Committed + Development is in the AM peak period for traffic movements on the A1173 W arm. This indicates that the development traffic will not have a severe impact on the A173/ SHIPP Roundabout.

# A1173/SHIIP Roundabout

1.20 The A1173/ SHIIP Roundabouthas been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 6** below with the full output attached in **Annex TN2 E**.

Technical Note 2 – Junction Modelling Assessments (Annex K)



**Table 6** - A1173/ SHIIP Junction Assessment Summary

|                                     |           | AM           |          |            | PM           |      |  |  |  |  |
|-------------------------------------|-----------|--------------|----------|------------|--------------|------|--|--|--|--|
|                                     | Q (PCU)   | Delay<br>(s) | RFC      | Q (PCU)    | Delay<br>(s) | RFC  |  |  |  |  |
|                                     |           | 202          | 1 Base   |            |              |      |  |  |  |  |
| SHIIP Access S                      | 0.1       | 4.30         | 0.10     | 0.1        | 2.67         | 0.12 |  |  |  |  |
| A1173 W                             | 0.2       | 1.77         | 0.14     | 8.0        | 2.38         | 0.43 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 2.95         | 0.02     | 0.0        | 4.29         | 0.04 |  |  |  |  |
| A1173 E                             | 0.7       | 2.40         | 0.40     | 0.2        | 1.98         | 0.13 |  |  |  |  |
|                                     | 2025 Base |              |          |            |              |      |  |  |  |  |
| SHIIP Access S                      | 0.1       | 4.40         | 0.10     | 0.2        | 2.70         | 0.12 |  |  |  |  |
| A1173 W                             | 0.2       | 1.78         | 0.15     | 0.9        | 2.43         | 0.44 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 2.96         | 0.02     | 0.0        | 4.40         | 0.04 |  |  |  |  |
| A1173 E                             | 0.8       | 2.45         | 0.41     | 0.2        | 1.99         | 0.13 |  |  |  |  |
|                                     |           | 2025 Base    | + Commit | ted        |              |      |  |  |  |  |
| SHIIP Access S                      | 0.1       | 4.61         | 0.11     | 0.2        | 2.76         | 0.12 |  |  |  |  |
| A1173 W                             | 0.3       | 1.94         | 0.17     | 0.9        | 2.50         | 0.45 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 3.07         | 0.02     | 0.0        | 4.47         | 0.04 |  |  |  |  |
| A1173 E                             | 0.9       | 2.62         | 0.44     | 0.2        | 2.03         | 0.15 |  |  |  |  |
| 2025 Base + Committed + Development |           |              |          |            |              |      |  |  |  |  |
| SHIIP Access S                      | 0.2       | 4.99         | 0.12     | 0.2        | 2.97         | 0.13 |  |  |  |  |
| A1173 W                             | 0.4       | 2.13         | 0.23     | 1.3        | 3.06         | 0.53 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 3.34         | 0.02     | 0.1        | 5.46         | 0.05 |  |  |  |  |
| A1173 E                             | 1.0       | 2.85         | 0.48     | 0.3        | 2.18         | 0.20 |  |  |  |  |
|                                     |           | 203          | 2 Base   |            |              |      |  |  |  |  |
| SHIIP Access S                      | 0.2       | 4.56         | 0.11     | 0.2        | 2.73         | 0.13 |  |  |  |  |
| A1173 W                             | 0.2       | 1.80         | 0.15     | 0.9        | 2.51         | 0.46 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 2.99         | 0.02     | 0.1        | 4.57         | 0.04 |  |  |  |  |
| A1173 E                             | 0.8       | 2.53         | 0.43     | 0.2        | 2.00         | 0.13 |  |  |  |  |
|                                     |           | 2032 Base    | + Commit | ted        |              |      |  |  |  |  |
| SHIIP Access S                      | 0.2       | 4.79         | 0.11     | 0.2        | 2.79         | 0.13 |  |  |  |  |
| A1173 W                             | 0.3       | 1.95         | 0.18     | 1.0        | 2.59         | 0.46 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 3.09         | 0.02     | 0.1        | 4.64         | 0.04 |  |  |  |  |
| A1173 E                             | 0.9       | 2.71         | 0.46     | 0.2        | 2.05         | 0.15 |  |  |  |  |
|                                     |           |              |          | evelopment |              |      |  |  |  |  |
| SHIIP Access S                      | 0.2       | 5.20         | 0.12     | 0.2        | 3.01         | 0.14 |  |  |  |  |
| A1173 W                             | 0.4       | 2.15         | 0.24     | 1.4        | 3.18         | 0.55 |  |  |  |  |
| SHIIP Access N                      | 0.0       | 3.37         | 0.02     | 0.1        | 5.72         | 0.05 |  |  |  |  |
| A1173 E                             | 1.1       | 2.96         | 0.49     | 0.3        | 2.20         | 0.20 |  |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



1.21 As can be seen above, the maximum RFC of 0.55 is reached during the 2032 Base + Committed + Development is in the PM peak period for traffic movements on the A1173 W arm. This indicates that the development traffic will not have a severe impact on the A173/ SHIPP Roundabout.

# A160/ Humber Road/ Manby Road Roundabout (Manby Roundabout)

1.22 The A160/ Humber Road/ Manby Road Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in Table 7 below with the full output attached in Annex TN2 F.

**Table 7** - A160/ Humber Road/ Manby Road Junction Assessment Summary

|                     |            | AM           |             |            | PM           |      |  |  |  |  |
|---------------------|------------|--------------|-------------|------------|--------------|------|--|--|--|--|
|                     | Q<br>(PCU) | Delay<br>(s) | RFC         | Q<br>(PCU) | Delay<br>(s) | RFC  |  |  |  |  |
|                     |            | 2021 I       | Base        |            |              |      |  |  |  |  |
| Humber Road         | 0.3        | 2.91         | 0.16        | 0.7        | 2.95         | 0.33 |  |  |  |  |
| Manby Road          | 0.3        | 1.94         | 0.22        | 0.2        | 1.92         | 0.14 |  |  |  |  |
| Port Service Access | 0.0        | 4.41         | 0.01        | 0.0        | 4.43         | 0.01 |  |  |  |  |
| A160                | 0.5        | 2.81         | 0.26        | 0.4        | 2.57         | 0.20 |  |  |  |  |
| Conco Access        | 0.0        | 0.00         | 0.00        | 0.0        | 0.00         | 0.00 |  |  |  |  |
| 2025 Base           |            |              |             |            |              |      |  |  |  |  |
| Humber Road         | 0.4        | 2.95         | 0.17        | 0.7        | 3.04         | 0.34 |  |  |  |  |
| Manby Road          | 0.4        | 1.98         | 0.23        | 0.2        | 1.96         | 0.15 |  |  |  |  |
| Port Service Access | 0.0        | 4.53         | 0.01        | 0.0        | 4.53         | 0.01 |  |  |  |  |
| A160                | 0.5        | 2.89         | 0.27        | 0.4        | 2.61         | 0.21 |  |  |  |  |
| Conco Access        | 0.0        | 0.00         | 0.00        | 0.0        | 0.00         | 0.00 |  |  |  |  |
|                     | 20         | 25 Base +    | Committee   | d          |              |      |  |  |  |  |
| Humber Road         | 0.4        | 2.89         | 0.18        | 1.4        | 3.80         | 0.52 |  |  |  |  |
| Manby Road          | 0.5        | 2.08         | 0.29        | 0.3        | 2.41         | 0.18 |  |  |  |  |
| Port Service Access | 0.0        | 6.88         | 0.01        | 0.0        | 5.80         | 0.01 |  |  |  |  |
| A160                | 1.0        | 3.71         | 0.45        | 0.4        | 2.64         | 0.22 |  |  |  |  |
| Conco Access        | 0.0        | 0.00         | 0.00        | 0.0        | 0.00         | 0.00 |  |  |  |  |
|                     | 2025 Base  | + Commit     | tted + Deve | elopment   |              |      |  |  |  |  |
| Humber Road         | 0.4        | 2.89         | 0.19        | 1.4        | 3.89         | 0.53 |  |  |  |  |
| Manby Road          | 0.5        | 2.11         | 0.29        | 0.3        | 2.46         | 0.19 |  |  |  |  |
| Port Service Access | 0.0        | 7.01         | 0.01        | 0.0        | 5.94         | 0.01 |  |  |  |  |
| A160                | 1.1        | 3.85         | 0.47        | 0.5        | 2.71         | 0.24 |  |  |  |  |
| Conco Access        | 0.0        | 0.00         | 0.00        | 0.0        | 0.00         | 0.00 |  |  |  |  |

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Technical Note 2 – Junction Modelling Assessments (Annex K)



|                       |           | 2032 I  | Base        |          |      |      |  |  |  |
|-----------------------|-----------|---------|-------------|----------|------|------|--|--|--|
| Humber Road           | 0.4       | 3.01    | 0.18        | 0.8      | 3.19 | 0.37 |  |  |  |
| Manby Road            | 0.4       | 2.05    | 0.24        | 0.2      | 2.02 | 0.16 |  |  |  |
| Port Service Access   | 0.0       | 4.73    | 0.01        | 0.0      | 4.72 | 0.01 |  |  |  |
| A160                  | 0.6       | 3.01    | 0.29        | 0.4      | 2.67 | 0.23 |  |  |  |
| Conco Access          | 0.0       | 0.00    | 0.00        | 0.0      | 0.00 | 0.00 |  |  |  |
| 2032 Base + Committed |           |         |             |          |      |      |  |  |  |
| Humber Road           | 0.4       | 2.96    | 0.19        | 1.5      | 4.06 | 0.55 |  |  |  |
| Manby Road            | 0.5       | 2.16    | 0.31        | 0.3      | 2.50 | 0.20 |  |  |  |
| Port Service Access   | 0.0       | 7.24    | 0.01        | 0.0      | 6.11 | 0.01 |  |  |  |
| A160                  | 1.1       | 3.93    | 0.47        | 0.5      | 2.71 | 0.24 |  |  |  |
| Conco Access          | 0.0       | 0.00    | 0.00        | 0.0      | 0.00 | 0.00 |  |  |  |
|                       | 2032 Base | + Commi | tted + Deve | elopment |      |      |  |  |  |
| Humber Road           | 0.4       | 2.96    | 0.20        | 1.6      | 4.17 | 0.56 |  |  |  |
| Manby Road            | 0.5       | 2.19    | 0.31        | 0.3      | 2.56 | 0.20 |  |  |  |
| Port Service Access   | 0.0       | 7.37    | 0.01        | 0.0      | 6.27 | 0.01 |  |  |  |
| A160                  | 1.2       | 4.09    | 0.49        | 0.5      | 2.78 | 0.26 |  |  |  |
| Conco Access          | 0.0       | 0.00    | 0.00        | 0.0      | 0.00 | 0.00 |  |  |  |

1.23 As can be seen above, the maximum RFC of 0.56 is reached during the 2032 Base + Committed + Development is in the PM peak period for traffic movements on the Humber Road arm. This indicates that the development traffic will not have a severe impact on the A160/ Humber Road/ Manby Road Roundabout.

A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout (Habrough Roundabout)

1.24 The A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 8** below with the full output attached in **Annex TN2**G.

Technical Note 2 – Junction Modelling Assessments (Annex K)



**Table 8** - A160/ Ulceby Road/ Habrough Road/ E Halton Road Junction Assessment Summary

|                       |         | AM           |             |            | PM           |      |  |  |  |
|-----------------------|---------|--------------|-------------|------------|--------------|------|--|--|--|
|                       | Q (PCU) | Delay<br>(s) | RFC         | Q (PCU)    | Delay<br>(s) | RFC  |  |  |  |
|                       |         | 202          | 1 Base      |            |              |      |  |  |  |
| A160 E                | 0.4     | 2.52         | 0.18        | 0.9        | 2.70         | 0.41 |  |  |  |
| Habrough Road         | 0.3     | 2.75         | 0.20        | 0.1        | 3.34         | 0.10 |  |  |  |
| A160 W                | 1.0     | 2.63         | 0.46        | 0.4        | 2.27         | 0.22 |  |  |  |
| Ulceby Road           | 0.3     | 5.88         | 0.20        | 0.1        | 3.18         | 0.07 |  |  |  |
| E Halton Road         | 0.4     | 4.93         | 0.22        | 0.3        | 2.72         | 0.22 |  |  |  |
|                       |         | 202          | 5 Base      |            |              |      |  |  |  |
| A160 E                | 0.4     | 2.56         | 0.19        | 1.0        | 2.83         | 0.43 |  |  |  |
| Habrough Road         | 0.3     | 2.84         | 0.21        | 0.1        | 3.52         | 0.11 |  |  |  |
| A160 W                | 1.1     | 2.77         | 0.48        | 0.5        | 2.32         | 0.23 |  |  |  |
| Ulceby Road           | 0.4     | 6.44         | 0.22        | 0.1        | 3.25         | 0.07 |  |  |  |
| E Halton Road         | 0.4     | 5.28         | 0.24        | 0.3        | 2.80         | 0.23 |  |  |  |
| 2025 Base + Committed |         |              |             |            |              |      |  |  |  |
| A160 E                | 0.6     | 2.48         | 0.31        | 1.2        | 3.06         | 0.48 |  |  |  |
| Habrough Road         | 0.4     | 3.70         | 0.27        | 0.1        | 4.00         | 0.13 |  |  |  |
| A160 W                | 1.5     | 3.27         | 0.57        | 0.7        | 2.45         | 0.34 |  |  |  |
| Ulceby Road           | 0.5     | 9.26         | 0.28        | 0.1        | 3.98         | 0.09 |  |  |  |
| E Halton Road         | 0.5     | 7.08         | 0.30        | 0.4        | 3.49         | 0.27 |  |  |  |
|                       | 2025 Ba | ase + Com    | mitted + De | evelopment |              |      |  |  |  |
| A160 E                | 0.7     | 2.50         | 0.31        | 1.2        | 3.11         | 0.49 |  |  |  |
| Habrough Road         | 0.4     | 3.76         | 0.27        | 0.2        | 4.10         | 0.13 |  |  |  |
| A160 W                | 1.6     | 3.37         | 0.58        | 0.8        | 2.51         | 0.36 |  |  |  |
| Ulceby Road           | 0.5     | 9.75         | 0.30        | 0.1        | 4.09         | 0.09 |  |  |  |
| E Halton Road         | 0.6     | 7.37         | 0.31        | 0.4        | 3.60         | 0.28 |  |  |  |
|                       |         | 203          | 2 Base      |            |              |      |  |  |  |
| A160 E                | 0.5     | 2.63         | 0.20        | 1.1        | 3.05         | 0.46 |  |  |  |
| Habrough Road         | 0.3     | 3.00         | 0.24        | 0.2        | 3.82         | 0.13 |  |  |  |
| A160 W                | 1.3     | 3.01         | 0.52        | 0.5        | 2.39         | 0.25 |  |  |  |
| Ulceby Road           | 0.4     | 7.59         | 0.26        | 0.1        | 3.36         | 0.08 |  |  |  |
| E Halton Road         | 0.5     | 5.96         | 0.28        | 0.4        | 2.92         | 0.25 |  |  |  |
|                       |         | 2032 Base    | + Commit    | ted        |              |      |  |  |  |
| A160 E                | 0.7     | 2.56         | 0.32        | 1.4        | 3.32         | 0.52 |  |  |  |
| Habrough Road         | 0.4     | 3.97         | 0.29        | 0.2        | 4.39         | 0.15 |  |  |  |
| A160 W                | 1.8     | 3.62         | 0.61        | 0.8        | 2.54         | 0.36 |  |  |  |
| Ulceby Road           | 0.7     | 11.83        | 0.35        | 0.1        | 4.14         | 0.10 |  |  |  |
| E Halton Road         | 0.7     | 8.36         | 0.35        | 0.5        | 3.67         | 0.29 |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



| 2032 Base + Committed + Development |     |       |      |     |      |      |  |  |  |
|-------------------------------------|-----|-------|------|-----|------|------|--|--|--|
| A160 E                              | 0.7 | 2.58  | 0.33 | 1.4 | 3.39 | 0.53 |  |  |  |
| Habrough Road                       | 0.4 | 4.04  | 0.30 | 0.2 | 4.51 | 0.15 |  |  |  |
| A160 W                              | 1.9 | 3.75  | 0.62 | 0.8 | 2.60 | 0.38 |  |  |  |
| Ulceby Road                         | 0.7 | 12.64 | 0.37 | 0.2 | 4.26 | 0.10 |  |  |  |
| E Halton Road                       | 0.7 | 8.77  | 0.36 | 0.5 | 3.80 | 0.30 |  |  |  |

1.25 As can be seen above, the maximum RFC of 0.62 is reached during the 2032 Base + Committed + Development is in the AM peak period for traffic movements on the A160 W arm. This indicates that the development traffic will not have a severe impact on the A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout.

# A180/A1173 Roundabout

1.26 The A180/ A1173 Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 9** below with the full output attached in **Annex TN2 H**.

**Table 9** - A180/ A1173 Junction Assessment Summary

|           |           | AM        |            |         | PM        |      |  |  |  |  |  |
|-----------|-----------|-----------|------------|---------|-----------|------|--|--|--|--|--|
|           | Q (PCU)   | Delay (s) | RFC        | Q (PCU) | Delay (s) | RFC  |  |  |  |  |  |
| 2021 Base |           |           |            |         |           |      |  |  |  |  |  |
| A1173 N   | 0.1       | 1.84      | 0.07       | 0.6     | 2.15      | 0.38 |  |  |  |  |  |
| A180 E    | 0.4       | 1.75      | 0.26       | 0.2     | 1.93      | 0.16 |  |  |  |  |  |
| A1173 S   | 0.3       | 2.55      | 0.22       | 0.1     | 1.92      | 0.09 |  |  |  |  |  |
| A180 W    | 0.3       | 2.83      | 0.17       | 0.1     | 2.04      | 0.06 |  |  |  |  |  |
|           | 2025 Base |           |            |         |           |      |  |  |  |  |  |
| A1173 N   | 0.1       | 1.85      | 0.08       | 0.7     | 2.19      | 0.39 |  |  |  |  |  |
| A180 E    | 0.4       | 1.77      | 0.27       | 0.2     | 1.95      | 0.17 |  |  |  |  |  |
| A1173 S   | 0.3       | 2.60      | 0.23       | 0.1     | 1.94      | 0.09 |  |  |  |  |  |
| A180 W    | 0.3       | 2.89      | 0.18       | 0.1     | 2.05      | 0.07 |  |  |  |  |  |
|           |           | 2025 E    | sase + Com | mitted  |           |      |  |  |  |  |  |
| A1173 N   | 0.3       | 2.09      | 0.19       | 1.3     | 3.07      | 0.54 |  |  |  |  |  |
| A180 E    | 0.7       | 2.39      | 0.38       | 0.4     | 2.51      | 0.26 |  |  |  |  |  |
| A1173 S   | 0.6       | 3.98      | 0.37       | 0.2     | 2.35      | 0.14 |  |  |  |  |  |
| A180 W    | 0.7       | 4.22      | 0.35       | 0.2     | 2.24      | 0.11 |  |  |  |  |  |

Technical Note 2 – Junction Modelling Assessments (Annex K)



|         | 202       | 25 Base + C | ommitted +  | Developme | nt   |      |  |  |  |  |  |
|---------|-----------|-------------|-------------|-----------|------|------|--|--|--|--|--|
| A1173 N | 0.4       | 2.22        | 0.23        | 1.6       | 3.22 | 0.60 |  |  |  |  |  |
| A180 E  | 0.7       | 2.61        | 0.40        | 0.4       | 2.80 | 0.28 |  |  |  |  |  |
| A1173 S | 0.7       | 4.41        | 0.40        | 0.2       | 2.60 | 0.16 |  |  |  |  |  |
| A180 W  | 1.1       | 5.26        | 0.46        | 0.4       | 2.56 | 0.21 |  |  |  |  |  |
|         | 2032 Base |             |             |           |      |      |  |  |  |  |  |
| A1173 N | 0.1       | 1.86        | 80.0        | 0.7       | 2.26 | 0.40 |  |  |  |  |  |
| A180 E  | 0.4       | 1.80        | 0.28        | 0.2       | 1.99 | 0.18 |  |  |  |  |  |
| A1173 S | 0.3       | 2.69        | 0.24        | 0.1       | 1.97 | 0.09 |  |  |  |  |  |
| A180 W  | 0.3       | 3.00        | 0.19        | 0.1       | 2.07 | 0.07 |  |  |  |  |  |
|         |           | 2032 B      | Base + Comr | mitted    |      |      |  |  |  |  |  |
| A1173 N | 0.3       | 2.11        | 0.19        | 1.4       | 3.21 | 0.56 |  |  |  |  |  |
| A180 E  | 0.7       | 2.45        | 0.39        | 0.4       | 2.57 | 0.27 |  |  |  |  |  |
| A1173 S | 0.7       | 4.16        | 0.39        | 0.2       | 2.39 | 0.15 |  |  |  |  |  |
| A180 W  | 0.7       | 4.43        | 0.37        | 0.2       | 2.27 | 0.12 |  |  |  |  |  |
|         | 203       | 32 Base + C | ommitted +  | Developme | nt   |      |  |  |  |  |  |
| A1173 N | 0.4       | 2.24        | 0.23        | 1.7       | 3.72 | 0.61 |  |  |  |  |  |
| A180 E  | 0.8       | 2.68        | 0.41        | 0.4       | 2.87 | 0.29 |  |  |  |  |  |
| A1173 S | 0.7       | 4.64        | 0.42        | 0.2       | 2.64 | 0.16 |  |  |  |  |  |
| A180 W  | 1.1       | 5.58        | 0.48        | 0.4       | 2.60 | 0.21 |  |  |  |  |  |

1.27 As can be seen above, the maximum RFC of 0.61 is reached during the 2032 Base + Committed + Development is in the PM peak period for traffic movements on the A1173 N arm. This indicates that the development traffic will not have a severe impact on the A180/A1173 Roundabout.

# A160/A180 Roundabout (Brocklesby Interchange)

1.28 The A160/ A180 Roundabout has been assessed using the ARCADY module of Junctions 10. A summary of the results can be seen in **Table 10** below with the full output attached in **Annex TN2 I**.

Technical Note 2 – Junction Modelling Assessments (Annex K)



**Table 10** - A160/ A180 Junction Assessment Summary

|                                     |                       | AM          |             |            | PM        |      |  |  |  |  |  |  |
|-------------------------------------|-----------------------|-------------|-------------|------------|-----------|------|--|--|--|--|--|--|
|                                     | Q (PCU)               | Delay (s)   | RFC         | Q (PCU)    | Delay (s) | RFC  |  |  |  |  |  |  |
|                                     |                       | 2           | 021 Base    |            |           |      |  |  |  |  |  |  |
| A160                                | 0.4                   | 1.70        | 0.25        | 0.7        | 2.22      | 0.37 |  |  |  |  |  |  |
| A180 E                              | 0.8                   | 622         | 0.45        | 0.2        | 4.41      | 0.15 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.84        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |
|                                     | 2025 Base             |             |             |            |           |      |  |  |  |  |  |  |
| A160                                | 0.5                   | 2.48        | 0.25        | 0.7        | 2.26      | 0.38 |  |  |  |  |  |  |
| A180 E                              | 0.9                   | 6.56        | 0.47        | 0.2        | 4.53      | 0.16 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.85        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |
|                                     | 2025 Base + Committed |             |             |            |           |      |  |  |  |  |  |  |
| A160                                | 0.6                   | 2.63        | 0.28        | 1.0        | 2.61      | 0.45 |  |  |  |  |  |  |
| A180 E                              | 0.9                   | 6.06        | 0.48        | 0.2        | 5.02      | 0.18 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.90        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |
| 2025 Base + Committed + Development |                       |             |             |            |           |      |  |  |  |  |  |  |
| A160                                | 0.6                   | 2.67        | 0.29        | 1.0        | 2.71      | 0.46 |  |  |  |  |  |  |
| A180 E                              | 1.1                   | 6.59        | 0.51        | 0.3        | 5.65      | 0.22 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.94        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |
|                                     |                       | 2           | 032 Base    |            |           |      |  |  |  |  |  |  |
| A160                                | 0.6                   | 2.60        | 0.27        | 0.8        | 2.33      | 0.39 |  |  |  |  |  |  |
| A180 E                              | 0.8                   | 5.71        | 0.45        | 0.2        | 4.73      | 0.17 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.88        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |
|                                     |                       | 2032 Ba     | ase + Comm  | nitted     |           |      |  |  |  |  |  |  |
| A160                                | 0.6                   | 2.68        | 0.30        | 1.0        | 2.70      | 0.46 |  |  |  |  |  |  |
| A180 E                              | 1.0                   | 6.58        | 0.51        | 0.3        | 5.25      | 0.19 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.93        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |
|                                     | 203                   | 2 Base + Co | mmitted + [ | Developmer | nt        |      |  |  |  |  |  |  |
| A160                                | 0.7                   | 2.73        | 0.30        | 1.1        | 2.82      | 0.48 |  |  |  |  |  |  |
| A180 E                              | 1.2                   | 7.16        | 0.54        | 0.4        | 5.92      | 0.24 |  |  |  |  |  |  |
| A180 W                              | 0.0                   | 1.96        | 0.00        | 0.0        | 0.00      | 0.00 |  |  |  |  |  |  |

1.29 As can be seen above, the maximum RFC of 0.54 is reached during the 2032 Base + Committed + Development is in the AM peak period for traffic movements on the A180 E arm. This indicates that the development traffic will not have a severe impact on the A160/ A180 Roundabout.

# **Annex TN2 A**

Queens Road/ Laporte Road Priority Junction



# **Junctions 10**

#### **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693
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Filename: Queens Road-Laporte Road RevC.j10

Path: P:\23000's\23325\Junction Assessment\Queens Road-Laporte Road RevC\_Junctions 10 Report

**Report generation date:** 05/08/2022 09:47:02

»2021 Base, AM
»2021 Base, PM
»2025 Base, AM
»2025 Base, PM
»2025 Base + Committed, AM
»2025 Base + Committed, PM
»2025 Base + Committed + Development, AM
»2025 Base + Committed + Development, PM
»2025 Base, AM
»2032 Base, AM
»2032 Base, PM
»2032 Base + Committed, AM
»2032 Base + Committed, AM
»2032 Base + Committed, PM

»2032 Base + Committed + Development, AM »2032 Base + Committed + Development, PM



# Summary of junction performance

|             |         | AM                             |       |          | PM        |      |  |
|-------------|---------|--------------------------------|-------|----------|-----------|------|--|
|             | Q (PCU) | Delay (s)                      | RFC   | Q (PCU)  | Delay (s) | RFC  |  |
|             |         |                                | 2021  | Base     |           |      |  |
| Stream B-C  | 0.1     | 8.18                           | 0.08  | 0.2      | 6.48      | 0.12 |  |
| Stream B-A  | 0.7     | 10.91                          | 0.38  | 0.1      | 11.08     | 0.08 |  |
| Stream C-AB | 0.1     | 5.91                           | 0.06  | 0.1      | 6.39      | 0.05 |  |
|             |         |                                | 2025  | Base     |           |      |  |
| Stream B-C  | 0.1     | 8.27                           | 0.08  | 0.2      | 6.52      | 0.13 |  |
| Stream B-A  | 0.7     | 11.16                          | 0.39  | 0.1      | 11.15     | 0.08 |  |
| Stream C-AB | 0.1     | 5.93                           | 0.06  | 0.1      | 6.43      | 0.05 |  |
|             |         | 2025 B                         | ase + | Commi    | tted      |      |  |
| Stream B-C  | 0.1     | 9.21                           | 0.09  | 0.2      | 6.57      | 0.13 |  |
| Stream B-A  | 0.8     | 11.32                          | 0.40  | 0.1      | 10.99     | 0.09 |  |
| Stream C-AB | 0.1     | 6.37                           | 0.06  | 0.1      | 6.49      | 0.05 |  |
|             | 2025 E  | Base + Committed + Development |       |          |           |      |  |
| Stream B-C  | 0.2     | 10.54                          | 0.11  | 0.2      | 7.47      | 0.14 |  |
| Stream B-A  | 1.1     | 14.95                          | 0.50  | 0.3      | 11.97     | 0.16 |  |
| Stream C-AB | 0.1     | 6.71                           | 0.07  | 0.1      | 7.00      | 0.06 |  |
|             |         |                                | 2032  | Base     |           |      |  |
| Stream B-C  | 0.1     | 8.60                           | 0.10  | 0.2      | 6.61      | 0.13 |  |
| Stream B-A  | 0.8     | 11.94                          | 0.42  | 0.1      | 11.29     | 0.09 |  |
| Stream C-AB | 0.1     | 6.03                           | 0.07  | 0.1      | 6.50      | 0.05 |  |
|             |         | 2032 B                         | ase + | Commi    | tted      |      |  |
| Stream B-C  | 0.2     | 9.60                           | 0.12  | 0.2      | 6.66      | 0.14 |  |
| Stream B-A  | 0.9     | 12.13                          | 0.43  | 0.1      | 11.13     | 0.09 |  |
| Stream C-AB | 0.1     | 6.49                           | 0.07  | 0.1      | 6.55      | 0.05 |  |
|             | 2032 E  | Base + C                       | ommi  | tted + D | evelopm   | ent  |  |
| Stream B-C  | 0.2     | 11.19                          | 0.13  | 0.2      | 7.58      | 0.15 |  |
| Stream B-A  | 1.3     | 16.33                          | 0.53  | 0.3      | 12.17     | 0.17 |  |
| Stream C-AB | 0.1     | 6.84                           | 0.08  | 0.1      | 7.07      | 0.06 |  |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

## File summary

#### File Description

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |
|             |            |

# Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |



# **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

# **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

# **Analysis Set Details**

| ١ | ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |
|---|----|-------------------|---------------------------------|-------------------------------------|--|
|   | A1 | ✓                 | 100.000                         | 100.000                             |  |



# 2021 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 4.89               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.89              | Α           |

## **Arms**

#### **Arms**

| Arm | Name         | Description | Arm type |
|-----|--------------|-------------|----------|
| Α   | East Gate    |             | Major    |
| В   | Laporte Road |             | Minor    |
| С   | Queens Road  |             | Major    |

#### **Major Arm Geometry**

| Arm             | Width of carriageway (m) | Has kerbed central reserve | Has right-turn<br>storage | Width for right-turn storage (m) | Visibility for right turn (m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|--------------------------|----------------------------|---------------------------|----------------------------------|-------------------------------|---------|-------------------------|
| C - Queens Road | 10.40                    |                            | ✓                         | 4.00                             | 92.7                          | ✓       | 12.00                   |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

#### **Minor Arm Geometry**

| Arm              | Minor arm<br>type      | Width at give-way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to left (m) | Visibility to right (m) |
|------------------|------------------------|-----------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------------|
| B - Laporte Road | One lane<br>plus flare | 10.00                 | 9.75               | 6.01                | 4.53                | 4.13                | ✓                     | 2.00                  | 175                    | 97                      |

## Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|
| B-A    | 684                   | 0.101               | 0.255               | 0.160               | 0.364               |
| B-C    | 676                   | 0.084               | 0.212               | -                   | -                   |
| С-В    | 751                   | 0.235               | 0.235               | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



# **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 81                  | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 253                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 253                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |
| F    | A - East Gate    | 0             | 28               | 53              |  |  |  |
| From | B - Laporte Road | 212           | 0                | 41              |  |  |  |
|      | C - Queens Road  | 215           | 38               | 0               |  |  |  |

# **Vehicle Mix**

#### HV %s

|      | То               |               |                  |                 |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |
|      | A - East Gate    | 0             | 50               | 70              |  |  |  |
| From | B - Laporte Road | 15            | 0                | 22              |  |  |  |
|      | C - Queens Road  | 19            | 13               | 0               |  |  |  |

# Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| В-С    | 0.08    | 8.18          | 0.1         | A       | 38                     | 56                               |
| B-A    | 0.38    | 10.91         | 0.7         | В       | 195                    | 292                              |
| C-AB   | 0.06    | 5.91          | 0.1         | A       | 35                     | 52                               |
| C-A    |         |               |             |         | 197                    | 296                              |
| A-B    |         |               |             |         | 26                     | 39                               |
| A-C    |         |               |             |         | 49                     | 73                               |



# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 31                       | 8                          | 621                  | 0.050 | 31                     | 0.0                  | 0.1                | 7.440     | A                             |
| B-A    | 160                      | 40                         | 636                  | 0.251 | 158                    | 0.0                  | 0.4                | 8.641     | Α                             |
| C-AB   | 29                       | 7                          | 736                  | 0.039 | 28                     | 0.0                  | 0.0                | 5.745     | A                             |
| C-A    | 162                      | 40                         |                      |       | 162                    |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 40                       | 10                         |                      |       | 40                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 606                  | 0.061 | 37                     | 0.1                  | 0.1                | 7.716     | A                             |
| B-A    | 191                      | 48                         | 626                  | 0.304 | 190                    | 0.4                  | 0.5                | 9.484     | A                             |
| C-AB   | 34                       | 9                          | 733                  | 0.047 | 34                     | 0.0                  | 0.1                | 5.816     | A                             |
| C-A    | 193                      | 48                         |                      |       | 193                    |                      |                    |           |                               |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |
| A-C    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 45                       | 11                         | 582                  | 0.078 | 45                     | 0.1                  | 0.1                | 8.175     | A                             |
| B-A    | 233                      | 58                         | 613                  | 0.381 | 233                    | 0.5                  | 0.7                | 10.862    | В                             |
| C-AB   | 42                       | 10                         | 730                  | 0.057 | 42                     | 0.1                  | 0.1                | 5.913     | A                             |
| C-A    | 237                      | 59                         |                      |       | 237                    |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 45                       | 11                         | 582                  | 0.078 | 45                     | 0.1                  | 0.1                | 8.183     | Α                             |
| B-A    | 233                      | 58                         | 613                  | 0.381 | 233                    | 0.7                  | 0.7                | 10.905    | В                             |
| C-AB   | 42                       | 10                         | 730                  | 0.057 | 42                     | 0.1                  | 0.1                | 5.913     | A                             |
| C-A    | 237                      | 59                         |                      |       | 237                    |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |

#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 37                       | 9                          | 605                  | 0.061 | 37                     | 0.1                  | 0.1                | 7.727     | A                             |
| B-A    | 191                      | 48                         | 626                  | 0.304 | 191                    | 0.7                  | 0.5                | 9.540     | A                             |
| C-AB   | 34                       | 9                          | 733                  | 0.047 | 34                     | 0.1                  | 0.1                | 5.817     | A                             |
| C-A    | 193                      | 48                         |                      |       | 193                    |                      |                    |           |                               |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |
| A-C    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |



#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 31                       | 8                          | 620                  | 0.050 | 31                     | 0.1                  | 0.1                | 7.460     | А                             |
| B-A    | 160                      | 40                         | 636                  | 0.251 | 160                    | 0.5                  | 0.4                | 8.714     | А                             |
| C-AB   | 29                       | 7                          | 736                  | 0.039 | 29                     | 0.1                  | 0.0                | 5.750     | Α                             |
| C-A    | 162                      | 40                         |                      |       | 162                    |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 40                       | 10                         |                      |       | 40                     |                      |                    |           |                               |



# 2021 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.97               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.97              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 384                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 117                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 68                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 235              | 149             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 39            | 0                | 78              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 39            | 29               | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

#### HV %s

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 19               | 19              |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |
|      | C - Queens Road  | 59            | 10               | 0               |  |  |  |  |  |



# Results

# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.12    | 6.48          | 0.2         | А       | 72                     | 107                              |
| B-A    | 0.08    | 11.08         | 0.1         | В       | 36                     | 54                               |
| C-AB   | 0.05    | 6.39          | 0.1         | А       | 27                     | 40                               |
| C-A    |         |               |             |         | 36                     | 54                               |
| A-B    |         |               |             |         | 216                    | 323                              |
| A-C    |         |               |             |         | 137                    | 205                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 59                       | 15                         | 717                  | 0.082 | 58                     | 0.0                  | 0.1                | 5.954     | A                             |
| B-A    | 29                       | 7                          | 551                  | 0.053 | 29                     | 0.0                  | 0.1                | 10.264    | В                             |
| C-AB   | 22                       | 5                          | 683                  | 0.032 | 22                     | 0.0                  | 0.0                | 5.989     | A                             |
| C-A    | 29                       | 7                          |                      |       | 29                     |                      |                    |           |                               |
| A-B    | 177                      | 44                         |                      |       | 177                    |                      |                    |           |                               |
| A-C    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 70                       | 18                         | 706                  | 0.099 | 70                     | 0.1                  | 0.1                | 6.166     | Α                             |
| B-A    | 35                       | 9                          | 541                  | 0.065 | 35                     | 0.1                  | 0.1                | 10.594    | В                             |
| C-AB   | 26                       | 7                          | 669                  | 0.039 | 26                     | 0.0                  | 0.0                | 6.154     | А                             |
| C-A    | 35                       | 9                          |                      |       | 35                     |                      |                    |           |                               |
| A-B    | 211                      | 53                         |                      |       | 211                    |                      |                    |           |                               |
| A-C    | 134                      | 33                         |                      |       | 134                    |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 86                       | 21                         | 692                  | 0.124 | 86                     | 0.1                  | 0.2                | 6.473     | A                             |
| B-A    | 43                       | 11                         | 527                  | 0.081 | 43                     | 0.1                  | 0.1                | 11.072    | В                             |
| C-AB   | 32                       | 8                          | 651                  | 0.049 | 32                     | 0.0                  | 0.1                | 6.394     | А                             |
| C-A    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |
| A-B    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-C    | 164                      | 41                         |                      |       | 164                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 86                       | 21                         | 692                  | 0.124 | 86                     | 0.2                  | 0.2                | 6.476     | A                             |
| B-A    | 43                       | 11                         | 527                  | 0.081 | 43                     | 0.1                  | 0.1                | 11.076    | В                             |
| C-AB   | 32                       | 8                          | 651                  | 0.049 | 32                     | 0.1                  | 0.1                | 6.394     | A                             |
| C-A    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |
| A-B    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-C    | 164                      | 41                         |                      |       | 164                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 70                       | 18                         | 706                  | 0.099 | 70                     | 0.2                  | 0.1                | 6.170     | A                             |
| B-A    | 35                       | 9                          | 541                  | 0.065 | 35                     | 0.1                  | 0.1                | 10.602    | В                             |
| C-AB   | 26                       | 7                          | 669                  | 0.039 | 26                     | 0.1                  | 0.0                | 6.157     | A                             |
| C-A    | 35                       | 9                          |                      |       | 35                     |                      |                    |           |                               |
| A-B    | 211                      | 53                         |                      |       | 211                    |                      |                    |           |                               |
| A-C    | 134                      | 33                         |                      |       | 134                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 59                       | 15                         | 717                  | 0.082 | 59                     | 0.1                  | 0.1                | 5.966     | A                             |
| B-A    | 29                       | 7                          | 551                  | 0.053 | 29                     | 0.1                  | 0.1                | 10.279    | В                             |
| C-AB   | 22                       | 5                          | 683                  | 0.032 | 22                     | 0.0                  | 0.0                | 5.995     | A                             |
| C-A    | 29                       | 7                          |                      |       | 29                     |                      |                    |           |                               |
| A-B    | 177                      | 44                         |                      |       | 177                    |                      |                    |           |                               |
| A-C    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |



# 2025 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| П  | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 4.99               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.99              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn   Vehicle mix varies over entry |   | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|--|---|--------------------|---------------------------|--|
| ✓  | ✓ | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm Linked arm   |  | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|--|---------------------------|---|---------------------|--------------------|--|
| A - East Gate    |  | ONE HOUR                  | ✓ | 84                  | 100.000            |  |
| B - Laporte Road |  | ONE HOUR                  | ✓ | 260                 | 100.000            |  |
| C - Queens Road  |  | ONE HOUR                  | ✓ | 260                 | 100.000            |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 29               | 55              |  |  |  |  |  |
| From | B - Laporte Road | 218           | 0                | 42              |  |  |  |  |  |
|      | C - Queens Road  | 221           | 39               | 0               |  |  |  |  |  |

# Vehicle Mix

#### HV %s

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
| From |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 50               | 70              |  |  |  |  |  |
|      | B - Laporte Road | 15            | 0                | 22              |  |  |  |  |  |
|      | C - Queens Road  | 19            | 13               | 0               |  |  |  |  |  |



# Results

# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.08    | 8.27          | 0.1         | А       | 39                     | 58                               |
| B-A    | 0.39    | 11.16         | 0.7         | В       | 200                    | 300                              |
| C-AB   | 0.06    | 5.93          | 0.1         | А       | 36                     | 54                               |
| C-A    |         |               |             |         | 203                    | 304                              |
| A-B    |         |               |             |         | 27                     | 40                               |
| A-C    |         |               |             |         | 50                     | 76                               |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 32                       | 8                          | 619                  | 0.051 | 31                     | 0.0                  | 0.1                | 7.476     | А                             |
| B-A    | 164                      | 41                         | 634                  | 0.259 | 163                    | 0.0                  | 0.4                | 8.749     | A                             |
| C-AB   | 29                       | 7                          | 736                  | 0.040 | 29                     | 0.0                  | 0.0                | 5.756     | A                             |
| C-A    | 166                      | 42                         |                      |       | 166                    |                      |                    |           |                               |
| A-B    | 22                       | 5                          |                      |       | 22                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |

#### 07:00 - 07:15

| 000    | 7.100                    |                            |                      |       |                        |                      |                    |           |                               |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
| в-с    | 38                       | 9                          | 603                  | 0.063 | 38                     | 0.1                  | 0.1                | 7.767     | A                             |  |  |
| B-A    | 196                      | 49                         | 624                  | 0.314 | 195                    | 0.4                  | 0.5                | 9.637     | A                             |  |  |
| C-AB   | 35                       | 9                          | 733                  | 0.048 | 35                     | 0.0                  | 0.1                | 5.829     | A                             |  |  |
| C-A    | 199                      | 50                         |                      |       | 199                    |                      |                    |           |                               |  |  |
| A-B    | 26                       | 7                          |                      |       | 26                     |                      |                    |           |                               |  |  |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |  |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 46                       | 12                         | 578                  | 0.080 | 46                     | 0.1                  | 0.1                | 8.260     | A                             |
| B-A    | 240                      | 60                         | 611                  | 0.393 | 239                    | 0.5                  | 0.7                | 11.114    | В                             |
| C-AB   | 43                       | 11                         | 729                  | 0.059 | 43                     | 0.1                  | 0.1                | 5.930     | A                             |
| C-A    | 243                      | 61                         |                      |       | 243                    |                      |                    |           |                               |
| A-B    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 46                       | 12                         | 577                  | 0.080 | 46                     | 0.1                  | 0.1                | 8.268     | A                             |
| B-A    | 240                      | 60                         | 611                  | 0.393 | 240                    | 0.7                  | 0.7                | 11.162    | В                             |
| C-AB   | 43                       | 11                         | 729                  | 0.059 | 43                     | 0.1                  | 0.1                | 5.930     | A                             |
| C-A    | 243                      | 61                         |                      |       | 243                    |                      |                    |           |                               |
| A-B    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 38                       | 9                          | 602                  | 0.063 | 38                     | 0.1                  | 0.1                | 7.780     | А                             |
| B-A    | 196                      | 49                         | 624                  | 0.314 | 197                    | 0.7                  | 0.5                | 9.701     | А                             |
| C-AB   | 35                       | 9                          | 733                  | 0.048 | 35                     | 0.1                  | 0.1                | 5.830     | Α                             |
| C-A    | 199                      | 50                         |                      |       | 199                    |                      |                    |           |                               |
| A-B    | 26                       | 7                          |                      |       | 26                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 32                       | 8                          | 618                  | 0.051 | 32                     | 0.1                  | 0.1                | 7.493     | А                             |
| B-A    | 164                      | 41                         | 634                  | 0.259 | 165                    | 0.5                  | 0.4                | 8.828     | А                             |
| C-AB   | 29                       | 7                          | 736                  | 0.040 | 29                     | 0.1                  | 0.0                | 5.761     | A                             |
| C-A    | 166                      | 42                         |                      |       | 166                    |                      |                    |           |                               |
| A-B    | 22                       | 5                          |                      |       | 22                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ. | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.98               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.98              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| Ī | D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm Linked arm   |  | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|--|--------------|--------------|---------------------|--------------------|
| A - East Gate    |  | ONE HOUR     | ✓            | 395                 | 100.000            |
| B - Laporte Road |  | ONE HOUR     | ✓            | 120                 | 100.000            |
| C - Queens Road  |  | ONE HOUR     | ✓            | 70                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 242              | 153             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 40            | 0                | 80              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 40            | 30               | 0               |  |  |  |  |  |  |  |

# Vehicle Mix

|      | То               |               |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 19               | 19              |  |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |  |
|      | C - Queens Road  | 59            | 10               | 0               |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 6.52          | 0.2         | А       | 73                     | 110                              |
| B-A    | 0.08    | 11.15         | 0.1         | В       | 37                     | 55                               |
| C-AB   | 0.05    | 6.43          | 0.1         | А       | 28                     | 41                               |
| C-A    |         |               |             |         | 37                     | 55                               |
| A-B    |         |               |             |         | 222                    | 333                              |
| A-C    |         |               |             |         | 140                    | 211                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 60                       | 15                         | 716                  | 0.084 | 60                     | 0.0                  | 0.1                | 5.979     | Α                             |
| B-A    | 30                       | 8                          | 550                  | 0.055 | 30                     | 0.0                  | 0.1                | 10.309    | В                             |
| C-AB   | 23                       | 6                          | 681                  | 0.033 | 22                     | 0.0                  | 0.0                | 6.014     | Α                             |
| C-A    | 30                       | 8                          |                      |       | 30                     |                      |                    |           |                               |
| A-B    | 182                      | 46                         |                      |       | 182                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 72                       | 18                         | 705                  | 0.102 | 72                     | 0.1                  | 0.1                | 6.201     | Α                             |  |  |
| B-A    | 36                       | 9                          | 539                  | 0.067 | 36                     | 0.1                  | 0.1                | 10.651    | В                             |  |  |
| C-AB   | 27                       | 7                          | 667                  | 0.040 | 27                     | 0.0                  | 0.0                | 6.185     | А                             |  |  |
| C-A    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |  |  |
| A-B    | 218                      | 54                         |                      |       | 218                    |                      |                    |           |                               |  |  |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 690                  | 0.128 | 88                     | 0.1                  | 0.2                | 6.520     | A                             |
| B-A    | 44                       | 11                         | 525                  | 0.084 | 44                     | 0.1                  | 0.1                | 11.148    | В                             |
| C-AB   | 33                       | 8                          | 648                  | 0.051 | 33                     | 0.0                  | 0.1                | 6.435     | A                             |
| C-A    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |
| A-B    | 266                      | 67                         |                      |       | 266                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 689                  | 0.128 | 88                     | 0.2                  | 0.2                | 6.523     | A                             |
| B-A    | 44                       | 11                         | 525                  | 0.084 | 44                     | 0.1                  | 0.1                | 11.152    | В                             |
| C-AB   | 33                       | 8                          | 648                  | 0.051 | 33                     | 0.1                  | 0.1                | 6.435     | A                             |
| C-A    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |
| A-B    | 266                      | 67                         |                      |       | 266                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 704                  | 0.102 | 72                     | 0.2                  | 0.1                | 6.205     | A                             |
| B-A    | 36                       | 9                          | 539                  | 0.067 | 36                     | 0.1                  | 0.1                | 10.657    | В                             |
| C-AB   | 27                       | 7                          | 667                  | 0.040 | 27                     | 0.1                  | 0.0                | 6.188     | A                             |
| C-A    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-B    | 218                      | 54                         |                      |       | 218                    |                      |                    |           |                               |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 60                       | 15                         | 715                  | 0.084 | 60                     | 0.1                  | 0.1                | 5.991     | A                             |
| B-A    | 30                       | 8                          | 550                  | 0.055 | 30                     | 0.1                  | 0.1                | 10.322    | В                             |
| C-AB   | 23                       | 6                          | 681                  | 0.033 | 23                     | 0.0                  | 0.0                | 6.019     | A                             |
| C-A    | 30                       | 8                          |                      |       | 30                     |                      |                    |           |                               |
| A-B    | 182                      | 46                         |                      |       | 182                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |



# 2025 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.04               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.04              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over turn   Vehicle mix varies over entry |                | PCU Factor for a HV (PCU) |  |
|------------------------------|--|----------------|---------------------------|--|
| ✓                            | ✓  | HV Percentages | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 103                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 269                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 265                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 48               | 55              |  |  |  |  |  |  |
| From | B - Laporte Road | 220           | 0                | 49              |  |  |  |  |  |  |
|      | C - Queens Road  | 223           | 42               | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |
|      | A - East Gate    | 0             | 30               | 70              |  |  |  |  |
| From | B - Laporte Road | 14            | 0                | 33              |  |  |  |  |
|      | C - Queens Road  | 19            | 20               | 0               |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.09    | 9.21          | 0.1         | А       | 45                     | 67                               |
| B-A    | 0.40    | 11.32         | 0.8         | В       | 202                    | 303                              |
| C-AB   | 0.06    | 6.37          | 0.1         | Α       | 39                     | 58                               |
| C-A    |         |               |             |         | 205                    | 307                              |
| A-B    |         |               |             |         | 44                     | 66                               |
| A-C    |         |               |             |         | 50                     | 76                               |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 37                       | 9                          | 618                  | 0.060 | 37                     | 0.0                  | 0.1                | 8.224     | A                             |
| B-A    | 166                      | 41                         | 629                  | 0.263 | 164                    | 0.0                  | 0.4                | 8.792     | A                             |
| C-AB   | 32                       | 8                          | 732                  | 0.043 | 31                     | 0.0                  | 0.1                | 6.161     | A                             |
| C-A    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |
| A-B    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 44                       | 11                         | 602                  | 0.073 | 44                     | 0.1                  | 0.1                | 8.583     | Α                             |  |
| B-A    | 198                      | 49                         | 619                  | 0.320 | 197                    | 0.4                  | 0.5                | 9.721     | А                             |  |
| C-AB   | 38                       | 9                          | 729                  | 0.052 | 38                     | 0.1                  | 0.1                | 6.250     | А                             |  |
| C-A    | 200                      | 50                         |                      |       | 200                    |                      |                    |           |                               |  |
| A-B    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |  |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 54                       | 13                         | 574                  | 0.094 | 54                     | 0.1                  | 0.1                | 9.198     | A                             |
| B-A    | 242                      | 61                         | 605                  | 0.401 | 241                    | 0.5                  | 0.7                | 11.270    | В                             |
| C-AB   | 46                       | 12                         | 724                  | 0.064 | 46                     | 0.1                  | 0.1                | 6.373     | A                             |
| C-A    | 246                      | 61                         |                      |       | 246                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 54                       | 13                         | 574                  | 0.094 | 54                     | 0.1                  | 0.1                | 9.211     | А                             |
| B-A    | 242                      | 61                         | 605                  | 0.401 | 242                    | 0.7                  | 0.8                | 11.323    | В                             |
| C-AB   | 46                       | 12                         | 724                  | 0.064 | 46                     | 0.1                  | 0.1                | 6.373     | A                             |
| C-A    | 246                      | 61                         |                      |       | 246                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 601                  | 0.073 | 44                     | 0.1                  | 0.1                | 8.600     | А                             |
| B-A    | 198                      | 49                         | 619                  | 0.320 | 199                    | 0.8                  | 0.5                | 9.785     | Α                             |
| C-AB   | 38                       | 9                          | 729                  | 0.052 | 38                     | 0.1                  | 0.1                | 6.251     | Α                             |
| C-A    | 200                      | 50                         |                      |       | 200                    |                      |                    |           |                               |
| A-B    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 618                  | 0.060 | 37                     | 0.1                  | 0.1                | 8.248     | А                             |
| B-A    | 166                      | 41                         | 629                  | 0.263 | 166                    | 0.5                  | 0.4                | 8.872     | A                             |
| C-AB   | 32                       | 8                          | 732                  | 0.043 | 32                     | 0.1                  | 0.1                | 6.167     | A                             |
| C-A    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |
| A-B    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |



# 2025 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.95               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.95              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 Base + Committed | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | <b>✓</b>          |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 414                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 122                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 71                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 261              | 153             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 42            | 0                | 80              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 41            | 30               | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 17               | 19              |  |  |  |  |  |  |
| From | B - Laporte Road | 46            | 0                | 9               |  |  |  |  |  |  |
|      | C - Queens Road  | 60            | 10               | 0               |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 6.57          | 0.2         | A       | 73                     | 110                              |
| B-A    | 0.09    | 10.99         | 0.1         | В       | 39                     | 58                               |
| C-AB   | 0.05    | 6.49          | 0.1         | A       | 28                     | 41                               |
| C-A    |         |               |             |         | 38                     | 56                               |
| A-B    |         |               |             |         | 239                    | 359                              |
| A-C    |         |               |             |         | 140                    | 211                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 60                       | 15                         | 712                  | 0.085 | 60                     | 0.0                  | 0.1                | 6.012     | А                             |
| B-A    | 32                       | 8                          | 550                  | 0.058 | 31                     | 0.0                  | 0.1                | 10.128    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.033 | 22                     | 0.0                  | 0.0                | 6.045     | A                             |
| C-A    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-B    | 196                      | 49                         |                      |       | 196                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 72                       | 18                         | 701                  | 0.103 | 72                     | 0.1                  | 0.1                | 6.240     | Α                             |  |  |
| B-A    | 38                       | 9                          | 539                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.477    | В                             |  |  |
| C-AB   | 27                       | 7                          | 663                  | 0.041 | 27                     | 0.0                  | 0.0                | 6.224     | А                             |  |  |
| C-A    | 37                       | 9                          |                      |       | 37                     |                      |                    |           |                               |  |  |
| A-B    | 235                      | 59                         |                      |       | 235                    |                      |                    |           |                               |  |  |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 685                  | 0.129 | 88                     | 0.1                  | 0.2                | 6.569     | A                             |
| B-A    | 46                       | 12                         | 524                  | 0.088 | 46                     | 0.1                  | 0.1                | 10.987    | В                             |
| C-AB   | 33                       | 8                          | 643                  | 0.051 | 33                     | 0.0                  | 0.1                | 6.486     | A                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 88                       | 22                         | 685                  | 0.129 | 88                     | 0.2                  | 0.2                | 6.572     | A                             |
| B-A    | 46                       | 12                         | 524                  | 0.088 | 46                     | 0.1                  | 0.1                | 10.991    | В                             |
| C-AB   | 33                       | 8                          | 643                  | 0.051 | 33                     | 0.1                  | 0.1                | 6.486     | A                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 700                  | 0.103 | 72                     | 0.2                  | 0.1                | 6.245     | A                             |
| B-A    | 38                       | 9                          | 539                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.483    | В                             |
| C-AB   | 27                       | 7                          | 663                  | 0.041 | 27                     | 0.1                  | 0.0                | 6.225     | A                             |
| C-A    | 37                       | 9                          |                      |       | 37                     |                      |                    |           |                               |
| A-B    | 235                      | 59                         |                      |       | 235                    |                      |                    |           |                               |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 60                       | 15                         | 712                  | 0.085 | 60                     | 0.1                  | 0.1                | 6.027     | А                             |
| B-A    | 32                       | 8                          | 550                  | 0.057 | 32                     | 0.1                  | 0.1                | 10.141    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.033 | 23                     | 0.0                  | 0.0                | 6.050     | A                             |
| C-A    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-B    | 196                      | 49                         |                      |       | 196                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |



# 2025 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 4.65               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.65              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 236                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 296                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 433                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 74               | 162             |  |  |  |  |  |
| From | B - Laporte Road | 247           | 0                | 49              |  |  |  |  |  |
|      | C - Queens Road  | 391           | 42               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 20               | 46              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 13            | 0                | 33              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 28            | 20               | 0               |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.11    | 10.54         | 0.2         | В       | 45                     | 67                               |
| B-A    | 0.50    | 14.95         | 1.1         | В       | 227                    | 340                              |
| C-AB   | 0.07    | 6.71          | 0.1         | А       | 39                     | 58                               |
| C-A    |         |               |             |         | 359                    | 538                              |
| A-B    |         |               |             |         | 68                     | 102                              |
| A-C    |         |               |             |         | 149                    | 223                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 37                       | 9                          | 586                  | 0.063 | 37                     | 0.0                  | 0.1                | 8.710     | Α                             |
| B-A    | 186                      | 46                         | 589                  | 0.316 | 184                    | 0.0                  | 0.5                | 10.002    | В                             |
| C-AB   | 32                       | 8                          | 709                  | 0.045 | 31                     | 0.0                  | 0.1                | 6.375     | A                             |
| C-A    | 294                      | 74                         |                      |       | 294                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 122                      | 30                         |                      |       | 122                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 44                       | 11                         | 558                  | 0.079 | 44                     | 0.1                  | 0.1                | 9.306     | А                             |
| B-A    | 222                      | 56                         | 570                  | 0.390 | 221                    | 0.5                  | 0.7                | 11.640    | В                             |
| C-AB   | 38                       | 9                          | 701                  | 0.054 | 38                     | 0.1                  | 0.1                | 6.515     | A                             |
| C-A    | 352                      | 88                         |                      |       | 352                    |                      |                    |           |                               |
| A-B    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-C    | 146                      | 36                         |                      |       | 146                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 54                       | 13                         | 509                  | 0.106 | 54                     | 0.1                  | 0.2                | 10.507    | В                             |
| B-A    | 272                      | 68                         | 544                  | 0.500 | 270                    | 0.7                  | 1.1                | 14.784    | В                             |
| C-AB   | 46                       | 12                         | 690                  | 0.067 | 46                     | 0.1                  | 0.1                | 6.714     | А                             |
| C-A    | 430                      | 108                        |                      |       | 430                    |                      |                    |           |                               |
| A-B    | 81                       | 20                         |                      |       | 81                     |                      |                    |           |                               |
| A-C    | 178                      | 45                         |                      |       | 178                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 54                       | 13                         | 508                  | 0.106 | 54                     | 0.2                  | 0.2                | 10.541    | В                             |
| B-A    | 272                      | 68                         | 544                  | 0.500 | 272                    | 1.1                  | 1.1                | 14.945    | В                             |
| C-AB   | 46                       | 12                         | 690                  | 0.067 | 46                     | 0.1                  | 0.1                | 6.714     | А                             |
| C-A    | 430                      | 108                        |                      |       | 430                    |                      |                    |           |                               |
| A-B    | 81                       | 20                         |                      |       | 81                     |                      |                    |           |                               |
| A-C    | 178                      | 45                         |                      |       | 178                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 557                  | 0.079 | 44                     | 0.2                  | 0.1                | 9.338     | A                             |
| B-A    | 222                      | 56                         | 570                  | 0.390 | 224                    | 1.1                  | 0.7                | 11.795    | В                             |
| C-AB   | 38                       | 9                          | 701                  | 0.054 | 38                     | 0.1                  | 0.1                | 6.516     | A                             |
| C-A    | 352                      | 88                         |                      |       | 352                    |                      |                    |           |                               |
| A-B    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-C    | 146                      | 36                         |                      |       | 146                    |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 585                  | 0.063 | 37                     | 0.1                  | 0.1                | 8.745     | А                             |
| B-A    | 186                      | 46                         | 589                  | 0.316 | 187                    | 0.7                  | 0.5                | 10.145    | В                             |
| C-AB   | 32                       | 8                          | 709                  | 0.045 | 32                     | 0.1                  | 0.1                | 6.381     | A                             |
| C-A    | 294                      | 74                         |                      |       | 294                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 122                      | 30                         |                      |       | 122                    |                      |                    |           |                               |



# 2025 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.58               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.58              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 587                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 149                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 295                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 287              | 300             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 69            | 0                | 80              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 265           | 30               | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                  |               | То               |                 |
|------|------------------|---------------|------------------|-----------------|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |
| F    | A - East Gate    | 0 16          |                  | 27              |
| From | B - Laporte Road | 29            | 0                | 9               |
|      | C - Queens Road  | 43            | 10               | 0               |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.14    | 7.47          | 0.2         | А       | 73                     | 110                              |
| B-A    | 0.16    | 11.97         | 0.3         | В       | 63                     | 95                               |
| C-AB   | 0.06    | 7.00          | 0.1         | А       | 28                     | 41                               |
| C-A    |         |               |             |         | 243                    | 365                              |
| A-B    |         |               |             |         | 263                    | 395                              |
| A-C    |         |               |             |         | 275                    | 413                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 60                       | 15                         | 657                  | 0.092 | 60                     | 0.0                  | 0.1                | 6.562     | Α                             |
| B-A    | 52                       | 13                         | 514                  | 0.101 | 51                     | 0.0                  | 0.1                | 10.016    | В                             |
| C-AB   | 23                       | 6                          | 647                  | 0.035 | 22                     | 0.0                  | 0.0                | 6.341     | Α                             |
| C-A    | 200                      | 50                         |                      |       | 200                    |                      |                    |           |                               |
| A-B    | 216                      | 54                         |                      |       | 216                    |                      |                    |           |                               |
| A-C    | 226                      | 56                         |                      |       | 226                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|--|
| в-с    | 72                       | 18                         | 639                  | 0.113 | 72                     | 0.1                  | 0.1                | 6.914     | Α                             |  |  |  |  |
| B-A    | 62                       | 16                         | 493                  | 0.126 | 62                     | 0.1                  | 0.2                | 10.763    | В                             |  |  |  |  |
| C-AB   | 27                       | 7                          | 627                  | 0.043 | 27                     | 0.0                  | 0.0                | 6.604     | А                             |  |  |  |  |
| C-A    | 238                      | 60                         |                      |       | 238                    |                      |                    |           |                               |  |  |  |  |
| A-B    | 258                      | 65                         |                      |       | 258                    |                      |                    |           |                               |  |  |  |  |
| A-C    | 270                      | 67                         |                      |       | 270                    |                      |                    |           |                               |  |  |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 614                  | 0.144 | 88                     | 0.1                  | 0.2                | 7.461     | А                             |
| B-A    | 76                       | 19                         | 464                  | 0.164 | 76                     | 0.2                  | 0.2                | 11.951    | В                             |
| C-AB   | 33                       | 8                          | 599                  | 0.055 | 33                     | 0.0                  | 0.1                | 7.000     | A                             |
| C-A    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |
| A-B    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-C    | 330                      | 83                         |                      |       | 330                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 614                  | 0.144 | 88                     | 0.2                  | 0.2                | 7.466     | А                             |
| B-A    | 76                       | 19                         | 464                  | 0.164 | 76                     | 0.2                  | 0.3                | 11.967    | В                             |
| C-AB   | 33                       | 8                          | 599                  | 0.055 | 33                     | 0.1                  | 0.1                | 7.000     | А                             |
| C-A    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |
| A-B    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-C    | 330                      | 83                         |                      |       | 330                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 639                  | 0.113 | 72                     | 0.2                  | 0.1                | 6.924     | Α                             |
| B-A    | 62                       | 16                         | 493                  | 0.126 | 62                     | 0.3                  | 0.2                | 10.779    | В                             |
| C-AB   | 27                       | 7                          | 627                  | 0.043 | 27                     | 0.1                  | 0.0                | 6.605     | Α                             |
| C-A    | 238                      | 60                         |                      |       | 238                    |                      |                    |           |                               |
| A-B    | 258                      | 65                         |                      |       | 258                    |                      |                    |           |                               |
| A-C    | 270                      | 67                         |                      |       | 270                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 60                       | 15                         | 657                  | 0.092 | 60                     | 0.1                  | 0.1                | 6.577     | А                             |
| B-A    | 52                       | 13                         | 515                  | 0.101 | 52                     | 0.2                  | 0.1                | 10.044    | В                             |
| C-AB   | 23                       | 6                          | 647                  | 0.035 | 23                     | 0.0                  | 0.0                | 6.345     | А                             |
| C-A    | 200                      | 50                         |                      |       | 200                    |                      |                    |           |                               |
| A-B    | 216                      | 54                         |                      |       | 216                    |                      |                    |           |                               |
| A-C    | 226                      | 56                         |                      |       | 226                    |                      |                    |           |                               |



# **2032 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.19               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 5.19              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 108                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 283                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 277                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 51               | 57              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 231           | 0                | 52              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 233           | 44               | 0               |  |  |  |  |  |  |  |

# Vehicle Mix

|      |                  | То            |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 50               | 70              |  |  |  |  |  |  |
| From | B - Laporte Road | 15            | 0                | 22              |  |  |  |  |  |  |
|      | C - Queens Road  | 19            | 13               | 0               |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.10    | 8.60          | 0.1         | А       | 48                     | 72                               |
| B-A    | 0.42    | 11.94         | 0.8         | В       | 212                    | 318                              |
| C-AB   | 0.07    | 6.03          | 0.1         | А       | 40                     | 61                               |
| C-A    |         |               |             |         | 214                    | 321                              |
| A-B    |         |               |             |         | 47                     | 70                               |
| A-C    |         |               |             |         | 52                     | 78                               |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 39                       | 10                         | 616                  | 0.064 | 39                     | 0.0                  | 0.1                | 7.608     | А                             |
| B-A    | 174                      | 43                         | 627                  | 0.278 | 172                    | 0.0                  | 0.4                | 9.074     | A                             |
| C-AB   | 33                       | 8                          | 731                  | 0.045 | 33                     | 0.0                  | 0.1                | 5.822     | A                             |
| C-A    | 175                      | 44                         |                      |       | 175                    |                      |                    |           |                               |
| A-B    | 38                       | 10                         |                      |       | 38                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 47                       | 12                         | 598                  | 0.078 | 47                     | 0.1                  | 0.1                | 7.962     | Α                             |  |
| B-A    | 208                      | 52                         | 616                  | 0.337 | 207                    | 0.4                  | 0.6                | 10.112    | В                             |  |
| C-AB   | 40                       | 10                         | 728                  | 0.054 | 40                     | 0.1                  | 0.1                | 5.910     | А                             |  |
| C-A    | 209                      | 52                         |                      |       | 209                    |                      |                    |           |                               |  |
| A-B    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |  |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 57                       | 14                         | 569                  | 0.101 | 57                     | 0.1                  | 0.1                | 8.582     | A                             |
| B-A    | 254                      | 64                         | 601                  | 0.423 | 253                    | 0.6                  | 0.8                | 11.872    | В                             |
| C-AB   | 48                       | 12                         | 723                  | 0.067 | 48                     | 0.1                  | 0.1                | 6.033     | A                             |
| C-A    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 57                       | 14                         | 568                  | 0.101 | 57                     | 0.1                  | 0.1                | 8.595     | A                             |
| B-A    | 254                      | 64                         | 601                  | 0.423 | 254                    | 0.8                  | 0.8                | 11.936    | В                             |
| C-AB   | 48                       | 12                         | 723                  | 0.067 | 48                     | 0.1                  | 0.1                | 6.033     | A                             |
| C-A    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 47                       | 12                         | 597                  | 0.078 | 47                     | 0.1                  | 0.1                | 7.980     | Α                             |
| B-A    | 208                      | 52                         | 616                  | 0.337 | 209                    | 0.8                  | 0.6                | 10.189    | В                             |
| C-AB   | 40                       | 10                         | 728                  | 0.054 | 40                     | 0.1                  | 0.1                | 5.911     | Α                             |
| C-A    | 209                      | 52                         |                      |       | 209                    |                      |                    |           |                               |
| A-B    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 39                       | 10                         | 615                  | 0.064 | 39                     | 0.1                  | 0.1                | 7.628     | А                             |
| B-A    | 174                      | 43                         | 627                  | 0.278 | 174                    | 0.6                  | 0.4                | 9.167     | A                             |
| C-AB   | 33                       | 8                          | 731                  | 0.045 | 33                     | 0.1                  | 0.1                | 5.827     | A                             |
| C-A    | 175                      | 44                         |                      |       | 175                    |                      |                    |           |                               |
| A-B    | 38                       | 10                         |                      |       | 38                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |



# **2032 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ſ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 2.01               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.01              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| L | ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
|   | D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|------------|---------------------------|---|---------------------|--------------------|--|
| A - East Gate    |            | ONE HOUR                  | ✓ | 413                 | 100.000            |  |
| B - Laporte Road |            | ONE HOUR                  | ✓ | 126                 | 100.000            |  |
| C - Queens Road  |            | ONE HOUR                  | ✓ | 73                  | 100.000            |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 253              | 160             |  |  |  |  |  |  |
| From | B - Laporte Road | 42            | 0                | 84              |  |  |  |  |  |  |
|      | C - Queens Road  | 42            | 31               | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 19               | 19              |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |
|      | C - Queens Road  | 59            | 10               | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 6.61          | 0.2         | А       | 77                     | 116                              |
| B-A    | 0.09    | 11.29         | 0.1         | В       | 39                     | 58                               |
| C-AB   | 0.05    | 6.50          | 0.1         | А       | 28                     | 43                               |
| C-A    |         |               |             |         | 39                     | 58                               |
| A-B    |         |               |             |         | 232                    | 348                              |
| A-C    |         |               |             |         | 147                    | 220                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 713                  | 0.089 | 63                     | 0.0                  | 0.1                | 6.030     | А                             |
| B-A    | 32                       | 8                          | 547                  | 0.058 | 31                     | 0.0                  | 0.1                | 10.384    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.034 | 23                     | 0.0                  | 0.0                | 6.050     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 190                      | 48                         |                      |       | 190                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 76                       | 19                         | 702                  | 0.108 | 75                     | 0.1                  | 0.1                | 6.267     | Α                             |  |  |
| B-A    | 38                       | 9                          | 537                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.750    | В                             |  |  |
| C-AB   | 28                       | 7                          | 663                  | 0.042 | 28                     | 0.0                  | 0.0                | 6.231     | А                             |  |  |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |  |  |
| A-B    | 227                      | 57                         |                      |       | 227                    |                      |                    |           |                               |  |  |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 92                       | 23                         | 686                  | 0.135 | 92                     | 0.1                  | 0.2                | 6.610     | А                             |
| B-A    | 46                       | 12                         | 521                  | 0.089 | 46                     | 0.1                  | 0.1                | 11.282    | В                             |
| C-AB   | 34                       | 9                          | 644                  | 0.053 | 34                     | 0.0                  | 0.1                | 6.495     | А                             |
| C-A    | 46                       | 12                         |                      |       | 46                     |                      |                    |           |                               |
| A-B    | 279                      | 70                         |                      |       | 279                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 686                  | 0.135 | 92                     | 0.2                  | 0.2                | 6.614     | А                             |
| B-A    | 46                       | 12                         | 521                  | 0.089 | 46                     | 0.1                  | 0.1                | 11.286    | В                             |
| C-AB   | 34                       | 9                          | 644                  | 0.053 | 34                     | 0.1                  | 0.1                | 6.495     | A                             |
| C-A    | 46                       | 12                         |                      |       | 46                     |                      |                    |           |                               |
| A-B    | 279                      | 70                         |                      |       | 279                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 701                  | 0.108 | 76                     | 0.2                  | 0.1                | 6.272     | Α                             |
| B-A    | 38                       | 9                          | 537                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.757    | В                             |
| C-AB   | 28                       | 7                          | 663                  | 0.042 | 28                     | 0.1                  | 0.0                | 6.232     | Α                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 227                      | 57                         |                      |       | 227                    |                      |                    |           |                               |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 713                  | 0.089 | 63                     | 0.1                  | 0.1                | 6.043     | A                             |
| B-A    | 32                       | 8                          | 548                  | 0.058 | 32                     | 0.1                  | 0.1                | 10.400    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.034 | 23                     | 0.0                  | 0.0                | 6.056     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 190                      | 48                         |                      |       | 190                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |



# 2032 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.28               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.28              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name         | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM                  | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over t | rn Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---------------------------|----------------------------------|--------------------|---------------------------|
| ✓                         | ✓                                | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 127                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 292                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 281                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 70               | 57              |  |  |  |  |  |
| From | B - Laporte Road | 233           | 0                | 59              |  |  |  |  |  |
|      | C - Queens Road  | 234           | 47               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 30               | 70              |  |  |  |  |  |  |
| From | B - Laporte Road | 14            | 0                | 33              |  |  |  |  |  |  |
|      | C - Queens Road  | 19            | 20               | 0               |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.12    | 9.60          | 0.2         | А       | 54                     | 81                               |
| B-A    | 0.43    | 12.13         | 0.9         | В       | 214                    | 321                              |
| C-AB   | 0.07    | 6.49          | 0.1         | А       | 43                     | 65                               |
| C-A    |         |               |             |         | 215                    | 322                              |
| A-B    |         |               |             |         | 64                     | 96                               |
| A-C    |         |               |             |         | 52                     | 78                               |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 616                  | 0.072 | 44                     | 0.0                  | 0.1                | 8.368     | A                             |
| B-A    | 175                      | 44                         | 622                  | 0.282 | 174                    | 0.0                  | 0.4                | 9.126     | A                             |
| C-AB   | 35                       | 9                          | 728                  | 0.049 | 35                     | 0.0                  | 0.1                | 6.232     | A                             |
| C-A    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 53                       | 13                         | 597                  | 0.089 | 53                     | 0.1                  | 0.1                | 8.803     | Α                             |  |
| B-A    | 209                      | 52                         | 610                  | 0.343 | 209                    | 0.4                  | 0.6                | 10.207    | В                             |  |
| C-AB   | 42                       | 11                         | 724                  | 0.058 | 42                     | 0.1                  | 0.1                | 6.338     | Α                             |  |
| C-A    | 210                      | 53                         |                      |       | 210                    |                      |                    |           |                               |  |
| A-B    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |  |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 65                       | 16                         | 564                  | 0.115 | 65                     | 0.1                  | 0.2                | 9.579     | A                             |
| B-A    | 257                      | 64                         | 595                  | 0.431 | 255                    | 0.6                  | 0.8                | 12.063    | В                             |
| C-AB   | 52                       | 13                         | 718                  | 0.072 | 52                     | 0.1                  | 0.1                | 6.485     | A                             |
| C-A    | 258                      | 64                         |                      |       | 258                    |                      |                    |           |                               |
| A-B    | 77                       | 19                         |                      |       | 77                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 65                       | 16                         | 564                  | 0.115 | 65                     | 0.2                  | 0.2                | 9.597     | A                             |
| B-A    | 257                      | 64                         | 595                  | 0.431 | 257                    | 0.8                  | 0.9                | 12.134    | В                             |
| C-AB   | 52                       | 13                         | 718                  | 0.072 | 52                     | 0.1                  | 0.1                | 6.485     | A                             |
| C-A    | 258                      | 64                         |                      |       | 258                    |                      |                    |           |                               |
| A-B    | 77                       | 19                         |                      |       | 77                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 53                       | 13                         | 596                  | 0.089 | 53                     | 0.2                  | 0.1                | 8.828     | Α                             |
| B-A    | 209                      | 52                         | 610                  | 0.343 | 210                    | 0.9                  | 0.6                | 10.290    | В                             |
| C-AB   | 42                       | 11                         | 724                  | 0.058 | 42                     | 0.1                  | 0.1                | 6.342     | Α                             |
| C-A    | 210                      | 53                         |                      |       | 210                    |                      |                    |           |                               |
| A-B    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 44                       | 11                         | 615                  | 0.072 | 45                     | 0.1                  | 0.1                | 8.399     | А                             |
| B-A    | 175                      | 44                         | 622                  | 0.282 | 176                    | 0.6                  | 0.5                | 9.225     | А                             |
| C-AB   | 35                       | 9                          | 728                  | 0.049 | 35                     | 0.1                  | 0.1                | 6.238     | А                             |
| C-A    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |



# 2032 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Ju | nction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|--------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1      | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.98               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.98              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| IC | Scenario name           | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1 | 2 2032 Base + Committed | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 432                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 128                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 74                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 272              | 160             |  |  |  |  |  |
| From | B - Laporte Road | 44            | 0                | 84              |  |  |  |  |  |
|      | C - Queens Road  | 43            | 31               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 17               | 19              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 46            | 0                | 9               |  |  |  |  |  |  |  |
|      | C - Queens Road  | 60            | 10               | 0               |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.14    | 6.66          | 0.2         | А       | 77                     | 116                              |
| B-A    | 0.09    | 11.13         | 0.1         | В       | 40                     | 61                               |
| C-AB   | 0.05    | 6.55          | 0.1         | А       | 28                     | 43                               |
| C-A    |         |               |             |         | 39                     | 59                               |
| A-B    |         |               |             |         | 250                    | 374                              |
| A-C    |         |               |             |         | 147                    | 220                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 710                  | 0.089 | 63                     | 0.0                  | 0.1                | 6.064     | А                             |
| B-A    | 33                       | 8                          | 547                  | 0.061 | 33                     | 0.0                  | 0.1                | 10.204    | В                             |
| C-AB   | 23                       | 6                          | 674                  | 0.035 | 23                     | 0.0                  | 0.0                | 6.081     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 205                      | 51                         |                      |       | 205                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 76                       | 19                         | 698                  | 0.108 | 75                     | 0.1                  | 0.1                | 6.307     | Α                             |  |
| B-A    | 40                       | 10                         | 536                  | 0.074 | 39                     | 0.1                  | 0.1                | 10.577    | В                             |  |
| C-AB   | 28                       | 7                          | 659                  | 0.042 | 28                     | 0.0                  | 0.0                | 6.270     | Α                             |  |
| C-A    | 39                       | 10                         |                      |       | 39                     |                      |                    |           |                               |  |
| A-B    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |  |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 681                  | 0.136 | 92                     | 0.1                  | 0.2                | 6.660     | A                             |
| B-A    | 48                       | 12                         | 521                  | 0.093 | 48                     | 0.1                  | 0.1                | 11.122    | В                             |
| C-AB   | 34                       | 9                          | 639                  | 0.053 | 34                     | 0.0                  | 0.1                | 6.548     | А                             |
| C-A    | 47                       | 12                         |                      |       | 47                     |                      |                    |           |                               |
| A-B    | 299                      | 75                         |                      |       | 299                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 681                  | 0.136 | 92                     | 0.2                  | 0.2                | 6.663     | А                             |
| B-A    | 48                       | 12                         | 521                  | 0.093 | 48                     | 0.1                  | 0.1                | 11.126    | В                             |
| C-AB   | 34                       | 9                          | 639                  | 0.053 | 34                     | 0.1                  | 0.1                | 6.548     | A                             |
| C-A    | 47                       | 12                         |                      |       | 47                     |                      |                    |           |                               |
| A-B    | 299                      | 75                         |                      |       | 299                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 697                  | 0.108 | 76                     | 0.2                  | 0.1                | 6.314     | А                             |
| B-A    | 40                       | 10                         | 536                  | 0.074 | 40                     | 0.1                  | 0.1                | 10.585    | В                             |
| C-AB   | 28                       | 7                          | 659                  | 0.042 | 28                     | 0.1                  | 0.0                | 6.274     | Α                             |
| C-A    | 39                       | 10                         |                      |       | 39                     |                      |                    |           |                               |
| A-B    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 63                       | 16                         | 709                  | 0.089 | 63                     | 0.1                  | 0.1                | 6.076     | А                             |
| B-A    | 33                       | 8                          | 548                  | 0.060 | 33                     | 0.1                  | 0.1                | 10.219    | В                             |
| C-AB   | 23                       | 6                          | 674                  | 0.035 | 23                     | 0.0                  | 0.0                | 6.087     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 205                      | 51                         |                      |       | 205                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |



# 2032 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.07               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.07              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 261                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 318                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 449                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 96               | 165             |  |  |  |  |  |
| From | B - Laporte Road | 259           | 0                | 59              |  |  |  |  |  |
|      | C - Queens Road  | 402           | 47               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 20               | 46              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 13            | 0                | 33              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 28            | 20               | 0               |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 11.19         | 0.2         | В       | 54                     | 81                               |
| B-A    | 0.53    | 16.33         | 1.3         | С       | 238                    | 356                              |
| C-AB   | 0.08    | 6.84          | 0.1         | А       | 43                     | 65                               |
| C-A    |         |               |             |         | 369                    | 553                              |
| A-B    |         |               |             |         | 88                     | 132                              |
| A-C    |         |               |             |         | 151                    | 227                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 582                  | 0.076 | 44                     | 0.0                  | 0.1                | 8.890     | А                             |
| B-A    | 195                      | 49                         | 581                  | 0.336 | 193                    | 0.0                  | 0.6                | 10.416    | В                             |
| C-AB   | 35                       | 9                          | 704                  | 0.050 | 35                     | 0.0                  | 0.1                | 6.453     | A                             |
| C-A    | 303                      | 76                         |                      |       | 303                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 124                      | 31                         |                      |       | 124                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 53                       | 13                         | 551                  | 0.096 | 53                     | 0.1                  | 0.1                | 9.607     | А                             |
| B-A    | 233                      | 58                         | 561                  | 0.415 | 232                    | 0.6                  | 0.8                | 12.310    | В                             |
| C-AB   | 42                       | 11                         | 695                  | 0.061 | 42                     | 0.1                  | 0.1                | 6.613     | A                             |
| C-A    | 361                      | 90                         |                      |       | 361                    |                      |                    |           |                               |
| A-B    | 86                       | 22                         |                      |       | 86                     |                      |                    |           |                               |
| A-C    | 148                      | 37                         |                      |       | 148                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 65                       | 16                         | 495                  | 0.131 | 65                     | 0.1                  | 0.2                | 11.129    | В                             |
| B-A    | 285                      | 71                         | 534                  | 0.534 | 283                    | 0.8                  | 1.2                | 16.103    | С                             |
| C-AB   | 52                       | 13                         | 683                  | 0.076 | 52                     | 0.1                  | 0.1                | 6.842     | A                             |
| C-A    | 443                      | 111                        |                      |       | 443                    |                      |                    |           |                               |
| A-B    | 106                      | 26                         |                      |       | 106                    |                      |                    |           |                               |
| A-C    | 182                      | 45                         |                      |       | 182                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 65                       | 16                         | 493                  | 0.132 | 65                     | 0.2                  | 0.2                | 11.186    | В                             |
| B-A    | 285                      | 71                         | 534                  | 0.534 | 285                    | 1.2                  | 1.3                | 16.328    | С                             |
| C-AB   | 52                       | 13                         | 683                  | 0.076 | 52                     | 0.1                  | 0.1                | 6.842     | A                             |
| C-A    | 443                      | 111                        |                      |       | 443                    |                      |                    |           |                               |
| A-B    | 106                      | 26                         |                      |       | 106                    |                      |                    |           |                               |
| A-C    | 182                      | 45                         |                      |       | 182                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 53                       | 13                         | 549                  | 0.097 | 53                     | 0.2                  | 0.1                | 9.656     | A                             |
| B-A    | 233                      | 58                         | 561                  | 0.415 | 235                    | 1.3                  | 0.8                | 12.513    | В                             |
| C-AB   | 42                       | 11                         | 695                  | 0.061 | 42                     | 0.1                  | 0.1                | 6.617     | A                             |
| C-A    | 361                      | 90                         |                      |       | 361                    |                      |                    |           |                               |
| A-B    | 86                       | 22                         |                      |       | 86                     |                      |                    |           |                               |
| A-C    | 148                      | 37                         |                      |       | 148                    |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 44                       | 11                         | 580                  | 0.077 | 45                     | 0.1                  | 0.1                | 8.937     | А                             |
| B-A    | 195                      | 49                         | 581                  | 0.336 | 196                    | 0.8                  | 0.6                | 10.589    | В                             |
| C-AB   | 35                       | 9                          | 704                  | 0.050 | 35                     | 0.1                  | 0.1                | 6.460     | А                             |
| C-A    | 303                      | 76                         |                      |       | 303                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 124                      | 31                         |                      |       | 124                    |                      |                    |           |                               |



# 2032 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.63               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.63              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| ĺ | D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 605                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 155                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 298                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 298              | 307             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 71            | 0                | 84              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 267           | 31               | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 16               | 27              |  |  |  |  |  |  |  |  |
| From | B - Laporte Road | 29            | 0                | 9               |  |  |  |  |  |  |  |  |
|      | C - Queens Road  | 43            | 10               | 0               |  |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.15    | 7.58          | 0.2         | А       | 77                     | 116                              |
| B-A    | 0.17    | 12.17         | 0.3         | В       | 65                     | 98                               |
| C-AB   | 0.06    | 7.07          | 0.1         | А       | 28                     | 43                               |
| C-A    |         |               |             |         | 245                    | 368                              |
| A-B    |         |               |             |         | 273                    | 410                              |
| A-C    |         |               |             |         | 282                    | 423                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 656                  | 0.096 | 63                     | 0.0                  | 0.1                | 6.619     | А                             |
| B-A    | 53                       | 13                         | 511                  | 0.105 | 53                     | 0.0                  | 0.1                | 10.114    | В                             |
| C-AB   | 23                       | 6                          | 643                  | 0.036 | 23                     | 0.0                  | 0.0                | 6.382     | A                             |
| C-A    | 201                      | 50                         |                      |       | 201                    |                      |                    |           |                               |
| A-B    | 224                      | 56                         |                      |       | 224                    |                      |                    |           |                               |
| A-C    | 231                      | 58                         |                      |       | 231                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 637                  | 0.119 | 75                     | 0.1                  | 0.1                | 6.987     | А                             |
| B-A    | 64                       | 16                         | 490                  | 0.130 | 64                     | 0.1                  | 0.2                | 10.893    | В                             |
| C-AB   | 28                       | 7                          | 623                  | 0.045 | 28                     | 0.0                  | 0.1                | 6.656     | A                             |
| C-A    | 240                      | 60                         |                      |       | 240                    |                      |                    |           |                               |
| A-B    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-C    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 611                  | 0.151 | 92                     | 0.1                  | 0.2                | 7.570     | A                             |
| B-A    | 78                       | 20                         | 460                  | 0.170 | 78                     | 0.2                  | 0.3                | 12.152    | В                             |
| C-AB   | 34                       | 9                          | 594                  | 0.057 | 34                     | 0.1                  | 0.1                | 7.072     | A                             |
| C-A    | 294                      | 73                         |                      |       | 294                    |                      |                    |           |                               |
| A-B    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-C    | 338                      | 85                         |                      |       | 338                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 610                  | 0.152 | 92                     | 0.2                  | 0.2                | 7.575     | A                             |
| B-A    | 78                       | 20                         | 460                  | 0.170 | 78                     | 0.3                  | 0.3                | 12.168    | В                             |
| C-AB   | 34                       | 9                          | 594                  | 0.057 | 34                     | 0.1                  | 0.1                | 7.072     | A                             |
| C-A    | 294                      | 73                         |                      |       | 294                    |                      |                    |           |                               |
| A-B    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-C    | 338                      | 85                         |                      |       | 338                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 636                  | 0.119 | 76                     | 0.2                  | 0.1                | 7.001     | A                             |
| B-A    | 64                       | 16                         | 490                  | 0.130 | 64                     | 0.3                  | 0.2                | 10.916    | В                             |
| C-AB   | 28                       | 7                          | 623                  | 0.045 | 28                     | 0.1                  | 0.1                | 6.660     | A                             |
| C-A    | 240                      | 60                         |                      |       | 240                    |                      |                    |           |                               |
| A-B    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-C    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 63                       | 16                         | 655                  | 0.097 | 63                     | 0.1                  | 0.1                | 6.633     | А                             |
| B-A    | 53                       | 13                         | 511                  | 0.105 | 54                     | 0.2                  | 0.2                | 10.148    | В                             |
| C-AB   | 23                       | 6                          | 643                  | 0.036 | 23                     | 0.1                  | 0.0                | 6.388     | A                             |
| C-A    | 201                      | 50                         |                      |       | 201                    |                      |                    |           |                               |
| A-B    | 224                      | 56                         |                      |       | 224                    |                      |                    |           |                               |
| A-C    | 231                      | 58                         |                      |       | 231                    |                      |                    |           |                               |



# **Junctions 10**

#### **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693
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**Filename:** Queens Road-Laporte Road (Sensitivity) RevA.j10 **Path:** P:\23000's\23325\Junction Assessment\Sensitivity Test

**Report generation date:** 08/08/2022 10:32:15

- »2021 Base, AM
- »2021 Base, PM
- »2025 Base, AM
- »2025 Base, PM
- »2025 Base + Committed, AM
- »2025 Base + Committed, PM
- »2025 Base + Committed + Development, AM
- »2025 Base + Committed + Development, PM
- »2032 Base, AM
- »2032 Base, PM
- »2032 Base + Committed, AM
- »2032 Base + Committed, PM
- »2032 Base + Committed + Development, AM
- »2032 Base + Committed + Development, PM



### Summary of junction performance

|             |                                     | AM        |      |         | PM        |      |  |  |
|-------------|-------------------------------------|-----------|------|---------|-----------|------|--|--|
|             | Q (PCU)                             | Delay (s) | RFC  | Q (PCU) | Delay (s) | RFC  |  |  |
|             | 2021 Base                           |           |      |         |           |      |  |  |
| Stream B-C  | 0.1                                 | 8.18      | 0.08 | 0.2     | 6.48      | 0.12 |  |  |
| Stream B-A  | 0.7                                 | 10.91     | 0.38 | 0.1     | 11.08     | 0.08 |  |  |
| Stream C-AB | 0.1                                 | 5.91      | 0.06 | 0.1     | 6.39      | 0.05 |  |  |
|             | 2025 Base                           |           |      |         |           |      |  |  |
| Stream B-C  | 0.1                                 | 8.27      | 0.08 | 0.2     | 6.52      | 0.13 |  |  |
| Stream B-A  | 0.7                                 | 11.16     | 0.39 | 0.1     | 11.15     | 0.08 |  |  |
| Stream C-AB | 0.1                                 | 5.93      | 0.06 | 0.1     | 6.43      | 0.05 |  |  |
|             | 2025 Base + Committed               |           |      |         |           |      |  |  |
| Stream B-C  | 0.1                                 | 9.21      | 0.09 | 0.2     | 6.57      | 0.13 |  |  |
| Stream B-A  | 0.8                                 | 11.32     | 0.40 | 0.1     | 10.99     | 0.09 |  |  |
| Stream C-AB | 0.1                                 | 6.37      | 0.06 | 0.1     | 6.49      | 0.05 |  |  |
|             | 2025 Base + Committed + Development |           |      |         |           |      |  |  |
| Stream B-C  | 0.2                                 | 10.71     | 0.11 | 0.2     | 7.54      | 0.14 |  |  |
| Stream B-A  | 1.2                                 | 15.53     | 0.51 | 0.3     | 12.35     | 0.17 |  |  |
| Stream C-AB | 0.1                                 | 6.76      | 0.07 | 0.1     | 7.06      | 0.06 |  |  |
|             | 2032 Base                           |           |      |         |           |      |  |  |
| Stream B-C  | 0.1                                 | 8.60      | 0.10 | 0.2     | 6.61      | 0.13 |  |  |
| Stream B-A  | 0.8                                 | 11.94     | 0.42 | 0.1     | 11.29     | 0.09 |  |  |
| Stream C-AB | 0.1                                 | 6.03      | 0.07 | 0.1     | 6.50      | 0.05 |  |  |
|             | 2032 Base + Committed               |           |      |         |           |      |  |  |
| Stream B-C  | 0.2                                 | 9.60      | 0.12 | 0.2     | 6.66      | 0.14 |  |  |
| Stream B-A  | 0.9                                 | 12.13     | 0.43 | 0.2     | 11.35     | 0.09 |  |  |
| Stream C-AB | 0.1                                 | 6.49      | 0.07 | 0.1     | 6.55      | 0.05 |  |  |
|             | 2032 Base + Committed + Development |           |      |         |           |      |  |  |
| Stream B-C  | 0.2                                 | 11.41     | 0.13 | 0.2     | 7.65      | 0.15 |  |  |
| Stream B-A  | 1.3                                 | 17.02     | 0.54 | 0.3     | 12.55     | 0.17 |  |  |
| Stream C-AB | 0.1                                 | 6.88      | 0.08 | 0.1     | 7.13      | 0.06 |  |  |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

### File summary

#### File Description

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |
|             |            |

#### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |



# **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

# **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |

# **Analysis Set Details**

| ١ | ID Include in report |   | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |
|---|----------------------|---|---------------------------------|-------------------------------------|--|
|   | A1                   | ✓ | 100.000                         | 100.000                             |  |



# **2021 Base, AM**

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 4.89               | Α            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |  |
|-----------------------|----------------|-------------------|-------------|--|
| Left                  | Normal/unknown | 4.89              | Α           |  |

# **Arms**

#### **Arms**

| Arm | Name         | Description | Arm type |
|-----|--------------|-------------|----------|
| Α   | East Gate    |             | Major    |
| В   | Laporte Road |             | Minor    |
| С   | Queens Road  |             | Major    |

## **Major Arm Geometry**

| Arm             | Width of carriageway (m) | Has kerbed central reserve | Has right-turn<br>storage | Width for right-turn storage (m) | Visibility for right turn (m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|--------------------------|----------------------------|---------------------------|----------------------------------|-------------------------------|---------|-------------------------|
| C - Queens Road | 10.40                    |                            | ✓                         | 4.00                             | 92.7                          | ✓       | 12.00                   |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

## **Minor Arm Geometry**

| Arm              | Minor arm<br>type      | Width at give-way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to left (m) | Visibility to right (m) |
|------------------|------------------------|-----------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------------|
| B - Laporte Road | One lane<br>plus flare | 10.00                 | 9.75               | 6.01                | 4.53                | 4.13                | ✓                     | 2.00                  | 175                    | 97                      |

# Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|
| B-A    | 684                   | 0.101               | 0.255               | 0.160               | 0.364               |
| B-C    | 676                   | 0.084               | 0.212               | -                   | -                   |
| С-В    | 751                   | 0.235               | 0.235               | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 81                  | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 253                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 253                 | 100.000            |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 28               | 53              |  |  |  |  |  |  |
| From | B - Laporte Road | 212           | 0                | 41              |  |  |  |  |  |  |
|      | C - Queens Road  | 215           | 38               | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

# HV %s

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 50               | 70              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 15            | 0                | 22              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 19            | 13               | 0               |  |  |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.08    | 8.18          | 0.1         | А       | 38                     | 56                               |
| B-A    | 0.38    | 10.91         | 0.7         | В       | 195                    | 292                              |
| C-AB   | 0.06    | 5.91          | 0.1         | A       | 35                     | 52                               |
| C-A    |         |               |             |         | 197                    | 296                              |
| A-B    |         |               |             |         | 26                     | 39                               |
| A-C    |         |               |             |         | 49                     | 73                               |



# Main Results for each time segment

## 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 31                       | 8                          | 621                  | 0.050 | 31                     | 0.0                  | 0.1                | 7.440     | A                             |
| B-A    | 160                      | 40                         | 636                  | 0.251 | 158                    | 0.0                  | 0.4                | 8.641     | A                             |
| C-AB   | 29                       | 7                          | 736                  | 0.039 | 28                     | 0.0                  | 0.0                | 5.745     | A                             |
| C-A    | 162                      | 40                         |                      |       | 162                    |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 40                       | 10                         |                      |       | 40                     |                      |                    |           |                               |

# 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 606                  | 0.061 | 37                     | 0.1                  | 0.1                | 7.716     | A                             |
| B-A    | 191                      | 48                         | 626                  | 0.304 | 190                    | 0.4                  | 0.5                | 9.484     | А                             |
| C-AB   | 34                       | 9                          | 733                  | 0.047 | 34                     | 0.0                  | 0.1                | 5.816     | А                             |
| C-A    | 193                      | 48                         |                      |       | 193                    |                      |                    |           |                               |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |
| A-C    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |

# 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 45                       | 11                         | 582                  | 0.078 | 45                     | 0.1                  | 0.1                | 8.175     | A                             |
| B-A    | 233                      | 58                         | 613                  | 0.381 | 233                    | 0.5                  | 0.7                | 10.862    | В                             |
| C-AB   | 42                       | 10                         | 730                  | 0.057 | 42                     | 0.1                  | 0.1                | 5.913     | A                             |
| C-A    | 237                      | 59                         |                      |       | 237                    |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |

# 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 45                       | 11                         | 582                  | 0.078 | 45                     | 0.1                  | 0.1                | 8.183     | Α                             |
| B-A    | 233                      | 58                         | 613                  | 0.381 | 233                    | 0.7                  | 0.7                | 10.905    | В                             |
| C-AB   | 42                       | 10                         | 730                  | 0.057 | 42                     | 0.1                  | 0.1                | 5.913     | A                             |
| C-A    | 237                      | 59                         |                      |       | 237                    |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |

## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| В-С    | 37                       | 9                          | 605                  | 0.061 | 37                     | 0.1                  | 0.1                | 7.727     | Α                             |  |  |
| B-A    | 191                      | 48                         | 626                  | 0.304 | 191                    | 0.7                  | 0.5                | 9.540     | А                             |  |  |
| C-AB   | 34                       | 9                          | 733                  | 0.047 | 34                     | 0.1                  | 0.1                | 5.817     | A                             |  |  |
| C-A    | 193                      | 48                         |                      |       | 193                    |                      |                    |           |                               |  |  |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |  |  |
| A-C    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |  |  |



## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 31                       | 8                          | 620                  | 0.050 | 31                     | 0.1                  | 0.1                | 7.460     | А                             |
| B-A    | 160                      | 40                         | 636                  | 0.251 | 160                    | 0.5                  | 0.4                | 8.714     | А                             |
| C-AB   | 29                       | 7                          | 736                  | 0.039 | 29                     | 0.1                  | 0.0                | 5.750     | Α                             |
| C-A    | 162                      | 40                         |                      |       | 162                    |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 40                       | 10                         |                      |       | 40                     |                      |                    |           |                               |



# 2021 Base, PM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ſ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.97               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.97              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 16:45              | 18:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 384                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 117                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 68                  | 100.000            |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 235              | 149             |  |  |  |  |  |  |
| From | B - Laporte Road | 39            | 0                | 78              |  |  |  |  |  |  |
|      | C - Queens Road  | 39            | 29               | 0               |  |  |  |  |  |  |

# Vehicle Mix

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 19               | 19              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |  |  |
|      | C - Queens Road  | 59            | 10               | 0               |  |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.12    | 6.48          | 0.2         | А       | 72                     | 107                              |
| B-A    | 0.08    | 11.08         | 0.1         | В       | 36                     | 54                               |
| C-AB   | 0.05    | 6.39          | 0.1         | А       | 27                     | 40                               |
| C-A    |         |               |             |         | 36                     | 54                               |
| A-B    |         |               |             |         | 216                    | 323                              |
| A-C    |         |               |             |         | 137                    | 205                              |

# Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 59                       | 15                         | 717                  | 0.082 | 58                     | 0.0                  | 0.1                | 5.954     | A                             |
| B-A    | 29                       | 7                          | 551                  | 0.053 | 29                     | 0.0                  | 0.1                | 10.264    | В                             |
| C-AB   | 22                       | 5                          | 683                  | 0.032 | 22                     | 0.0                  | 0.0                | 5.989     | A                             |
| C-A    | 29                       | 7                          |                      |       | 29                     |                      |                    |           |                               |
| A-B    | 177                      | 44                         |                      |       | 177                    |                      |                    |           |                               |
| A-C    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| в-с    | 70                       | 18                         | 706                  | 0.099 | 70                     | 0.1                  | 0.1                | 6.166     | Α                             |  |
| B-A    | 35                       | 9                          | 541                  | 0.065 | 35                     | 0.1                  | 0.1                | 10.594    | В                             |  |
| C-AB   | 26                       | 7                          | 669                  | 0.039 | 26                     | 0.0                  | 0.0                | 6.154     | А                             |  |
| C-A    | 35                       | 9                          |                      |       | 35                     |                      |                    |           |                               |  |
| A-B    | 211                      | 53                         |                      |       | 211                    |                      |                    |           |                               |  |
| A-C    | 134                      | 33                         |                      |       | 134                    |                      |                    |           |                               |  |

# 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 86                       | 21                         | 692                  | 0.124 | 86                     | 0.1                  | 0.2                | 6.473     | A                             |
| B-A    | 43                       | 11                         | 527                  | 0.081 | 43                     | 0.1                  | 0.1                | 11.072    | В                             |
| C-AB   | 32                       | 8                          | 651                  | 0.049 | 32                     | 0.0                  | 0.1                | 6.394     | A                             |
| C-A    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |
| A-B    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-C    | 164                      | 41                         |                      |       | 164                    |                      |                    |           |                               |

# 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 86                       | 21                         | 692                  | 0.124 | 86                     | 0.2                  | 0.2                | 6.476     | A                             |
| B-A    | 43                       | 11                         | 527                  | 0.081 | 43                     | 0.1                  | 0.1                | 11.076    | В                             |
| C-AB   | 32                       | 8                          | 651                  | 0.049 | 32                     | 0.1                  | 0.1                | 6.394     | А                             |
| C-A    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |
| A-B    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-C    | 164                      | 41                         |                      |       | 164                    |                      |                    |           |                               |

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## 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 70                       | 18                         | 706                  | 0.099 | 70                     | 0.2                  | 0.1                | 6.170     | А                             |
| B-A    | 35                       | 9                          | 541                  | 0.065 | 35                     | 0.1                  | 0.1                | 10.602    | В                             |
| C-AB   | 26                       | 7                          | 669                  | 0.039 | 26                     | 0.1                  | 0.0                | 6.157     | A                             |
| C-A    | 35                       | 9                          |                      |       | 35                     |                      |                    |           |                               |
| A-B    | 211                      | 53                         |                      |       | 211                    |                      |                    |           |                               |
| A-C    | 134                      | 33                         |                      |       | 134                    |                      |                    |           |                               |

# 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 59                       | 15                         | 717                  | 0.082 | 59                     | 0.1                  | 0.1                | 5.966     | А                             |
| B-A    | 29                       | 7                          | 551                  | 0.053 | 29                     | 0.1                  | 0.1                | 10.279    | В                             |
| C-AB   | 22                       | 5                          | 683                  | 0.032 | 22                     | 0.0                  | 0.0                | 5.995     | А                             |
| C-A    | 29                       | 7                          |                      |       | 29                     |                      |                    |           |                               |
| A-B    | 177                      | 44                         |                      |       | 177                    |                      |                    |           |                               |
| A-C    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |



# 2025 Base, AM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| П  | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 4.99               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 4.99              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|------------|---------------------------|---|---------------------|--------------------|--|
| A - East Gate    |            | ONE HOUR                  | ✓ | 84                  | 100.000            |  |
| B - Laporte Road |            | ONE HOUR                  | ✓ | 260                 | 100.000            |  |
| C - Queens Road  |            | ONE HOUR                  | ✓ | 260                 | 100.000            |  |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |                  |                                | То |                 |  |
|------|------------------|--------------------------------|----|-----------------|--|
| _    |                  | A - East Gate B - Laporte Road |    | C - Queens Road |  |
|      | A - East Gate    | 0                              | 29 | 55              |  |
| From | B - Laporte Road | 218                            | 0  | 42              |  |
|      | C - Queens Road  | 221                            | 39 | 0               |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 50               | 70              |  |  |  |  |  |
| From | B - Laporte Road | 15            | 0                | 22              |  |  |  |  |  |
|      | C - Queens Road  | 19            | 13               | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.08    | 8.27          | 0.1         | А       | 39                     | 58                               |
| B-A    | 0.39    | 11.16         | 0.7         | В       | 200                    | 300                              |
| C-AB   | 0.06    | 5.93          | 0.1         | А       | 36                     | 54                               |
| C-A    |         |               |             |         | 203                    | 304                              |
| A-B    |         |               |             |         | 27                     | 40                               |
| A-C    |         |               |             |         | 50                     | 76                               |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 32                       | 8                          | 619                  | 0.051 | 31                     | 0.0                  | 0.1                | 7.476     | Α                             |
| B-A    | 164                      | 41                         | 634                  | 0.259 | 163                    | 0.0                  | 0.4                | 8.749     | Α                             |
| C-AB   | 29                       | 7                          | 736                  | 0.040 | 29                     | 0.0                  | 0.0                | 5.756     | Α                             |
| C-A    | 166                      | 42                         |                      |       | 166                    |                      |                    |           |                               |
| A-B    | 22                       | 5                          |                      |       | 22                     |                      |                    |           | ·                             |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 38                       | 9                          | 603                  | 0.063 | 38                     | 0.1                  | 0.1                | 7.767     | А                             |
| B-A    | 196                      | 49                         | 624                  | 0.314 | 195                    | 0.4                  | 0.5                | 9.637     | A                             |
| C-AB   | 35                       | 9                          | 733                  | 0.048 | 35                     | 0.0                  | 0.1                | 5.829     | A                             |
| C-A    | 199                      | 50                         |                      |       | 199                    |                      |                    |           |                               |
| A-B    | 26                       | 7                          |                      |       | 26                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

# 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 46                       | 12                         | 578                  | 0.080 | 46                     | 0.1                  | 0.1                | 8.260     | A                             |
| B-A    | 240                      | 60                         | 611                  | 0.393 | 239                    | 0.5                  | 0.7                | 11.114    | В                             |
| C-AB   | 43                       | 11                         | 729                  | 0.059 | 43                     | 0.1                  | 0.1                | 5.930     | A                             |
| C-A    | 243                      | 61                         |                      |       | 243                    |                      |                    |           |                               |
| A-B    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 46                       | 12                         | 577                  | 0.080 | 46                     | 0.1                  | 0.1                | 8.268     | A                             |
| B-A    | 240                      | 60                         | 611                  | 0.393 | 240                    | 0.7                  | 0.7                | 11.162    | В                             |
| C-AB   | 43                       | 11                         | 729                  | 0.059 | 43                     | 0.1                  | 0.1                | 5.930     | A                             |
| C-A    | 243                      | 61                         |                      |       | 243                    |                      |                    |           |                               |
| A-B    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 38                       | 9                          | 602                  | 0.063 | 38                     | 0.1                  | 0.1                | 7.780     | A                             |
| B-A    | 196                      | 49                         | 624                  | 0.314 | 197                    | 0.7                  | 0.5                | 9.701     | A                             |
| C-AB   | 35                       | 9                          | 733                  | 0.048 | 35                     | 0.1                  | 0.1                | 5.830     | Α                             |
| C-A    | 199                      | 50                         |                      |       | 199                    |                      |                    |           |                               |
| A-B    | 26                       | 7                          |                      |       | 26                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

# 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 32                       | 8                          | 618                  | 0.051 | 32                     | 0.1                  | 0.1                | 7.493     | А                             |
| B-A    | 164                      | 41                         | 634                  | 0.259 | 165                    | 0.5                  | 0.4                | 8.828     | А                             |
| C-AB   | 29                       | 7                          | 736                  | 0.040 | 29                     | 0.1                  | 0.0                | 5.761     | А                             |
| C-A    | 166                      | 42                         |                      |       | 166                    |                      |                    |           |                               |
| A-B    | 22                       | 5                          |                      |       | 22                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |



# 2025 Base, PM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ. | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.98               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.98              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 16:45              | 18:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|------------|--------------|--------------|---------------------|--------------------|--|
| A - East Gate    |            | ONE HOUR     | ✓            | 395                 | 100.000            |  |
| B - Laporte Road |            | ONE HOUR     | ✓            | 120                 | 100.000            |  |
| C - Queens Road  |            | ONE HOUR     | ✓            | 70                  | 100.000            |  |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 242              | 153             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 40            | 0                | 80              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 40            | 30               | 0               |  |  |  |  |  |  |  |

# Vehicle Mix

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 19               | 19              |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |
|      | C - Queens Road  | 59            | 10               | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 6.52          | 0.2         | А       | 73                     | 110                              |
| B-A    | 0.08    | 11.15         | 0.1         | В       | 37                     | 55                               |
| C-AB   | 0.05    | 6.43          | 0.1         | А       | 28                     | 41                               |
| C-A    |         |               |             |         | 37                     | 55                               |
| A-B    |         |               |             |         | 222                    | 333                              |
| A-C    |         |               |             |         | 140                    | 211                              |

# Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 60                       | 15                         | 716                  | 0.084 | 60                     | 0.0                  | 0.1                | 5.979     | А                             |
| B-A    | 30                       | 8                          | 550                  | 0.055 | 30                     | 0.0                  | 0.1                | 10.309    | В                             |
| C-AB   | 23                       | 6                          | 681                  | 0.033 | 22                     | 0.0                  | 0.0                | 6.014     | A                             |
| C-A    | 30                       | 8                          |                      |       | 30                     |                      |                    |           |                               |
| A-B    | 182                      | 46                         |                      |       | 182                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 72                       | 18                         | 705                  | 0.102 | 72                     | 0.1                  | 0.1                | 6.201     | А                             |
| B-A    | 36                       | 9                          | 539                  | 0.067 | 36                     | 0.1                  | 0.1                | 10.651    | В                             |
| C-AB   | 27                       | 7                          | 667                  | 0.040 | 27                     | 0.0                  | 0.0                | 6.185     | A                             |
| C-A    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-B    | 218                      | 54                         |                      |       | 218                    |                      |                    |           |                               |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |

# 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 690                  | 0.128 | 88                     | 0.1                  | 0.2                | 6.520     | A                             |
| B-A    | 44                       | 11                         | 525                  | 0.084 | 44                     | 0.1                  | 0.1                | 11.148    | В                             |
| C-AB   | 33                       | 8                          | 648                  | 0.051 | 33                     | 0.0                  | 0.1                | 6.435     | А                             |
| C-A    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |
| A-B    | 266                      | 67                         |                      |       | 266                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |

## 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 689                  | 0.128 | 88                     | 0.2                  | 0.2                | 6.523     | A                             |
| B-A    | 44                       | 11                         | 525                  | 0.084 | 44                     | 0.1                  | 0.1                | 11.152    | В                             |
| C-AB   | 33                       | 8                          | 648                  | 0.051 | 33                     | 0.1                  | 0.1                | 6.435     | A                             |
| C-A    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |
| A-B    | 266                      | 67                         |                      |       | 266                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |



## 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 704                  | 0.102 | 72                     | 0.2                  | 0.1                | 6.205     | A                             |
| B-A    | 36                       | 9                          | 539                  | 0.067 | 36                     | 0.1                  | 0.1                | 10.657    | В                             |
| C-AB   | 27                       | 7                          | 667                  | 0.040 | 27                     | 0.1                  | 0.0                | 6.188     | A                             |
| C-A    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-B    | 218                      | 54                         |                      |       | 218                    |                      |                    |           |                               |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |

# 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 60                       | 15                         | 715                  | 0.084 | 60                     | 0.1                  | 0.1                | 5.991     | А                             |
| B-A    | 30                       | 8                          | 550                  | 0.055 | 30                     | 0.1                  | 0.1                | 10.322    | В                             |
| C-AB   | 23                       | 6                          | 681                  | 0.033 | 23                     | 0.0                  | 0.0                | 6.019     | А                             |
| C-A    | 30                       | 8                          |                      |       | 30                     |                      |                    |           |                               |
| A-B    | 182                      | 46                         |                      |       | 182                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |



# 2025 Base + Committed, AM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.04               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.04              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 103                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 269                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 265                 | 100.000            |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |                  | То                             |    |                 |  |  |  |  |  |  |  |
|------|------------------|--------------------------------|----|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate B - Laporte Road |    | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0                              | 48 | 55              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 220                            | 0  | 49              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 223                            | 42 | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 30               | 70              |  |  |  |  |  |
| From | B - Laporte Road | 14            | 0                | 33              |  |  |  |  |  |
|      | C - Queens Road  | 19            | 20               | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.09    | 9.21          | 0.1         | А       | 45                     | 67                               |
| B-A    | 0.40    | 11.32         | 0.8         | В       | 202                    | 303                              |
| C-AB   | 0.06    | 6.37          | 0.1         | Α       | 39                     | 58                               |
| C-A    |         |               |             |         | 205                    | 307                              |
| A-B    |         |               |             |         | 44                     | 66                               |
| A-C    |         |               |             |         | 50                     | 76                               |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 618                  | 0.060 | 37                     | 0.0                  | 0.1                | 8.224     | А                             |
| B-A    | 166                      | 41                         | 629                  | 0.263 | 164                    | 0.0                  | 0.4                | 8.792     | А                             |
| C-AB   | 32                       | 8                          | 732                  | 0.043 | 31                     | 0.0                  | 0.1                | 6.161     | А                             |
| C-A    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |
| A-B    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |

#### 07:00 - 07:15

| 000    |                          |                            |                      |       |                        |                      |                    |           |                               |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
| в-с    | 44                       | 11                         | 602                  | 0.073 | 44                     | 0.1                  | 0.1                | 8.583     | Α                             |  |  |
| B-A    | 198                      | 49                         | 619                  | 0.320 | 197                    | 0.4                  | 0.5                | 9.721     | Α                             |  |  |
| C-AB   | 38                       | 9                          | 729                  | 0.052 | 38                     | 0.1                  | 0.1                | 6.250     | A                             |  |  |
| C-A    | 200                      | 50                         |                      |       | 200                    |                      |                    |           |                               |  |  |
| A-B    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |  |  |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 54                       | 13                         | 574                  | 0.094 | 54                     | 0.1                  | 0.1                | 9.198     | A                             |
| B-A    | 242                      | 61                         | 605                  | 0.401 | 241                    | 0.5                  | 0.7                | 11.270    | В                             |
| C-AB   | 46                       | 12                         | 724                  | 0.064 | 46                     | 0.1                  | 0.1                | 6.373     | A                             |
| C-A    | 246                      | 61                         |                      |       | 246                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |

# 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 54                       | 13                         | 574                  | 0.094 | 54                     | 0.1                  | 0.1                | 9.211     | А                             |
| B-A    | 242                      | 61                         | 605                  | 0.401 | 242                    | 0.7                  | 0.8                | 11.323    | В                             |
| C-AB   | 46                       | 12                         | 724                  | 0.064 | 46                     | 0.1                  | 0.1                | 6.373     | A                             |
| C-A    | 246                      | 61                         |                      |       | 246                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 601                  | 0.073 | 44                     | 0.1                  | 0.1                | 8.600     | А                             |
| B-A    | 198                      | 49                         | 619                  | 0.320 | 199                    | 0.8                  | 0.5                | 9.785     | Α                             |
| C-AB   | 38                       | 9                          | 729                  | 0.052 | 38                     | 0.1                  | 0.1                | 6.251     | Α                             |
| C-A    | 200                      | 50                         |                      |       | 200                    |                      |                    |           |                               |
| A-B    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

# 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 618                  | 0.060 | 37                     | 0.1                  | 0.1                | 8.248     | А                             |
| B-A    | 166                      | 41                         | 629                  | 0.263 | 166                    | 0.5                  | 0.4                | 8.872     | А                             |
| C-AB   | 32                       | 8                          | 732                  | 0.043 | 32                     | 0.1                  | 0.1                | 6.167     | A                             |
| C-A    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |
| A-B    | 36                       | 9                          |                      |       | 36                     |                      |                    |           |                               |
| A-C    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |



# 2025 Base + Committed, PM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.95               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.95              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 Base + Committed | PM               | ONE HOUR             | 16:45              | 18:15               | 15                        | <b>✓</b>          |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR     | ✓            | 414                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 122                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 71                  | 100.000            |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 261              | 153             |  |  |  |  |  |
| From | B - Laporte Road | 42            | 0                | 80              |  |  |  |  |  |
|      | C - Queens Road  | 41            | 30               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
|      | A - East Gate    | 0             | 17               | 19              |  |  |  |  |  |
| From | B - Laporte Road | 46            | 0                | 9               |  |  |  |  |  |
|      | C - Queens Road  | 60            | 10               | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 6.57          | 0.2         | A       | 73                     | 110                              |
| B-A    | 0.09    | 10.99         | 0.1         | В       | 39                     | 58                               |
| C-AB   | 0.05    | 6.49          | 0.1         | A       | 28                     | 41                               |
| C-A    |         |               |             |         | 38                     | 56                               |
| A-B    |         |               |             |         | 239                    | 359                              |
| A-C    |         |               |             |         | 140                    | 211                              |

# Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 60                       | 15                         | 712                  | 0.085 | 60                     | 0.0                  | 0.1                | 6.012     | А                             |
| B-A    | 32                       | 8                          | 550                  | 0.058 | 31                     | 0.0                  | 0.1                | 10.128    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.033 | 22                     | 0.0                  | 0.0                | 6.045     | А                             |
| C-A    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-B    | 196                      | 49                         |                      |       | 196                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 701                  | 0.103 | 72                     | 0.1                  | 0.1                | 6.240     | Α                             |
| B-A    | 38                       | 9                          | 539                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.477    | В                             |
| C-AB   | 27                       | 7                          | 663                  | 0.041 | 27                     | 0.0                  | 0.0                | 6.224     | A                             |
| C-A    | 37                       | 9                          |                      |       | 37                     |                      |                    |           |                               |
| A-B    | 235                      | 59                         |                      |       | 235                    |                      |                    |           |                               |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |

# 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 685                  | 0.129 | 88                     | 0.1                  | 0.2                | 6.569     | A                             |
| B-A    | 46                       | 12                         | 524                  | 0.088 | 46                     | 0.1                  | 0.1                | 10.987    | В                             |
| C-AB   | 33                       | 8                          | 643                  | 0.051 | 33                     | 0.0                  | 0.1                | 6.486     | A                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |

# 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 685                  | 0.129 | 88                     | 0.2                  | 0.2                | 6.572     | А                             |
| B-A    | 46                       | 12                         | 524                  | 0.088 | 46                     | 0.1                  | 0.1                | 10.991    | В                             |
| C-AB   | 33                       | 8                          | 643                  | 0.051 | 33                     | 0.1                  | 0.1                | 6.486     | A                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |
| A-C    | 168                      | 42                         |                      |       | 168                    |                      |                    |           |                               |



## 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 700                  | 0.103 | 72                     | 0.2                  | 0.1                | 6.245     | Α                             |
| B-A    | 38                       | 9                          | 539                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.483    | В                             |
| C-AB   | 27                       | 7                          | 663                  | 0.041 | 27                     | 0.1                  | 0.0                | 6.225     | Α                             |
| C-A    | 37                       | 9                          |                      |       | 37                     |                      |                    |           |                               |
| A-B    | 235                      | 59                         |                      |       | 235                    |                      |                    |           |                               |
| A-C    | 138                      | 34                         |                      |       | 138                    |                      |                    |           |                               |

# 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 60                       | 15                         | 712                  | 0.085 | 60                     | 0.1                  | 0.1                | 6.027     | А                             |
| B-A    | 32                       | 8                          | 550                  | 0.057 | 32                     | 0.1                  | 0.1                | 10.141    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.033 | 23                     | 0.0                  | 0.0                | 6.050     | A                             |
| C-A    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-B    | 196                      | 49                         |                      |       | 196                    |                      |                    |           |                               |
| A-C    | 115                      | 29                         |                      |       | 115                    |                      |                    |           |                               |



# 2025 Base + Committed + Development, AM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 4.58               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 4.58              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 251                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 296                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 467                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 74               | 177             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 247           | 0                | 49              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 425           | 42               | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                  |               | То               |                 |
|------|------------------|---------------|------------------|-----------------|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |
| F    | A - East Gate    | 0             | 20               | 45              |
| From | B - Laporte Road | 13            | 0                | 33              |
|      | C - Queens Road  | 29            | 20               | 0               |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.11    | 10.71         | 0.2         | В       | 45                     | 67                               |
| B-A    | 0.51    | 15.53         | 1.2         | С       | 227                    | 340                              |
| C-AB   | 0.07    | 6.76          | 0.1         | А       | 39                     | 58                               |
| C-A    |         |               |             |         | 390                    | 585                              |
| A-B    |         |               |             |         | 68                     | 102                              |
| A-C    |         |               |             |         | 162                    | 244                              |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 583                  | 0.063 | 37                     | 0.0                  | 0.1                | 8.760     | А                             |
| B-A    | 186                      | 46                         | 582                  | 0.320 | 184                    | 0.0                  | 0.5                | 10.175    | В                             |
| C-AB   | 32                       | 8                          | 706                  | 0.045 | 31                     | 0.0                  | 0.1                | 6.401     | A                             |
| C-A    | 320                      | 80                         |                      |       | 320                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 133                      | 33                         |                      |       | 133                    |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 44                       | 11                         | 554                  | 0.080 | 44                     | 0.1                  | 0.1                | 9.383     | А                             |  |  |
| B-A    | 222                      | 56                         | 562                  | 0.395 | 221                    | 0.5                  | 0.7                | 11.924    | В                             |  |  |
| C-AB   | 38                       | 9                          | 698                  | 0.054 | 38                     | 0.1                  | 0.1                | 6.546     | А                             |  |  |
| C-A    | 382                      | 96                         |                      |       | 382                    |                      |                    |           |                               |  |  |
| A-B    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |  |  |
| A-C    | 159                      | 40                         |                      |       | 159                    |                      |                    |           |                               |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 54                       | 13                         | 502                  | 0.107 | 54                     | 0.1                  | 0.2                | 10.672    | В                             |
| B-A    | 272                      | 68                         | 534                  | 0.510 | 270                    | 0.7                  | 1.1                | 15.343    | С                             |
| C-AB   | 46                       | 12                         | 686                  | 0.067 | 46                     | 0.1                  | 0.1                | 6.755     | А                             |
| C-A    | 468                      | 117                        |                      |       | 468                    |                      |                    |           |                               |
| A-B    | 81                       | 20                         |                      |       | 81                     |                      |                    |           |                               |
| A-C    | 195                      | 49                         |                      |       | 195                    |                      |                    |           |                               |

# 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 54                       | 13                         | 501                  | 0.108 | 54                     | 0.2                  | 0.2                | 10.714    | В                             |
| B-A    | 272                      | 68                         | 534                  | 0.510 | 272                    | 1.1                  | 1.2                | 15.525    | С                             |
| C-AB   | 46                       | 12                         | 686                  | 0.067 | 46                     | 0.1                  | 0.1                | 6.755     | A                             |
| C-A    | 468                      | 117                        |                      |       | 468                    |                      |                    |           |                               |
| A-B    | 81                       | 20                         |                      |       | 81                     |                      |                    |           |                               |
| A-C    | 195                      | 49                         |                      |       | 195                    |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 553                  | 0.080 | 44                     | 0.2                  | 0.1                | 9.424     | Α                             |
| B-A    | 222                      | 56                         | 562                  | 0.395 | 224                    | 1.2                  | 0.8                | 12.096    | В                             |
| C-AB   | 38                       | 9                          | 698                  | 0.054 | 38                     | 0.1                  | 0.1                | 6.550     | Α                             |
| C-A    | 382                      | 96                         |                      |       | 382                    |                      |                    |           |                               |
| A-B    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-C    | 159                      | 40                         |                      |       | 159                    |                      |                    |           |                               |

# 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 37                       | 9                          | 581                  | 0.063 | 37                     | 0.1                  | 0.1                | 8.796     | А                             |
| B-A    | 186                      | 46                         | 582                  | 0.320 | 187                    | 0.8                  | 0.5                | 10.326    | В                             |
| C-AB   | 32                       | 8                          | 706                  | 0.045 | 32                     | 0.1                  | 0.1                | 6.407     | A                             |
| C-A    | 320                      | 80                         |                      |       | 320                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 133                      | 33                         |                      |       | 133                    |                      |                    |           |                               |



# 2025 Base + Committed + Development, PM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.52               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.52              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM               | ONE HOUR                | 16:45                 | 18:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 606                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 149                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 339                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 287              | 319             |  |  |  |  |  |
| From | B - Laporte Road | 69            | 0                | 80              |  |  |  |  |  |
|      | C - Queens Road  | 309           | 30               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0 16          |                  | 29              |  |  |  |  |  |  |  |
| From | B - Laporte Road | 29            | 0                | 9               |  |  |  |  |  |  |  |
|      | C - Queens Road  | 42            | 10               | 0               |  |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| в-с    | 0.14    | 7.54          | 0.2         | A       | 73                     | 110                              |  |
| B-A    | 0.17    | 12.35         | 0.3         | В       | 63                     | 95                               |  |
| C-AB   | 0.06    | 7.06          | 0.1         | A       | 28                     | 41                               |  |
| C-A    |         |               |             |         | 284                    | 425                              |  |
| A-B    |         |               |             |         | 263                    | 395                              |  |
| A-C    |         |               |             |         | 293                    | 439                              |  |

# Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 60                       | 15                         | 654                  | 0.092 | 60                     | 0.0                  | 0.1                | 6.601     | Α                             |
| B-A    | 52                       | 13                         | 506                  | 0.103 | 51                     | 0.0                  | 0.1                | 10.195    | В                             |
| C-AB   | 23                       | 6                          | 643                  | 0.035 | 22                     | 0.0                  | 0.0                | 6.376     | Α                             |
| C-A    | 233                      | 58                         |                      |       | 233                    |                      |                    |           |                               |
| A-B    | 216                      | 54                         |                      |       | 216                    |                      |                    |           |                               |
| A-C    | 240                      | 60                         |                      |       | 240                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|
| В-С    | 72                       | 18                         | 635                  | 0.113 | 72                     | 0.1                  | 0.1                | 6.967     | Α                             |  |  |  |
| B-A    | 62                       | 16                         | 484                  | 0.128 | 62                     | 0.1                  | 0.2                | 11.006    | В                             |  |  |  |
| C-AB   | 27                       | 7                          | 622                  | 0.043 | 27                     | 0.0                  | 0.0                | 6.648     | А                             |  |  |  |
| C-A    | 278                      | 69                         |                      |       | 278                    |                      |                    |           |                               |  |  |  |
| A-B    | 258                      | 65                         |                      |       | 258                    |                      |                    |           |                               |  |  |  |
| A-C    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |  |  |  |

# 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 608                  | 0.145 | 88                     | 0.1                  | 0.2                | 7.539     | А                             |
| B-A    | 76                       | 19                         | 452                  | 0.168 | 76                     | 0.2                  | 0.3                | 12.330    | В                             |
| C-AB   | 33                       | 8                          | 594                  | 0.056 | 33                     | 0.0                  | 0.1                | 7.062     | A                             |
| C-A    | 340                      | 85                         |                      |       | 340                    |                      |                    |           |                               |
| A-B    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-C    | 351                      | 88                         |                      |       | 351                    |                      |                    |           |                               |

## 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 88                       | 22                         | 608                  | 0.145 | 88                     | 0.2                  | 0.2                | 7.544     | A                             |
| B-A    | 76                       | 19                         | 452                  | 0.168 | 76                     | 0.3                  | 0.3                | 12.347    | В                             |
| C-AB   | 33                       | 8                          | 594                  | 0.056 | 33                     | 0.1                  | 0.1                | 7.062     | A                             |
| C-A    | 340                      | 85                         |                      |       | 340                    |                      |                    |           |                               |
| A-B    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-C    | 351                      | 88                         |                      |       | 351                    |                      |                    |           |                               |



## 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 72                       | 18                         | 635                  | 0.113 | 72                     | 0.2                  | 0.1                | 6.981     | А                             |
| B-A    | 62                       | 16                         | 484                  | 0.128 | 62                     | 0.3                  | 0.2                | 11.027    | В                             |
| C-AB   | 27                       | 7                          | 622                  | 0.043 | 27                     | 0.1                  | 0.1                | 6.650     | Α                             |
| C-A    | 278                      | 69                         |                      |       | 278                    |                      |                    |           |                               |
| A-B    | 258                      | 65                         |                      |       | 258                    |                      |                    |           |                               |
| A-C    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |

# 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 60                       | 15                         | 653                  | 0.092 | 60                     | 0.1                  | 0.1                | 6.619     | А                             |
| B-A    | 52                       | 13                         | 506                  | 0.103 | 52                     | 0.2                  | 0.1                | 10.227    | В                             |
| C-AB   | 23                       | 6                          | 643                  | 0.035 | 23                     | 0.1                  | 0.0                | 6.382     | А                             |
| C-A    | 233                      | 58                         |                      |       | 233                    |                      |                    |           |                               |
| A-B    | 216                      | 54                         |                      |       | 216                    |                      |                    |           |                               |
| A-C    | 240                      | 60                         |                      |       | 240                    |                      |                    |           |                               |



# **2032 Base, AM**

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.19               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 5.19              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over turn Vehicle mix varies over entry |                | PCU Factor for a HV (PCU) |  |
|------------------------------|--|----------------|---------------------------|--|
| ✓                            | ✓  | HV Percentages | 2.00                      |  |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|------------|--------------|--------------|---------------------|--------------------|--|
| A - East Gate    |            | ONE HOUR     | ✓            | 108                 | 100.000            |  |
| B - Laporte Road |            | ONE HOUR     | ✓            | 283                 | 100.000            |  |
| C - Queens Road  |            | ONE HOUR     | ✓            | 277                 | 100.000            |  |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |                  |               | То               |                 |  |
|------|------------------|---------------|------------------|-----------------|--|
| _    |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |
|      | A - East Gate    | 0             | 51               | 57              |  |
| From | B - Laporte Road | 231           | 0                | 52              |  |
|      | C - Queens Road  | 233           | 44               | 0               |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|--|
| From |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 50               | 70              |  |  |  |  |  |  |  |  |
|      | B - Laporte Road | 15            | 0                | 22              |  |  |  |  |  |  |  |  |
|      | C - Queens Road  | 19            | 13               | 0               |  |  |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| в-с    | 0.10    | 8.60          | 0.1         | А       | 48                     | 72                               |  |
| B-A    | 0.42    | 11.94         | 0.8         | В       | 212                    | 318                              |  |
| C-AB   | 0.07    | 6.03          | 0.1         | А       | 40                     | 61                               |  |
| C-A    |         |               |             |         | 214                    | 321                              |  |
| A-B    |         |               |             |         | 47                     | 70                               |  |
| A-C    |         |               |             |         | 52                     | 78                               |  |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 39                       | 10                         | 616                  | 0.064 | 39                     | 0.0                  | 0.1                | 7.608     | A                             |
| B-A    | 174                      | 43                         | 627                  | 0.278 | 172                    | 0.0                  | 0.4                | 9.074     | A                             |
| C-AB   | 33                       | 8                          | 731                  | 0.045 | 33                     | 0.0                  | 0.1                | 5.822     | A                             |
| C-A    | 175                      | 44                         |                      |       | 175                    |                      |                    |           |                               |
| A-B    | 38                       | 10                         |                      |       | 38                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|
| B-C    | 47                       | 12                         | 598                  | 0.078 | 47                     | 0.1                  | 0.1                | 7.962     | А                             |  |  |  |
| B-A    | 208                      | 52                         | 616                  | 0.337 | 207                    | 0.4                  | 0.6                | 10.112    | В                             |  |  |  |
| C-AB   | 40                       | 10                         | 728                  | 0.054 | 40                     | 0.1                  | 0.1                | 5.910     | Α                             |  |  |  |
| C-A    | 209                      | 52                         |                      |       | 209                    |                      |                    |           |                               |  |  |  |
| A-B    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |  |  |  |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |  |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 57                       | 14                         | 569                  | 0.101 | 57                     | 0.1                  | 0.1                | 8.582     | A                             |
| B-A    | 254                      | 64                         | 601                  | 0.423 | 253                    | 0.6                  | 0.8                | 11.872    | В                             |
| C-AB   | 48                       | 12                         | 723                  | 0.067 | 48                     | 0.1                  | 0.1                | 6.033     | A                             |
| C-A    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |

# 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 57                       | 14                         | 568                  | 0.101 | 57                     | 0.1                  | 0.1                | 8.595     | A                             |
| B-A    | 254                      | 64                         | 601                  | 0.423 | 254                    | 0.8                  | 0.8                | 11.936    | В                             |
| C-AB   | 48                       | 12                         | 723                  | 0.067 | 48                     | 0.1                  | 0.1                | 6.033     | A                             |
| C-A    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |
| A-B    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 47                       | 12                         | 597                  | 0.078 | 47                     | 0.1                  | 0.1                | 7.980     | Α                             |
| B-A    | 208                      | 52                         | 616                  | 0.337 | 209                    | 0.8                  | 0.6                | 10.189    | В                             |
| C-AB   | 40                       | 10                         | 728                  | 0.054 | 40                     | 0.1                  | 0.1                | 5.911     | Α                             |
| C-A    | 209                      | 52                         |                      |       | 209                    |                      |                    |           |                               |
| A-B    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |

# 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 39                       | 10                         | 615                  | 0.064 | 39                     | 0.1                  | 0.1                | 7.628     | А                             |
| B-A    | 174                      | 43                         | 627                  | 0.278 | 174                    | 0.6                  | 0.4                | 9.167     | A                             |
| C-AB   | 33                       | 8                          | 731                  | 0.045 | 33                     | 0.1                  | 0.1                | 5.827     | A                             |
| C-A    | 175                      | 44                         |                      |       | 175                    |                      |                    |           |                               |
| A-B    | 38                       | 10                         |                      |       | 38                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |



# **2032 Base, PM**

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ſ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 2.01               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.01              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 16:45              | 18:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|------------|---------------------------|---|---------------------|--------------------|--|
| A - East Gate    |            | ONE HOUR                  | ✓ | 413                 | 100.000            |  |
| B - Laporte Road |            | ONE HOUR                  | ✓ | 126                 | 100.000            |  |
| C - Queens Road  |            | ONE HOUR                  | ✓ | 73                  | 100.000            |  |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 253              | 160             |  |  |  |  |  |  |  |
| From | B - Laporte Road | 42            | 0                | 84              |  |  |  |  |  |  |  |
|      | C - Queens Road  | 42            | 31               | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 19               | 9               |  |  |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |  |  |
|      | C - Queens Road  | 59            | 10               | 0               |  |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 6.61          | 0.2         | А       | 77                     | 116                              |
| B-A    | 0.09    | 11.29         | 0.1         | В       | 39                     | 58                               |
| C-AB   | 0.05    | 6.50          | 0.1         | А       | 28                     | 43                               |
| C-A    |         |               |             |         | 39                     | 58                               |
| A-B    |         |               |             |         | 232                    | 348                              |
| A-C    |         |               |             |         | 147                    | 220                              |

# Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 713                  | 0.089 | 63                     | 0.0                  | 0.1                | 6.030     | A                             |
| B-A    | 32                       | 8                          | 547                  | 0.058 | 31                     | 0.0                  | 0.1                | 10.384    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.034 | 23                     | 0.0                  | 0.0                | 6.050     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 190                      | 48                         |                      |       | 190                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 76                       | 19                         | 702                  | 0.108 | 75                     | 0.1                  | 0.1                | 6.267     | А                             |
| B-A    | 38                       | 9                          | 537                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.750    | В                             |
| C-AB   | 28                       | 7                          | 663                  | 0.042 | 28                     | 0.0                  | 0.0                | 6.231     | A                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 227                      | 57                         |                      |       | 227                    |                      |                    |           |                               |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |

# 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 686                  | 0.135 | 92                     | 0.1                  | 0.2                | 6.610     | A                             |
| B-A    | 46                       | 12                         | 521                  | 0.089 | 46                     | 0.1                  | 0.1                | 11.282    | В                             |
| C-AB   | 34                       | 9                          | 644                  | 0.053 | 34                     | 0.0                  | 0.1                | 6.495     | А                             |
| C-A    | 46                       | 12                         |                      |       | 46                     |                      |                    |           |                               |
| A-B    | 279                      | 70                         |                      |       | 279                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |

## 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 686                  | 0.135 | 92                     | 0.2                  | 0.2                | 6.614     | Α                             |
| B-A    | 46                       | 12                         | 521                  | 0.089 | 46                     | 0.1                  | 0.1                | 11.286    | В                             |
| C-AB   | 34                       | 9                          | 644                  | 0.053 | 34                     | 0.1                  | 0.1                | 6.495     | A                             |
| C-A    | 46                       | 12                         |                      |       | 46                     |                      |                    |           |                               |
| A-B    | 279                      | 70                         |                      |       | 279                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |



## 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 701                  | 0.108 | 76                     | 0.2                  | 0.1                | 6.272     | Α                             |
| B-A    | 38                       | 9                          | 537                  | 0.070 | 38                     | 0.1                  | 0.1                | 10.757    | В                             |
| C-AB   | 28                       | 7                          | 663                  | 0.042 | 28                     | 0.1                  | 0.0                | 6.232     | Α                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 227                      | 57                         |                      |       | 227                    |                      |                    |           |                               |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |

# 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 713                  | 0.089 | 63                     | 0.1                  | 0.1                | 6.043     | A                             |
| B-A    | 32                       | 8                          | 548                  | 0.058 | 32                     | 0.1                  | 0.1                | 10.400    | В                             |
| C-AB   | 23                       | 6                          | 677                  | 0.034 | 23                     | 0.0                  | 0.0                | 6.056     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 190                      | 48                         |                      |       | 190                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |



# 2032 Base + Committed, AM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.28               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.28              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn   Vehicle mix varies over entry |   | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|--|---|--------------------|---------------------------|--|
| ✓  | ✓ | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 127                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 292                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 281                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 70               | 57              |  |  |  |  |  |
| From | B - Laporte Road | 233           | 0                | 59              |  |  |  |  |  |
|      | C - Queens Road  | 234           | 47               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 30               | 70              |  |  |  |  |  |
| From | B - Laporte Road | 14            | 0                | 33              |  |  |  |  |  |
|      | C - Queens Road  | 19            | 20               | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.12    | 9.60          | 0.2         | А       | 54                     | 81                               |
| B-A    | 0.43    | 12.13         | 0.9         | В       | 214                    | 321                              |
| C-AB   | 0.07    | 6.49          | 0.1         | А       | 43                     | 65                               |
| C-A    |         |               |             |         | 215                    | 322                              |
| A-B    |         |               |             |         | 64                     | 96                               |
| A-C    |         |               |             |         | 52                     | 78                               |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 616                  | 0.072 | 44                     | 0.0                  | 0.1                | 8.368     | A                             |
| B-A    | 175                      | 44                         | 622                  | 0.282 | 174                    | 0.0                  | 0.4                | 9.126     | A                             |
| C-AB   | 35                       | 9                          | 728                  | 0.049 | 35                     | 0.0                  | 0.1                | 6.232     | A                             |
| C-A    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 53                       | 13                         | 597                  | 0.089 | 53                     | 0.1                  | 0.1                | 8.803     | Α                             |  |  |
| B-A    | 209                      | 52                         | 610                  | 0.343 | 209                    | 0.4                  | 0.6                | 10.207    | В                             |  |  |
| C-AB   | 42                       | 11                         | 724                  | 0.058 | 42                     | 0.1                  | 0.1                | 6.338     | Α                             |  |  |
| C-A    | 210                      | 53                         |                      |       | 210                    |                      |                    |           |                               |  |  |
| A-B    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |  |  |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 65                       | 16                         | 564                  | 0.115 | 65                     | 0.1                  | 0.2                | 9.579     | A                             |
| B-A    | 257                      | 64                         | 595                  | 0.431 | 255                    | 0.6                  | 0.8                | 12.063    | В                             |
| C-AB   | 52                       | 13                         | 718                  | 0.072 | 52                     | 0.1                  | 0.1                | 6.485     | A                             |
| C-A    | 258                      | 64                         |                      |       | 258                    |                      |                    |           |                               |
| A-B    | 77                       | 19                         |                      |       | 77                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |

# 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 65                       | 16                         | 564                  | 0.115 | 65                     | 0.2                  | 0.2                | 9.597     | A                             |
| B-A    | 257                      | 64                         | 595                  | 0.431 | 257                    | 0.8                  | 0.9                | 12.134    | В                             |
| C-AB   | 52                       | 13                         | 718                  | 0.072 | 52                     | 0.1                  | 0.1                | 6.485     | A                             |
| C-A    | 258                      | 64                         |                      |       | 258                    |                      |                    |           |                               |
| A-B    | 77                       | 19                         |                      |       | 77                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 53                       | 13                         | 596                  | 0.089 | 53                     | 0.2                  | 0.1                | 8.828     | А                             |
| B-A    | 209                      | 52                         | 610                  | 0.343 | 210                    | 0.9                  | 0.6                | 10.290    | В                             |
| C-AB   | 42                       | 11                         | 724                  | 0.058 | 42                     | 0.1                  | 0.1                | 6.342     | Α                             |
| C-A    | 210                      | 53                         |                      |       | 210                    |                      |                    |           |                               |
| A-B    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |

# 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 44                       | 11                         | 615                  | 0.072 | 45                     | 0.1                  | 0.1                | 8.399     | А                             |
| B-A    | 175                      | 44                         | 622                  | 0.282 | 176                    | 0.6                  | 0.5                | 9.225     | А                             |
| C-AB   | 35                       | 9                          | 728                  | 0.049 | 35                     | 0.1                  | 0.1                | 6.238     | А                             |
| C-A    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |
| A-B    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |



# 2032 Base + Committed, PM

## **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.99               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.99              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ı | ID | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D | 12 | 2032 Base + Committed | PM               | ONE HOUR             | 16:45                 | 18:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 432                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 128                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 74                  | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |
| F    | A - East Gate    | 0             | 272              | 160             |  |  |  |  |  |
| From | B - Laporte Road | 44            | 0                | 84              |  |  |  |  |  |
|      | C - Queens Road  | 43            | 31               | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |               |                  |                 |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 17               | 19              |  |  |  |  |  |  |
| From | B - Laporte Road | 49            | 0                | 9               |  |  |  |  |  |  |
|      | C - Queens Road  | 60            | 10               | 0               |  |  |  |  |  |  |



# Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.14    | 6.66          | 0.2         | А       | 77                     | 116                              |
| B-A    | 0.09    | 11.35         | 0.2         | В       | 40                     | 61                               |
| C-AB   | 0.05    | 6.55          | 0.1         | А       | 28                     | 43                               |
| C-A    |         |               |             |         | 39                     | 59                               |
| A-B    |         |               |             |         | 250                    | 374                              |
| A-C    |         |               |             |         | 147                    | 220                              |

#### Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 63                       | 16                         | 710                  | 0.089 | 63                     | 0.0                  | 0.1                | 6.064     | А                             |
| B-A    | 33                       | 8                          | 547                  | 0.061 | 33                     | 0.0                  | 0.1                | 10.413    | В                             |
| C-AB   | 23                       | 6                          | 674                  | 0.035 | 23                     | 0.0                  | 0.0                | 6.081     | А                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 205                      | 51                         |                      |       | 205                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 76                       | 19                         | 698                  | 0.108 | 75                     | 0.1                  | 0.1                | 6.307     | А                             |
| B-A    | 40                       | 10                         | 536                  | 0.074 | 39                     | 0.1                  | 0.1                | 10.795    | В                             |
| C-AB   | 28                       | 7                          | 659                  | 0.042 | 28                     | 0.0                  | 0.0                | 6.270     | A                             |
| C-A    | 39                       | 10                         |                      |       | 39                     |                      |                    |           |                               |
| A-B    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |

#### 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 681                  | 0.136 | 92                     | 0.1                  | 0.2                | 6.660     | A                             |
| B-A    | 48                       | 12                         | 521                  | 0.093 | 48                     | 0.1                  | 0.2                | 11.348    | В                             |
| C-AB   | 34                       | 9                          | 639                  | 0.053 | 34                     | 0.0                  | 0.1                | 6.548     | A                             |
| C-A    | 47                       | 12                         |                      |       | 47                     |                      |                    |           |                               |
| A-B    | 299                      | 75                         |                      |       | 299                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |

#### 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 681                  | 0.136 | 92                     | 0.2                  | 0.2                | 6.663     | А                             |
| B-A    | 48                       | 12                         | 521                  | 0.093 | 48                     | 0.2                  | 0.2                | 11.354    | В                             |
| C-AB   | 34                       | 9                          | 639                  | 0.053 | 34                     | 0.1                  | 0.1                | 6.548     | A                             |
| C-A    | 47                       | 12                         |                      |       | 47                     |                      |                    |           |                               |
| A-B    | 299                      | 75                         |                      |       | 299                    |                      |                    |           |                               |
| A-C    | 176                      | 44                         |                      |       | 176                    |                      |                    |           |                               |



#### 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 697                  | 0.108 | 76                     | 0.2                  | 0.1                | 6.311     | Α                             |
| B-A    | 40                       | 10                         | 536                  | 0.074 | 40                     | 0.2                  | 0.1                | 10.803    | В                             |
| C-AB   | 28                       | 7                          | 659                  | 0.042 | 28                     | 0.1                  | 0.0                | 6.274     | Α                             |
| C-A    | 39                       | 10                         |                      |       | 39                     |                      |                    |           |                               |
| A-B    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |
| A-C    | 144                      | 36                         |                      |       | 144                    |                      |                    |           |                               |

#### 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 63                       | 16                         | 709                  | 0.089 | 63                     | 0.1                  | 0.1                | 6.079     | А                             |
| B-A    | 33                       | 8                          | 548                  | 0.060 | 33                     | 0.1                  | 0.1                | 10.431    | В                             |
| C-AB   | 23                       | 6                          | 674                  | 0.035 | 23                     | 0.0                  | 0.0                | 6.087     | A                             |
| C-A    | 32                       | 8                          |                      |       | 32                     |                      |                    |           |                               |
| A-B    | 205                      | 51                         |                      |       | 205                    |                      |                    |           |                               |
| A-C    | 120                      | 30                         |                      |       | 120                    |                      |                    |           |                               |



# 2032 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

### **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 5.01               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.01              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

|   | ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| ſ | D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                  | •          |              |              |                     |                    |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - East Gate    |            | ONE HOUR     | ✓            | 276                 | 100.000            |
| B - Laporte Road |            | ONE HOUR     | ✓            | 318                 | 100.000            |
| C - Queens Road  |            | ONE HOUR     | ✓            | 484                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  |               | То               |                 |  |
|------|------------------|---------------|------------------|-----------------|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |
| F    | A - East Gate    | 0             | 96               | 180             |  |
| From | B - Laporte Road | 259           | 0                | 59              |  |
|      | C - Queens Road  | 437           | 47               | 0               |  |

### **Vehicle Mix**

#### HV %s

|      |                  |               | То               |                 |
|------|------------------|---------------|------------------|-----------------|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |
| F    | A - East Gate    | 0             | 20               | 45              |
| From | B - Laporte Road | 13            | 0                | 33              |
|      | C - Queens Road  | 29            | 20               | 0               |



# Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.13    | 11.41         | 0.2         | В       | 54                     | 81                               |
| B-A    | 0.54    | 17.02         | 1.3         | С       | 238                    | 356                              |
| C-AB   | 0.08    | 6.88          | 0.1         | А       | 43                     | 65                               |
| C-A    |         |               |             |         | 401                    | 601                              |
| A-B    |         |               |             |         | 88                     | 132                              |
| A-C    |         |               |             |         | 165                    | 248                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 44                       | 11                         | 579                  | 0.077 | 44                     | 0.0                  | 0.1                | 8.945     | A                             |
| B-A    | 195                      | 49                         | 574                  | 0.340 | 193                    | 0.0                  | 0.6                | 10.606    | В                             |
| C-AB   | 35                       | 9                          | 702                  | 0.050 | 35                     | 0.0                  | 0.1                | 6.479     | A                             |
| C-A    | 329                      | 82                         |                      |       | 329                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 136                      | 34                         |                      |       | 136                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|
| в-с    | 53                       | 13                         | 546                  | 0.097 | 53                     | 0.1                  | 0.1                | 9.699     | А                             |  |  |  |
| B-A    | 233                      | 58                         | 553                  | 0.421 | 232                    | 0.6                  | 0.8                | 12.630    | В                             |  |  |  |
| C-AB   | 42                       | 11                         | 692                  | 0.061 | 42                     | 0.1                  | 0.1                | 6.645     | А                             |  |  |  |
| C-A    | 393                      | 98                         |                      |       | 393                    |                      |                    |           |                               |  |  |  |
| A-B    | 86                       | 22                         |                      |       | 86                     |                      |                    |           |                               |  |  |  |
| A-C    | 162                      | 40                         |                      |       | 162                    |                      |                    |           |                               |  |  |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 65                       | 16                         | 487                  | 0.133 | 65                     | 0.1                  | 0.2                | 11.344    | В                             |
| B-A    | 285                      | 71                         | 524                  | 0.545 | 283                    | 0.8                  | 1.3                | 16.774    | С                             |
| C-AB   | 52                       | 13                         | 679                  | 0.076 | 52                     | 0.1                  | 0.1                | 6.884     | А                             |
| C-A    | 481                      | 120                        |                      |       | 481                    |                      |                    |           |                               |
| A-B    | 106                      | 26                         |                      |       | 106                    |                      |                    |           |                               |
| A-C    | 198                      | 50                         |                      |       | 198                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 65                       | 16                         | 485                  | 0.134 | 65                     | 0.2                  | 0.2                | 11.406    | В                             |
| B-A    | 285                      | 71                         | 524                  | 0.545 | 285                    | 1.3                  | 1.3                | 17.020    | С                             |
| C-AB   | 52                       | 13                         | 679                  | 0.076 | 52                     | 0.1                  | 0.1                | 6.884     | А                             |
| C-A    | 481                      | 120                        |                      |       | 481                    |                      |                    |           |                               |
| A-B    | 106                      | 26                         |                      |       | 106                    |                      |                    |           |                               |
| A-C    | 198                      | 50                         |                      |       | 198                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 53                       | 13                         | 544                  | 0.097 | 53                     | 0.2                  | 0.1                | 9.752     | Α                             |
| B-A    | 233                      | 58                         | 553                  | 0.421 | 235                    | 1.3                  | 0.8                | 12.857    | В                             |
| C-AB   | 42                       | 11                         | 692                  | 0.061 | 42                     | 0.1                  | 0.1                | 6.646     | Α                             |
| C-A    | 393                      | 98                         |                      |       | 393                    |                      |                    |           |                               |
| A-B    | 86                       | 22                         |                      |       | 86                     |                      |                    |           |                               |
| A-C    | 162                      | 40                         |                      |       | 162                    |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 44                       | 11                         | 577                  | 0.077 | 45                     | 0.1                  | 0.1                | 8.994     | А                             |
| B-A    | 195                      | 49                         | 574                  | 0.340 | 196                    | 0.8                  | 0.6                | 10.788    | В                             |
| C-AB   | 35                       | 9                          | 702                  | 0.050 | 35                     | 0.1                  | 0.1                | 6.483     | A                             |
| C-A    | 329                      | 82                         |                      |       | 329                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 136                      | 34                         |                      |       | 136                    |                      |                    |           |                               |



# 2032 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

### **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.57               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.57              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

| ı | ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D | 14 | 2032 Base + Committed + Development | PM               | ONE HOUR                | 16:45                 | 18:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Linked arm   Profile type |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|---------------------------|---|---------------------|--------------------|
| A - East Gate    |            | ONE HOUR                  | ✓ | 623                 | 100.000            |
| B - Laporte Road |            | ONE HOUR                  | ✓ | 155                 | 100.000            |
| C - Queens Road  |            | ONE HOUR                  | ✓ | 342                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |               |                  |                 |  |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |  |
| F    | A - East Gate    | 0             | 298              | 325             |  |  |  |  |  |  |  |  |
| From | B - Laporte Road | 71            | 0                | 84              |  |  |  |  |  |  |  |  |
|      | C - Queens Road  | 311           | 31               | 0               |  |  |  |  |  |  |  |  |

### **Vehicle Mix**

#### HV %s

|      |                  | То            |                  |                 |  |  |  |  |  |  |  |  |
|------|------------------|---------------|------------------|-----------------|--|--|--|--|--|--|--|--|
|      |                  | A - East Gate | B - Laporte Road | C - Queens Road |  |  |  |  |  |  |  |  |
|      | A - East Gate    | 0             | 16               | 29              |  |  |  |  |  |  |  |  |
| From | B - Laporte Road | 29            | 0                | 9               |  |  |  |  |  |  |  |  |
|      | C - Queens Road  | 42            | 10               | 0               |  |  |  |  |  |  |  |  |



# Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.15    | 7.65          | 0.2         | A       | 77                     | 116                              |
| B-A    | 0.17    | 12.55         | 0.3         | В       | 65                     | 98                               |
| C-AB   | 0.06    | 7.13          | 0.1         | A       | 28                     | 43                               |
| C-A    |         |               |             |         | 285                    | 428                              |
| A-B    |         |               |             |         | 273                    | 410                              |
| A-C    |         |               |             |         | 298                    | 447                              |

#### Main Results for each time segment

#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 63                       | 16                         | 652                  | 0.097 | 63                     | 0.0                  | 0.1                | 6.657     | A                             |
| B-A    | 53                       | 13                         | 503                  | 0.106 | 53                     | 0.0                  | 0.2                | 10.294    | В                             |
| C-AB   | 23                       | 6                          | 640                  | 0.036 | 23                     | 0.0                  | 0.0                | 6.415     | A                             |
| C-A    | 234                      | 59                         |                      |       | 234                    |                      |                    |           |                               |
| A-B    | 224                      | 56                         |                      |       | 224                    |                      |                    |           |                               |
| A-C    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 633                  | 0.119 | 75                     | 0.1                  | 0.1                | 7.039     | Α                             |
| B-A    | 64                       | 16                         | 480                  | 0.133 | 64                     | 0.2                  | 0.2                | 11.142    | В                             |
| C-AB   | 28                       | 7                          | 619                  | 0.045 | 28                     | 0.0                  | 0.1                | 6.699     | А                             |
| C-A    | 280                      | 70                         |                      |       | 280                    |                      |                    |           |                               |
| A-B    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-C    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |

#### 17:15 - 17:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 92                       | 23                         | 605                  | 0.153 | 92                     | 0.1                  | 0.2                | 7.648     | A                             |
| B-A    | 78                       | 20                         | 448                  | 0.174 | 78                     | 0.2                  | 0.3                | 12.533    | В                             |
| C-AB   | 34                       | 9                          | 589                  | 0.058 | 34                     | 0.1                  | 0.1                | 7.132     | A                             |
| C-A    | 342                      | 86                         |                      |       | 342                    |                      |                    |           |                               |
| A-B    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-C    | 358                      | 89                         |                      |       | 358                    |                      |                    |           |                               |

#### 17:30 - 17:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 92                       | 23                         | 605                  | 0.153 | 92                     | 0.2                  | 0.2                | 7.652     | A                             |
| B-A    | 78                       | 20                         | 448                  | 0.174 | 78                     | 0.3                  | 0.3                | 12.552    | В                             |
| C-AB   | 34                       | 9                          | 589                  | 0.058 | 34                     | 0.1                  | 0.1                | 7.132     | A                             |
| C-A    | 342                      | 86                         |                      |       | 342                    |                      |                    |           |                               |
| A-B    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-C    | 358                      | 89                         |                      |       | 358                    |                      |                    |           |                               |



#### 17:45 - 18:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 76                       | 19                         | 632                  | 0.119 | 76                     | 0.2                  | 0.1                | 7.050     | Α                             |
| B-A    | 64                       | 16                         | 480                  | 0.133 | 64                     | 0.3                  | 0.2                | 11.164    | В                             |
| C-AB   | 28                       | 7                          | 619                  | 0.045 | 28                     | 0.1                  | 0.1                | 6.700     | Α                             |
| C-A    | 280                      | 70                         |                      |       | 280                    |                      |                    |           |                               |
| A-B    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-C    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |

#### 18:00 - 18:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 63                       | 16                         | 652                  | 0.097 | 63                     | 0.1                  | 0.1                | 6.672     | А                             |
| B-A    | 53                       | 13                         | 504                  | 0.106 | 54                     | 0.2                  | 0.2                | 10.328    | В                             |
| C-AB   | 23                       | 6                          | 640                  | 0.036 | 23                     | 0.1                  | 0.0                | 6.421     | A                             |
| C-A    | 234                      | 59                         |                      |       | 234                    |                      |                    |           |                               |
| A-B    | 224                      | 56                         |                      |       | 224                    |                      |                    |           |                               |
| A-C    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |

### Annex TN2 B

Laporte Road/ Kiln Lane/ Hobson Way Roundabout



### **Junctions 10**

#### **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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solution

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the

Filename: Laporte Road-Kiln Lane-Hobson Way RevC.j10

Path: P:\23000's\23325\Junction Assessment\Laporte Road-Kiln Lane-Hobson Way RevC\_Junctions 10 Report

**Report generation date:** 05/08/2022 09:57:14

- »2021 Base, AM
- »2021 Base, PM
- »2025 Base, AM
- »2025 Base, PM
- »2025 Base + Committed, AM
- »2025 Base + Committed, PM
- »2025 Base + Committed + Development, AM
- »2025 Base + Committed + Development, PM
- »2032 Base, AM
- »2032 Base, PM
- »2032 Base + Committed, AM
- »2032 Base + Committed, PM
- »2032 Base + Committed + Development, AM
- »2032 Base + Committed + Development, PM



#### Summary of junction performance

|                         |         | AM        |       |           | PM        |      |
|-------------------------|---------|-----------|-------|-----------|-----------|------|
|                         | Q (PCU) | Delay (s) | RFC   | Q (PCU)   | Delay (s) | RFC  |
|                         |         |           | 2021  | Base      |           |      |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.3     | 2.28      | 0.20  | 0.1       | 2.37      | 0.10 |
| C - Kiln Lane           | 0.2     | 2.77      | 0.15  | 0.1       | 2.44      | 0.07 |
| D - Laporte Road        | 0.0     | 2.30      | 0.03  | 0.3       | 2.42      | 0.23 |
|                         |         |           | 2025  | Base      |           |      |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.3     | 2.29      | 0.20  | 0.1       | 2.38      | 0.10 |
| C - Kiln Lane           | 0.2     | 2.80      | 0.15  | 0.1       | 2.45      | 0.07 |
| D - Laporte Road        | 0.0     | 2.30      | 0.03  | 0.4       | 2.44      | 0.24 |
|                         |         | 2025 E    | ase 4 | - Commi   | tted      |      |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.3     | 2.51      | 0.23  | 0.2       | 2.43      | 0.11 |
| C - Kiln Lane           | 0.3     | 3.15      | 0.19  | 0.1       | 2.46      | 0.08 |
| D - Laporte Road        | 0.1     | 2.32      | 0.04  | 0.4       | 2.49      | 0.25 |
|                         | 2025 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.4     | 2.55      | 0.24  | 0.2       | 2.42      | 0.13 |
| C - Kiln Lane           | 0.3     | 3.19      | 0.19  | 0.1       | 2.49      | 0.08 |
| D - Laporte Road        | 0.1     | 2.20      | 0.06  | 0.4       | 2.52      | 0.26 |
|                         |         |           | 2032  | Base      |           |      |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.3     | 2.32      | 0.21  | 0.1       | 2.39      | 0.10 |
| C - Kiln Lane           | 0.2     | 2.83      | 0.16  | 0.1       | 2.45      | 0.08 |
| D - Laporte Road        | 0.0     | 2.31      | 0.03  | 0.4       | 2.48      | 0.25 |
|                         |         | 2032 E    | ase 1 | - Commi   | tted      |      |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.3     | 2.54      | 0.23  | 0.2       | 2.45      | 0.12 |
| C - Kiln Lane           | 0.3     | 3.19      | 0.20  | 0.1       | 2.47      | 0.09 |
| D - Laporte Road        | 0.1     | 2.32      | 0.05  | 0.4       | 2.52      | 0.26 |
|                         | 2032    | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - Air Products Access | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| B - Hobson Way          | 0.4     | 2.57      | 0.25  | 0.2       | 2.44      | 0.13 |
| C - Kiln Lane           | 0.3     | 3.23      | 0.20  | 0.1       | 2.50      | 0.09 |
| D - Laporte Road        | 0.1     | 2.21      | 0.06  | 0.4       | 2.56      | 0.27 |

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



#### File summary

#### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |
|             |            |

#### Units

|   | Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|---|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| Ī | m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

#### **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

### **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

### **Analysis Set Details**

| ID | D Include in report Network flow scaling factor (%) |         | . , ,   |  |  |  |
|----|---|---------|---------|--|--|--|
| A1 | ✓   | 100.000 | 100.000 |  |  |  |



# 2021 Base, AM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.46               | Α            |

#### **Junction Network**

| Drivin | g side | Lighting       | Network delay (s) | Network LOS |
|--------|--------|----------------|-------------------|-------------|
| L      | eft    | Normal/unknown | 2.46              | Α           |

#### Arms

#### **Arms**

| Arm | Name                | Description | No give-way line |
|-----|---------------------|-------------|------------------|
| Α   | Air Products Access |             |                  |
| В   | Hobson Way          |             |                  |
| С   | Kiln Lane           |             |                  |
| D   | Laporte Road        |             |                  |

#### **Roundabout Geometry**

| Arm                     | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|-------------------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| A - Air Products Access | 3.67  | 5.63  | 16.4   | 10.6  | 50.4  | 40.0      |            |           |
| B - Hobson Way          | 3.77  | 7.52  | 35.1   | 37.7  | 50.4  | 14.0      |            |           |
| C - Kiln Lane           | 3.79  | 7.69  | 41.9   | 17.3  | 50.4  | 28.0      |            |           |
| D - Laporte Road        | 5.36  | 7.90  | 54.4   | 19.1  | 50.4  | 37.0      |            |           |

#### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

|                         | •           |                          |
|-------------------------|-------------|--------------------------|
| Arm                     | Final slope | Final intercept (PCU/hr) |
| A - Air Products Access | 0.532       | 1422                     |
| B - Hobson Way          | 0.713       | 2146                     |
| C - Kiln Lane           | 0.674       | 2057                     |
| D - Laporte Road        | 0.699       | 2232                     |

The slope and intercept shown above include any corrections and adjustments.



# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 378                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 246                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 60                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 1              | 1             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 91            | 287              |
|      | C - Kiln Lane           | 1                       | 74             | 2             | 169              |
|      | D - Laporte Road        | 0                       | 38             | 22            | 0                |

# Vehicle Mix

#### HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 16            | 6                |
|      | C - Kiln Lane           | 0                       | 23             | 0             | 21               |
|      | D - Laporte Road        | 0                       | 18             | 77            | 0                |

# Results

#### Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.20    | 2.28          | 0.3         | А       | 347                    | 520                              |
| C - Kiln Lane           | 0.15    | 2.77          | 0.2         | А       | 226                    | 339                              |
| D - Laporte Road        | 0.03    | 2.30          | 0.0         | А       | 55                     | 83                               |



#### Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 102                             | 1368                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 285                         | 71                            | 18                              | 2133                 | 0.133 | 284                    | 84                               | 0.0                     | 0.2                   | 2.108        | Α                                   |
| C - Kiln Lane           | 185                         | 46                            | 216                             | 1912                 | 0.097 | 185                    | 86                               | 0.0                     | 0.1                   | 2.527        | А                                   |
| D - Laporte Road        | 45                          | 11                            | 58                              | 2192                 | 0.021 | 45                     | 342                              | 0.0                     | 0.0                   | 2.254        | Α                                   |

#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 122                             | 1357                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 340                         | 85                            | 22                              | 2130                 | 0.160 | 340                    | 101                              | 0.2                     | 0.2                   | 2.176        | А                                   |
| C - Kiln Lane           | 221                         | 55                            | 258                             | 1884                 | 0.117 | 221                    | 103                              | 0.1                     | 0.2                   | 2.625        | А                                   |
| D - Laporte Road        | 54                          | 13                            | 69                              | 2184                 | 0.025 | 54                     | 410                              | 0.0                     | 0.0                   | 2.271        | А                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 150                             | 1342                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 416                         | 104                           | 26                              | 2127                 | 0.196 | 416                    | 123                              | 0.2                     | 0.3                   | 2.277        | А                                   |
| C - Kiln Lane           | 271                         | 68                            | 316                             | 1844                 | 0.147 | 271                    | 127                              | 0.2                     | 0.2                   | 2.773        | А                                   |
| D - Laporte Road        | 66                          | 17                            | 85                              | 2173                 | 0.030 | 66                     | 502                              | 0.0                     | 0.0                   | 2.296        | Α                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 150                             | 1342                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 416                         | 104                           | 26                              | 2127                 | 0.196 | 416                    | 123                              | 0.3                     | 0.3                   | 2.277        | Α                                   |
| C - Kiln Lane           | 271                         | 68                            | 316                             | 1844                 | 0.147 | 271                    | 127                              | 0.2                     | 0.2                   | 2.774        | А                                   |
| D - Laporte Road        | 66                          | 17                            | 85                              | 2173                 | 0.030 | 66                     | 502                              | 0.0                     | 0.0                   | 2.296        | Α                                   |

#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 122                             | 1357                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 340                         | 85                            | 22                              | 2130                 | 0.160 | 340                    | 101                              | 0.3                     | 0.2                   | 2.176        | Α                                   |
| C - Kiln Lane           | 221                         | 55                            | 258                             | 1883                 | 0.117 | 221                    | 103                              | 0.2                     | 0.2                   | 2.628        | Α                                   |
| D - Laporte Road        | 54                          | 13                            | 69                              | 2184                 | 0.025 | 54                     | 410                              | 0.0                     | 0.0                   | 2.273        | Α                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 102                             | 1367                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 285                         | 71                            | 18                              | 2133                 | 0.133 | 285                    | 84                               | 0.2                     | 0.2                   | 2.108        | А                                   |
| C - Kiln Lane           | 185                         | 46                            | 216                             | 1912                 | 0.097 | 185                    | 87                               | 0.2                     | 0.1                   | 2.528        | А                                   |
| D - Laporte Road        | 45                          | 11                            | 58                              | 2192                 | 0.021 | 45                     | 344                              | 0.0                     | 0.0                   | 2.254        | А                                   |



# 2021 Base, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |  |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|--|
| ı | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.41               | Α            |  |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.41              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |  |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|--|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |  |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 174                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 130                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 458                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | (                       |                         |                |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         |                         | То             |               |                  |
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 109           | 65               |
|      | C - Kiln Lane           | 0                       | 94             | 4             | 32               |
|      | D - Laporte Road        | 0                       | 275            | 183           | 0                |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 24            | 11               |  |
|      | C - Kiln Lane           | 0                       | 16             | 25            | 72               |  |
|      | D - Laporte Road        | 0                       | 5              | 22            | 0                |  |

# Results

#### Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.10    | 2.37          | 0.1         | А       | 160                    | 239                              |
| C - Kiln Lane           | 0.07    | 2.44          | 0.1         | А       | 119                    | 179                              |
| D - Laporte Road        | 0.23    | 2.42          | 0.3         | А       | 420                    | 630                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 418                             | 1200                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 131                         | 33                            | 140                             | 2045                 | 0.064 | 131                    | 277                              | 0.0                     | 0.1                   | 2.233        | Α                                   |
| C - Kiln Lane           | 98                          | 24                            | 49                              | 2024                 | 0.048 | 98                     | 222                              | 0.0                     | 0.1                   | 2.361        | Α                                   |
| D - Laporte Road        | 345                         | 86                            | 74                              | 2181                 | 0.158 | 344                    | 73                               | 0.0                     | 0.2                   | 2.178        | А                                   |

#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 500                             | 1156                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 156                         | 39                            | 168                             | 2026                 | 0.077 | 156                    | 332                              | 0.1                     | 0.1                   | 2.287        | Α                                   |
| C - Kiln Lane           | 117                         | 29                            | 58                              | 2018                 | 0.058 | 117                    | 266                              | 0.1                     | 0.1                   | 2.393        | А                                   |
| D - Laporte Road        | 412                         | 103                           | 88                              | 2171                 | 0.190 | 412                    | 87                               | 0.2                     | 0.3                   | 2.275        | Α                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 612                             | 1097                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 192                         | 48                            | 206                             | 1999                 | 0.096 | 191                    | 406                              | 0.1                     | 0.1                   | 2.366        | A                                   |
| C - Kiln Lane           | 143                         | 36                            | 72                              | 2009                 | 0.071 | 143                    | 326                              | 0.1                     | 0.1                   | 2.438        | A                                   |
| D - Laporte Road        | 504                         | 126                           | 108                             | 2157                 | 0.234 | 504                    | 107                              | 0.3                     | 0.3                   | 2.421        | А                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 612                             | 1096                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 192                         | 48                            | 206                             | 1999                 | 0.096 | 192                    | 406                              | 0.1                     | 0.1                   | 2.366        | А                                   |
| C - Kiln Lane           | 143                         | 36                            | 72                              | 2009                 | 0.071 | 143                    | 326                              | 0.1                     | 0.1                   | 2.438        | Α                                   |
| D - Laporte Road        | 504                         | 126                           | 108                             | 2157                 | 0.234 | 504                    | 107                              | 0.3                     | 0.3                   | 2.422        | А                                   |



#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 500                             | 1156                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 156                         | 39                            | 168                             | 2026                 | 0.077 | 157                    | 332                              | 0.1                     | 0.1                   | 2.288        | А                                   |
| C - Kiln Lane           | 117                         | 29                            | 58                              | 2018                 | 0.058 | 117                    | 266                              | 0.1                     | 0.1                   | 2.395        | Α                                   |
| D - Laporte Road        | 412                         | 103                           | 88                              | 2170                 | 0.190 | 412                    | 87                               | 0.3                     | 0.3                   | 2.278        | А                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 419                             | 1199                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 131                         | 33                            | 141                             | 2045                 | 0.064 | 131                    | 278                              | 0.1                     | 0.1                   | 2.234        | A                                   |
| C - Kiln Lane           | 98                          | 24                            | 49                              | 2024                 | 0.048 | 98                     | 223                              | 0.1                     | 0.1                   | 2.362        | А                                   |
| D - Laporte Road        | 345                         | 86                            | 74                              | 2181                 | 0.158 | 345                    | 73                               | 0.3                     | 0.2                   | 2.182        | Α                                   |



# **2025** Base, AM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.48               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.48              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |  |  |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|--|--|--|
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |  |  |  |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 388                 | 100.000            |  |  |  |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 253                 | 100.000            |  |  |  |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 62                  | 100.000            |  |  |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         | То                      |                |               |                  |  |  |  |  |  |  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|--|--|--|--|--|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |  |  |  |  |  |  |
|      | A - Air Products Access | 0                       | 1              | 1             | 0                |  |  |  |  |  |  |  |
| From | B - Hobson Way          | 0                       | 0              | 93            | 295              |  |  |  |  |  |  |  |
|      | C - Kiln Lane           | 1                       | 76             | 2             | 174              |  |  |  |  |  |  |  |
|      | D - Laporte Road        | 0                       | 39             | 23            | 0                |  |  |  |  |  |  |  |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
| From |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
|      | B - Hobson Way          | 0                       | 0              | 16            | 6                |
|      | C - Kiln Lane           | 0                       | 23             | 0             | 21               |
|      | D - Laporte Road        | 0                       | 18             | 77            | 0                |

# Results

#### Results Summary for whole modelled period

| Arm                     | Arm Max RFC |      | Max Delay (s) Max Q (PCU) |   | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|-------------|------|---------------------------|---|------------------------|----------------------------------|
| A - Air Products Access | 0.00        | 0.00 | 0.0                       | А | 0                      | 0                                |
| B - Hobson Way          | 0.20        | 2.29 | 0.3                       | Α | 356                    | 534                              |
| C - Kiln Lane           | 0.15        | 2.80 | 0.2                       | А | 232                    | 348                              |
| D - Laporte Road        | 0.03        | 2.30 | 0.0                       | А | 57                     | 85                               |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 105                             | 1366                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 292                         | 73                            | 19                              | 2132                 | 0.137 | 291                    | 86                               | 0.0                     | 0.2                   | 2.117        | А                                   |
| C - Kiln Lane           | 190                         | 48                            | 222                             | 1908                 | 0.100 | 190                    | 89                               | 0.0                     | 0.1                   | 2.541        | А                                   |
| D - Laporte Road        | 47                          | 12                            | 59                              | 2191                 | 0.021 | 47                     | 352                              | 0.0                     | 0.0                   | 2.260        | A                                   |

#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 126                             | 1355                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 349                         | 87                            | 22                              | 2130                 | 0.164 | 349                    | 103                              | 0.2                     | 0.2                   | 2.187        | А                                   |
| C - Kiln Lane           | 227                         | 57                            | 265                             | 1879                 | 0.121 | 227                    | 106                              | 0.1                     | 0.2                   | 2.643        | А                                   |
| D - Laporte Road        | 56                          | 14                            | 71                              | 2182                 | 0.026 | 56                     | 421                              | 0.0                     | 0.0                   | 2.278        | A                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 154                             | 1340                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 427                         | 107                           | 28                              | 2126                 | 0.201 | 427                    | 127                              | 0.2                     | 0.3                   | 2.293        | Α                                   |
| C - Kiln Lane           | 279                         | 70                            | 325                             | 1839                 | 0.152 | 278                    | 130                              | 0.2                     | 0.2                   | 2.798        | А                                   |
| D - Laporte Road        | 68                          | 17                            | 87                              | 2171                 | 0.031 | 68                     | 516                              | 0.0                     | 0.0                   | 2.304        | А                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 154                             | 1340                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 427                         | 107                           | 28                              | 2126                 | 0.201 | 427                    | 127                              | 0.3                     | 0.3                   | 2.293        | Α                                   |
| C - Kiln Lane           | 279                         | 70                            | 325                             | 1838                 | 0.152 | 279                    | 130                              | 0.2                     | 0.2                   | 2.798        | Α                                   |
| D - Laporte Road        | 68                          | 17                            | 87                              | 2171                 | 0.031 | 68                     | 516                              | 0.0                     | 0.0                   | 2.304        | Α                                   |



#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 126                             | 1355                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 349                         | 87                            | 22                              | 2129                 | 0.164 | 349                    | 103                              | 0.3                     | 0.2                   | 2.188        | А                                   |
| C - Kiln Lane           | 227                         | 57                            | 265                             | 1878                 | 0.121 | 228                    | 106                              | 0.2                     | 0.2                   | 2.644        | Α                                   |
| D - Laporte Road        | 56                          | 14                            | 71                              | 2182                 | 0.026 | 56                     | 422                              | 0.0                     | 0.0                   | 2.280        | А                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 105                             | 1366                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 292                         | 73                            | 19                              | 2132                 | 0.137 | 292                    | 87                               | 0.2                     | 0.2                   | 2.117        | Α                                   |
| C - Kiln Lane           | 190                         | 48                            | 222                             | 1908                 | 0.100 | 191                    | 89                               | 0.2                     | 0.1                   | 2.544        | Α                                   |
| D - Laporte Road        | 47                          | 12                            | 60                              | 2191                 | 0.021 | 47                     | 353                              | 0.0                     | 0.0                   | 2.262        | Α                                   |



# **2025** Base, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ı | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.43               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.43              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 179                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 133                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 470                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 112           | 67               |
|      | C - Kiln Lane           | 0                       | 96             | 4             | 33               |
|      | D - Laporte Road        | 0                       | 282            | 188           | 0                |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 24            | 11               |
|      | C - Kiln Lane           | 0                       | 16             | 25            | 72               |
|      | D - Laporte Road        | 0                       | 5              | 22            | 0                |

# Results

#### Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.10    | 2.38          | 0.1         | А       | 164                    | 246                              |
| C - Kiln Lane           | 0.07    | 2.45          | 0.1         | А       | 122                    | 183                              |
| D - Laporte Road        | 0.24    | 2.44          | 0.4         | А       | 431                    | 647                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 428                             | 1194                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 135                         | 34                            | 144                             | 2043                 | 0.066 | 134                    | 284                              | 0.0                     | 0.1                   | 2.241        | А                                   |
| C - Kiln Lane           | 100                         | 25                            | 50                              | 2023                 | 0.049 | 100                    | 228                              | 0.0                     | 0.1                   | 2.367        | А                                   |
| D - Laporte Road        | 354                         | 88                            | 75                              | 2180                 | 0.162 | 353                    | 75                               | 0.0                     | 0.2                   | 2.190        | A                                   |

#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 512                             | 1150                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 161                         | 40                            | 173                             | 2023                 | 0.080 | 161                    | 340                              | 0.1                     | 0.1                   | 2.296        | Α                                   |
| C - Kiln Lane           | 120                         | 30                            | 60                              | 2017                 | 0.059 | 120                    | 273                              | 0.1                     | 0.1                   | 2.399        | Α                                   |
| D - Laporte Road        | 423                         | 106                           | 90                              | 2169                 | 0.195 | 422                    | 90                               | 0.2                     | 0.3                   | 2.291        | Α                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 627                             | 1088                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 197                         | 49                            | 211                             | 1995                 | 0.099 | 197                    | 416                              | 0.1                     | 0.1                   | 2.378        | A                                   |
| C - Kiln Lane           | 146                         | 37                            | 74                              | 2008                 | 0.073 | 146                    | 335                              | 0.1                     | 0.1                   | 2.446        | A                                   |
| D - Laporte Road        | 517                         | 129                           | 110                             | 2155                 | 0.240 | 517                    | 110                              | 0.3                     | 0.4                   | 2.443        | Α                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 628                             | 1088                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 197                         | 49                            | 211                             | 1995                 | 0.099 | 197                    | 416                              | 0.1                     | 0.1                   | 2.378        | Α                                   |
| C - Kiln Lane           | 146                         | 37                            | 74                              | 2008                 | 0.073 | 146                    | 335                              | 0.1                     | 0.1                   | 2.446        | А                                   |
| D - Laporte Road        | 517                         | 129                           | 110                             | 2155                 | 0.240 | 517                    | 110                              | 0.4                     | 0.4                   | 2.443        | А                                   |



#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 513                             | 1149                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 161                         | 40                            | 173                             | 2022                 | 0.080 | 161                    | 340                              | 0.1                     | 0.1                   | 2.299        | Α                                   |
| C - Kiln Lane           | 120                         | 30                            | 60                              | 2017                 | 0.059 | 120                    | 273                              | 0.1                     | 0.1                   | 2.400        | Α                                   |
| D - Laporte Road        | 423                         | 106                           | 90                              | 2169                 | 0.195 | 423                    | 90                               | 0.4                     | 0.3                   | 2.294        | A                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 429                             | 1194                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 135                         | 34                            | 145                             | 2042                 | 0.066 | 135                    | 285                              | 0.1                     | 0.1                   | 2.241        | Α                                   |
| C - Kiln Lane           | 100                         | 25                            | 50                              | 2023                 | 0.049 | 100                    | 229                              | 0.1                     | 0.1                   | 2.367        | А                                   |
| D - Laporte Road        | 354                         | 88                            | 75                              | 2179                 | 0.162 | 354                    | 75                               | 0.3                     | 0.2                   | 2.194        | Α                                   |



# 2025 Base + Committed, AM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| I | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.73               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.73              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| 11 | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D  | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 432                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 318                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 84                  | 100.000            |

# Origin-Destination Data

#### Demand (PCU/hr)

|      | (                       |                         |                |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         |                         | То             |               |                  |
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 1              | 1             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 137           | 295              |
|      | C - Kiln Lane           | 1                       | 132            | 2             | 183              |
|      | D - Laporte Road        | 0                       | 39             | 45            | 0                |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 36            | 6                |
|      | C - Kiln Lane           | 0                       | 41             | 0             | 24               |
|      | D - Laporte Road        | 0                       | 18             | 45            | 0                |

# Results

#### Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.23    | 2.51          | 0.3         | А       | 396                    | 595                              |
| C - Kiln Lane           | 0.19    | 3.15          | 0.3         | А       | 292                    | 438                              |
| D - Laporte Road        | 0.04    | 2.32          | 0.1         | А       | 77                     | 116                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 164                             | 1335                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 325                         | 81                            | 35                              | 2120                 | 0.153 | 324                    | 128                              | 0.0                     | 0.2                   | 2.283        | А                                   |
| C - Kiln Lane           | 239                         | 60                            | 222                             | 1908                 | 0.125 | 239                    | 138                              | 0.0                     | 0.2                   | 2.806        | А                                   |
| D - Laporte Road        | 63                          | 16                            | 101                             | 2161                 | 0.029 | 63                     | 359                              | 0.0                     | 0.0                   | 2.248        | Α                                   |

#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 196                             | 1318                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 388                         | 97                            | 42                              | 2115                 | 0.184 | 388                    | 154                              | 0.2                     | 0.3                   | 2.375        | Α                                   |
| C - Kiln Lane           | 286                         | 71                            | 265                             | 1879                 | 0.152 | 286                    | 165                              | 0.2                     | 0.2                   | 2.942        | Α                                   |
| D - Laporte Road        | 76                          | 19                            | 121                             | 2147                 | 0.035 | 75                     | 429                              | 0.0                     | 0.0                   | 2.277        | Α                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 240                             | 1294                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 476                         | 119                           | 52                              | 2109                 | 0.226 | 475                    | 188                              | 0.3                     | 0.3                   | 2.512        | Α                                   |
| C - Kiln Lane           | 350                         | 88                            | 325                             | 1839                 | 0.190 | 350                    | 202                              | 0.2                     | 0.3                   | 3.148        | Α                                   |
| D - Laporte Road        | 92                          | 23                            | 149                             | 2128                 | 0.043 | 92                     | 526                              | 0.0                     | 0.1                   | 2.317        | А                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 240                             | 1294                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 476                         | 119                           | 52                              | 2109                 | 0.226 | 476                    | 188                              | 0.3                     | 0.3                   | 2.512        | Α                                   |
| C - Kiln Lane           | 350                         | 88                            | 325                             | 1838                 | 0.190 | 350                    | 203                              | 0.3                     | 0.3                   | 3.149        | А                                   |
| D - Laporte Road        | 92                          | 23                            | 149                             | 2128                 | 0.043 | 92                     | 526                              | 0.1                     | 0.1                   | 2.317        | Α                                   |



#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 196                             | 1318                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 388                         | 97                            | 42                              | 2115                 | 0.184 | 389                    | 154                              | 0.3                     | 0.3                   | 2.376        | А                                   |
| C - Kiln Lane           | 286                         | 71                            | 265                             | 1878                 | 0.152 | 286                    | 166                              | 0.3                     | 0.2                   | 2.946        | А                                   |
| D - Laporte Road        | 76                          | 19                            | 121                             | 2147                 | 0.035 | 76                     | 430                              | 0.1                     | 0.0                   | 2.279        | Α                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 164                             | 1335                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 325                         | 81                            | 35                              | 2120                 | 0.153 | 325                    | 129                              | 0.3                     | 0.2                   | 2.287        | Α                                   |
| C - Kiln Lane           | 239                         | 60                            | 222                             | 1908                 | 0.126 | 240                    | 139                              | 0.2                     | 0.2                   | 2.810        | А                                   |
| D - Laporte Road        | 63                          | 16                            | 102                             | 2161                 | 0.029 | 63                     | 360                              | 0.0                     | 0.0                   | 2.249        | Α                                   |



# 2025 Base + Committed, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.47               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.47              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| I | D    | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|------|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| Е | 06 2 | 2025 Base + Committed | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | <b>✓</b>          |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 202                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 150                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 489                 | 100.000            |

# Origin-Destination Data

#### Demand (PCU/hr)

|      | (                       |                         |                |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         |                         | То             |               |                  |  |
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 135           | 67               |  |
|      | C - Kiln Lane           | 0                       | 111            | 4             | 35               |  |
|      | D - Laporte Road        | 0                       | 282            | 207           | 0                |  |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 23            | 11               |
|      | C - Kiln Lane           | 0                       | 17             | 25            | 68               |
|      | D - Laporte Road        | 0                       | 5              | 20            | 0                |

# Results

#### Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |  |
| B - Hobson Way          | 0.11    | 2.43          | 0.2         | А       | 185                    | 278                              |  |
| C - Kiln Lane           | 0.08    | 2.46          | 0.1         | A       | 138                    | 206                              |  |
| D - Laporte Road        | 0.25    | 2.49          | 0.4         | A       | 449                    | 673                              |  |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 454                             | 1181                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 152                         | 38                            | 158                             | 2033                 | 0.075 | 152                    | 295                              | 0.0                     | 0.1                   | 2.272        | Α                                   |
| C - Kiln Lane           | 113                         | 28                            | 50                              | 2023                 | 0.056 | 113                    | 260                              | 0.0                     | 0.1                   | 2.376        | Α                                   |
| D - Laporte Road        | 368                         | 92                            | 86                              | 2172                 | 0.170 | 367                    | 77                               | 0.0                     | 0.2                   | 2.210        | Α                                   |

#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 543                             | 1133                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 182                         | 45                            | 190                             | 2010                 | 0.090 | 182                    | 353                              | 0.1                     | 0.1                   | 2.337        | Α                                   |
| C - Kiln Lane           | 135                         | 34                            | 60                              | 2017                 | 0.067 | 135                    | 311                              | 0.1                     | 0.1                   | 2.412        | Α                                   |
| D - Laporte Road        | 440                         | 110                           | 103                             | 2160                 | 0.204 | 439                    | 92                               | 0.2                     | 0.3                   | 2.319        | А                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 665                             | 1068                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 222                         | 56                            | 232                             | 1980                 | 0.112 | 222                    | 432                              | 0.1                     | 0.1                   | 2.431        | А                                   |
| C - Kiln Lane           | 165                         | 41                            | 74                              | 2008                 | 0.082 | 165                    | 381                              | 0.1                     | 0.1                   | 2.464        | А                                   |
| D - Laporte Road        | 538                         | 135                           | 127                             | 2144                 | 0.251 | 538                    | 112                              | 0.3                     | 0.4                   | 2.485        | А                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 665                             | 1068                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 222                         | 56                            | 232                             | 1980                 | 0.112 | 222                    | 433                              | 0.1                     | 0.2                   | 2.431        | Α                                   |
| C - Kiln Lane           | 165                         | 41                            | 74                              | 2008                 | 0.082 | 165                    | 381                              | 0.1                     | 0.1                   | 2.464        | А                                   |
| D - Laporte Road        | 538                         | 135                           | 127                             | 2144                 | 0.251 | 538                    | 112                              | 0.4                     | 0.4                   | 2.485        | А                                   |



#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 543                             | 1133                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 182                         | 45                            | 190                             | 2010                 | 0.090 | 182                    | 354                              | 0.2                     | 0.1                   | 2.337        | Α                                   |
| C - Kiln Lane           | 135                         | 34                            | 60                              | 2017                 | 0.067 | 135                    | 311                              | 0.1                     | 0.1                   | 2.413        | Α                                   |
| D - Laporte Road        | 440                         | 110                           | 103                             | 2160                 | 0.204 | 440                    | 92                               | 0.4                     | 0.3                   | 2.320        | Α                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 455                             | 1180                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 152                         | 38                            | 159                             | 2032                 | 0.075 | 152                    | 296                              | 0.1                     | 0.1                   | 2.273        | Α                                   |
| C - Kiln Lane           | 113                         | 28                            | 50                              | 2023                 | 0.056 | 113                    | 261                              | 0.1                     | 0.1                   | 2.377        | Α                                   |
| D - Laporte Road        | 368                         | 92                            | 87                              | 2172                 | 0.170 | 368                    | 77                               | 0.3                     | 0.2                   | 2.215        | Α                                   |



# 2025 Base + Committed + Development, AM

#### **Data Errors and Warnings**

| Severity | Area     | Area Item Description                     |  |  |  |  |  |  |
|----------|----------|---|--|--|--|--|--|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |  |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |  |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |  |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ſ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.73               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 2.73              | Α           |  |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 458                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 318                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 110                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         |                         | То             |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 1              | 1             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 137           | 321              |  |
|      | C - Kiln Lane           | 1                       | 132            | 2             | 183              |  |
|      | D - Laporte Road        | 0                       | 65             | 45            | 0                |  |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 36            | 6                |
|      | C - Kiln Lane           | 0                       | 41             | 0             | 24               |
|      | D - Laporte Road        | 0                       | 11             | 45            | 0                |

# Results

#### Results Summary for whole modelled period

| Arm                          | Arm Max RFC |      | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|------------------------------|-------------|------|-------------|---------|------------------------|----------------------------------|--|
| A - Air Products Access 0.00 |             | 0.00 | 0.0         | А       | 0                      | 0                                |  |
| B - Hobson Way               | 0.24        | 2.55 | 0.4         | А       | 420                    | 630                              |  |
| C - Kiln Lane                | 0.19        | 3.19 | 0.3         | А       | 292                    | 438                              |  |
| D - Laporte Road             | 0.06        | 2.20 | 0.1         | А       | 101                    | 151                              |  |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 183                             | 1325                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 345                         | 86                            | 35                              | 2120                 | 0.163 | 344                    | 148                              | 0.0                     | 0.2                   | 2.298        | А                                   |
| C - Kiln Lane           | 239                         | 60                            | 241                             | 1895                 | 0.126 | 239                    | 138                              | 0.0                     | 0.2                   | 2.829        | А                                   |
| D - Laporte Road        | 83                          | 21                            | 101                             | 2161                 | 0.038 | 83                     | 378                              | 0.0                     | 0.0                   | 2.126        | A                                   |

#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 219                             | 1305                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 412                         | 103                           | 42                              | 2115                 | 0.195 | 412                    | 177                              | 0.2                     | 0.3                   | 2.397        | Α                                   |
| C - Kiln Lane           | 286                         | 71                            | 288                             | 1863                 | 0.153 | 286                    | 165                              | 0.2                     | 0.2                   | 2.971        | А                                   |
| D - Laporte Road        | 99                          | 25                            | 121                             | 2147                 | 0.046 | 99                     | 453                              | 0.0                     | 0.1                   | 2.157        | А                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 268                             | 1279                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 504                         | 126                           | 52                              | 2109                 | 0.239 | 504                    | 217                              | 0.3                     | 0.4                   | 2.546        | А                                   |
| C - Kiln Lane           | 350                         | 88                            | 353                             | 1819                 | 0.192 | 350                    | 202                              | 0.2                     | 0.3                   | 3.190        | А                                   |
| D - Laporte Road        | 121                         | 30                            | 149                             | 2128                 | 0.057 | 121                    | 555                              | 0.1                     | 0.1                   | 2.201        | Α                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 269                             | 1279                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 504                         | 126                           | 52                              | 2109                 | 0.239 | 504                    | 217                              | 0.4                     | 0.4                   | 2.546        | Α                                   |
| C - Kiln Lane           | 350                         | 88                            | 353                             | 1819                 | 0.192 | 350                    | 203                              | 0.3                     | 0.3                   | 3.190        | А                                   |
| D - Laporte Road        | 121                         | 30                            | 149                             | 2128                 | 0.057 | 121                    | 555                              | 0.1                     | 0.1                   | 2.201        | А                                   |



#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 220                             | 1305                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 412                         | 103                           | 42                              | 2115                 | 0.195 | 412                    | 177                              | 0.4                     | 0.3                   | 2.398        | Α                                   |
| C - Kiln Lane           | 286                         | 71                            | 289                             | 1863                 | 0.153 | 286                    | 166                              | 0.3                     | 0.2                   | 2.975        | Α                                   |
| D - Laporte Road        | 99                          | 25                            | 121                             | 2147                 | 0.046 | 99                     | 453                              | 0.1                     | 0.1                   | 2.159        | A                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 184                             | 1324                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 345                         | 86                            | 35                              | 2120                 | 0.163 | 345                    | 148                              | 0.3                     | 0.2                   | 2.301        | Α                                   |
| C - Kiln Lane           | 239                         | 60                            | 242                             | 1894                 | 0.126 | 240                    | 139                              | 0.2                     | 0.2                   | 2.832        | А                                   |
| D - Laporte Road        | 83                          | 21                            | 102                             | 2161                 | 0.038 | 83                     | 380                              | 0.1                     | 0.0                   | 2.126        | A                                   |



# 2025 Base + Committed + Development, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.49               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.49              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                         | ,          |              |              |                     |                    |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 229                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 150                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 515                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         | То                      |                |               |                  |  |  |  |  |  |  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|--|--|--|--|--|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |  |  |  |  |  |  |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |  |  |  |  |  |  |  |
| From | B - Hobson Way          | 0                       | 0              | 135           | 94               |  |  |  |  |  |  |  |
|      | C - Kiln Lane           | 0                       | 111            | 4             | 35               |  |  |  |  |  |  |  |
|      | D - Laporte Road        | 0                       | 308            | 207           | 0                |  |  |  |  |  |  |  |

# **Vehicle Mix**



#### HV %s

|      |                         |                         | То             |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 23            | 8                |  |
|      | C - Kiln Lane           | 0                       | 17             | 25            | 68               |  |
| Ī    | D - Laporte Road        | 0                       | 5              | 20            | 0                |  |

# Results

#### Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.13    | 2.42          | 0.2         | A       | 210                    | 315                              |
| C - Kiln Lane           | 0.08    | 2.49          | 0.1         | А       | 138                    | 206                              |
| D - Laporte Road        | 0.26    | 2.52          | 0.4         | A       | 473                    | 709                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 473                             | 1170                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 172                         | 43                            | 158                             | 2033                 | 0.085 | 172                    | 315                              | 0.0                     | 0.1                   | 2.251        | А                                   |
| C - Kiln Lane           | 113                         | 28                            | 71                              | 2010                 | 0.056 | 113                    | 260                              | 0.0                     | 0.1                   | 2.393        | А                                   |
| D - Laporte Road        | 388                         | 97                            | 86                              | 2172                 | 0.179 | 387                    | 97                               | 0.0                     | 0.2                   | 2.228        | A                                   |

#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 566                             | 1121                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 206                         | 51                            | 190                             | 2010                 | 0.102 | 206                    | 376                              | 0.1                     | 0.1                   | 2.321        | Α                                   |
| C - Kiln Lane           | 135                         | 34                            | 84                              | 2000                 | 0.067 | 135                    | 311                              | 0.1                     | 0.1                   | 2.433        | Α                                   |
| D - Laporte Road        | 463                         | 116                           | 103                             | 2160                 | 0.214 | 463                    | 116                              | 0.2                     | 0.3                   | 2.345        | А                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 693                             | 1053                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 252                         | 63                            | 232                             | 1980                 | 0.127 | 252                    | 461                              | 0.1                     | 0.2                   | 2.424        | Α                                   |
| C - Kiln Lane           | 165                         | 41                            | 103                             | 1988                 | 0.083 | 165                    | 381                              | 0.1                     | 0.1                   | 2.491        | А                                   |
| D - Laporte Road        | 567                         | 142                           | 127                             | 2144                 | 0.265 | 567                    | 142                              | 0.3                     | 0.4                   | 2.523        | Α                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 694                             | 1053                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 252                         | 63                            | 232                             | 1980                 | 0.127 | 252                    | 461                              | 0.2                     | 0.2                   | 2.424        | А                                   |
| C - Kiln Lane           | 165                         | 41                            | 103                             | 1988                 | 0.083 | 165                    | 381                              | 0.1                     | 0.1                   | 2.491        | А                                   |
| D - Laporte Road        | 567                         | 142                           | 127                             | 2144                 | 0.265 | 567                    | 142                              | 0.4                     | 0.4                   | 2.523        | А                                   |



#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 567                             | 1120                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 206                         | 51                            | 190                             | 2010                 | 0.102 | 206                    | 377                              | 0.2                     | 0.1                   | 2.323        | Α                                   |
| C - Kiln Lane           | 135                         | 34                            | 85                              | 2000                 | 0.067 | 135                    | 311                              | 0.1                     | 0.1                   | 2.436        | Α                                   |
| D - Laporte Road        | 463                         | 116                           | 103                             | 2160                 | 0.214 | 463                    | 116                              | 0.4                     | 0.3                   | 2.348        | A                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 475                             | 1170                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 172                         | 43                            | 159                             | 2032                 | 0.085 | 173                    | 316                              | 0.1                     | 0.1                   | 2.252        | Α                                   |
| C - Kiln Lane           | 113                         | 28                            | 71                              | 2010                 | 0.056 | 113                    | 261                              | 0.1                     | 0.1                   | 2.396        | Α                                   |
| D - Laporte Road        | 388                         | 97                            | 87                              | 2172                 | 0.179 | 388                    | 97                               | 0.3                     | 0.2                   | 2.231        | А                                   |



# **2032** Base, AM

## **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

## **Junction Network**

## **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.50               | Α            |

## **Junction Network**

| D | Oriving side Lighting |                | Network delay (s) | Network LOS |  |  |
|---|-----------------------|----------------|-------------------|-------------|--|--|
|   | Left                  | Normal/unknown | 2.50              | Α           |  |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name   Time Period name   Traffic pr |    | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |  |
|----|---|----|----------------------|--------------------|---------------------|---------------------------|-------------------|--|
| D9 | 2032 Base                                     | AM | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |  |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 404                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 263                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 65                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      | (                       |                         |                |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         |                         | То             |               |                  |
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 1              | 1             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 97            | 307              |
|      | C - Kiln Lane           | 1                       | 79             | 2             | 181              |
|      | D - Laporte Road        | 0                       | 41             | 24            | 0                |

## Vehicle Mix



## HV %s

|      |                         |  | То |               |                  |  |
|------|-------------------------|--|----|---------------|------------------|--|
|      |                         | A - Air Products Access B - Hobson Way |    | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                                      | 0  | 0             | 0                |  |
| From | B - Hobson Way          | 0                                      | 0  | 16            | 6                |  |
|      | C - Kiln Lane           | 0                                      | 23 | 0             | 21               |  |
|      | D - Laporte Road        | 0                                      | 18 | 77            | 0                |  |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | A 0     |                        | 0                                |  |
| B - Hobson Way          | 0.21    | 2.32          | 0.3         | А       | 371                    | 556                              |  |
| C - Kiln Lane           | 0.16    | 2.83          | 0.2         | А       | 241                    | 362                              |  |
| D - Laporte Road        | 0.03    | 2.31          | 0.0         | А       | 60                     | 89                               |  |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 110                             | 1364                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 304                         | 76                            | 20                              | 2132                 | 0.143 | 303                    | 90                               | 0.0                     | 0.2                   | 2.130        | Α                                   |
| C - Kiln Lane           | 198                         | 50                            | 231                             | 1902                 | 0.104 | 197                    | 92                               | 0.0                     | 0.1                   | 2.562        | Α                                   |
| D - Laporte Road        | 49                          | 12                            | 62                              | 2189                 | 0.022 | 49                     | 366                              | 0.0                     | 0.0                   | 2.263        | Α                                   |

## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 131                             | 1352                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 363                         | 91                            | 23                              | 2129                 | 0.171 | 363                    | 108                              | 0.2                     | 0.2                   | 2.206        | Α                                   |
| C - Kiln Lane           | 236                         | 59                            | 276                             | 1871                 | 0.126 | 236                    | 111                              | 0.1                     | 0.2                   | 2.670        | А                                   |
| D - Laporte Road        | 58                          | 15                            | 74                              | 2181                 | 0.027 | 58                     | 438                              | 0.0                     | 0.0                   | 2.282        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 161                             | 1337                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 445                         | 111                           | 29                              | 2125                 | 0.209 | 445                    | 132                              | 0.2                     | 0.3                   | 2.318        | А                                   |
| C - Kiln Lane           | 290                         | 72                            | 338                             | 1830                 | 0.158 | 289                    | 135                              | 0.2                     | 0.2                   | 2.834        | А                                   |
| D - Laporte Road        | 72                          | 18                            | 90                              | 2169                 | 0.033 | 72                     | 537                              | 0.0                     | 0.0                   | 2.309        | Α                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 161                             | 1336                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 445                         | 111                           | 29                              | 2125                 | 0.209 | 445                    | 132                              | 0.3                     | 0.3                   | 2.318        | Α                                   |
| C - Kiln Lane           | 290                         | 72                            | 338                             | 1830                 | 0.158 | 290                    | 135                              | 0.2                     | 0.2                   | 2.835        | А                                   |
| D - Laporte Road        | 72                          | 18                            | 90                              | 2169                 | 0.033 | 72                     | 537                              | 0.0                     | 0.0                   | 2.309        | Α                                   |



## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 131                             | 1352                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 363                         | 91                            | 23                              | 2129                 | 0.171 | 363                    | 108                              | 0.3                     | 0.2                   | 2.208        | Α                                   |
| C - Kiln Lane           | 236                         | 59                            | 276                             | 1871                 | 0.126 | 237                    | 111                              | 0.2                     | 0.2                   | 2.671        | Α                                   |
| D - Laporte Road        | 58                          | 15                            | 74                              | 2181                 | 0.027 | 58                     | 439                              | 0.0                     | 0.0                   | 2.282        | А                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 110                             | 1363                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 304                         | 76                            | 20                              | 2132                 | 0.143 | 304                    | 90                               | 0.2                     | 0.2                   | 2.132        | Α                                   |
| C - Kiln Lane           | 198                         | 50                            | 231                             | 1901                 | 0.104 | 198                    | 93                               | 0.2                     | 0.1                   | 2.563        | А                                   |
| D - Laporte Road        | 49                          | 12                            | 62                              | 2189                 | 0.022 | 49                     | 368                              | 0.0                     | 0.0                   | 2.265        | А                                   |



# 2032 Base, PM

## **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

## **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ı | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.45               | Α            |

## **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.45              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over turn  Vehicle mix varies over entry |                | PCU Factor for a HV (PCU) |  |
|------------------------------|---|----------------|---------------------------|--|
| ✓                            | ✓   | HV Percentages | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |  |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|--|--|
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |  |  |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 185                 | 100.000            |  |  |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 138                 | 100.000            |  |  |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 488                 | 100.000            |  |  |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      | (                       |                         |                |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         |                         | То             |               |                  |
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 116           | 69               |
|      | C - Kiln Lane           | 0                       | 100            | 4             | 34               |
|      | D - Laporte Road        | 0                       | 293            | 195           | 0                |

## Vehicle Mix



## HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 24            | 11               |
|      | C - Kiln Lane           | 0                       | 16             | 25            | 72               |
|      | D - Laporte Road        | 0                       | 5              | 22            | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.10    | 2.39          | 0.1         | А       | 170                    | 255                              |
| C - Kiln Lane           | 0.08    | 2.45          | 0.1         | А       | 127                    | 190                              |
| D - Laporte Road        | 0.25    | 2.48          | 0.4         | А       | 448                    | 672                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 445                             | 1185                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 139                         | 35                            | 149                             | 2039                 | 0.068 | 139                    | 295                              | 0.0                     | 0.1                   | 2.251        | А                                   |
| C - Kiln Lane           | 104                         | 26                            | 52                              | 2022                 | 0.051 | 104                    | 237                              | 0.0                     | 0.1                   | 2.371        | А                                   |
| D - Laporte Road        | 367                         | 92                            | 78                              | 2178                 | 0.169 | 366                    | 77                               | 0.0                     | 0.2                   | 2.209        | A                                   |

## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 532                             | 1139                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 166                         | 42                            | 179                             | 2018                 | 0.082 | 166                    | 353                              | 0.1                     | 0.1                   | 2.309        | Α                                   |
| C - Kiln Lane           | 124                         | 31                            | 62                              | 2016                 | 0.062 | 124                    | 283                              | 0.1                     | 0.1                   | 2.405        | Α                                   |
| D - Laporte Road        | 439                         | 110                           | 93                              | 2167                 | 0.202 | 438                    | 93                               | 0.2                     | 0.3                   | 2.315        | А                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 651                             | 1076                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 204                         | 51                            | 219                             | 1989                 | 0.102 | 204                    | 432                              | 0.1                     | 0.1                   | 2.394        | А                                   |
| C - Kiln Lane           | 152                         | 38                            | 76                              | 2006                 | 0.076 | 152                    | 347                              | 0.1                     | 0.1                   | 2.453        | А                                   |
| D - Laporte Road        | 537                         | 134                           | 114                             | 2152                 | 0.250 | 537                    | 113                              | 0.3                     | 0.4                   | 2.478        | Α                                   |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 652                             | 1075                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 204                         | 51                            | 219                             | 1989                 | 0.102 | 204                    | 433                              | 0.1                     | 0.1                   | 2.394        | Α                                   |
| C - Kiln Lane           | 152                         | 38                            | 76                              | 2006                 | 0.076 | 152                    | 347                              | 0.1                     | 0.1                   | 2.453        | А                                   |
| D - Laporte Road        | 537                         | 134                           | 115                             | 2152                 | 0.250 | 537                    | 113                              | 0.4                     | 0.4                   | 2.478        | А                                   |



## 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 533                             | 1139                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 166                         | 42                            | 179                             | 2018                 | 0.082 | 166                    | 354                              | 0.1                     | 0.1                   | 2.309        | А                                   |
| C - Kiln Lane           | 124                         | 31                            | 62                              | 2015                 | 0.062 | 124                    | 283                              | 0.1                     | 0.1                   | 2.407        | Α                                   |
| D - Laporte Road        | 439                         | 110                           | 94                              | 2167                 | 0.202 | 439                    | 93                               | 0.4                     | 0.3                   | 2.317        | А                                   |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 446                             | 1185                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 139                         | 35                            | 150                             | 2039                 | 0.068 | 139                    | 296                              | 0.1                     | 0.1                   | 2.251        | Α                                   |
| C - Kiln Lane           | 104                         | 26                            | 52                              | 2022                 | 0.051 | 104                    | 237                              | 0.1                     | 0.1                   | 2.371        | Α                                   |
| D - Laporte Road        | 367                         | 92                            | 78                              | 2177                 | 0.169 | 368                    | 78                               | 0.3                     | 0.2                   | 2.213        | Α                                   |



# 2032 Base + Committed, AM

## **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

## **Junction Network**

## **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.76               | Α            |

## **Junction Network**

| Drivin | Driving side Lighting |                | Network delay (s) | Network LOS |  |
|--------|-----------------------|----------------|-------------------|-------------|--|
| L      | eft                   | Normal/unknown | 2.76              | Α           |  |

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

|                         | ,          |              |              |                     |                    |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 448                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 328                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 87                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                         |                         | То             |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 1              | 1             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 141           | 307              |  |
|      | C - Kiln Lane           | 1                       | 135            | 2             | 190              |  |
|      | D - Laporte Road        | 0                       | 41             | 46            | 0                |  |

## **Vehicle Mix**



## HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 36            | 6                |
|      | C - Kiln Lane           | 0                       | 41             | 0             | 24               |
|      | D - Laporte Road        | 0                       | 18             | 45            | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.23    | 2.54          | 0.3         | А       | 411                    | 617                              |
| C - Kiln Lane           | 0.20    | 3.19          | 0.3         | А       | 301                    | 451                              |
| D - Laporte Road        | 0.05    | 2.32          | 0.1         | А       | 80                     | 120                              |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 168                             | 1333                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 337                         | 84                            | 36                              | 2120                 | 0.159 | 336                    | 132                              | 0.0                     | 0.2                   | 2.298        | А                                   |
| C - Kiln Lane           | 247                         | 62                            | 231                             | 1902                 | 0.130 | 246                    | 142                              | 0.0                     | 0.2                   | 2.828        | А                                   |
| D - Laporte Road        | 65                          | 16                            | 104                             | 2160                 | 0.030 | 65                     | 373                              | 0.0                     | 0.0                   | 2.249        | Α                                   |

## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 201                             | 1315                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 403                         | 101                           | 43                              | 2115                 | 0.190 | 403                    | 158                              | 0.2                     | 0.3                   | 2.394        | Α                                   |
| C - Kiln Lane           | 295                         | 74                            | 276                             | 1871                 | 0.158 | 295                    | 170                              | 0.2                     | 0.2                   | 2.971        | Α                                   |
| D - Laporte Road        | 78                          | 20                            | 124                             | 2145                 | 0.036 | 78                     | 447                              | 0.0                     | 0.0                   | 2.278        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 246                             | 1291                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 493                         | 123                           | 53                              | 2108                 | 0.234 | 493                    | 194                              | 0.3                     | 0.3                   | 2.539        | А                                   |
| C - Kiln Lane           | 361                         | 90                            | 338                             | 1830                 | 0.197 | 361                    | 208                              | 0.2                     | 0.3                   | 3.190        | А                                   |
| D - Laporte Road        | 96                          | 24                            | 152                             | 2126                 | 0.045 | 96                     | 547                              | 0.0                     | 0.1                   | 2.320        | Α                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 247                             | 1291                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 493                         | 123                           | 53                              | 2108                 | 0.234 | 493                    | 194                              | 0.3                     | 0.3                   | 2.539        | Α                                   |
| C - Kiln Lane           | 361                         | 90                            | 338                             | 1830                 | 0.197 | 361                    | 208                              | 0.3                     | 0.3                   | 3.190        | Α                                   |
| D - Laporte Road        | 96                          | 24                            | 152                             | 2126                 | 0.045 | 96                     | 547                              | 0.1                     | 0.1                   | 2.320        | А                                   |



## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 202                             | 1315                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 403                         | 101                           | 43                              | 2115                 | 0.190 | 403                    | 158                              | 0.3                     | 0.3                   | 2.397        | Α                                   |
| C - Kiln Lane           | 295                         | 74                            | 276                             | 1871                 | 0.158 | 295                    | 170                              | 0.3                     | 0.2                   | 2.973        | Α                                   |
| D - Laporte Road        | 78                          | 20                            | 124                             | 2145                 | 0.036 | 78                     | 447                              | 0.1                     | 0.0                   | 2.281        | А                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 169                             | 1332                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 337                         | 84                            | 36                              | 2120                 | 0.159 | 337                    | 133                              | 0.3                     | 0.2                   | 2.300        | Α                                   |
| C - Kiln Lane           | 247                         | 62                            | 231                             | 1901                 | 0.130 | 247                    | 142                              | 0.2                     | 0.2                   | 2.834        | Α                                   |
| D - Laporte Road        | 65                          | 16                            | 104                             | 2159                 | 0.030 | 66                     | 374                              | 0.0                     | 0.0                   | 2.251        | Α                                   |



# 2032 Base + Committed, PM

## **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

## **Junction Network**

## **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ſ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.50               | Α            |

## **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 2.50              | Α           |  |  |

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D12 | 2032 Base + Committed | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 209                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 155                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 507                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                         |                         | То             |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 140           | 69               |  |
|      | C - Kiln Lane           | 0                       | 115            | 4             | 36               |  |
|      | D - Laporte Road        | 0                       | 293            | 214           | 0                |  |

## **Vehicle Mix**



## HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 23            | 11               |
|      | C - Kiln Lane           | 0                       | 17             | 25            | 68               |
|      | D - Laporte Road        | 0                       | 5              | 20            | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.12    | 2.45          | 0.2         | А       | 192                    | 288                              |
| C - Kiln Lane           | 0.09    | 2.47          | 0.1         | А       | 142                    | 213                              |
| D - Laporte Road        | 0.26    | 2.52          | 0.4         | А       | 465                    | 698                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 470                             | 1172                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 157                         | 39                            | 164                             | 2029                 | 0.078 | 157                    | 306                              | 0.0                     | 0.1                   | 2.284        | А                                   |
| C - Kiln Lane           | 117                         | 29                            | 52                              | 2022                 | 0.058 | 116                    | 269                              | 0.0                     | 0.1                   | 2.381        | А                                   |
| D - Laporte Road        | 382                         | 95                            | 89                              | 2170                 | 0.176 | 381                    | 79                               | 0.0                     | 0.2                   | 2.229        | A                                   |

## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 562                             | 1123                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 188                         | 47                            | 196                             | 2006                 | 0.094 | 188                    | 367                              | 0.1                     | 0.1                   | 2.351        | Α                                   |
| C - Kiln Lane           | 139                         | 35                            | 62                              | 2016                 | 0.069 | 139                    | 322                              | 0.1                     | 0.1                   | 2.419        | Α                                   |
| D - Laporte Road        | 456                         | 114                           | 107                             | 2157                 | 0.211 | 456                    | 94                               | 0.2                     | 0.3                   | 2.344        | Α                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 689                             | 1056                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 230                         | 58                            | 240                             | 1975                 | 0.117 | 230                    | 449                              | 0.1                     | 0.2                   | 2.450        | А                                   |
| C - Kiln Lane           | 171                         | 43                            | 76                              | 2006                 | 0.085 | 171                    | 394                              | 0.1                     | 0.1                   | 2.472        | А                                   |
| D - Laporte Road        | 558                         | 140                           | 131                             | 2141                 | 0.261 | 558                    | 116                              | 0.3                     | 0.4                   | 2.521        | А                                   |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 689                             | 1055                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 230                         | 58                            | 240                             | 1974                 | 0.117 | 230                    | 449                              | 0.2                     | 0.2                   | 2.450        | А                                   |
| C - Kiln Lane           | 171                         | 43                            | 76                              | 2006                 | 0.085 | 171                    | 394                              | 0.1                     | 0.1                   | 2.472        | Α                                   |
| D - Laporte Road        | 558                         | 140                           | 131                             | 2141                 | 0.261 | 558                    | 116                              | 0.4                     | 0.4                   | 2.521        | А                                   |



## 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 563                             | 1122                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 188                         | 47                            | 196                             | 2006                 | 0.094 | 188                    | 367                              | 0.2                     | 0.1                   | 2.353        | А                                   |
| C - Kiln Lane           | 139                         | 35                            | 62                              | 2015                 | 0.069 | 139                    | 322                              | 0.1                     | 0.1                   | 2.421        | Α                                   |
| D - Laporte Road        | 456                         | 114                           | 107                             | 2157                 | 0.211 | 456                    | 94                               | 0.4                     | 0.3                   | 2.345        | Α                                   |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 472                             | 1171                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 157                         | 39                            | 164                             | 2028                 | 0.078 | 157                    | 307                              | 0.1                     | 0.1                   | 2.286        | Α                                   |
| C - Kiln Lane           | 117                         | 29                            | 52                              | 2022                 | 0.058 | 117                    | 270                              | 0.1                     | 0.1                   | 2.381        | Α                                   |
| D - Laporte Road        | 382                         | 95                            | 90                              | 2169                 | 0.176 | 382                    | 79                               | 0.3                     | 0.2                   | 2.234        | Α                                   |



# 2032 Base + Committed + Development, AM

## **Data Errors and Warnings**

| Severity | Area     | Item                                      | Description  |
|----------|----------|---|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

## **Junction Network**

## **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |  |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|--|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.76               | Α            |  |

## **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.76              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 474                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 328                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 113                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                         |  | То |               |                  |  |
|------|-------------------------|--|----|---------------|------------------|--|
|      |                         | A - Air Products Access B - Hobson Way |    | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                                      | 1  | 1             | 0                |  |
| From | B - Hobson Way          | 0                                      | 0  | 141           | 333              |  |
|      | C - Kiln Lane           | 1 135                                  |    | 2             | 190              |  |
|      | D - Laporte Road        | 0                                      | 67 | 46            | 0                |  |

## **Vehicle Mix**



## HV %s

|      |                         |                         | То             |               |                  |  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|--|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |  |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |  |
| From | B - Hobson Way          | 0                       | 0              | 36            | 6                |  |
|      | C - Kiln Lane           | 0                       | 41             | 0             | 24               |  |
|      | D - Laporte Road        | 0                       | 11             | 45            | 0                |  |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | Α 0                    |                                  |  |
| B - Hobson Way          | 0.25    | 2.57          | 0.4         | А       | 435                    | 652                              |  |
| C - Kiln Lane           | 0.20    | 3.23          | 0.3         | А       | 301                    | 451                              |  |
| D - Laporte Road        | 0.06    | 2.21          | 0.1         | А       | 104                    | 156                              |  |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 188                             | 1322                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 357                         | 89                            | 36                              | 2120                 | 0.168 | 356                    | 152                              | 0.0                     | 0.2                   | 2.314        | А                                   |
| C - Kiln Lane           | 247                         | 62                            | 250                             | 1889                 | 0.131 | 246                    | 142                              | 0.0                     | 0.2                   | 2.851        | А                                   |
| D - Laporte Road        | 85                          | 21                            | 104                             | 2160                 | 0.039 | 85                     | 393                              | 0.0                     | 0.1                   | 2.129        | A                                   |

## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 225                             | 1302                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 426                         | 107                           | 43                              | 2115                 | 0.201 | 426                    | 181                              | 0.2                     | 0.3                   | 2.418        | Α                                   |
| C - Kiln Lane           | 295                         | 74                            | 299                             | 1856                 | 0.159 | 295                    | 170                              | 0.2                     | 0.2                   | 3.001        | Α                                   |
| D - Laporte Road        | 102                         | 25                            | 124                             | 2145                 | 0.047 | 102                    | 470                              | 0.1                     | 0.1                   | 2.161        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 275                             | 1276                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 522                         | 130                           | 53                              | 2108                 | 0.248 | 522                    | 222                              | 0.3                     | 0.4                   | 2.574        | А                                   |
| C - Kiln Lane           | 361                         | 90                            | 366                             | 1810                 | 0.199 | 361                    | 208                              | 0.2                     | 0.3                   | 3.232        | А                                   |
| D - Laporte Road        | 124                         | 31                            | 152                             | 2126                 | 0.059 | 124                    | 575                              | 0.1                     | 0.1                   | 2.206        | Α                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 275                             | 1276                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 522                         | 130                           | 53                              | 2108                 | 0.248 | 522                    | 222                              | 0.4                     | 0.4                   | 2.574        | Α                                   |
| C - Kiln Lane           | 361                         | 90                            | 367                             | 1810                 | 0.199 | 361                    | 208                              | 0.3                     | 0.3                   | 3.233        | А                                   |
| D - Laporte Road        | 124                         | 31                            | 152                             | 2126                 | 0.059 | 124                    | 576                              | 0.1                     | 0.1                   | 2.206        | А                                   |



## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 225                             | 1302                 | 0.000 | 0                      | 0.90                             | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 426                         | 107                           | 43                              | 2115                 | 0.202 | 426                    | 182                              | 0.4                     | 0.3                   | 2.420        | А                                   |
| C - Kiln Lane           | 295                         | 74                            | 300                             | 1855                 | 0.159 | 295                    | 170                              | 0.3                     | 0.2                   | 3.005        | Α                                   |
| D - Laporte Road        | 102                         | 25                            | 124                             | 2145                 | 0.047 | 102                    | 471                              | 0.1                     | 0.1                   | 2.163        | А                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 188                             | 1322                 | 0.000 | 0                      | 0.75                             | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 357                         | 89                            | 36                              | 2120                 | 0.168 | 357                    | 152                              | 0.3                     | 0.2                   | 2.316        | A                                   |
| C - Kiln Lane           | 247                         | 62                            | 251                             | 1888                 | 0.131 | 247                    | 142                              | 0.2                     | 0.2                   | 2.857        | А                                   |
| D - Laporte Road        | 85                          | 21                            | 104                             | 2159                 | 0.039 | 85                     | 394                              | 0.1                     | 0.1                   | 2.131        | А                                   |



# 2032 Base + Committed + Development, PM

## **Data Errors and Warnings**

| Severity | Area     | ltem Description                          |  |  |  |  |  |
|----------|----------|---|--|--|--|--|--|
| Warning  | Geometry | B - Hobson Way -<br>Roundabout Geometry   | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |
| Warning  | Geometry | C - Kiln Lane -<br>Roundabout Geometry    | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |
| Warning  | Geometry | D - Laporte Road -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |

## **Junction Network**

## **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 2.52               | Α            |

## **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.52              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Air Products Access |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| B - Hobson Way          |            | ONE HOUR     | ✓            | 236                 | 100.000            |
| C - Kiln Lane           |            | ONE HOUR     | ✓            | 155                 | 100.000            |
| D - Laporte Road        |            | ONE HOUR     | ✓            | 533                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 4             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 140           | 96               |
|      | C - Kiln Lane           | 0                       | 115            | 4             | 36               |
|      | D - Laporte Road        | 0                       | 319            | 214           | 0                |

## **Vehicle Mix**



## HV %s

|      |                         |                         | То             |               |                  |
|------|-------------------------|-------------------------|----------------|---------------|------------------|
|      |                         | A - Air Products Access | B - Hobson Way | C - Kiln Lane | D - Laporte Road |
|      | A - Air Products Access | 0                       | 0              | 0             | 0                |
| From | B - Hobson Way          | 0                       | 0              | 23            | 8                |
|      | C - Kiln Lane           | 0                       | 17             | 25            | 68               |
|      | D - Laporte Road        | 0                       | 5              | 20            | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Air Products Access | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| B - Hobson Way          | 0.13    | 2.44          | 0.2         | А       | 217                    | 325                              |
| C - Kiln Lane           | 0.09    | 2.50          | 0.1         | А       | 142                    | 213                              |
| D - Laporte Road        | 0.27    | 2.56          | 0.4         | А       | 489                    | 734                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 490                             | 1162                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 178                         | 44                            | 164                             | 2029                 | 0.088 | 177                    | 326                              | 0.0                     | 0.1                   | 2.263        | А                                   |
| C - Kiln Lane           | 117                         | 29                            | 72                              | 2009                 | 0.058 | 116                    | 269                              | 0.0                     | 0.1                   | 2.398        | А                                   |
| D - Laporte Road        | 401                         | 100                           | 89                              | 2170                 | 0.185 | 400                    | 99                               | 0.0                     | 0.3                   | 2.248        | A                                   |

## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 586                             | 1110                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 212                         | 53                            | 196                             | 2006                 | 0.106 | 212                    | 390                              | 0.1                     | 0.1                   | 2.336        | Α                                   |
| C - Kiln Lane           | 139                         | 35                            | 86                              | 1999                 | 0.070 | 139                    | 322                              | 0.1                     | 0.1                   | 2.440        | Α                                   |
| D - Laporte Road        | 479                         | 120                           | 107                             | 2157                 | 0.222 | 479                    | 119                              | 0.3                     | 0.3                   | 2.371        | А                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 717                             | 1040                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 260                         | 65                            | 240                             | 1975                 | 0.132 | 260                    | 478                              | 0.1                     | 0.2                   | 2.443        | А                                   |
| C - Kiln Lane           | 171                         | 43                            | 106                             | 1986                 | 0.086 | 171                    | 394                              | 0.1                     | 0.1                   | 2.500        | Α                                   |
| D - Laporte Road        | 587                         | 147                           | 131                             | 2141                 | 0.274 | 586                    | 145                              | 0.3                     | 0.4                   | 2.560        | Α                                   |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 718                             | 1040                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | А                                   |
| B - Hobson Way          | 260                         | 65                            | 240                             | 1974                 | 0.132 | 260                    | 478                              | 0.2                     | 0.2                   | 2.444        | Α                                   |
| C - Kiln Lane           | 171                         | 43                            | 106                             | 1986                 | 0.086 | 171                    | 394                              | 0.1                     | 0.1                   | 2.500        | А                                   |
| D - Laporte Road        | 587                         | 147                           | 131                             | 2141                 | 0.274 | 587                    | 145                              | 0.4                     | 0.4                   | 2.561        | А                                   |



## 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 587                             | 1110                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 212                         | 53                            | 196                             | 2006                 | 0.106 | 212                    | 390                              | 0.2                     | 0.1                   | 2.338        | А                                   |
| C - Kiln Lane           | 139                         | 35                            | 86                              | 1999                 | 0.070 | 139                    | 322                              | 0.1                     | 0.1                   | 2.442        | Α                                   |
| D - Laporte Road        | 479                         | 120                           | 107                             | 2157                 | 0.222 | 480                    | 119                              | 0.4                     | 0.3                   | 2.374        | Α                                   |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Air Products Access | 0                           | 0                             | 491                             | 1161                 | 0.000 | 0                      | 0                                | 0.0                     | 0.0                   | 0.000        | Α                                   |
| B - Hobson Way          | 178                         | 44                            | 164                             | 2028                 | 0.088 | 178                    | 327                              | 0.1                     | 0.1                   | 2.266        | Α                                   |
| C - Kiln Lane           | 117                         | 29                            | 72                              | 2009                 | 0.058 | 117                    | 270                              | 0.1                     | 0.1                   | 2.399        | Α                                   |
| D - Laporte Road        | 401                         | 100                           | 90                              | 2169                 | 0.185 | 402                    | 99                               | 0.3                     | 0.3                   | 2.251        | А                                   |

## **Annex TN2 C**

Kings Road/ A1173 Roundabout



## **Junctions 10**

## **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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Filename: Kings Road-A1173 RevC.j10

Path: P:\23000's\23325\Junction Assessment\Kings Road-A1173 RevC\_Junctions 10 Report

Report generation date: 05/08/2022 10:01:34

- »2021 Base, PM»2025 Base, AM»2025 Base, PM»2025 Base + Committed, AM
- »2025 Base + Committed, PM
  »2025 Base + Committed + Development, AM
- »2025 Base + Committed + Development, PM
- »2032 Base, AM

»2021 Base, AM

- »2032 Base, PM
- »2032 Base + Committed, AM
- »2032 Base + Committed, PM
- »2032 Base + Committed + Development, AM
- »2032 Base + Committed + Development, PM



## Summary of junction performance

|                   |         | AM        |       |           | PM        | 0.35<br>0.16<br>0.21<br>0.36<br>0.17<br>0.22<br>0.37<br>0.19<br>0.25 |  |  |
|-------------------|---------|-----------|-------|-----------|-----------|--|--|--|
|                   | Q (PCU) | Delay (s) | RFC   | Q (PCU)   | Delay (s) | RFC  |  |  |
|                   |         |           | 2021  | Base      |           |  |  |  |
| A - Kings Road NE | 0.2     | 2.94      | 0.17  | 0.6       | 3.75      | 0.35   |  |  |
| B - A1173         | 0.8     | 4.17      | 0.42  | 0.2       | 3.02      | 0.16   |  |  |
| C - Kings Road NW | 0.1     | 3.88      | 0.07  | 0.3       | 3.25      | 0.21   |  |  |
|                   |         |           | 2025  | Base      |           |  |  |  |
| A - Kings Road NE | 0.2     | 2.96      | 0.17  | 0.6       | 3.82      | 0.36   |  |  |
| B - A1173         | 0.9     | 4.27      | 0.43  | 0.2       | 3.04      | 0.17   |  |  |
| C - Kings Road NW | 0.1     | 3.91      | 0.07  | 0.3       | 3.28      | 0.22   |  |  |
|                   |         | 2025 B    | ase 4 | - Commi   | tted      |  |  |  |
| A - Kings Road NE | 0.2     | 3.01      | 0.18  | 0.6       | 3.97      | 0.37   |  |  |
| B - A1173         | 1.0     | 4.61      | 0.48  | 0.3       | 3.13      | 0.19   |  |  |
| C - Kings Road NW | 0.1     | 3.83      | 0.10  | 0.4       | 3.45      | 0.25   |  |  |
|                   | 2025 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |  |  |
| A - Kings Road NE | 0.4     | 3.28      | 0.24  | 1.0       | 4.96      | 0.47   |  |  |
| B - A1173         | 1.6     | 6.05      | 0.58  | 0.6       | 4.03      | 0.33   |  |  |
| C - Kings Road NW | 0.1     | 3.62      | 0.05  | 0.5       | 4.03      | 0.29   |  |  |
|                   |         |           | 2032  | Base      |           |  |  |  |
| A - Kings Road NE | 0.3     | 3.05      | 0.18  | 0.7       | 3.94      | 0.38   |  |  |
| B - A1173         | 1.2     | 4.96      | 0.51  | 0.3       | 3.07      | 0.18   |  |  |
| C - Kings Road NW | 0.2     | 4.33      | 0.11  | 0.3       | 3.35      | 0.23   |  |  |
|                   |         | 2032 B    | ase + | - Commi   | tted      |  |  |  |
| A - Kings Road NE | 0.3     | 3.10      | 0.19  | 0.7       | 4.10      | 0.39   |  |  |
| B - A1173         | 1.3     | 5.27      | 0.54  | 0.3       | 3.16      | 0.20   |  |  |
| C - Kings Road NW | 0.2     | 4.06      | 0.13  | 0.4       | 3.52      | 0.26   |  |  |
|                   | 2032    | Base + C  | ommi  | itted + D | evelopm   | ent  |  |  |
| A - Kings Road NE | 0.4     | 3.49      | 0.25  | 1.1       | 5.04      | 0.48   |  |  |
| B - A1173         | 2.1     | 6.96      | 0.64  | 0.6       | 4.03      | 0.33   |  |  |
| C - Kings Road NW | 0.2     | 4.47      | 0.14  | 0.5       | 4.06      | 0.29   |  |  |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

## File summary

## File Description

| 18/02/2022 |
|------------|
|            |
| (new file) |
|            |
|            |
|            |
| DTA\Arcady |
|            |
|            |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |



## **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

## **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

## **Analysis Set Details**

| ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|----|-------------------|---------------------------------|-------------------------------------|
| A1 | ✓                 | 100.000                         | 100.000                             |



# **2021 Base, AM**

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |  |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|--|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.82               | Α            |  |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.82              | Α           |

## **Arms**

#### **Arms**

| Arr | n | Name          | Description | No give-way line |
|-----|---|---------------|-------------|------------------|
| Α   |   | Kings Road NE |             |                  |
| В   |   | A1173         |             |                  |
| С   |   | Kings Road NW |             |                  |

## **Roundabout Geometry**

| Arm               | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|-------------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| A - Kings Road NE | 3.59  | 6.99  | 11.2   | 32.5  | 45.1  | 9.0       |            |           |
| B - A1173         | 3.55  | 7.66  | 13.2   | 26.2  | 45.1  | 19.0      |            |           |
| C - Kings Road NW | 3.63  | 7.01  | 10.5   | 28.3  | 45.1  | 12.0      |            |           |

## Slope / Intercept / Capacity

## Roundabout Slope and Intercept used in model

| Arm               | Final slope | Final intercept (PCU/hr) |  |  |
|-------------------|-------------|--------------------------|--|--|
| A - Kings Road NE | 0.666       | 1758                     |  |  |
| B - A1173         | 0.659       | 1784                     |  |  |
| C - Kings Road NW | 0.656       | 1727                     |  |  |

The slope and intercept shown above include any corrections and adjustments.

## **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |



## **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 264                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 653                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 88                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                   | То                |           |                   |  |
|------|-------------------|-------------------|-----------|-------------------|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |
| F    | A - Kings Road NE | 1                 | 153       | 110               |  |
| From | B - A1173         | 438               | 1         | 214               |  |
|      | C - Kings Road NW | 51                | 37        | 0                 |  |

## **Vehicle Mix**

#### HV %s

|      |                   | То                      |    |                   |  |
|------|-------------------|-------------------------|----|-------------------|--|
|      |                   | A - Kings Road NE B - A |    | C - Kings Road NW |  |
|      | A - Kings Road NE | 0                       | 24 | 10                |  |
| From | B - A1173         | 15                      | 0  | 12                |  |
|      | C - Kings Road NW | 25                      | 73 | 0                 |  |

# Results

## Results Summary for whole modelled period

| Arm               | Max RFC   | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------|-----------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Kings Road NE | 0.17      | 2.94          | 0.2         | А       | 242                    | 363                              |  |
| B - A1173         | 0.42 4.17 |               | 0.8         | А       | 599                    | 899                              |  |
| C - Kings Road NW | 0.07      | 3.88          | 0.1         | А       | 81                     | 121                              |  |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 199                         | 50                            | 28                              | 1739                 | 0.114 | 198                    | 368                              | 0.0                     | 0.2                   | 2.747        | Α                                   |
| B - A1173         | 492                         | 123                           | 83                              | 1729                 | 0.284 | 490                    | 143                              | 0.0                     | 0.5                   | 3.307        | A                                   |
| C - Kings Road NW | 66                          | 17                            | 330                             | 1511                 | 0.044 | 66                     | 243                              | 0.0                     | 0.1                   | 3.525        | А                                   |

## 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 237                         | 59                            | 34                              | 1735                 | 0.137 | 237                    | 440                              | 0.2                     | 0.2                   | 2.827        | Α                                   |
| B - A1173         | 587                         | 147                           | 100                             | 1718                 | 0.342 | 586                    | 172                              | 0.5                     | 0.6                   | 3.623        | Α                                   |
| C - Kings Road NW | 79                          | 20                            | 395                             | 1468                 | 0.054 | 79                     | 291                              | 0.1                     | 0.1                   | 3.667        | Α                                   |



## 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 291                         | 73                            | 42                              | 1730                 | 0.168 | 290                    | 539                              | 0.2                     | 0.2                   | 2.941        | Α                                   |
| B - A1173         | 719                         | 180                           | 122                             | 1703                 | 0.422 | 718                    | 210                              | 0.6                     | 0.8                   | 4.160        | Α                                   |
| C - Kings Road NW | 97                          | 24                            | 484                             | 1410                 | 0.069 | 97                     | 356                              | 0.1                     | 0.1                   | 3.879        | А                                   |

## 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 291                         | 73                            | 42                              | 1730                 | 0.168 | 291                    | 539                              | 0.2                     | 0.2                   | 2.941        | Α                                   |
| B - A1173         | 719                         | 180                           | 122                             | 1703                 | 0.422 | 719                    | 210                              | 0.8                     | 0.8                   | 4.167        | А                                   |
| C - Kings Road NW | 97                          | 24                            | 484                             | 1409                 | 0.069 | 97                     | 357                              | 0.1                     | 0.1                   | 3.880        | Α                                   |

## 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 237                         | 59                            | 34                              | 1735                 | 0.137 | 238                    | 441                              | 0.2                     | 0.2                   | 2.830        | Α                                   |
| B - A1173         | 587                         | 147                           | 100                             | 1718                 | 0.342 | 588                    | 172                              | 0.8                     | 0.6                   | 3.632        | Α                                   |
| C - Kings Road NW | 79                          | 20                            | 396                             | 1467                 | 0.054 | 79                     | 292                              | 0.1                     | 0.1                   | 3.672        | А                                   |

## 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 199                         | 50                            | 29                              | 1739                 | 0.114 | 199                    | 369                              | 0.2                     | 0.2                   | 2.750        | Α                                   |
| B - A1173         | 492                         | 123                           | 84                              | 1729                 | 0.284 | 492                    | 144                              | 0.6                     | 0.5                   | 3.318        | Α                                   |
| C - Kings Road NW | 66                          | 17                            | 332                             | 1510                 | 0.044 | 66                     | 244                              | 0.1                     | 0.1                   | 3.531        | Α                                   |



# 2021 Base, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.44               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.44              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 521                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 259                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 296                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 1                 | 470       | 50                |
| From | B - A1173         | 232               | 0         | 27                |
|      | C - Kings Road NW | 147               | 149       | 0                 |

## **Vehicle Mix**

## HV %s

|      | То                |                   |           |                   |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |
|      | A - Kings Road NE | 0                 | 11        | 24                |  |  |  |  |  |
| From | B - A1173         | 20                | 0         | 52                |  |  |  |  |  |
|      | C - Kings Road NW | 6                 | 17        | 0                 |  |  |  |  |  |



# Results

## Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.35    | 3.75          | 0.6         | А       | 478                    | 717                              |
| B - A1173         | 0.16    | 3.02          | 0.2         | А       | 238                    | 356                              |
| C - Kings Road NW | 0.21    | 3.25          | 0.3         | А       | 272                    | 407                              |

## Main Results for each time segment

## 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 392                         | 98                            | 112                             | 1683                 | 0.233 | 391                    | 285                              | 0.0                     | 0.3                   | 3.119        | Α                                   |
| B - A1173         | 195                         | 49                            | 38                              | 1759                 | 0.111 | 194                    | 464                              | 0.0                     | 0.2                   | 2.824        | А                                   |
| C - Kings Road NW | 223                         | 56                            | 175                             | 1612                 | 0.138 | 222                    | 58                               | 0.0                     | 0.2                   | 2.879        | A                                   |

## 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 468                         | 117                           | 134                             | 1669                 | 0.281 | 468                    | 341                              | 0.3                     | 0.4                   | 3.361        | А                                   |
| B - A1173         | 233                         | 58                            | 46                              | 1754                 | 0.133 | 233                    | 556                              | 0.2                     | 0.2                   | 2.903        | A                                   |
| C - Kings Road NW | 266                         | 67                            | 209                             | 1590                 | 0.167 | 266                    | 69                               | 0.2                     | 0.2                   | 3.025        | А                                   |

## 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 574                         | 143                           | 164                             | 1649                 | 0.348 | 573                    | 418                              | 0.4                     | 0.6                   | 3.749        | Α                                   |
| B - A1173         | 285                         | 71                            | 56                              | 1747                 | 0.163 | 285                    | 681                              | 0.2                     | 0.2                   | 3.020        | Α                                   |
| C - Kings Road NW | 326                         | 81                            | 256                             | 1559                 | 0.209 | 326                    | 85                               | 0.2                     | 0.3                   | 3.247        | A                                   |

## 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 574                         | 143                           | 164                             | 1649                 | 0.348 | 574                    | 418                              | 0.6                     | 0.6                   | 3.753        | Α                                   |
| B - A1173         | 285                         | 71                            | 56                              | 1747                 | 0.163 | 285                    | 682                              | 0.2                     | 0.2                   | 3.021        | Α                                   |
| C - Kings Road NW | 326                         | 81                            | 257                             | 1559                 | 0.209 | 326                    | 85                               | 0.3                     | 0.3                   | 3.247        | Α                                   |

#### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 468                         | 117                           | 134                             | 1669                 | 0.281 | 469                    | 342                              | 0.6                     | 0.4                   | 3.365        | Α                                   |
| B - A1173         | 233                         | 58                            | 46                              | 1754                 | 0.133 | 233                    | 557                              | 0.2                     | 0.2                   | 2.904        | А                                   |
| C - Kings Road NW | 266                         | 67                            | 210                             | 1590                 | 0.167 | 266                    | 69                               | 0.3                     | 0.2                   | 3.029        | А                                   |



## 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 392                         | 98                            | 112                             | 1683                 | 0.233 | 393                    | 286                              | 0.4                     | 0.3                   | 3.129        | Α                                   |
| B - A1173         | 195                         | 49                            | 38                              | 1759                 | 0.111 | 195                    | 466                              | 0.2                     | 0.2                   | 2.826        | Α                                   |
| C - Kings Road NW | 223                         | 56                            | 176                             | 1612                 | 0.138 | 223                    | 58                               | 0.2                     | 0.2                   | 2.885        | А                                   |



# 2025 Base, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.89               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.89              | Α           |  |  |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ſ | D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 272                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 672                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 91                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                   | То                |           |                   |  |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |  |
| F    | A - Kings Road NE | 1                 | 158       | 113               |  |  |  |  |  |  |  |  |
| From | B - A1173         | 451               | 1         | 220               |  |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 53                | 38        | 0                 |  |  |  |  |  |  |  |  |

## **Vehicle Mix**

## HV %s

|      |                   | То                |           |                   |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |
|      | A - Kings Road NE | 0                 | 24        | 10                |  |  |  |  |  |  |  |
| From | B - A1173         | 15                | 0         | 12                |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 25                | 73        | 0                 |  |  |  |  |  |  |  |



# Results

## Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.17    | 2.96          | 0.2         | Α       | 250                    | 374                              |
| B - A1173         | 0.43    | 4.27          | 0.9         | А       | 617                    | 925                              |
| C - Kings Road NW | 0.07    | 3.91          | 0.1         | А       | 84                     | 125                              |

## Main Results for each time segment

## 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 205                         | 51                            | 29                              | 1738                 | 0.118 | 204                    | 379                              | 0.0                     | 0.2                   | 2.759        | Α                                   |
| B - A1173         | 506                         | 126                           | 86                              | 1728                 | 0.293 | 504                    | 148                              | 0.0                     | 0.5                   | 3.350        | А                                   |
| C - Kings Road NW | 69                          | 17                            | 340                             | 1504                 | 0.046 | 68                     | 250                              | 0.0                     | 0.1                   | 3.543        | А                                   |

## 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 245                         | 61                            | 35                              | 1735                 | 0.141 | 244                    | 454                              | 0.2                     | 0.2                   | 2.842        | А                                   |
| B - A1173         | 604                         | 151                           | 102                             | 1716                 | 0.352 | 604                    | 177                              | 0.5                     | 0.6                   | 3.684        | A                                   |
| C - Kings Road NW | 82                          | 20                            | 407                             | 1460                 | 0.056 | 82                     | 299                              | 0.1                     | 0.1                   | 3.691        | А                                   |

## 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 299                         | 75                            | 43                              | 1729                 | 0.173 | 299                    | 555                              | 0.2                     | 0.2                   | 2.961        | А                                   |
| B - A1173         | 740                         | 185                           | 125                             | 1701                 | 0.435 | 739                    | 217                              | 0.6                     | 0.9                   | 4.259        | Α                                   |
| C - Kings Road NW | 100                         | 25                            | 498                             | 1401                 | 0.072 | 100                    | 366                              | 0.1                     | 0.1                   | 3.913        | А                                   |

## 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 299                         | 75                            | 43                              | 1729                 | 0.173 | 299                    | 556                              | 0.2                     | 0.2                   | 2.962        | Α                                   |
| B - A1173         | 740                         | 185                           | 126                             | 1701                 | 0.435 | 740                    | 217                              | 0.9                     | 0.9                   | 4.267        | Α                                   |
| C - Kings Road NW | 100                         | 25                            | 499                             | 1400                 | 0.072 | 100                    | 367                              | 0.1                     | 0.1                   | 3.915        | A                                   |

#### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 245                         | 61                            | 35                              | 1735                 | 0.141 | 245                    | 455                              | 0.2                     | 0.2                   | 2.845        | Α                                   |
| B - A1173         | 604                         | 151                           | 103                             | 1716                 | 0.352 | 605                    | 177                              | 0.9                     | 0.6                   | 3.694        | Α                                   |
| C - Kings Road NW | 82                          | 20                            | 408                             | 1460                 | 0.056 | 82                     | 300                              | 0.1                     | 0.1                   | 3.693        | A                                   |



## 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 205                         | 51                            | 29                              | 1738                 | 0.118 | 205                    | 381                              | 0.2                     | 0.2                   | 2.762        | Α                                   |
| B - A1173         | 506                         | 126                           | 86                              | 1727                 | 0.293 | 507                    | 148                              | 0.6                     | 0.5                   | 3.361        | Α                                   |
| C - Kings Road NW | 69                          | 17                            | 341                             | 1503                 | 0.046 | 69                     | 251                              | 0.1                     | 0.1                   | 3.549        | А                                   |



# 2025 Base, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.49               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.49              | Α           |  |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |  |

## **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 536                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 267                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 304                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                   | То                |           |                   |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |
| F    | A - Kings Road NE | 1                 | 484       | 51                |  |  |  |  |  |  |  |
| From | B - A1173         | 239               | 0         | 28                |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 151               | 153       | 0                 |  |  |  |  |  |  |  |

## **Vehicle Mix**

## HV %s

|      |                   | То                |           |                   |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |
|      | A - Kings Road NE | 0                 | 11        | 24                |  |  |  |
| From | B - A1173         | 20                | 0         | 52                |  |  |  |
|      | C - Kings Road NW | 6                 | 17        | 0                 |  |  |  |



# Results

## Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.36    | 3.82          | 0.6         | А       | 492                    | 738                              |
| B - A1173         | 0.17    | 3.04          | 0.2         | А       | 245                    | 368                              |
| C - Kings Road NW | 0.22    | 3.28          | 0.3         | А       | 279                    | 418                              |

## Main Results for each time segment

## 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 404                         | 101                           | 115                             | 1681                 | 0.240 | 402                    | 293                              | 0.0                     | 0.4                   | 3.152        | Α                                   |
| B - A1173         | 201                         | 50                            | 39                              | 1758                 | 0.114 | 200                    | 478                              | 0.0                     | 0.2                   | 2.834        | А                                   |
| C - Kings Road NW | 229                         | 57                            | 180                             | 1609                 | 0.142 | 228                    | 59                               | 0.0                     | 0.2                   | 2.899        | A                                   |

## 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 482                         | 120                           | 137                             | 1666                 | 0.289 | 481                    | 351                              | 0.4                     | 0.5                   | 3.405        | Α                                   |
| B - A1173         | 240                         | 60                            | 47                              | 1753                 | 0.137 | 240                    | 572                              | 0.2                     | 0.2                   | 2.918        | A                                   |
| C - Kings Road NW | 273                         | 68                            | 216                             | 1586                 | 0.172 | 273                    | 71                               | 0.2                     | 0.2                   | 3.051        | Α                                   |

## 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 590                         | 148                           | 168                             | 1646                 | 0.359 | 589                    | 430                              | 0.5                     | 0.6                   | 3.818        | А                                   |
| B - A1173         | 294                         | 73                            | 57                              | 1746                 | 0.168 | 294                    | 701                              | 0.2                     | 0.2                   | 3.041        | А                                   |
| C - Kings Road NW | 335                         | 84                            | 264                             | 1554                 | 0.215 | 334                    | 87                               | 0.2                     | 0.3                   | 3.284        | А                                   |

## 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 590                         | 148                           | 168                             | 1646                 | 0.359 | 590                    | 430                              | 0.6                     | 0.6                   | 3.821        | Α                                   |
| B - A1173         | 294                         | 73                            | 57                              | 1746                 | 0.168 | 294                    | 701                              | 0.2                     | 0.2                   | 3.041        | Α                                   |
| C - Kings Road NW | 335                         | 84                            | 264                             | 1554                 | 0.215 | 335                    | 87                               | 0.3                     | 0.3                   | 3.284        | Α                                   |

#### 16:45 - 17:00

|     | Arm             | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-----|-----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| Α-  | Kings Road NE   | 482                         | 120                           | 138                             | 1666                 | 0.289 | 483                    | 352                              | 0.6                     | 0.5                   | 3.412        | А                                   |
| В   | - A1173         | 240                         | 60                            | 47                              | 1753                 | 0.137 | 240                    | 573                              | 0.2                     | 0.2                   | 2.922        | Α                                   |
| C · | - Kings Road NW | 273                         | 68                            | 216                             | 1585                 | 0.172 | 274                    | 71                               | 0.3                     | 0.2                   | 3.053        | A                                   |



## 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 404                         | 101                           | 115                             | 1681                 | 0.240 | 404                    | 295                              | 0.5                     | 0.4                   | 3.162        | Α                                   |
| B - A1173         | 201                         | 50                            | 39                              | 1758                 | 0.114 | 201                    | 480                              | 0.2                     | 0.2                   | 2.839        | Α                                   |
| C - Kings Road NW | 229                         | 57                            | 181                             | 1609                 | 0.142 | 229                    | 60                               | 0.2                     | 0.2                   | 2.905        | А                                   |



# 2025 Base + Committed, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 4.14               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.14              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ı | ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| 1 | D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 272                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 734                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 122                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
|      | A - Kings Road NE | 1                 | 158       | 113               |
| From | B - A1173         | 452               | 1         | 281               |
|      | C - Kings Road NW | 53                | 69        | 0                 |

## **Vehicle Mix**

#### HV %s

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
|      | A - Kings Road NE | 0                 | 24        | 10                |
| From | B - A1173         | 16                | 0         | 12                |
|      | C - Kings Road NW | 25                | 43        | 0                 |



# Results

## Results Summary for whole modelled period

| Arm               | Max RFC                     | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------|-----------------------------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Kings Road NE | A - Kings Road NE 0.18 3.01 |               | 0.2         | А       | 250                    | 374                              |  |
| B - A1173         | B - A1173 0.48              |               | 1.0         | А       | 674                    | 1010                             |  |
| C - Kings Road NW | C - Kings Road NW 0.10      |               | 0.1         | А       | 112                    | 168                              |  |

## Main Results for each time segment

## 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 205                         | 51                            | 52                              | 1723                 | 0.119 | 204                    | 379                              | 0.0                     | 0.2                   | 2.787        | Α                                   |
| B - A1173         | 553                         | 138                           | 86                              | 1728                 | 0.320 | 550                    | 171                              | 0.0                     | 0.5                   | 3.493        | А                                   |
| C - Kings Road NW | 92                          | 23                            | 340                             | 1504                 | 0.061 | 91                     | 296                              | 0.0                     | 0.1                   | 3.430        | А                                   |

## 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 245                         | 61                            | 63                              | 1716                 | 0.142 | 244                    | 454                              | 0.2                     | 0.2                   | 2.878        | Α                                   |
| B - A1173         | 660                         | 165                           | 102                             | 1716                 | 0.384 | 659                    | 205                              | 0.5                     | 0.7                   | 3.893        | A                                   |
| C - Kings Road NW | 110                         | 27                            | 408                             | 1460                 | 0.075 | 110                    | 354                              | 0.1                     | 0.1                   | 3.587        | А                                   |

## 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 299                         | 75                            | 77                              | 1707                 | 0.175 | 299                    | 556                              | 0.2                     | 0.2                   | 3.009        | А                                   |
| B - A1173         | 808                         | 202                           | 125                             | 1701                 | 0.475 | 807                    | 251                              | 0.7                     | 1.0                   | 4.598        | Α                                   |
| C - Kings Road NW | 134                         | 34                            | 499                             | 1400                 | 0.096 | 134                    | 433                              | 0.1                     | 0.1                   | 3.827        | Α                                   |

## 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 299                         | 75                            | 77                              | 1707                 | 0.175 | 299                    | 557                              | 0.2                     | 0.2                   | 3.009        | Α                                   |
| B - A1173         | 808                         | 202                           | 126                             | 1701                 | 0.475 | 808                    | 251                              | 1.0                     | 1.0                   | 4.611        | Α                                   |
| C - Kings Road NW | 134                         | 34                            | 500                             | 1399                 | 0.096 | 134                    | 434                              | 0.1                     | 0.1                   | 3.828        | А                                   |

## 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 245                         | 61                            | 63                              | 1716                 | 0.143 | 245                    | 456                              | 0.2                     | 0.2                   | 2.881        | Α                                   |
| B - A1173         | 660                         | 165                           | 103                             | 1716                 | 0.384 | 661                    | 205                              | 1.0                     | 0.7                   | 3.907        | А                                   |
| C - Kings Road NW | 110                         | 27                            | 409                             | 1459                 | 0.075 | 110                    | 355                              | 0.1                     | 0.1                   | 3.593        | А                                   |



#### 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 205                         | 51                            | 53                              | 1723                 | 0.119 | 205                    | 381                              | 0.2                     | 0.2                   | 2.792        | Α                                   |
| B - A1173         | 553                         | 138                           | 86                              | 1727                 | 0.320 | 553                    | 172                              | 0.7                     | 0.5                   | 3.512        | Α                                   |
| C - Kings Road NW | 92                          | 23                            | 342                             | 1503                 | 0.061 | 92                     | 297                              | 0.1                     | 0.1                   | 3.433        | A                                   |



# 2025 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.60               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.60              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type   Start time (HH:mm) |       | Finish time (HH:mm) | Time segment length (min) | Run automatically |  |
|----|-----------------------|------------------|---|-------|---------------------|---------------------------|-------------------|--|
| D6 | 2025 Base + Committed | PM               | ONE HOUR                                  | 15:45 | 17:15               | 15                        | ✓                 |  |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 536                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 300                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 358                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 1                 | 484       | 51                |
| From | B - A1173         | 240               | 0         | 60                |
|      | C - Kings Road NW | 151               | 207       | 0                 |

# **Vehicle Mix**

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
|      | A - Kings Road NE | 0                 | 11        | 24                |
| From | B - A1173         | 21                | 0         | 33                |
|      | C - Kings Road NW | 6                 | 15        | 0                 |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Delay (s) Max Q (PCU) |   | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|---------------------------|---|------------------------|----------------------------------|
| A - Kings Road NE | 0.37    | 3.97          | 0.6                       | А | 492                    | 738                              |
| B - A1173         | 0.19    | 3.13          | 0.3                       | А | 275                    | 413                              |
| C - Kings Road NW | 0.25    | 3.45          | 0.4                       | А | 329                    | 493                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 404                         | 101                           | 155                             | 1654                 | 0.244 | 402                    | 294                              | 0.0                     | 0.4                   | 3.220        | Α                                   |
| B - A1173         | 226                         | 56                            | 39                              | 1758                 | 0.128 | 225                    | 518                              | 0.0                     | 0.2                   | 2.892        | А                                   |
| C - Kings Road NW | 270                         | 67                            | 181                             | 1608                 | 0.168 | 269                    | 83                               | 0.0                     | 0.2                   | 2.982        | A                                   |

#### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 482                         | 120                           | 186                             | 1634                 | 0.295 | 481                    | 352                              | 0.4                     | 0.5                   | 3.501        | Α                                   |
| B - A1173         | 270                         | 67                            | 47                              | 1753                 | 0.154 | 270                    | 621                              | 0.2                     | 0.2                   | 2.989        | A                                   |
| C - Kings Road NW | 322                         | 80                            | 217                             | 1585                 | 0.203 | 322                    | 100                              | 0.2                     | 0.3                   | 3.163        | А                                   |

#### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 590                         | 148                           | 228                             | 1606                 | 0.367 | 589                    | 431                              | 0.5                     | 0.6                   | 3.966        | Α                                   |
| B - A1173         | 330                         | 83                            | 57                              | 1746                 | 0.189 | 330                    | 760                              | 0.2                     | 0.3                   | 3.132        | Α                                   |
| C - Kings Road NW | 394                         | 99                            | 265                             | 1553                 | 0.254 | 394                    | 122                              | 0.3                     | 0.4                   | 3.447        | Α                                   |

#### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 590                         | 148                           | 228                             | 1606                 | 0.367 | 590                    | 432                              | 0.6                     | 0.6                   | 3.971        | Α                                   |
| B - A1173         | 330                         | 83                            | 57                              | 1746                 | 0.189 | 330                    | 761                              | 0.3                     | 0.3                   | 3.132        | Α                                   |
| C - Kings Road NW | 394                         | 99                            | 265                             | 1553                 | 0.254 | 394                    | 122                              | 0.4                     | 0.4                   | 3.447        | Α                                   |

#### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 482                         | 120                           | 186                             | 1634                 | 0.295 | 483                    | 353                              | 0.6                     | 0.5                   | 3.506        | А                                   |
| B - A1173         | 270                         | 67                            | 47                              | 1753                 | 0.154 | 270                    | 622                              | 0.3                     | 0.2                   | 2.993        | А                                   |
| C - Kings Road NW | 322                         | 80                            | 217                             | 1585                 | 0.203 | 322                    | 100                              | 0.4                     | 0.3                   | 3.165        | Α                                   |



#### 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 404                         | 101                           | 156                             | 1654                 | 0.244 | 404                    | 295                              | 0.5                     | 0.4                   | 3.230        | Α                                   |
| B - A1173         | 226                         | 56                            | 39                              | 1758                 | 0.128 | 226                    | 521                              | 0.2                     | 0.2                   | 2.895        | Α                                   |
| C - Kings Road NW | 270                         | 67                            | 182                             | 1608                 | 0.168 | 270                    | 84                               | 0.3                     | 0.2                   | 2.986        | А                                   |



# 2025 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 5.15               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.15              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                   | •          | •                           |   |                     |                    |
|-------------------|------------|-----------------------------|---|---------------------|--------------------|
| Arm               | Linked arm | Profile type   Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - Kings Road NE |            | ONE HOUR                    | ✓ | 380                 | 100.000            |
| B - A1173         |            | ONE HOUR                    | ✓ | 898                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR                    | ✓ | 63                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                   | То                |           |                   |  |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |  |
| F    | A - Kings Road NE | 1                 | 258       | 121               |  |  |  |  |  |  |  |  |
| From | B - A1173         | 613               | 1         | 284               |  |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 60                | 2         | 1                 |  |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                   | То                |           |                   |  |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |  |
| F    | A - Kings Road NE | 0                 | 29        | 9                 |  |  |  |  |  |  |  |  |
| From | B - A1173         | 22                | 0         | 12                |  |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 22                | 41        | 0                 |  |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.24    | 3.28          | 0.4         | А       | 349                    | 523                              |
| B - A1173         | 0.58    | 6.05          | 1.6         | А       | 824                    | 1236                             |
| C - Kings Road NW | 0.05    | 3.62          | 0.1         | А       | 58                     | 87                               |

# Main Results for each time segment

#### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 286                         | 72                            | 3                               | 1756                 | 0.163 | 285                    | 505                              | 0.0                     | 0.2                   | 2.979        | Α                                   |
| B - A1173         | 676                         | 169                           | 92                              | 1723                 | 0.392 | 673                    | 196                              | 0.0                     | 0.8                   | 4.055        | А                                   |
| C - Kings Road NW | 47                          | 12                            | 461                             | 1425                 | 0.033 | 47                     | 304                              | 0.0                     | 0.0                   | 3.190        | А                                   |

#### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 342                         | 85                            | 4                               | 1756                 | 0.195 | 341                    | 605                              | 0.2                     | 0.3                   | 3.100        | Α                                   |
| B - A1173         | 807                         | 202                           | 111                             | 1711                 | 0.472 | 806                    | 234                              | 0.8                     | 1.0                   | 4.713        | Α                                   |
| C - Kings Road NW | 57                          | 14                            | 552                             | 1365                 | 0.041 | 57                     | 365                              | 0.0                     | 0.1                   | 3.358        | Α                                   |

#### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 418                         | 105                           | 4                               | 1755                 | 0.238 | 418                    | 740                              | 0.3                     | 0.4                   | 3.279        | Α                                   |
| B - A1173         | 989                         | 247                           | 135                             | 1695                 | 0.583 | 986                    | 287                              | 1.0                     | 1.6                   | 6.007        | А                                   |
| C - Kings Road NW | 69                          | 17                            | 676                             | 1284                 | 0.054 | 69                     | 446                              | 0.1                     | 0.1                   | 3.617        | А                                   |

#### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 418                         | 105                           | 4                               | 1755                 | 0.238 | 418                    | 742                              | 0.4                     | 0.4                   | 3.279        | Α                                   |
| B - A1173         | 989                         | 247                           | 135                             | 1695                 | 0.583 | 989                    | 287                              | 1.6                     | 1.6                   | 6.048        | Α                                   |
| C - Kings Road NW | 69                          | 17                            | 677                             | 1283                 | 0.054 | 69                     | 447                              | 0.1                     | 0.1                   | 3.620        | А                                   |

#### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 342                         | 85                            | 4                               | 1756                 | 0.195 | 342                    | 608                              | 0.4                     | 0.3                   | 3.104        | Α                                   |
| B - A1173         | 807                         | 202                           | 111                             | 1711                 | 0.472 | 810                    | 235                              | 1.6                     | 1.1                   | 4.749        | А                                   |
| C - Kings Road NW | 57                          | 14                            | 554                             | 1364                 | 0.042 | 57                     | 366                              | 0.1                     | 0.1                   | 3.365        | А                                   |



#### 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 286                         | 72                            | 3                               | 1756                 | 0.163 | 286                    | 508                              | 0.3                     | 0.2                   | 2.985        | А                                   |
| B - A1173         | 676                         | 169                           | 93                              | 1723                 | 0.392 | 677                    | 197                              | 1.1                     | 0.8                   | 4.090        | Α                                   |
| C - Kings Road NW | 47                          | 12                            | 464                             | 1423                 | 0.033 | 47                     | 306                              | 0.1                     | 0.0                   | 3.197        | A                                   |



# 2025 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 4.43               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.43              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM                  | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                   | •          | •            |              |                     |                    |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - Kings Road NE |            | ONE HOUR     | ✓            | 683                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 519                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 369                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                |                   |           |                   |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |
|      | A - Kings Road NE | 1                 | 623       | 59                |  |  |  |  |  |  |
| From | B - A1173         | 456               | 0         | 63                |  |  |  |  |  |  |
|      | C - Kings Road NW | 159               | 210       | 0                 |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То                |                   |           |                   |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |
| F    | A - Kings Road NE | 0                 | 17        | 21                |  |  |  |  |  |
| From | B - A1173         | 31                | 0         | 31                |  |  |  |  |  |
|      | C - Kings Road NW | 6                 | 15        | 0                 |  |  |  |  |  |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.47    | 4.96          | 1.0         | А       | 627                    | 940                              |
| B - A1173         | 0.33    | 4.03          | 0.6         | А       | 476                    | 714                              |
| C - Kings Road NW | 0.29    | 4.03          | 0.5         | А       | 339                    | 508                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 514                         | 129                           | 158                             | 1653                 | 0.311 | 512                    | 462                              | 0.0                     | 0.5                   | 3.695        | А                                   |
| B - A1173         | 391                         | 98                            | 45                              | 1754                 | 0.223 | 389                    | 625                              | 0.0                     | 0.4                   | 3.452        | А                                   |
| C - Kings Road NW | 278                         | 69                            | 343                             | 1502                 | 0.185 | 277                    | 91                               | 0.0                     | 0.3                   | 3.255        | А                                   |

#### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 614                         | 154                           | 189                             | 1632                 | 0.376 | 613                    | 553                              | 0.5                     | 0.7                   | 4.141        | Α                                   |
| B - A1173         | 467                         | 117                           | 54                              | 1748                 | 0.267 | 466                    | 748                              | 0.4                     | 0.5                   | 3.678        | A                                   |
| C - Kings Road NW | 332                         | 83                            | 410                             | 1458                 | 0.228 | 331                    | 110                              | 0.3                     | 0.3                   | 3.545        | А                                   |

#### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 752                         | 188                           | 231                             | 1604                 | 0.469 | 751                    | 677                              | 0.7                     | 1.0                   | 4.941        | Α                                   |
| B - A1173         | 571                         | 143                           | 66                              | 1740                 | 0.328 | 571                    | 916                              | 0.5                     | 0.6                   | 4.030        | А                                   |
| C - Kings Road NW | 406                         | 102                           | 503                             | 1398                 | 0.291 | 406                    | 134                              | 0.3                     | 0.5                   | 4.025        | Α                                   |

#### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 752                         | 188                           | 231                             | 1604                 | 0.469 | 752                    | 678                              | 1.0                     | 1.0                   | 4.956        | Α                                   |
| B - A1173         | 571                         | 143                           | 66                              | 1740                 | 0.328 | 571                    | 917                              | 0.6                     | 0.6                   | 4.034        | Α                                   |
| C - Kings Road NW | 406                         | 102                           | 503                             | 1397                 | 0.291 | 406                    | 134                              | 0.5                     | 0.5                   | 4.030        | A                                   |

#### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 614                         | 154                           | 189                             | 1632                 | 0.376 | 615                    | 555                              | 1.0                     | 0.7                   | 4.158        | А                                   |
| B - A1173         | 467                         | 117                           | 54                              | 1748                 | 0.267 | 467                    | 750                              | 0.6                     | 0.5                   | 3.682        | А                                   |
| C - Kings Road NW | 332                         | 83                            | 411                             | 1457                 | 0.228 | 332                    | 110                              | 0.5                     | 0.3                   | 3.553        | Α                                   |



#### 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 514                         | 129                           | 158                             | 1653                 | 0.311 | 515                    | 464                              | 0.7                     | 0.5                   | 3.716        | Α                                   |
| B - A1173         | 391                         | 98                            | 45                              | 1754                 | 0.223 | 391                    | 628                              | 0.5                     | 0.4                   | 3.460        | Α                                   |
| C - Kings Road NW | 278                         | 69                            | 344                             | 1501                 | 0.185 | 278                    | 92                               | 0.3                     | 0.3                   | 3.267        | А                                   |



# **2032 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |  |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|--|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 4.44               | А            |  |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.44              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| I | D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 285                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 791                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 132                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 1                 | 165       | 119               |
| From | B - A1173         | 473               | 1         | 317               |
|      | C - Kings Road NW | 55                | 77        | 0                 |

# **Vehicle Mix**

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
|      | A - Kings Road NE | 0                 | 24        | 10                |
| From | B - A1173         | 15                | 0         | 12                |
|      | C - Kings Road NW | 25                | 73        | 0                 |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.18    | 3.05          | 0.3         | А       | 262                    | 392                              |
| B - A1173         | 0.51    | 4.96          | 1.2         | А       | 726                    | 1089                             |
| C - Kings Road NW | 0.11    | 4.33          | 0.2         | А       | 121                    | 182                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 215                         | 54                            | 58                              | 1719                 | 0.125 | 214                    | 397                              | 0.0                     | 0.2                   | 2.812        | A                                   |
| B - A1173         | 596                         | 149                           | 90                              | 1725                 | 0.345 | 593                    | 182                              | 0.0                     | 0.6                   | 3.612        | А                                   |
| C - Kings Road NW | 99                          | 25                            | 356                             | 1494                 | 0.067 | 99                     | 327                              | 0.0                     | 0.1                   | 3.849        | A                                   |

#### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 256                         | 64                            | 70                              | 1711                 | 0.150 | 256                    | 475                              | 0.2                     | 0.2                   | 2.910        | Α                                   |
| B - A1173         | 711                         | 178                           | 108                             | 1713                 | 0.415 | 710                    | 218                              | 0.6                     | 0.8                   | 4.081        | А                                   |
| C - Kings Road NW | 119                         | 30                            | 427                             | 1447                 | 0.082 | 119                    | 392                              | 0.1                     | 0.1                   | 4.040        | А                                   |

#### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 314                         | 78                            | 86                              | 1701                 | 0.184 | 314                    | 581                              | 0.2                     | 0.3                   | 3.052        | Α                                   |
| B - A1173         | 871                         | 218                           | 132                             | 1697                 | 0.513 | 869                    | 267                              | 0.8                     | 1.2                   | 4.939        | Α                                   |
| C - Kings Road NW | 145                         | 36                            | 522                             | 1385                 | 0.105 | 145                    | 479                              | 0.1                     | 0.2                   | 4.331        | Α                                   |

#### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 314                         | 78                            | 86                              | 1701                 | 0.185 | 314                    | 582                              | 0.3                     | 0.3                   | 3.053        | Α                                   |
| B - A1173         | 871                         | 218                           | 132                             | 1697                 | 0.513 | 871                    | 268                              | 1.2                     | 1.2                   | 4.957        | Α                                   |
| C - Kings Road NW | 145                         | 36                            | 523                             | 1384                 | 0.105 | 145                    | 480                              | 0.2                     | 0.2                   | 4.333        | А                                   |

#### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 256                         | 64                            | 70                              | 1711                 | 0.150 | 256                    | 477                              | 0.3                     | 0.2                   | 2.913        | Α                                   |
| B - A1173         | 711                         | 178                           | 108                             | 1713                 | 0.415 | 713                    | 219                              | 1.2                     | 0.8                   | 4.100        | Α                                   |
| C - Kings Road NW | 119                         | 30                            | 428                             | 1447                 | 0.082 | 119                    | 393                              | 0.2                     | 0.1                   | 4.044        | A                                   |



#### 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 215                         | 54                            | 59                              | 1719                 | 0.125 | 215                    | 399                              | 0.2                     | 0.2                   | 2.817        | Α                                   |
| B - A1173         | 596                         | 149                           | 90                              | 1724                 | 0.345 | 596                    | 183                              | 0.8                     | 0.6                   | 3.635        | Α                                   |
| C - Kings Road NW | 99                          | 25                            | 358                             | 1492                 | 0.067 | 99                     | 329                              | 0.1                     | 0.1                   | 3.856        | А                                   |



# **2032 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.57               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.57              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 560                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 278                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 318                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                |                   |           |                   |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |
| F    | A - Kings Road NE | 1                 | 505       | 54                |  |  |  |  |  |  |  |
| From | B - A1173         | 249               | 0         | 29                |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 158               | 160       | 0                 |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| _    | A - Kings Road NE | 0                 | 11        | 24                |
| From | B - A1173         | 20                | 0         | 52                |
|      | C - Kings Road NW | 6                 | 17        | 0                 |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.38    | 3.94          | 0.7         | А       | 514                    | 771                              |
| B - A1173         | 0.18    | 3.07          | 0.3         | А       | 255                    | 383                              |
| C - Kings Road NW | 0.23    | 3.35          | 0.3         | А       | 292                    | 438                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 422                         | 105                           | 120                             | 1678                 | 0.251 | 420                    | 306                              | 0.0                     | 0.4                   | 3.204        | Α                                   |
| B - A1173         | 209                         | 52                            | 41                              | 1757                 | 0.119 | 209                    | 499                              | 0.0                     | 0.2                   | 2.851        | Α                                   |
| C - Kings Road NW | 239                         | 60                            | 188                             | 1604                 | 0.149 | 239                    | 62                               | 0.0                     | 0.2                   | 2.932        | A                                   |

#### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 503                         | 126                           | 144                             | 1662                 | 0.303 | 503                    | 367                              | 0.4                     | 0.5                   | 3.482        | Α                                   |
| B - A1173         | 250                         | 62                            | 49                              | 1751                 | 0.143 | 250                    | 597                              | 0.2                     | 0.2                   | 2.941        | A                                   |
| C - Kings Road NW | 286                         | 71                            | 225                             | 1580                 | 0.181 | 286                    | 75                               | 0.2                     | 0.2                   | 3.094        | Α                                   |

#### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 617                         | 154                           | 176                             | 1641                 | 0.376 | 616                    | 449                              | 0.5                     | 0.7                   | 3.935        | Α                                   |
| B - A1173         | 306                         | 77                            | 60                              | 1744                 | 0.176 | 306                    | 731                              | 0.2                     | 0.3                   | 3.071        | А                                   |
| C - Kings Road NW | 350                         | 88                            | 275                             | 1547                 | 0.226 | 350                    | 91                               | 0.2                     | 0.3                   | 3.346        | А                                   |

#### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 617                         | 154                           | 176                             | 1641                 | 0.376 | 617                    | 449                              | 0.7                     | 0.7                   | 3.940        | Α                                   |
| B - A1173         | 306                         | 77                            | 61                              | 1744                 | 0.176 | 306                    | 732                              | 0.3                     | 0.3                   | 3.071        | Α                                   |
| C - Kings Road NW | 350                         | 88                            | 275                             | 1547                 | 0.226 | 350                    | 91                               | 0.3                     | 0.3                   | 3.346        | А                                   |

#### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 503                         | 126                           | 144                             | 1662                 | 0.303 | 504                    | 367                              | 0.7                     | 0.5                   | 3.489        | А                                   |
| B - A1173         | 250                         | 62                            | 50                              | 1751                 | 0.143 | 250                    | 599                              | 0.3                     | 0.2                   | 2.942        | А                                   |
| C - Kings Road NW | 286                         | 71                            | 225                             | 1580                 | 0.181 | 286                    | 75                               | 0.3                     | 0.2                   | 3.096        | А                                   |



#### 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 422                         | 105                           | 121                             | 1678                 | 0.251 | 422                    | 307                              | 0.5                     | 0.4                   | 3.217        | Α                                   |
| B - A1173         | 209                         | 52                            | 41                              | 1757                 | 0.119 | 209                    | 501                              | 0.2                     | 0.2                   | 2.854        | Α                                   |
| C - Kings Road NW | 239                         | 60                            | 188                             | 1604                 | 0.149 | 240                    | 63                               | 0.2                     | 0.2                   | 2.936        | А                                   |



# 2032 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 4.63               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.63              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |  |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|--|
| D11 | 2032 Base + Committed | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |  |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                   | •          | •            |              |                     |                    |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - Kings Road NE |            | ONE HOUR     | ✓            | 285                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 832                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 159                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 1                 | 165       | 119               |
| From | B - A1173         | 474               | 1         | 357               |
|      | C - Kings Road NW | 55                | 104       | 0                 |

# **Vehicle Mix**

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 0                 | 24        | 10                |
| From | B - A1173         | 16                | 0         | 12                |
|      | C - Kings Road NW | 25                | 43        | 0                 |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.19    | 3.10          | 0.3         | А       | 262                    | 392                              |
| B - A1173         | 0.54    | 5.27          | 1.3         | А       | 763                    | 1145                             |
| C - Kings Road NW | 0.13    | 4.06          | 0.2         | А       | 146                    | 219                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 215                         | 54                            | 79                              | 1706                 | 0.126 | 214                    | 397                              | 0.0                     | 0.2                   | 2.837        | Α                                   |
| B - A1173         | 626                         | 157                           | 90                              | 1725                 | 0.363 | 624                    | 203                              | 0.0                     | 0.6                   | 3.728        | А                                   |
| C - Kings Road NW | 120                         | 30                            | 357                             | 1493                 | 0.080 | 119                    | 357                              | 0.0                     | 0.1                   | 3.569        | Α                                   |

#### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 256                         | 64                            | 94                              | 1695                 | 0.151 | 256                    | 476                              | 0.2                     | 0.2                   | 2.942        | Α                                   |
| B - A1173         | 748                         | 187                           | 108                             | 1713                 | 0.437 | 747                    | 243                              | 0.6                     | 0.9                   | 4.254        | А                                   |
| C - Kings Road NW | 143                         | 36                            | 427                             | 1447                 | 0.099 | 143                    | 427                              | 0.1                     | 0.1                   | 3.759        | Α                                   |

#### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 314                         | 78                            | 115                             | 1681                 | 0.187 | 314                    | 582                              | 0.2                     | 0.3                   | 3.097        | А                                   |
| B - A1173         | 916                         | 229                           | 132                             | 1697                 | 0.540 | 914                    | 297                              | 0.9                     | 1.3                   | 5.242        | Α                                   |
| C - Kings Road NW | 175                         | 44                            | 523                             | 1384                 | 0.126 | 175                    | 523                              | 0.1                     | 0.2                   | 4.055        | Α                                   |

#### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 314                         | 78                            | 116                             | 1681                 | 0.187 | 314                    | 584                              | 0.3                     | 0.3                   | 3.097        | Α                                   |
| B - A1173         | 916                         | 229                           | 132                             | 1697                 | 0.540 | 916                    | 297                              | 1.3                     | 1.3                   | 5.266        | Α                                   |
| C - Kings Road NW | 175                         | 44                            | 524                             | 1383                 | 0.127 | 175                    | 524                              | 0.2                     | 0.2                   | 4.057        | Α                                   |

#### 07:45 - 08:00

| Aı        | rm      | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-----------|---------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings | Road NE | 256                         | 64                            | 95                              | 1695                 | 0.151 | 256                    | 478                              | 0.3                     | 0.2                   | 2.946        | Α                                   |
| B - A1173 |         | 748                         | 187                           | 108                             | 1713                 | 0.437 | 750                    | 243                              | 1.3                     | 0.9                   | 4.279        | Α                                   |
| C - Kings | Road NW | 143                         | 36                            | 429                             | 1446                 | 0.099 | 143                    | 429                              | 0.2                     | 0.2                   | 3.763        | A                                   |



#### 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 215                         | 54                            | 79                              | 1705                 | 0.126 | 215                    | 400                              | 0.2                     | 0.2                   | 2.841        | Α                                   |
| B - A1173         | 626                         | 157                           | 90                              | 1724                 | 0.363 | 627                    | 203                              | 0.9                     | 0.7                   | 3.753        | Α                                   |
| C - Kings Road NW | 120                         | 30                            | 359                             | 1492                 | 0.080 | 120                    | 359                              | 0.2                     | 0.1                   | 3.576        | А                                   |



# 2032 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 3.69               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.69              | Α           |  |  |

# **Traffic Demand**

#### **Demand Set Details**

| I | Scenario name     | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|-------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D | 2032 Base + Commi | ted PM           | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 560                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 311                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 372                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
|      | A - Kings Road NE | 1                 | 505       | 54                |
| From | B - A1173         | 250               | 0         | 61                |
|      | C - Kings Road NW | 158               | 214       | 0                 |

# **Vehicle Mix**

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 0                 | 11        | 24                |
| From | B - A1173         | 21                | 0         | 33                |
|      | C - Kings Road NW | 6                 | 15        | 0                 |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.39    | 4.10          | 0.7         | А       | 514                    | 771                              |
| B - A1173         | 0.20    | 3.16          | 0.3         | А       | 285                    | 428                              |
| C - Kings Road NW | 0.26    | 3.52          | 0.4         | А       | 341                    | 512                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 422                         | 105                           | 161                             | 1651                 | 0.255 | 420                    | 307                              | 0.0                     | 0.4                   | 3.274        | Α                                   |
| B - A1173         | 234                         | 59                            | 41                              | 1757                 | 0.133 | 233                    | 539                              | 0.0                     | 0.2                   | 2.909        | А                                   |
| C - Kings Road NW | 280                         | 70                            | 188                             | 1604                 | 0.175 | 279                    | 86                               | 0.0                     | 0.2                   | 3.016        | A                                   |

#### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 503                         | 126                           | 192                             | 1630                 | 0.309 | 503                    | 367                              | 0.4                     | 0.5                   | 3.579        | Α                                   |
| B - A1173         | 280                         | 70                            | 49                              | 1751                 | 0.160 | 279                    | 646                              | 0.2                     | 0.2                   | 3.012        | А                                   |
| C - Kings Road NW | 334                         | 84                            | 226                             | 1579                 | 0.212 | 334                    | 103                              | 0.2                     | 0.3                   | 3.209        | А                                   |

#### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 617                         | 154                           | 235                             | 1601                 | 0.385 | 616                    | 450                              | 0.5                     | 0.7                   | 4.092        | Α                                   |
| B - A1173         | 342                         | 86                            | 60                              | 1744                 | 0.196 | 342                    | 791                              | 0.2                     | 0.3                   | 3.163        | Α                                   |
| C - Kings Road NW | 410                         | 102                           | 276                             | 1546                 | 0.265 | 409                    | 126                              | 0.3                     | 0.4                   | 3.515        | A                                   |

#### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 617                         | 154                           | 236                             | 1601                 | 0.385 | 617                    | 450                              | 0.7                     | 0.7                   | 4.099        | Α                                   |
| B - A1173         | 342                         | 86                            | 61                              | 1744                 | 0.196 | 342                    | 792                              | 0.3                     | 0.3                   | 3.163        | Α                                   |
| C - Kings Road NW | 410                         | 102                           | 276                             | 1546                 | 0.265 | 410                    | 127                              | 0.4                     | 0.4                   | 3.515        | Α                                   |

#### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 503                         | 126                           | 193                             | 1630                 | 0.309 | 504                    | 368                              | 0.7                     | 0.5                   | 3.587        | А                                   |
| B - A1173         | 280                         | 70                            | 50                              | 1751                 | 0.160 | 280                    | 647                              | 0.3                     | 0.2                   | 3.015        | А                                   |
| C - Kings Road NW | 334                         | 84                            | 226                             | 1579                 | 0.212 | 335                    | 104                              | 0.4                     | 0.3                   | 3.214        | Α                                   |



#### 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 422                         | 105                           | 161                             | 1651                 | 0.255 | 422                    | 308                              | 0.5                     | 0.4                   | 3.288        | Α                                   |
| B - A1173         | 234                         | 59                            | 41                              | 1757                 | 0.133 | 234                    | 542                              | 0.2                     | 0.2                   | 2.912        | Α                                   |
| C - Kings Road NW | 280                         | 70                            | 189                             | 1603                 | 0.175 | 280                    | 87                               | 0.3                     | 0.2                   | 3.020        | А                                   |



# 2032 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 5.84               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.84              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period Traffic profile type |          | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|----------------------------------|----------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM                               | ONE HOUR | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                   | •          | •            |              |                     |                    |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - Kings Road NE |            | ONE HOUR     | ✓            | 376                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 984                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 161                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                |                   |           |                   |  |  |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |  |  |
| F    | A - Kings Road NE | 1                 | 256       | 119               |  |  |  |  |  |  |  |
| From | B - A1173         | 626               | 1         | 357               |  |  |  |  |  |  |  |
|      | C - Kings Road NW | 56                | 105       | 0                 |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                   | То                |           |                   |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |
| F    | A - Kings Road NE | 0                 | 30        | 10                |  |  |
| From | B - A1173         | 23                | 0         | 12                |  |  |
|      | C - Kings Road NW | 25                | 43        | 0                 |  |  |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.25    | 3.49          | 0.4         | А       | 345                    | 518                              |
| B - A1173         | 0.64    | 6.96          | 2.1         | А       | 903                    | 1354                             |
| C - Kings Road NW | 0.14    | 4.47          | 0.2         | А       | 148                    | 222                              |

# Main Results for each time segment

#### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 283                         | 71                            | 79                              | 1705                 | 0.166 | 282                    | 512                              | 0.0                     | 0.2                   | 3.106        | Α                                   |
| B - A1173         | 741                         | 185                           | 90                              | 1725                 | 0.430 | 737                    | 272                              | 0.0                     | 0.9                   | 4.314        | А                                   |
| C - Kings Road NW | 121                         | 30                            | 471                             | 1419                 | 0.085 | 121                    | 357                              | 0.0                     | 0.1                   | 3.777        | А                                   |

#### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 338                         | 85                            | 95                              | 1695                 | 0.199 | 338                    | 613                              | 0.2                     | 0.3                   | 3.259        | Α                                   |
| B - A1173         | 885                         | 221                           | 108                             | 1713                 | 0.516 | 883                    | 325                              | 0.9                     | 1.3                   | 5.142        | А                                   |
| C - Kings Road NW | 145                         | 36                            | 564                             | 1358                 | 0.107 | 145                    | 427                              | 0.1                     | 0.2                   | 4.041        | Α                                   |

#### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 414                         | 103                           | 117                             | 1680                 | 0.246 | 414                    | 750                              | 0.3                     | 0.4                   | 3.491        | Α                                   |
| B - A1173         | 1083                        | 271                           | 132                             | 1697                 | 0.638 | 1080                   | 398                              | 1.3                     | 2.1                   | 6.895        | Α                                   |
| C - Kings Road NW | 177                         | 44                            | 689                             | 1275                 | 0.139 | 177                    | 523                              | 0.2                     | 0.2                   | 4.463        | А                                   |

#### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 414                         | 103                           | 117                             | 1680                 | 0.246 | 414                    | 752                              | 0.4                     | 0.4                   | 3.491        | А                                   |
| B - A1173         | 1083                        | 271                           | 132                             | 1697                 | 0.638 | 1083                   | 399                              | 2.1                     | 2.1                   | 6.964        | А                                   |
| C - Kings Road NW | 177                         | 44                            | 691                             | 1274                 | 0.139 | 177                    | 524                              | 0.2                     | 0.2                   | 4.470        | А                                   |

#### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 338                         | 85                            | 95                              | 1694                 | 0.199 | 338                    | 616                              | 0.4                     | 0.3                   | 3.261        | А                                   |
| B - A1173         | 885                         | 221                           | 108                             | 1713                 | 0.516 | 888                    | 326                              | 2.1                     | 1.3                   | 5.202        | А                                   |
| C - Kings Road NW | 145                         | 36                            | 567                             | 1356                 | 0.107 | 145                    | 429                              | 0.2                     | 0.2                   | 4.049        | Α                                   |



#### 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 283                         | 71                            | 80                              | 1705                 | 0.166 | 283                    | 515                              | 0.3                     | 0.2                   | 3.113        | Α                                   |
| B - A1173         | 741                         | 185                           | 90                              | 1724                 | 0.430 | 742                    | 273                              | 1.3                     | 0.9                   | 4.359        | Α                                   |
| C - Kings Road NW | 121                         | 30                            | 474                             | 1416                 | 0.086 | 121                    | 359                              | 0.2                     | 0.1                   | 3.787        | А                                   |



# 2032 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C   | 4.48               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.48              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ı | ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D | 14 | 2032 Base + Committed + Development | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kings Road NE |            | ONE HOUR     | ✓            | 692                 | 100.000            |
| B - A1173         |            | ONE HOUR     | ✓            | 519                 | 100.000            |
| C - Kings Road NW |            | ONE HOUR     | ✓            | 373                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                |                   |           |                   |  |  |  |  |  |
|------|-------------------|-------------------|-----------|-------------------|--|--|--|--|--|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |  |  |  |  |  |
| F    | A - Kings Road NE | 1                 | 636       | 55                |  |  |  |  |  |
| From | B - A1173         | 458               | 0         | 61                |  |  |  |  |  |
|      | C - Kings Road NW | 159               | 214       | 0                 |  |  |  |  |  |

# **Vehicle Mix**

|      |                   | То                |           |                   |
|------|-------------------|-------------------|-----------|-------------------|
|      |                   | A - Kings Road NE | B - A1173 | C - Kings Road NW |
| F    | A - Kings Road NE | 0                 | 17        | 24                |
| From | B - A1173         | 31                | 0         | 33                |
|      | C - Kings Road NW | 6                 | 15        | 0                 |



### Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kings Road NE | 0.48    | 5.04          | 1.1         | А       | 635                    | 952                              |
| B - A1173         | 0.33    | 4.03          | 0.6         | А       | 476                    | 714                              |
| C - Kings Road NW | 0.29    | 4.06          | 0.5         | А       | 342                    | 513                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 521                         | 130                           | 161                             | 1651                 | 0.316 | 519                    | 464                              | 0.0                     | 0.5                   | 3.730        | Α                                   |
| B - A1173         | 391                         | 98                            | 42                              | 1756                 | 0.222 | 389                    | 637                              | 0.0                     | 0.4                   | 3.453        | А                                   |
| C - Kings Road NW | 281                         | 70                            | 344                             | 1501                 | 0.187 | 280                    | 87                               | 0.0                     | 0.3                   | 3.267        | A                                   |

#### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 622                         | 156                           | 192                             | 1630                 | 0.382 | 621                    | 555                              | 0.5                     | 0.7                   | 4.191        | Α                                   |
| B - A1173         | 467                         | 117                           | 50                              | 1751                 | 0.266 | 466                    | 763                              | 0.4                     | 0.5                   | 3.677        | А                                   |
| C - Kings Road NW | 335                         | 84                            | 412                             | 1457                 | 0.230 | 335                    | 104                              | 0.3                     | 0.3                   | 3.561        | Α                                   |

#### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 762                         | 190                           | 235                             | 1601                 | 0.476 | 761                    | 680                              | 0.7                     | 1.1                   | 5.023        | Α                                   |
| B - A1173         | 571                         | 143                           | 62                              | 1743                 | 0.328 | 571                    | 934                              | 0.5                     | 0.6                   | 4.027        | Α                                   |
| C - Kings Road NW | 411                         | 103                           | 505                             | 1396                 | 0.294 | 410                    | 128                              | 0.3                     | 0.5                   | 4.050        | А                                   |

#### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |  |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|--|
| A - Kings Road NE | 762                         | 190                           | 236                             | 1601                 | 0.476 | 762                    | 680                              | 1.1                     | 1.1                   | 5.040        | Α                                   |  |
| B - A1173         | 571                         | 143                           | 62                              | 1743                 | 0.328 | 571                    | 936                              | 0.6                     | 0.6                   | 4.031        | Α                                   |  |
| C - Kings Road NW | 411                         | 103                           | 505                             | 1396                 | 0.294 | 411                    | 128                              | 0.5                     | 0.5                   | 4.055        | А                                   |  |

#### 16:45 - 17:00

|   | Arm             | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|---|-----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A | - Kings Road NE | 622                         | 156                           | 193                             | 1630                 | 0.382 | 623                    | 556                              | 1.1                     | 0.7                   | 4.210        | Α                                   |
| В | - A1173         | 467                         | 117                           | 50                              | 1751                 | 0.267 | 467                    | 766                              | 0.6                     | 0.5                   | 3.684        | Α                                   |
| C | - Kings Road NW | 335                         | 84                            | 413                             | 1456                 | 0.230 | 336                    | 104                              | 0.5                     | 0.3                   | 3.566        | A                                   |



#### 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Kings Road NE | 521                         | 130                           | 161                             | 1651                 | 0.316 | 522                    | 466                              | 0.7                     | 0.5                   | 3.748        | Α                                   |
| B - A1173         | 391                         | 98                            | 42                              | 1756                 | 0.223 | 391                    | 641                              | 0.5                     | 0.4                   | 3.461        | А                                   |
| C - Kings Road NW | 281                         | 70                            | 346                             | 1500                 | 0.187 | 281                    | 87                               | 0.3                     | 0.3                   | 3.277        | А                                   |

### Annex TN2 D

A1173/ Kiln Lane Roundabout



# **Junctions 10**

#### **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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Filename: A1173-Kiln Lane RevC.j10

Path: P:\23000's\23325\Junction Assessment\A1173-Kiln Lane RevC\_Junctions 10 Report

Report generation date: 05/08/2022 10:04:51

»2021 Base, AM
»2025 Base, PM
»2025 Base, AM
»2025 Base, PM
»2025 Base + Committed, AM
»2025 Base + Committed, PM
»2025 Base + Committed + Development, AM
»2025 Base + Committed + Development, PM
»2032 Base, AM
»2032 Base, PM
»2032 Base + Committed, AM
»2032 Base + Committed, AM
»2032 Base + Committed, PM
»2032 Base + Committed, PM
»2032 Base + Committed + Development, AM

»2032 Base + Committed + Development, PM



### Summary of junction performance

|               |         | AM        |       |           | PM        |      |
|---------------|---------|-----------|-------|-----------|-----------|------|
|               | Q (PCU) | Delay (s) | RFC   | Q (PCU)   | Delay (s) | RFC  |
|               |         |           | 2021  | Base      |           |      |
| A - Kiln Lane | 0.2     | 3.22      | 0.09  | 0.7       | 4.24      | 0.39 |
| B - Access    | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| C - A1173 W   | 1.5     | 4.94      | 0.57  | 0.2       | 2.90      | 0.15 |
| D - A1173 N   | 0.2     | 3.59      | 0.13  | 0.7       | 3.68      | 0.38 |
|               |         |           | 2025  | Base      |           |      |
| A - Kiln Lane | 0.2     | 3.24      | 0.10  | 0.7       | 4.35      | 0.40 |
| B - Access    | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| C - A1173 W   | 1.6     | 5.13      | 0.59  | 0.2       | 2.92      | 0.16 |
| D - A1173 N   | 0.2     | 3.62      | 0.13  | 0.7       | 3.75      | 0.39 |
|               |         | 2025 B    | ase 1 | - Commi   | tted      |      |
| A - Kiln Lane | 0.2     | 3.50      | 0.13  | 0.9       | 5.37      | 0.46 |
| B - Access    | 0.0     | 2.96      | 0.04  | 0.1       | 6.15      | 0.08 |
| C - A1173 W   | 3.0     | 7.96      | 0.73  | 0.3       | 2.94      | 0.17 |
| D - A1173 N   | 0.2     | 3.75      | 0.15  | 1.1       | 4.53      | 0.51 |
|               | 2025 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - Kiln Lane | 0.2     | 3.66      | 0.13  | 1.1       | 6.17      | 0.50 |
| B - Access    | 0.0     | 3.12      | 0.04  | 0.1       | 7.20      | 0.09 |
| C - A1173 W   | 5.3     | 12.71     | 0.83  | 0.6       | 3.71      | 0.30 |
| D - A1173 N   | 0.4     | 4.15      | 0.22  | 1.6       | 5.71      | 0.59 |
|               |         |           | 2032  | Base      |           |      |
| A - Kiln Lane | 0.2     | 3.26      | 0.10  | 0.8       | 4.55      | 0.42 |
| B - Access    | 0.0     | 0.00      | 0.00  | 0.0       | 0.00      | 0.00 |
| C - A1173 W   | 1.7     | 5.46      | 0.61  | 0.2       | 2.94      | 0.16 |
| D - A1173 N   | 0.2     | 3.68      | 0.14  | 0.8       | 3.85      | 0.40 |
|               |         | 2032 B    | ase 1 | - Commi   | tted      |      |
| A - Kiln Lane | 0.2     | 3.52      | 0.13  | 1.0       | 5.64      | 0.48 |
| B - Access    | 0.0     | 2.97      | 0.04  | 0.1       | 6.43      | 0.08 |
| C - A1173 W   | 3.4     | 8.76      | 0.75  | 0.3       | 2.97      | 0.18 |
| D - A1173 N   | 0.2     | 3.81      | 0.16  | 1.2       | 4.69      | 0.52 |
|               | 2032    | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - Kiln Lane | 0.2     | 3.69      | 0.14  | 1.2       | 6.55      | 0.52 |
| B - Access    | 0.0     | 3.14      | 0.04  | 0.1       | 7.60      | 0.09 |
| C - A1173 W   | 6.3     | 14.75     | 0.85  | 0.6       | 3.75      | 0.31 |
| D - A1173 N   | 0.4     | 4.23      | 0.23  | 1.7       | 5.96      | 0.61 |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



### File summary

#### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     | ·          |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |

#### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

#### **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

### **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

# **Analysis Set Details**

| ID | Include in report Network flow scaling factor (%) |         | Network capacity scaling factor (%) |  |
|----|---|---------|-------------------------------------|--|
| A1 | ✓   | 100.000 | 100.000                             |  |



# **2021 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 4.55               | А            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |  |
|-----------------------|----------------|-------------------|-------------|--|
| Left                  | Normal/unknown | 4.55              | Α           |  |

#### **Arms**

#### **Arms**

| Arm | Name      | Description | No give-way line |
|-----|-----------|-------------|------------------|
| Α   | Kiln Lane |             |                  |
| В   | Access    |             |                  |
| С   | A1173 W   |             |                  |
| D   | A1173 N   |             |                  |

#### **Roundabout Geometry**

| Arm           | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|---------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| A - Kiln Lane | 4.56  | 7.01  | 20.3   | 16.5  | 45.1  | 26.0      |            |           |
| B - Access    | 4.03  | 5.31  | 5.9    | 23.3  | 45.1  | 25.0      |            |           |
| C - A1173 W   | 3.64  | 8.44  | 14.1   | 38.1  | 45.1  | 16.0      |            |           |
| D - A1173 N   | 3.68  | 8.15  | 11.9   | 37.7  | 45.1  | 17.0      |            |           |

#### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm           | Final slope | Final intercept (PCU/hr) |
|---------------|-------------|--------------------------|
| A - Kiln Lane | 0.672       | 1924                     |
| B - Access    | 0.593       | 1486                     |
| C - A1173 W   | 0.693       | 1928                     |
| D - A1173 N   | 0.676       | 1847                     |

The slope and intercept shown above include any corrections and adjustments.

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn   Vehicle mix varies over entry |   | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|--|---|--------------------|---------------------------|--|
| ✓  | ✓ | HV Percentages     | 2.00                      |  |



#### **Demand overview (Traffic)**

| Arm           | Linked arm      | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|-----------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |                 | ONE HOUR     | <b>✓</b>     | 155                 | 100.000            |
| B - Access    |                 | ONE HOUR     | ✓            | 0                   | 100.000            |
| C - A1173 W   | 1173 W ONE HOUR |              | ✓            | 969                 | 100.000            |
| D - A1173 N   |                 | ONE HOUR     | ✓            | 183                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То            |               |            |             |             |  |  |  |
|------|---------------|---------------|------------|-------------|-------------|--|--|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |  |  |
|      | A - Kiln Lane | 0             | 0          | 81          | 74          |  |  |  |
| From | B - Access    | 0             | 0          | 0           | 0           |  |  |  |
|      | C - A1173 W   | 407           | 2          | 0           | 560         |  |  |  |
|      | D - A1173 N   | 70            | 0          | 113         | 0           |  |  |  |

# **Vehicle Mix**

#### HV %s

|      | То            |                          |   |             |             |  |  |  |  |
|------|---------------|--------------------------|---|-------------|-------------|--|--|--|--|
|      |               | A - Kiln Lane B - Access |   | C - A1173 W | D - A1173 N |  |  |  |  |
|      | A - Kiln Lane | 0                        | 0 | 49          | 50          |  |  |  |  |
| From | B - Access    | 0                        | 0 | 0           | 0           |  |  |  |  |
|      | C - A1173 W   | 11                       | 0 | 0           | 10          |  |  |  |  |
|      | D - A1173 N   | 26                       | 0 | 39          | 0           |  |  |  |  |

# Results

#### **Results Summary for whole modelled period**

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.09    | 3.22          | 0.2         | A       | 142                    | 213                              |
| B - Access    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C - A1173 W   | 0.57    | 4.94          | 1.5         | A       | 889                    | 1334                             |
| D - A1173 N   | 0.13    | 3.59          | 0.2         | А       | 168                    | 252                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 117                         | 29                            | 86                              | 1866                 | 0.063 | 116                    | 358                              | 0.0                     | 0.1                   | 3.075     | Α                                   |
| B - Access    | 0                           | 0                             | 201                             | 1367                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 730                         | 182                           | 56                              | 1889                 | 0.386 | 727                    | 146                              | 0.0                     | 0.7                   | 3.409     | Α                                   |
| D - A1173 N   | 138                         | 34                            | 307                             | 1640                 | 0.084 | 137                    | 476                              | 0.0                     | 0.1                   | 3.204     | Α                                   |



#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 139                         | 35                            | 103                             | 1854                 | 0.075 | 139                    | 428                              | 0.1                     | 0.1                   | 3.136     | Α                                   |
| B - Access    | 0                           | 0                             | 241                             | 1344                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 871                         | 218                           | 66                              | 1882                 | 0.463 | 870                    | 174                              | 0.7                     | 0.9                   | 3.924     | Α                                   |
| D - A1173 N   | 165                         | 41                            | 367                             | 1599                 | 0.103 | 164                    | 569                              | 0.1                     | 0.2                   | 3.355     | Α                                   |

#### 07:15 - 07:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 171                         | 43                            | 126                             | 1839                 | 0.093 | 171                    | 524                              | 0.1                     | 0.2                   | 3.224     | Α                                   |
| B - Access    | 0                           | 0                             | 295                             | 1312                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 1067                        | 267                           | 81                              | 1871                 | 0.570 | 1065                   | 213                              | 0.9                     | 1.4                   | 4.916     | Α                                   |
| D - A1173 N   | 201                         | 50                            | 449                             | 1543                 | 0.131 | 201                    | 697                              | 0.2                     | 0.2                   | 3.586     | Α                                   |

#### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 171                         | 43                            | 127                             | 1839                 | 0.093 | 171                    | 525                              | 0.2                     | 0.2                   | 3.225     | Α                                   |
| B - Access    | 0                           | 0                             | 295                             | 1311                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 1067                        | 267                           | 81                              | 1871                 | 0.570 | 1067                   | 214                              | 1.4                     | 1.5                   | 4.940     | Α                                   |
| D - A1173 N   | 201                         | 50                            | 450                             | 1543                 | 0.131 | 201                    | 698                              | 0.2                     | 0.2                   | 3.588     | А                                   |

#### 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 139                         | 35                            | 104                             | 1854                 | 0.075 | 139                    | 430                              | 0.2                     | 0.1                   | 3.139     | Α                                   |
| B - Access    | 0                           | 0                             | 241                             | 1343                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 871                         | 218                           | 67                              | 1882                 | 0.463 | 873                    | 175                              | 1.5                     | 1.0                   | 3.949     | Α                                   |
| D - A1173 N   | 165                         | 41                            | 369                             | 1598                 | 0.103 | 165                    | 571                              | 0.2                     | 0.2                   | 3.358     | Α                                   |

#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 117                         | 29                            | 87                              | 1866                 | 0.063 | 117                    | 360                              | 0.1                     | 0.1                   | 3.078     | Α                                   |
| B - Access    | 0                           | 0                             | 202                             | 1367                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 730                         | 182                           | 56                              | 1889                 | 0.386 | 731                    | 146                              | 1.0                     | 0.7                   | 3.435     | Α                                   |
| D - A1173 N   | 138                         | 34                            | 308                             | 1639                 | 0.084 | 138                    | 478                              | 0.2                     | 0.1                   | 3.207     | Α                                   |



# 2021 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 3.75               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.75              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 538                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 261                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 605                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 4          | 445         | 89          |
| From | B - Access    | 0             | 0          | 2           | 0           |
|      | C - A1173 W   | 112           | 0          | 0           | 149         |
|      | D - A1173 N   | 74            | 0          | 531         | 0           |

# **Vehicle Mix**

|      | То            |               |            |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 8           | 26          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 56            | 0          | 0           | 11          |
|      | D - A1173 N   | 42            | 0          | 9           | 0           |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.39    | 4.24          | 0.7         | А       | 494                    | 741                              |
| B - Access    | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| C - A1173 W   | 0.15    | 2.90          | 0.2         | А       | 239                    | 359                              |
| D - A1173 N   | 0.38    | 3.68          | 0.7         | А       | 555                    | 833                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 405                         | 101                           | 398                             | 1656                 | 0.245 | 404                    | 140                              | 0.0                     | 0.4                   | 3.175     | Α                                   |
| B - Access    | 0                           | 0                             | 799                             | 1013                 | 0.000 | 0                      | 3                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 196                         | 49                            | 67                              | 1881                 | 0.104 | 196                    | 732                              | 0.0                     | 0.1                   | 2.706     | Α                                   |
| D - A1173 N   | 455                         | 114                           | 84                              | 1790                 | 0.254 | 454                    | 179                              | 0.0                     | 0.4                   | 3.020     | А                                   |

## 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 484                         | 121                           | 477                             | 1603                 | 0.302 | 483                    | 167                              | 0.4                     | 0.5                   | 3.550     | Α                                   |
| B - Access    | 0                           | 0                             | 957                             | 919                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 235                         | 59                            | 80                              | 1872                 | 0.125 | 234                    | 877                              | 0.1                     | 0.2                   | 2.784     | Α                                   |
| D - A1173 N   | 544                         | 136                           | 101                             | 1779                 | 0.306 | 543                    | 214                              | 0.4                     | 0.5                   | 3.268     | А                                   |

#### 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 592                         | 148                           | 584                             | 1531                 | 0.387 | 591                    | 205                              | 0.5                     | 0.7                   | 4.231     | Α                                   |
| B - Access    | 0                           | 0                             | 1171                            | 792                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 287                         | 72                            | 98                              | 1860                 | 0.155 | 287                    | 1073                             | 0.2                     | 0.2                   | 2.899     | А                                   |
| D - A1173 N   | 666                         | 167                           | 123                             | 1764                 | 0.378 | 665                    | 262                              | 0.5                     | 0.7                   | 3.675     | Α                                   |

#### 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 592                         | 148                           | 585                             | 1531                 | 0.387 | 592                    | 205                              | 0.7                     | 0.7                   | 4.239     | А                                   |
| B - Access    | 0                           | 0                             | 1173                            | 791                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 287                         | 72                            | 98                              | 1860                 | 0.155 | 287                    | 1075                             | 0.2                     | 0.2                   | 2.899     | А                                   |
| D - A1173 N   | 666                         | 167                           | 123                             | 1764                 | 0.378 | 666                    | 262                              | 0.7                     | 0.7                   | 3.678     | Α                                   |

## 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 484                         | 121                           | 478                             | 1603                 | 0.302 | 485                    | 167                              | 0.7                     | 0.5                   | 3.563     | Α                                   |
| B - Access    | 0                           | 0                             | 959                             | 918                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 235                         | 59                            | 80                              | 1872                 | 0.125 | 235                    | 879                              | 0.2                     | 0.2                   | 2.785     | Α                                   |
| D - A1173 N   | 544                         | 136                           | 101                             | 1779                 | 0.306 | 545                    | 214                              | 0.7                     | 0.5                   | 3.273     | Α                                   |



#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 405                         | 101                           | 400                             | 1655                 | 0.245 | 406                    | 140                              | 0.5                     | 0.4                   | 3.188     | Α                                   |
| B - Access    | 0                           | 0                             | 803                             | 1010                 | 0.000 | 0                      | 3                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 196                         | 49                            | 67                              | 1881                 | 0.104 | 197                    | 736                              | 0.2                     | 0.1                   | 2.708     | Α                                   |
| D - A1173 N   | 455                         | 114                           | 84                              | 1790                 | 0.254 | 456                    | 179                              | 0.5                     | 0.4                   | 3.027     | А                                   |



# 2025 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 4.70               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.70              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| Ī | D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | <b>✓</b>     | 159                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 0                   | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 995                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 188                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 83          | 76          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 418           | 2          | 0           | 575         |
|      | D - A1173 N   | 72            | 0          | 116         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 49          | 50          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 11            | 0          | 0           | 10          |
|      | D - A1173 N   | 26            | 0          | 39          | 0           |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.10    | 3.24          | 0.2         | A       | 146                    | 219                              |
| B - Access    | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| C - A1173 W   | 0.59    | 5.13          | 1.6         | A       | 913                    | 1370                             |
| D - A1173 N   | 0.13    | 3.62          | 0.2         | А       | 173                    | 259                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 120                         | 30                            | 89                              | 1864                 | 0.064 | 119                    | 367                              | 0.0                     | 0.1                   | 3.083     | Α                                   |
| B - Access    | 0                           | 0                             | 206                             | 1364                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 749                         | 187                           | 57                              | 1888                 | 0.397 | 746                    | 149                              | 0.0                     | 0.7                   | 3.471     | А                                   |
| D - A1173 N   | 142                         | 35                            | 315                             | 1634                 | 0.087 | 141                    | 488                              | 0.0                     | 0.1                   | 3.224     | Α                                   |

#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 143                         | 36                            | 106                             | 1853                 | 0.077 | 143                    | 440                              | 0.1                     | 0.1                   | 3.146     | Α                                   |
| B - Access    | 0                           | 0                             | 247                             | 1340                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 894                         | 224                           | 68                              | 1880                 | 0.476 | 893                    | 179                              | 0.7                     | 1.0                   | 4.022     | Α                                   |
| D - A1173 N   | 169                         | 42                            | 377                             | 1592                 | 0.106 | 169                    | 585                              | 0.1                     | 0.2                   | 3.381     | А                                   |

## 07:15 - 07:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 175                         | 44                            | 130                             | 1837                 | 0.095 | 175                    | 539                              | 0.1                     | 0.2                   | 3.237     | Α                                   |
| B - Access    | 0                           | 0                             | 303                             | 1307                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 1096                        | 274                           | 84                              | 1870                 | 0.586 | 1093                   | 219                              | 1.0                     | 1.5                   | 5.104     | Α                                   |
| D - A1173 N   | 207                         | 52                            | 462                             | 1535                 | 0.135 | 207                    | 715                              | 0.2                     | 0.2                   | 3.623     | Α                                   |

#### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 175                         | 44                            | 130                             | 1837                 | 0.095 | 175                    | 539                              | 0.2                     | 0.2                   | 3.237     | Α                                   |
| B - Access    | 0                           | 0                             | 303                             | 1307                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 1096                        | 274                           | 84                              | 1870                 | 0.586 | 1095                   | 219                              | 1.5                     | 1.6                   | 5.132     | Α                                   |
| D - A1173 N   | 207                         | 52                            | 462                             | 1534                 | 0.135 | 207                    | 717                              | 0.2                     | 0.2                   | 3.625     | А                                   |

## 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 143                         | 36                            | 106                             | 1852                 | 0.077 | 143                    | 441                              | 0.2                     | 0.1                   | 3.149     | А                                   |
| B - Access    | 0                           | 0                             | 247                             | 1340                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 894                         | 224                           | 68                              | 1880                 | 0.476 | 897                    | 179                              | 1.6                     | 1.0                   | 4.050     | А                                   |
| D - A1173 N   | 169                         | 42                            | 378                             | 1591                 | 0.106 | 169                    | 587                              | 0.2                     | 0.2                   | 3.387     | А                                   |



#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 120                         | 30                            | 89                              | 1864                 | 0.064 | 120                    | 369                              | 0.1                     | 0.1                   | 3.084     | Α                                   |
| B - Access    | 0                           | 0                             | 207                             | 1363                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 749                         | 187                           | 57                              | 1888                 | 0.397 | 750                    | 150                              | 1.0                     | 0.7                   | 3.495     | Α                                   |
| D - A1173 N   | 142                         | 35                            | 317                             | 1633                 | 0.087 | 142                    | 491                              | 0.2                     | 0.1                   | 3.227     | А                                   |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 3.82               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 3.82              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 551                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 268                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 621                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |                          | То |             |             |
|------|---------------|--------------------------|----|-------------|-------------|
|      |               | A - Kiln Lane B - Access |    | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0                        | 4  | 456         | 91          |
| From | B - Access    | 0                        | 0  | 2           | 0           |
|      | C - A1173 W   | 115                      | 0  | 0           | 153         |
|      | D - A1173 N   | 76                       | 0  | 545         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |  |
|------|---------------|---------------|------------|-------------|-------------|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |
|      | A - Kiln Lane | 0             | 0          | 8           | 26          |  |
| From | B - Access    | 0             | 0          | 0           | 0           |  |
|      | C - A1173 W   | 56            | 0          | 0           | 11          |  |
|      | D - A1173 N   | 42            | 0          | 9           | 0           |  |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Kiln Lane | 0.40    | 4.35          | 0.7         | А       | 506                    | 758                              |  |
| B - Access    | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |  |
| C - A1173 W   | 0.16    | 2.92          | 0.2         | А       | 246                    | 369                              |  |
| D - A1173 N   | 0.39    | 3.75          | 0.7         | А       | 570                    | 855                              |  |

# Main Results for each time segment

## 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 415                         | 104                           | 409                             | 1649                 | 0.252 | 413                    | 143                              | 0.0                     | 0.4                   | 3.216     | Α                                   |
| B - Access    | 0                           | 0                             | 819                             | 1001                 | 0.000 | 0                      | 3                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 202                         | 50                            | 68                              | 1880                 | 0.107 | 201                    | 751                              | 0.0                     | 0.2                   | 2.716     | Α                                   |
| D - A1173 N   | 468                         | 117                           | 86                              | 1789                 | 0.261 | 466                    | 183                              | 0.0                     | 0.4                   | 3.048     | А                                   |

## 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 495                         | 124                           | 490                             | 1595                 | 0.311 | 495                    | 172                              | 0.4                     | 0.5                   | 3.615     | Α                                   |
| B - Access    | 0                           | 0                             | 981                             | 905                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 241                         | 60                            | 82                              | 1871                 | 0.129 | 241                    | 899                              | 0.2                     | 0.2                   | 2.796     | Α                                   |
| D - A1173 N   | 558                         | 140                           | 103                             | 1777                 | 0.314 | 558                    | 219                              | 0.4                     | 0.5                   | 3.312     | А                                   |

## 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 607                         | 152                           | 599                             | 1521                 | 0.399 | 606                    | 210                              | 0.5                     | 0.7                   | 4.343     | Α                                   |
| B - Access    | 0                           | 0                             | 1201                            | 774                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 295                         | 74                            | 100                             | 1858                 | 0.159 | 295                    | 1101                             | 0.2                     | 0.2                   | 2.916     | Α                                   |
| D - A1173 N   | 684                         | 171                           | 127                             | 1762                 | 0.388 | 683                    | 268                              | 0.5                     | 0.7                   | 3.743     | А                                   |

#### 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 607                         | 152                           | 600                             | 1521                 | 0.399 | 607                    | 210                              | 0.7                     | 0.7                   | 4.354     | Α                                   |
| B - Access    | 0                           | 0                             | 1202                            | 774                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 295                         | 74                            | 100                             | 1858                 | 0.159 | 295                    | 1102                             | 0.2                     | 0.2                   | 2.916     | Α                                   |
| D - A1173 N   | 684                         | 171                           | 127                             | 1762                 | 0.388 | 684                    | 269                              | 0.7                     | 0.7                   | 3.746     | А                                   |

## 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 495                         | 124                           | 491                             | 1594                 | 0.311 | 496                    | 172                              | 0.7                     | 0.5                   | 3.626     | Α                                   |
| B - Access    | 0                           | 0                             | 983                             | 903                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 241                         | 60                            | 82                              | 1871                 | 0.129 | 241                    | 901                              | 0.2                     | 0.2                   | 2.797     | А                                   |
| D - A1173 N   | 558                         | 140                           | 103                             | 1777                 | 0.314 | 559                    | 220                              | 0.7                     | 0.5                   | 3.319     | А                                   |



#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 415                         | 104                           | 411                             | 1648                 | 0.252 | 415                    | 144                              | 0.5                     | 0.4                   | 3.229     | Α                                   |
| B - Access    | 0                           | 0                             | 823                             | 998                  | 0.000 | 0                      | 3                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 202                         | 50                            | 69                              | 1880                 | 0.107 | 202                    | 754                              | 0.2                     | 0.2                   | 2.716     | Α                                   |
| D - A1173 N   | 468                         | 117                           | 87                              | 1789                 | 0.261 | 468                    | 184                              | 0.5                     | 0.4                   | 3.061     | Α                                   |



# 2025 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 6.78               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 6.78              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ı | ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| 1 | D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 210                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 43                  | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 1240                | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 202                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 134         | 76          |
| From | B - Access    | 0             | 0          | 43          | 0           |
|      | C - A1173 W   | 485           | 2          | 0           | 753         |
|      | D - A1173 N   | 72            | 0          | 130         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 58          | 50          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 18            | 0          | 0           | 8           |
|      | D - A1173 N   | 26            | 0          | 35          | 0           |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.13    | 3.50          | 0.2 A       |         | 193                    | 289                              |
| B - Access    | 0.04    | 2.96          | 0.0 A       |         | 39                     | 59                               |
| C - A1173 W   | 0.73    | 7.96          | 3.0         | А       | 1138                   | 1707                             |
| D - A1173 N   | 0.15    | 3.75          | 0.2         | А       | 185                    | 278                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 158                         | 40                            | 99                              | 1857                 | 0.085 | 158                    | 417                              | 0.0                     | 0.1                   | 3.283     | Α                                   |
| B - Access    | 32                          | 8                             | 255                             | 1335                 | 0.024 | 32                     | 1                                | 0.0                     | 0.0                   | 2.762     | Α                                   |
| C - A1173 W   | 934                         | 233                           | 57                              | 1888                 | 0.494 | 929                    | 230                              | 0.0                     | 1.1                   | 4.175     | Α                                   |
| D - A1173 N   | 152                         | 38                            | 365                             | 1600                 | 0.095 | 152                    | 621                              | 0.0                     | 0.1                   | 3.271     | Α                                   |

#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 189                         | 47                            | 119                             | 1844                 | 0.102 | 189                    | 500                              | 0.1                     | 0.2                   | 3.370     | Α                                   |
| B - Access    | 39                          | 10                            | 305                             | 1305                 | 0.030 | 39                     | 2                                | 0.0                     | 0.0                   | 2.841     | А                                   |
| C - A1173 W   | 1115                        | 279                           | 68                              | 1880                 | 0.593 | 1113                   | 276                              | 1.1                     | 1.6                   | 5.221     | Α                                   |
| D - A1173 N   | 182                         | 45                            | 437                             | 1552                 | 0.117 | 181                    | 744                              | 0.1                     | 0.2                   | 3.458     | А                                   |

## 07:15 - 07:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 231                         | 58                            | 145                             | 1826                 | 0.127 | 231                    | 611                              | 0.2                     | 0.2                   | 3.497     | Α                                   |
| B - Access    | 47                          | 12                            | 374                             | 1265                 | 0.037 | 47                     | 2                                | 0.0                     | 0.0                   | 2.956     | Α                                   |
| C - A1173 W   | 1365                        | 341                           | 84                              | 1870                 | 0.730 | 1360                   | 338                              | 1.6                     | 2.9                   | 7.805     | Α                                   |
| D - A1173 N   | 222                         | 56                            | 534                             | 1486                 | 0.150 | 222                    | 909                              | 0.2                     | 0.2                   | 3.749     | А                                   |

#### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 231                         | 58                            | 145                             | 1826                 | 0.127 | 231                    | 613                              | 0.2                     | 0.2                   | 3.497     | Α                                   |
| B - Access    | 47                          | 12                            | 374                             | 1264                 | 0.037 | 47                     | 2                                | 0.0                     | 0.0                   | 2.957     | Α                                   |
| C - A1173 W   | 1365                        | 341                           | 84                              | 1870                 | 0.730 | 1365                   | 338                              | 2.9                     | 3.0                   | 7.958     | Α                                   |
| D - A1173 N   | 222                         | 56                            | 536                             | 1485                 | 0.150 | 222                    | 913                              | 0.2                     | 0.2                   | 3.753     | А                                   |

## 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 189                         | 47                            | 119                             | 1844                 | 0.102 | 189                    | 503                              | 0.2                     | 0.2                   | 3.371     | А                                   |
| B - Access    | 39                          | 10                            | 306                             | 1305                 | 0.030 | 39                     | 2                                | 0.0                     | 0.0                   | 2.844     | А                                   |
| C - A1173 W   | 1115                        | 279                           | 68                              | 1880                 | 0.593 | 1120                   | 276                              | 3.0                     | 1.6                   | 5.324     | А                                   |
| D - A1173 N   | 182                         | 45                            | 440                             | 1550                 | 0.117 | 182                    | 749                              | 0.2                     | 0.2                   | 3.464     | А                                   |



#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 158                         | 40                            | 99                              | 1857                 | 0.085 | 158                    | 420                              | 0.2                     | 0.1                   | 3.284     | Α                                   |
| B - Access    | 32                          | 8                             | 256                             | 1334                 | 0.024 | 32                     | 2                                | 0.0                     | 0.0                   | 2.766     | А                                   |
| C - A1173 W   | 934                         | 233                           | 57                              | 1888                 | 0.494 | 936                    | 231                              | 1.6                     | 1.1                   | 4.231     | Α                                   |
| D - A1173 N   | 152                         | 38                            | 367                             | 1599                 | 0.095 | 152                    | 625                              | 0.2                     | 0.1                   | 3.278     | А                                   |



# 2025 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 4.59               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.59              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name Time Period |    | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------------------|----|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 Base + Committed     | PM | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 580                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 45                  | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 291                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 804                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |                          | То |             |             |
|------|---------------|--------------------------|----|-------------|-------------|
|      |               | A - Kiln Lane B - Access |    | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0                        | 4  | 484         | 92          |
| From | B - Access    | 0                        | 0  | 45          | 0           |
|      | C - A1173 W   | 134                      | 0  | 0           | 157         |
|      | D - A1173 N   | 76                       | 0  | 728         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 9           | 26          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 51            | 0          | 0           | 10          |
|      | D - A1173 N   | 42            | 0          | 6           | 0           |



# Results Summary for whole modelled period

| Arm           | Max RFC Max Delay (s) |      | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|---------------|-----------------------|------|-------------|---------|------------------------|----------------------------------|--|
| A - Kiln Lane | 0.46                  | 5.37 | 0.9         | А       | 532                    | 798                              |  |
| B - Access    | 0.08                  | 6.15 | 0.1         | А       | 41                     | 62                               |  |
| C - A1173 W   | 0.17                  | 2.94 | 0.3         | A       | 267                    | 401                              |  |
| D - A1173 N   | 0.51                  | 4.53 | 1.1         | А       | 738                    | 1107                             |  |

# Main Results for each time segment

## 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 437                         | 109                           | 546                             | 1557                 | 0.280 | 435                    | 158                              | 0.0                     | 0.4                   | 3.567     | Α                                   |
| B - Access    | 34                          | 8                             | 978                             | 907                  | 0.037 | 34                     | 3                                | 0.0                     | 0.0                   | 4.125     | Α                                   |
| C - A1173 W   | 219                         | 55                            | 69                              | 1880                 | 0.117 | 218                    | 943                              | 0.0                     | 0.2                   | 2.722     | Α                                   |
| D - A1173 N   | 605                         | 151                           | 101                             | 1779                 | 0.340 | 603                    | 187                              | 0.0                     | 0.6                   | 3.319     | Α                                   |

## 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 521                         | 130                           | 654                             | 1484                 | 0.351 | 521                    | 189                              | 0.4                     | 0.6                   | 4.155     | Α                                   |
| B - Access    | 40                          | 10                            | 1171                            | 792                  | 0.051 | 40                     | 4                                | 0.0                     | 0.1                   | 4.788     | А                                   |
| C - A1173 W   | 262                         | 65                            | 83                              | 1871                 | 0.140 | 261                    | 1129                             | 0.2                     | 0.2                   | 2.812     | А                                   |
| D - A1173 N   | 723                         | 181                           | 120                             | 1766                 | 0.409 | 722                    | 224                              | 0.6                     | 0.7                   | 3.744     | А                                   |

#### 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 639                         | 160                           | 800                             | 1386                 | 0.461 | 637                    | 231                              | 0.6                     | 0.9                   | 5.341     | Α                                   |
| B - Access    | 50                          | 12                            | 1433                            | 637                  | 0.078 | 49                     | 4                                | 0.1                     | 0.1                   | 6.128     | А                                   |
| C - A1173 W   | 320                         | 80                            | 101                             | 1858                 | 0.172 | 320                    | 1381                             | 0.2                     | 0.3                   | 2.943     | А                                   |
| D - A1173 N   | 885                         | 221                           | 147                             | 1747                 | 0.507 | 884                    | 274                              | 0.7                     | 1.1                   | 4.519     | А                                   |

## 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 639                         | 160                           | 802                             | 1385                 | 0.461 | 639                    | 231                              | 0.9                     | 0.9                   | 5.366     | Α                                   |
| B - Access    | 50                          | 12                            | 1436                            | 635                  | 0.078 | 50                     | 4                                | 0.1                     | 0.1                   | 6.146     | Α                                   |
| C - A1173 W   | 320                         | 80                            | 101                             | 1858                 | 0.172 | 320                    | 1384                             | 0.3                     | 0.3                   | 2.943     | Α                                   |
| D - A1173 N   | 885                         | 221                           | 148                             | 1747                 | 0.507 | 885                    | 274                              | 1.1                     | 1.1                   | 4.534     | Α                                   |

## 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 521                         | 130                           | 656                             | 1483                 | 0.352 | 523                    | 189                              | 0.9                     | 0.6                   | 4.179     | Α                                   |
| B - Access    | 40                          | 10                            | 1175                            | 790                  | 0.051 | 41                     | 4                                | 0.1                     | 0.1                   | 4.805     | А                                   |
| C - A1173 W   | 262                         | 65                            | 83                              | 1870                 | 0.140 | 262                    | 1133                             | 0.3                     | 0.2                   | 2.813     | А                                   |
| D - A1173 N   | 723                         | 181                           | 121                             | 1766                 | 0.409 | 724                    | 224                              | 1.1                     | 0.8                   | 3.761     | А                                   |



#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 437                         | 109                           | 549                             | 1555                 | 0.281 | 437                    | 158                              | 0.6                     | 0.4                   | 3.589     | Α                                   |
| B - Access    | 34                          | 8                             | 983                             | 903                  | 0.038 | 34                     | 3                                | 0.1                     | 0.0                   | 4.140     | Α                                   |
| C - A1173 W   | 219                         | 55                            | 69                              | 1880                 | 0.117 | 219                    | 948                              | 0.2                     | 0.2                   | 2.727     | Α                                   |
| D - A1173 N   | 605                         | 151                           | 101                             | 1779                 | 0.340 | 606                    | 188                              | 0.8                     | 0.6                   | 3.334     | А                                   |



# 2025 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 10.22              | В            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 10.22             | В           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period Traffic profile name type |          | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|---------------------------------------|----------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM                                    | ONE HOUR | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|---------------------------|---|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR                  | ✓ | 210                 | 100.000            |
| B - Access    |            | ONE HOUR                  | ✓ | 43                  | 100.000            |
| C - A1173 W   |            | ONE HOUR                  | ✓ | 1404                | 100.000            |
| D - A1173 N   |            | ONE HOUR                  | ✓ | 298                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               | То            |            |             |             |  |  |  |  |  |  |
|------|---------------|---------------|------------|-------------|-------------|--|--|--|--|--|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |  |  |  |  |  |
|      | A - Kiln Lane | 0             | 0          | 134         | 76          |  |  |  |  |  |  |
| From | B - Access    | 0             | 0          | 43          | 0           |  |  |  |  |  |  |
|      | C - A1173 W   | 485           | 2          | 0           | 917         |  |  |  |  |  |  |
|      | D - A1173 N   | 72            | 0          | 226         | 0           |  |  |  |  |  |  |

# **Vehicle Mix**

|      |               | То            |            |             |             |  |  |  |  |  |  |
|------|---------------|---------------|------------|-------------|-------------|--|--|--|--|--|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |  |  |  |  |  |
|      | A - Kiln Lane | 0             | 0          | 58          | 50          |  |  |  |  |  |  |
| From | B - Access    | 0             | 0          | 0           | 0           |  |  |  |  |  |  |
|      | C - A1173 W   | 18            | 0          | 0           | 14          |  |  |  |  |  |  |
|      | D - A1173 N   | 26            | 0          | 36          | 0           |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Arm           | Max RFC          | Max Delay (s) | Max Q (PCU) Max LOS |   | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|------------------|---------------|---------------------|---|------------------------|----------------------------------|
| A - Kiln Lane | 0.13             | 3.66          | 0.2                 | А | 193                    | 289                              |
| B - Access    | Access 0.04 3.12 |               | 0.0 A               |   | 39                     | 59                               |
| C - A1173 W   | 0.83             | 12.71         | 5.3                 | В | 1288                   | 1933                             |
| D - A1173 N   | 0.22             | 4.15          | 0.4                 | A | 273                    | 410                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 158                         | 40                            | 171                             | 1809                 | 0.087 | 158                    | 417                              | 0.0                     | 0.1                   | 3.379     | Α                                   |
| B - Access    | 32                          | 8                             | 327                             | 1292                 | 0.025 | 32                     | 1                                | 0.0                     | 0.0                   | 2.856     | Α                                   |
| C - A1173 W   | 1057                        | 264                           | 57                              | 1888                 | 0.560 | 1051                   | 302                              | 0.0                     | 1.4                   | 4.927     | А                                   |
| D - A1173 N   | 224                         | 56                            | 365                             | 1601                 | 0.140 | 223                    | 744                              | 0.0                     | 0.2                   | 3.486     | Α                                   |

#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 189                         | 47                            | 205                             | 1786                 | 0.106 | 189                    | 499                              | 0.1                     | 0.2                   | 3.492     | Α                                   |
| B - Access    | 39                          | 10                            | 392                             | 1254                 | 0.031 | 39                     | 2                                | 0.0                     | 0.0                   | 2.961     | Α                                   |
| C - A1173 W   | 1262                        | 316                           | 68                              | 1880                 | 0.671 | 1259                   | 362                              | 1.4                     | 2.3                   | 6.640     | А                                   |
| D - A1173 N   | 268                         | 67                            | 437                             | 1552                 | 0.173 | 268                    | 890                              | 0.2                     | 0.3                   | 3.740     | А                                   |

# 07:15 - 07:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 231                         | 58                            | 251                             | 1755                 | 0.132 | 231                    | 609                              | 0.2                     | 0.2                   | 3.660     | Α                                   |
| B - Access    | 47                          | 12                            | 480                             | 1202                 | 0.039 | 47                     | 2                                | 0.0                     | 0.0                   | 3.117     | Α                                   |
| C - A1173 W   | 1546                        | 386                           | 84                              | 1870                 | 0.827 | 1535                   | 443                              | 2.3                     | 5.1                   | 11.993    | В                                   |
| D - A1173 N   | 328                         | 82                            | 532                             | 1487                 | 0.221 | 328                    | 1086                             | 0.3                     | 0.4                   | 4.142     | А                                   |

### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 231                         | 58                            | 251                             | 1755                 | 0.132 | 231                    | 613                              | 0.2                     | 0.2                   | 3.660     | Α                                   |
| B - Access    | 47                          | 12                            | 480                             | 1202                 | 0.039 | 47                     | 2                                | 0.0                     | 0.0                   | 3.117     | Α                                   |
| C - A1173 W   | 1546                        | 386                           | 84                              | 1870                 | 0.827 | 1545                   | 444                              | 5.1                     | 5.3                   | 12.713    | В                                   |
| D - A1173 N   | 328                         | 82                            | 536                             | 1485                 | 0.221 | 328                    | 1093                             | 0.4                     | 0.4                   | 4.152     | Α                                   |



#### 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 189                         | 47                            | 205                             | 1786                 | 0.106 | 189                    | 505                              | 0.2                     | 0.2                   | 3.493     | А                                   |
| B - Access    | 39                          | 10                            | 392                             | 1254                 | 0.031 | 39                     | 2                                | 0.0                     | 0.0                   | 2.964     | Α                                   |
| C - A1173 W   | 1262                        | 316                           | 68                              | 1880                 | 0.671 | 1274                   | 363                              | 5.3                     | 2.4                   | 6.971     | А                                   |
| D - A1173 N   | 268                         | 67                            | 442                             | 1548                 | 0.173 | 268                    | 900                              | 0.4                     | 0.3                   | 3.755     | Α                                   |

#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 158                         | 40                            | 172                             | 1808                 | 0.087 | 158                    | 421                              | 0.2                     | 0.1                   | 3.383     | А                                   |
| B - Access    | 32                          | 8                             | 329                             | 1292                 | 0.025 | 32                     | 2                                | 0.0                     | 0.0                   | 2.858     | А                                   |
| C - A1173 W   | 1057                        | 264                           | 57                              | 1888                 | 0.560 | 1061                   | 304                              | 2.4                     | 1.5                   | 5.039     | А                                   |
| D - A1173 N   | 224                         | 56                            | 368                             | 1598                 | 0.140 | 225                    | 750                              | 0.3                     | 0.2                   | 3.496     | А                                   |



# 2025 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 5.38               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.38              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM                  | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 580                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 45                  | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 511                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 935                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 4          | 484         | 92          |
| From | B - Access    | 0             | 0          | 45          | 0           |
|      | C - A1173 W   | 134           | 0          | 0           | 377         |
|      | D - A1173 N   | 76            | 0          | 859         | 0           |

# **Vehicle Mix**

|      |               | То            |            |             |             |  |  |  |  |
|------|---------------|---------------|------------|-------------|-------------|--|--|--|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |  |  |  |
|      | A - Kiln Lane | 0             | 0          | 9           | 26          |  |  |  |  |
| From | B - Access    | 0             | 0          | 0           | 0           |  |  |  |  |
|      | C - A1173 W   | 51            | 0          | 0           | 28          |  |  |  |  |
|      | D - A1173 N   | 42            | 0          | 12          | 0           |  |  |  |  |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.50    | 6.17          | 1.1         | А       | 532                    | 798                              |
| B - Access    | 0.09    | 7.20          | 0.1         | A       | 41                     | 62                               |
| C - A1173 W   | 0.30    | 3.71          | 0.6         | Α       | 469                    | 703                              |
| D - A1173 N   | 0.59    | 5.71          | 1.6         | А       | 858                    | 1287                             |

# Main Results for each time segment

## 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 437                         | 109                           | 644                             | 1491                 | 0.293 | 435                    | 157                              | 0.0                     | 0.5                   | 3.787     | Α                                   |
| B - Access    | 34                          | 8                             | 1076                            | 849                  | 0.040 | 34                     | 3                                | 0.0                     | 0.0                   | 4.417     | Α                                   |
| C - A1173 W   | 385                         | 96                            | 69                              | 1880                 | 0.205 | 383                    | 1041                             | 0.0                     | 0.3                   | 3.204     | Α                                   |
| D - A1173 N   | 704                         | 176                           | 101                             | 1779                 | 0.396 | 701                    | 352                              | 0.0                     | 0.7                   | 3.796     | А                                   |

#### 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 521                         | 130                           | 771                             | 1406                 | 0.371 | 521                    | 189                              | 0.5                     | 0.7                   | 4.524     | Α                                   |
| B - Access    | 40                          | 10                            | 1288                            | 723                  | 0.056 | 40                     | 4                                | 0.0                     | 0.1                   | 5.277     | Α                                   |
| C - A1173 W   | 459                         | 115                           | 83                              | 1871                 | 0.246 | 459                    | 1246                             | 0.3                     | 0.4                   | 3.400     | Α                                   |
| D - A1173 N   | 841                         | 210                           | 120                             | 1766                 | 0.476 | 839                    | 421                              | 0.7                     | 1.0                   | 4.423     | Α                                   |

## 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 639                         | 160                           | 944                             | 1290                 | 0.495 | 637                    | 231                              | 0.7                     | 1.1                   | 6.122     | Α                                   |
| B - Access    | 50                          | 12                            | 1576                            | 552                  | 0.090 | 49                     | 4                                | 0.1                     | 0.1                   | 7.162     | Α                                   |
| C - A1173 W   | 563                         | 141                           | 101                             | 1858                 | 0.303 | 562                    | 1524                             | 0.4                     | 0.6                   | 3.702     | А                                   |
| D - A1173 N   | 1029                        | 257                           | 147                             | 1748                 | 0.589 | 1027                   | 516                              | 1.0                     | 1.6                   | 5.677     | Α                                   |

### 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 639                         | 160                           | 946                             | 1288                 | 0.496 | 639                    | 231                              | 1.1                     | 1.1                   | 6.167     | Α                                   |
| B - Access    | 50                          | 12                            | 1580                            | 550                  | 0.090 | 50                     | 4                                | 0.1                     | 0.1                   | 7.197     | Α                                   |
| C - A1173 W   | 563                         | 141                           | 101                             | 1858                 | 0.303 | 563                    | 1528                             | 0.6                     | 0.6                   | 3.705     | Α                                   |
| D - A1173 N   | 1029                        | 257                           | 148                             | 1747                 | 0.589 | 1029                   | 516                              | 1.6                     | 1.6                   | 5.713     | Α                                   |



## 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 521                         | 130                           | 774                             | 1403                 | 0.372 | 523                    | 189                              | 1.1                     | 0.7                   | 4.562     | Α                                   |
| B - Access    | 40                          | 10                            | 1294                            | 719                  | 0.056 | 41                     | 4                                | 0.1                     | 0.1                   | 5.305     | Α                                   |
| C - A1173 W   | 459                         | 115                           | 83                              | 1870                 | 0.246 | 460                    | 1251                             | 0.6                     | 0.4                   | 3.403     | Α                                   |
| D - A1173 N   | 841                         | 210                           | 121                             | 1766                 | 0.476 | 843                    | 422                              | 1.6                     | 1.0                   | 4.458     | Α                                   |

#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 437                         | 109                           | 648                             | 1489                 | 0.293 | 437                    | 158                              | 0.7                     | 0.5                   | 3.817     | Α                                   |
| B - Access    | 34                          | 8                             | 1082                            | 845                  | 0.040 | 34                     | 3                                | 0.1                     | 0.0                   | 4.440     | Α                                   |
| C - A1173 W   | 385                         | 96                            | 69                              | 1880                 | 0.205 | 385                    | 1047                             | 0.4                     | 0.3                   | 3.211     | Α                                   |
| D - A1173 N   | 704                         | 176                           | 101                             | 1779                 | 0.396 | 705                    | 353                              | 1.0                     | 0.8                   | 3.823     | А                                   |



# 2032 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 4.95               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.95              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 166                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 0                   | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 1035                | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 196                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |  |
|------|---------------|---------------|------------|-------------|-------------|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |
|      | A - Kiln Lane | 0             | 0          | 87          | 79          |  |
| From | B - Access    | 0             | 0          | 0           | 0           |  |
|      | C - A1173 W   | 435           | 2          | 0           | 598         |  |
|      | D - A1173 N   | 75            | 0          | 121         | 0           |  |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 49          | 50          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 11            | 0          | 0           | 10          |
|      | D - A1173 N   | 26            | 0          | 39          | 0           |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.10    | 3.26          | 0.2         | А       | 152                    | 228                              |
| B - Access    | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| C - A1173 W   | 0.61    | 5.46          | 1.7         | A       | 950                    | 1425                             |
| D - A1173 N   | 0.14    | 3.68          | 0.2         | А       | 180                    | 270                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 125                         | 31                            | 92                              | 1862                 | 0.067 | 125                    | 382                              | 0.0                     | 0.1                   | 3.097     | Α                                   |
| B - Access    | 0                           | 0                             | 215                             | 1359                 | 0.000 | 0                      | 1                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 779                         | 195                           | 59                              | 1887                 | 0.413 | 776                    | 156                              | 0.0                     | 0.8                   | 3.568     | Α                                   |
| D - A1173 N   | 148                         | 37                            | 328                             | 1626                 | 0.091 | 147                    | 508                              | 0.0                     | 0.1                   | 3.256     | Α                                   |

#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 149                         | 37                            | 110                             | 1850                 | 0.081 | 149                    | 458                              | 0.1                     | 0.1                   | 3.163     | Α                                   |
| B - Access    | 0                           | 0                             | 258                             | 1333                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 930                         | 233                           | 71                              | 1879                 | 0.495 | 929                    | 187                              | 0.8                     | 1.1                   | 4.181     | Α                                   |
| D - A1173 N   | 176                         | 44                            | 392                             | 1582                 | 0.111 | 176                    | 608                              | 0.1                     | 0.2                   | 3.423     | Α                                   |

## 07:15 - 07:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 183                         | 46                            | 135                             | 1833                 | 0.100 | 183                    | 560                              | 0.1                     | 0.2                   | 3.260     | Α                                   |
| B - Access    | 0                           | 0                             | 316                             | 1299                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 1140                        | 285                           | 87                              | 1868                 | 0.610 | 1137                   | 229                              | 1.1                     | 1.7                   | 5.422     | Α                                   |
| D - A1173 N   | 216                         | 54                            | 480                             | 1523                 | 0.142 | 216                    | 744                              | 0.2                     | 0.2                   | 3.683     | Α                                   |

#### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 183                         | 46                            | 135                             | 1833                 | 0.100 | 183                    | 561                              | 0.2                     | 0.2                   | 3.260     | Α                                   |
| B - Access    | 0                           | 0                             | 316                             | 1299                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 1140                        | 285                           | 87                              | 1867                 | 0.610 | 1140                   | 229                              | 1.7                     | 1.7                   | 5.459     | Α                                   |
| D - A1173 N   | 216                         | 54                            | 481                             | 1522                 | 0.142 | 216                    | 745                              | 0.2                     | 0.2                   | 3.684     | А                                   |

## 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 149                         | 37                            | 111                             | 1849                 | 0.081 | 149                    | 460                              | 0.2                     | 0.1                   | 3.167     | А                                   |
| B - Access    | 0                           | 0                             | 258                             | 1333                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 930                         | 233                           | 71                              | 1878                 | 0.495 | 933                    | 187                              | 1.7                     | 1.1                   | 4.215     | А                                   |
| D - A1173 N   | 176                         | 44                            | 394                             | 1581                 | 0.111 | 176                    | 610                              | 0.2                     | 0.2                   | 3.427     | Α                                   |



#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 125                         | 31                            | 93                              | 1862                 | 0.067 | 125                    | 385                              | 0.1                     | 0.1                   | 3.098     | Α                                   |
| B - Access    | 0                           | 0                             | 216                             | 1358                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 779                         | 195                           | 60                              | 1886                 | 0.413 | 780                    | 157                              | 1.1                     | 0.8                   | 3.599     | Α                                   |
| D - A1173 N   | 148                         | 37                            | 330                             | 1624                 | 0.091 | 148                    | 510                              | 0.2                     | 0.1                   | 3.262     | Α                                   |



# **2032 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 3.95               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.95              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | <b>✓</b>     | 573                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 278                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 644                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 4          | 474         | 95          |
| From | B - Access    | 0             | 0          | 2           | 0           |
|      | C - A1173 W   | 119           | 0          | 0           | 159         |
|      | D - A1173 N   | 79            | 0          | 565         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 8           | 26          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 56            | 0          | 0           | 11          |
|      | D - A1173 N   | 42            | 0          | 9           | 0           |



# Results Summary for whole modelled period

| Arm              | Arm Max RFC Max Delay |      | Max Delay (s) Max Q (PCU) |       | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|------------------|-----------------------|------|---------------------------|-------|------------------------|----------------------------------|--|
| A - Kiln Lane    | 0.42                  | 4.55 | 0.8                       | 0.8 A |                        | 789                              |  |
| B - Access 0.00  |                       | 0.00 | 0.0                       | А     | 0                      | 0                                |  |
| C - A1173 W      | 0.16                  | 2.94 | 0.2                       | А     | 255                    | 383                              |  |
| D - A1173 N 0.40 |                       | 3.85 | 0.8                       | А     | 591                    | 886                              |  |

# Main Results for each time segment

## 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 431                         | 108                           | 424                             | 1639                 | 0.263 | 430                    | 149                              | 0.0                     | 0.4                   | 3.287     | Α                                   |
| B - Access    | 0                           | 0                             | 851                             | 982                  | 0.000 | 0                      | 3                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 209                         | 52                            | 71                              | 1878                 | 0.111 | 209                    | 779                              | 0.0                     | 0.2                   | 2.730     | А                                   |
| D - A1173 N   | 485                         | 121                           | 89                              | 1787                 | 0.271 | 483                    | 191                              | 0.0                     | 0.4                   | 3.094     | А                                   |

## 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 515                         | 129                           | 507                             | 1583                 | 0.325 | 515                    | 178                              | 0.4                     | 0.5                   | 3.723     | Α                                   |
| B - Access    | 0                           | 0                             | 1018                            | 883                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 250                         | 62                            | 85                              | 1869                 | 0.134 | 250                    | 933                              | 0.2                     | 0.2                   | 2.815     | А                                   |
| D - A1173 N   | 579                         | 145                           | 107                             | 1775                 | 0.326 | 578                    | 228                              | 0.4                     | 0.5                   | 3.373     | А                                   |

#### 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------|
| A - Kiln Lane | 631                         | 158                           | 621                             | 1506                 | 0.419 | 630                    | 218                              | 0.5                     | 0.8                   | 4.535     | Α                             |
| B - Access    | 0                           | 0                             | 1247                            | 747                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | А                             |
| C - A1173 W   | 306                         | 77                            | 104                             | 1855                 | 0.165 | 306                    | 1142                             | 0.2                     | 0.2                   | 2.941     | Α                             |
| D - A1173 N   | 709                         | 177                           | 131                             | 1759                 | 0.403 | 708                    | 279                              | 0.5                     | 0.8                   | 3.842     | А                             |

## 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 631                         | 158                           | 622                             | 1506                 | 0.419 | 631                    | 218                              | 0.8                     | 0.8                   | 4.548     | Α                                   |
| B - Access    | 0                           | 0                             | 1249                            | 746                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 306                         | 77                            | 105                             | 1855                 | 0.165 | 306                    | 1144                             | 0.2                     | 0.2                   | 2.942     | Α                                   |
| D - A1173 N   | 709                         | 177                           | 131                             | 1759                 | 0.403 | 709                    | 280                              | 0.8                     | 0.8                   | 3.848     | А                                   |

## 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 515                         | 129                           | 509                             | 1582                 | 0.326 | 516                    | 178                              | 0.8                     | 0.5                   | 3.736     | Α                                   |
| B - Access    | 0                           | 0                             | 1021                            | 881                  | 0.000 | 0                      | 4                                | 0.0                     | 0.0                   | 0.000     | А                                   |
| C - A1173 W   | 250                         | 62                            | 86                              | 1868                 | 0.134 | 250                    | 936                              | 0.2                     | 0.2                   | 2.816     | А                                   |
| D - A1173 N   | 579                         | 145                           | 107                             | 1775                 | 0.326 | 580                    | 229                              | 0.8                     | 0.5                   | 3.381     | А                                   |



#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 431                         | 108                           | 426                             | 1638                 | 0.263 | 432                    | 149                              | 0.5                     | 0.4                   | 3.301     | Α                                   |
| B - Access    | 0                           | 0                             | 855                             | 980                  | 0.000 | 0                      | 3                                | 0.0                     | 0.0                   | 0.000     | Α                                   |
| C - A1173 W   | 209                         | 52                            | 72                              | 1878                 | 0.111 | 209                    | 783                              | 0.2                     | 0.2                   | 2.733     | Α                                   |
| D - A1173 N   | 485                         | 121                           | 90                              | 1787                 | 0.271 | 485                    | 191                              | 0.5                     | 0.4                   | 3.104     | А                                   |



# 2032 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 7.38               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 7.38              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 217                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 43                  | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 1280                | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 209                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 138         | 79          |
| From | B - Access    | 0             | 0          | 43          | 0           |
|      | C - A1173 W   | 502           | 2          | 0           | 776         |
|      | D - A1173 N   | 75            | 0          | 134         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 58          | 50          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 18            | 0          | 0           | 8           |
|      | D - A1173 N   | 26            | 0          | 35          | 0           |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - Kiln Lane | 0.13    | 3.52          | 0.2         | А       | 199                    | 299                              |  |
| B - Access    | 0.04    | 2.97          | 0.0         | А       | 39                     | 59                               |  |
| C - A1173 W   | 0.75    | 8.76          | 3.4         | А       | 1175                   | 1762                             |  |
| D - A1173 N   | 0.16    | 3.81          | 0.2         | А       | 192                    | 288                              |  |

# Main Results for each time segment

## 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 163                         | 41                            | 102                             | 1855                 | 0.088 | 163                    | 432                              | 0.0                     | 0.1                   | 3.296     | Α                                   |
| B - Access    | 32                          | 8                             | 263                             | 1330                 | 0.024 | 32                     | 1                                | 0.0                     | 0.0                   | 2.773     | Α                                   |
| C - A1173 W   | 964                         | 241                           | 59                              | 1887                 | 0.511 | 959                    | 236                              | 0.0                     | 1.2                   | 4.313     | А                                   |
| D - A1173 N   | 157                         | 39                            | 378                             | 1592                 | 0.099 | 157                    | 641                              | 0.0                     | 0.1                   | 3.299     | Α                                   |

#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 195                         | 49                            | 122                             | 1842                 | 0.106 | 195                    | 518                              | 0.1                     | 0.2                   | 3.387     | Α                                   |
| B - Access    | 39                          | 10                            | 315                             | 1299                 | 0.030 | 39                     | 2                                | 0.0                     | 0.0                   | 2.854     | Α                                   |
| C - A1173 W   | 1151                        | 288                           | 71                              | 1879                 | 0.613 | 1148                   | 283                              | 1.2                     | 1.7                   | 5.489     | Α                                   |
| D - A1173 N   | 188                         | 47                            | 452                             | 1541                 | 0.122 | 188                    | 767                              | 0.1                     | 0.2                   | 3.500     | Α                                   |

# 07:15 - 07:30

| Arm          | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|--------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lar | <b>e</b> 239                | 60                            | 150                             | 1823                 | 0.131 | 239                    | 633                              | 0.2                     | 0.2                   | 3.520     | Α                                   |
| B - Access   | 47                          | 12                            | 386                             | 1257                 | 0.038 | 47                     | 2                                | 0.0                     | 0.0                   | 2.974     | А                                   |
| C - A1173 W  | 1409                        | 352                           | 87                              | 1868                 | 0.755 | 1403                   | 347                              | 1.7                     | 3.3                   | 8.542     | А                                   |
| D - A1173 N  | 230                         | 58                            | 552                             | 1474                 | 0.156 | 230                    | 937                              | 0.2                     | 0.2                   | 3.809     | Α                                   |

### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 239                         | 60                            | 150                             | 1823                 | 0.131 | 239                    | 635                              | 0.2                     | 0.2                   | 3.520     | Α                                   |
| B - Access    | 47                          | 12                            | 386                             | 1257                 | 0.038 | 47                     | 2                                | 0.0                     | 0.0                   | 2.974     | Α                                   |
| C - A1173 W   | 1409                        | 352                           | 87                              | 1867                 | 0.755 | 1409                   | 347                              | 3.3                     | 3.4                   | 8.759     | Α                                   |
| D - A1173 N   | 230                         | 58                            | 555                             | 1472                 | 0.156 | 230                    | 941                              | 0.2                     | 0.2                   | 3.814     | Α                                   |



## 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 195                         | 49                            | 122                             | 1842                 | 0.106 | 195                    | 521                              | 0.2                     | 0.2                   | 3.391     | Α                                   |
| B - Access    | 39                          | 10                            | 316                             | 1299                 | 0.030 | 39                     | 2                                | 0.0                     | 0.0                   | 2.858     | А                                   |
| C - A1173 W   | 1151                        | 288                           | 71                              | 1878                 | 0.613 | 1157                   | 283                              | 3.4                     | 1.8                   | 5.622     | А                                   |
| D - A1173 N   | 188                         | 47                            | 456                             | 1539                 | 0.122 | 188                    | 773                              | 0.2                     | 0.2                   | 3.507     | А                                   |

#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 163                         | 41                            | 102                             | 1855                 | 0.088 | 164                    | 435                              | 0.2                     | 0.2                   | 3.300     | Α                                   |
| B - Access    | 32                          | 8                             | 264                             | 1330                 | 0.024 | 32                     | 2                                | 0.0                     | 0.0                   | 2.777     | А                                   |
| C - A1173 W   | 964                         | 241                           | 60                              | 1886                 | 0.511 | 966                    | 237                              | 1.8                     | 1.2                   | 4.380     | А                                   |
| D - A1173 N   | 157                         | 39                            | 380                             | 1590                 | 0.099 | 158                    | 645                              | 0.2                     | 0.1                   | 3.310     | А                                   |



# 2032 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Standard Roundabout |                       | A, B, C, D | 4.76               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.76              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| 11 | Scenario name           | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D' | 2 2032 Base + Committed | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 600                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 45                  | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 301                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 827                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |  |
|------|---------------|---------------|------------|-------------|-------------|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |
|      | A - Kiln Lane | 0             | 4          | 501         | 95          |  |
| From | B - Access    | 0             | 0          | 45          | 0           |  |
|      | C - A1173 W   | 138           | 0          | 0           | 163         |  |
|      | D - A1173 N   | 79            | 0          | 748         | 0           |  |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 9           | 26          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 51            | 0          | 0           | 10          |
|      | D - A1173 N   | 42            | 0          | 6           | 0           |



# Results Summary for whole modelled period

| Arm              | Max RFC          | Max RFC Max Delay (s) |     | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|------------------|------------------|-----------------------|-----|---------|------------------------|----------------------------------|--|
| A - Kiln Lane    | n Lane 0.48 5.64 |                       | 1.0 | А       | 551                    | 826                              |  |
| B - Access       | 0.08             | 6.43                  | 0.1 | А       | 41                     | 62                               |  |
| C - A1173 W      | - A1173 W 0.18   |                       | 0.3 | А       | 276                    | 414                              |  |
| D - A1173 N 0.52 |                  | 4.69                  | 1.2 | Α       | 759                    | 1138                             |  |

# Main Results for each time segment

## 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 452                         | 113                           | 561                             | 1547                 | 0.292 | 450                    | 163                              | 0.0                     | 0.5                   | 3.646     | Α                                   |
| B - Access    | 34                          | 8                             | 1008                            | 889                  | 0.038 | 34                     | 3                                | 0.0                     | 0.0                   | 4.210     | Α                                   |
| C - A1173 W   | 227                         | 57                            | 71                              | 1878                 | 0.121 | 226                    | 970                              | 0.0                     | 0.2                   | 2.735     | А                                   |
| D - A1173 N   | 623                         | 156                           | 104                             | 1777                 | 0.350 | 620                    | 194                              | 0.0                     | 0.6                   | 3.373     | А                                   |

#### 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 539                         | 135                           | 672                             | 1472                 | 0.366 | 539                    | 195                              | 0.5                     | 0.6                   | 4.287     | Α                                   |
| B - Access    | 40                          | 10                            | 1207                            | 771                  | 0.052 | 40                     | 4                                | 0.0                     | 0.1                   | 4.928     | Α                                   |
| C - A1173 W   | 271                         | 68                            | 85                              | 1869                 | 0.145 | 270                    | 1162                             | 0.2                     | 0.2                   | 2.829     | А                                   |
| D - A1173 N   | 743                         | 186                           | 124                             | 1763                 | 0.422 | 743                    | 232                              | 0.6                     | 0.8                   | 3.827     | Α                                   |

## 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 661                         | 165                           | 822                             | 1371                 | 0.482 | 659                    | 239                              | 0.6                     | 1.0                   | 5.613     | Α                                   |
| B - Access    | 50                          | 12                            | 1477                            | 611                  | 0.081 | 49                     | 4                                | 0.1                     | 0.1                   | 6.411     | Α                                   |
| C - A1173 W   | 331                         | 83                            | 104                             | 1855                 | 0.179 | 331                    | 1422                             | 0.2                     | 0.3                   | 2.967     | Α                                   |
| D - A1173 N   | 911                         | 228                           | 152                             | 1744                 | 0.522 | 909                    | 284                              | 0.8                     | 1.2                   | 4.672     | А                                   |

### 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 661                         | 165                           | 824                             | 1370                 | 0.482 | 661                    | 239                              | 1.0                     | 1.0                   | 5.645     | Α                                   |
| B - Access    | 50                          | 12                            | 1480                            | 609                  | 0.081 | 50                     | 4                                | 0.1                     | 0.1                   | 6.433     | Α                                   |
| C - A1173 W   | 331                         | 83                            | 105                             | 1855                 | 0.179 | 331                    | 1425                             | 0.3                     | 0.3                   | 2.967     | Α                                   |
| D - A1173 N   | 911                         | 228                           | 152                             | 1744                 | 0.522 | 911                    | 284                              | 1.2                     | 1.2                   | 4.689     | Α                                   |



## 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 539                         | 135                           | 674                             | 1471                 | 0.367 | 541                    | 195                              | 1.0                     | 0.6                   | 4.316     | Α                                   |
| B - Access    | 40                          | 10                            | 1211                            | 768                  | 0.053 | 41                     | 4                                | 0.1                     | 0.1                   | 4.947     | Α                                   |
| C - A1173 W   | 271                         | 68                            | 86                              | 1868                 | 0.145 | 271                    | 1166                             | 0.3                     | 0.2                   | 2.833     | Α                                   |
| D - A1173 N   | 743                         | 186                           | 124                             | 1763                 | 0.422 | 745                    | 232                              | 1.2                     | 0.8                   | 3.846     | Α                                   |

#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 452                         | 113                           | 564                             | 1545                 | 0.292 | 452                    | 164                              | 0.6                     | 0.5                   | 3.672     | Α                                   |
| B - Access    | 34                          | 8                             | 1013                            | 886                  | 0.038 | 34                     | 3                                | 0.1                     | 0.0                   | 4.227     | Α                                   |
| C - A1173 W   | 227                         | 57                            | 72                              | 1878                 | 0.121 | 227                    | 976                              | 0.2                     | 0.2                   | 2.738     | Α                                   |
| D - A1173 N   | 623                         | 156                           | 104                             | 1777                 | 0.350 | 623                    | 194                              | 0.8                     | 0.6                   | 3.392     | А                                   |



# 2032 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 11.71              | В            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 11.71             | В           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period Traffic profile name type |          | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|---------------------------------------|----------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM                                    | ONE HOUR | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|---------------------------|---|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR                  | ✓ | 217                 | 100.000            |
| B - Access    |            | ONE HOUR                  | ✓ | 43                  | 100.000            |
| C - A1173 W   |            | ONE HOUR                  | ✓ | 1444                | 100.000            |
| D - A1173 N   |            | ONE HOUR                  | ✓ | 305                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               | То            |            |             |             |  |  |  |  |  |  |
|------|---------------|---------------|------------|-------------|-------------|--|--|--|--|--|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |  |  |  |  |  |
|      | A - Kiln Lane | 0             | 0          | 138         | 79          |  |  |  |  |  |  |
| From | B - Access    | 0             | 0          | 43          | 0           |  |  |  |  |  |  |
|      | C - A1173 W   | 502           | 2          | 0           | 940         |  |  |  |  |  |  |
|      | D - A1173 N   | 75            | 0          | 230         | 0           |  |  |  |  |  |  |

# **Vehicle Mix**

|      |               | То            |            |             |             |  |  |  |  |  |  |
|------|---------------|---------------|------------|-------------|-------------|--|--|--|--|--|--|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |  |  |  |  |  |  |
|      | A - Kiln Lane | 0             | 0          | 58          | 50          |  |  |  |  |  |  |
| From | B - Access    | 0             | 0          | 0           | 0           |  |  |  |  |  |  |
|      | C - A1173 W   | 18            | 0          | 0           | 14          |  |  |  |  |  |  |
|      | D - A1173 N   | 26            | 0          | 36          | 0           |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | ax Delay (s) Max Q (PCU) |   | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|--------------------------|---|------------------------|----------------------------------|
| A - Kiln Lane | 0.14    | 3.69          | 0.2                      | А | 199                    | 299                              |
| B - Access    | 0.04    | 3.14          | 0.0                      | A | 39                     | 59                               |
| C - A1173 W   | 0.85    | 14.75         | 6.3                      | В | 1325                   | 1988                             |
| D - A1173 N   | 0.23    | 4.23          | 0.4                      | Α | 280                    | 420                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 163                         | 41                            | 174                             | 1807                 | 0.090 | 163                    | 432                              | 0.0                     | 0.2                   | 3.394     | Α                                   |
| B - Access    | 32                          | 8                             | 335                             | 1288                 | 0.025 | 32                     | 1                                | 0.0                     | 0.0                   | 2.867     | Α                                   |
| C - A1173 W   | 1087                        | 272                           | 59                              | 1887                 | 0.576 | 1081                   | 308                              | 0.0                     | 1.5                   | 5.115     | А                                   |
| D - A1173 N   | 230                         | 57                            | 377                             | 1592                 | 0.144 | 229                    | 763                              | 0.0                     | 0.2                   | 3.521     | А                                   |

#### 07:00 - 07:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 195                         | 49                            | 208                             | 1784                 | 0.109 | 195                    | 517                              | 0.2                     | 0.2                   | 3.511     | Α                                   |
| B - Access    | 39                          | 10                            | 402                             | 1248                 | 0.031 | 39                     | 2                                | 0.0                     | 0.0                   | 2.975     | Α                                   |
| C - A1173 W   | 1298                        | 325                           | 71                              | 1879                 | 0.691 | 1294                   | 369                              | 1.5                     | 2.5                   | 7.057     | Α                                   |
| D - A1173 N   | 274                         | 69                            | 452                             | 1542                 | 0.178 | 274                    | 913                              | 0.2                     | 0.3                   | 3.787     | Α                                   |

# 07:15 - 07:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 239                         | 60                            | 255                             | 1752                 | 0.136 | 239                    | 630                              | 0.2                     | 0.2                   | 3.685     | Α                                   |
| B - Access    | 47                          | 12                            | 492                             | 1195                 | 0.040 | 47                     | 2                                | 0.0                     | 0.0                   | 3.136     | Α                                   |
| C - A1173 W   | 1590                        | 397                           | 87                              | 1868                 | 0.851 | 1576                   | 452                              | 2.5                     | 6.0                   | 13.621    | В                                   |
| D - A1173 N   | 336                         | 84                            | 550                             | 1475                 | 0.228 | 335                    | 1113                             | 0.3                     | 0.4                   | 4.212     | Α                                   |

### 07:30 - 07:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 239                         | 60                            | 255                             | 1752                 | 0.136 | 239                    | 635                              | 0.2                     | 0.2                   | 3.686     | Α                                   |
| B - Access    | 47                          | 12                            | 492                             | 1195                 | 0.040 | 47                     | 2                                | 0.0                     | 0.0                   | 3.137     | А                                   |
| C - A1173 W   | 1590                        | 397                           | 87                              | 1867                 | 0.851 | 1589                   | 453                              | 6.0                     | 6.3                   | 14.749    | В                                   |
| D - A1173 N   | 336                         | 84                            | 555                             | 1472                 | 0.228 | 336                    | 1121                             | 0.4                     | 0.4                   | 4.225     | Α                                   |



## 07:45 - 08:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 195                         | 49                            | 209                             | 1783                 | 0.109 | 195                    | 524                              | 0.2                     | 0.2                   | 3.515     | Α                                   |
| B - Access    | 39                          | 10                            | 402                             | 1248                 | 0.031 | 39                     | 2                                | 0.0                     | 0.0                   | 2.976     | Α                                   |
| C - A1173 W   | 1298                        | 325                           | 71                              | 1878                 | 0.691 | 1313                   | 370                              | 6.3                     | 2.6                   | 7.519     | Α                                   |
| D - A1173 N   | 274                         | 69                            | 458                             | 1537                 | 0.178 | 275                    | 926                              | 0.4                     | 0.3                   | 3.806     | Α                                   |

#### 08:00 - 08:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 163                         | 41                            | 175                             | 1806                 | 0.090 | 164                    | 436                              | 0.2                     | 0.2                   | 3.398     | Α                                   |
| B - Access    | 32                          | 8                             | 337                             | 1287                 | 0.025 | 32                     | 2                                | 0.0                     | 0.0                   | 2.872     | Α                                   |
| C - A1173 W   | 1087                        | 272                           | 60                              | 1886                 | 0.576 | 1091                   | 310                              | 2.6                     | 1.6                   | 5.250     | Α                                   |
| D - A1173 N   | 230                         | 57                            | 381                             | 1590                 | 0.144 | 230                    | 770                              | 0.3                     | 0.2                   | 3.531     | А                                   |



# 2032 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | A, B, C, D | 5.62               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 5.62              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm           | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|---------------|------------|--------------|--------------|---------------------|--------------------|
| A - Kiln Lane |            | ONE HOUR     | ✓            | 600                 | 100.000            |
| B - Access    |            | ONE HOUR     | ✓            | 45                  | 100.000            |
| C - A1173 W   |            | ONE HOUR     | ✓            | 521                 | 100.000            |
| D - A1173 N   |            | ONE HOUR     | ✓            | 959                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 4          | 501         | 95          |
| From | B - Access    | 0             | 0          | 45          | 0           |
|      | C - A1173 W   | 138           | 0          | 0           | 383         |
|      | D - A1173 N   | 79            | 0          | 880         | 0           |

# **Vehicle Mix**

|      |               |               | То         |             |             |
|------|---------------|---------------|------------|-------------|-------------|
|      |               | A - Kiln Lane | B - Access | C - A1173 W | D - A1173 N |
|      | A - Kiln Lane | 0             | 0          | 9           | 26          |
| From | B - Access    | 0             | 0          | 0           | 0           |
|      | C - A1173 W   | 51            | 0          | 0           | 28          |
|      | D - A1173 N   | 42            | 0          | 12          | 0           |



# Results

#### Results Summary for whole modelled period

| Arm           | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|---------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Kiln Lane | 0.52    | 6.55          | 1.2         | А       | 551                    | 826                              |
| B - Access    | 0.09    | 7.60          | 0.1         | А       | 41                     | 62                               |
| C - A1173 W   | 0.31    | 3.75          | 0.6         | А       | 478                    | 717                              |
| D - A1173 N   | 0.61    | 5.96          | 1.7         | A       | 880                    | 1320                             |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 452                         | 113                           | 660                             | 1481                 | 0.305 | 450                    | 163                              | 0.0                     | 0.5                   | 3.881     | Α                                   |
| B - Access    | 34                          | 8                             | 1106                            | 830                  | 0.041 | 34                     | 3                                | 0.0                     | 0.0                   | 4.517     | Α                                   |
| C - A1173 W   | 392                         | 98                            | 71                              | 1878                 | 0.209 | 391                    | 1069                             | 0.0                     | 0.4                   | 3.225     | Α                                   |
| D - A1173 N   | 722                         | 180                           | 104                             | 1777                 | 0.406 | 719                    | 359                              | 0.0                     | 0.8                   | 3.867     | Α                                   |

#### 16:00 - 16:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 539                         | 135                           | 790                             | 1393                 | 0.387 | 539                    | 195                              | 0.5                     | 0.7                   | 4.685     | Α                                   |
| B - Access    | 40                          | 10                            | 1325                            | 701                  | 0.058 | 40                     | 4                                | 0.0                     | 0.1                   | 5.450     | Α                                   |
| C - A1173 W   | 468                         | 117                           | 85                              | 1869                 | 0.251 | 468                    | 1280                             | 0.4                     | 0.4                   | 3.428     | Α                                   |
| D - A1173 N   | 862                         | 216                           | 124                             | 1763                 | 0.489 | 861                    | 429                              | 0.8                     | 1.1                   | 4.540     | Α                                   |

#### 16:15 - 16:30

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 661                         | 165                           | 967                             | 1274                 | 0.518 | 659                    | 239                              | 0.7                     | 1.2                   | 6.488     | Α                                   |
| B - Access    | 50                          | 12                            | 1621                            | 525                  | 0.094 | 49                     | 4                                | 0.1                     | 0.1                   | 7.561     | Α                                   |
| C - A1173 W   | 574                         | 143                           | 104                             | 1855                 | 0.309 | 573                    | 1566                             | 0.4                     | 0.6                   | 3.742     | Α                                   |
| D - A1173 N   | 1056                        | 264                           | 152                             | 1745                 | 0.605 | 1053                   | 526                              | 1.1                     | 1.7                   | 5.913     | Α                                   |

#### 16:30 - 16:45

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 661                         | 165                           | 969                             | 1273                 | 0.519 | 661                    | 239                              | 1.2                     | 1.2                   | 6.545     | Α                                   |
| B - Access    | 50                          | 12                            | 1625                            | 523                  | 0.095 | 50                     | 4                                | 0.1                     | 0.1                   | 7.603     | Α                                   |
| C - A1173 W   | 574                         | 143                           | 105                             | 1855                 | 0.309 | 574                    | 1570                             | 0.6                     | 0.6                   | 3.745     | Α                                   |
| D - A1173 N   | 1056                        | 264                           | 152                             | 1744                 | 0.605 | 1056                   | 526                              | 1.7                     | 1.7                   | 5.958     | Α                                   |



#### 16:45 - 17:00

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 539                         | 135                           | 793                             | 1391                 | 0.388 | 541                    | 195                              | 1.2                     | 0.7                   | 4.728     | А                                   |
| B - Access    | 40                          | 10                            | 1331                            | 697                  | 0.058 | 41                     | 4                                | 0.1                     | 0.1                   | 5.486     | Α                                   |
| C - A1173 W   | 468                         | 117                           | 86                              | 1868                 | 0.251 | 469                    | 1286                             | 0.6                     | 0.4                   | 3.434     | А                                   |
| D - A1173 N   | 862                         | 216                           | 124                             | 1763                 | 0.489 | 865                    | 430                              | 1.7                     | 1.1                   | 4.579     | А                                   |

#### 17:00 - 17:15

| Arm           | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|---------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - Kiln Lane | 452                         | 113                           | 664                             | 1478                 | 0.306 | 453                    | 164                              | 0.7                     | 0.5                   | 3.913     | Α                                   |
| B - Access    | 34                          | 8                             | 1113                            | 826                  | 0.041 | 34                     | 3                                | 0.1                     | 0.0                   | 4.545     | Α                                   |
| C - A1173 W   | 392                         | 98                            | 72                              | 1878                 | 0.209 | 393                    | 1076                             | 0.4                     | 0.4                   | 3.235     | Α                                   |
| D - A1173 N   | 722                         | 180                           | 104                             | 1777                 | 0.406 | 723                    | 360                              | 1.1                     | 0.8                   | 3.899     | А                                   |

#### **Annex TN2 E**

A1173/ SHIIP Roundabout



### **Junctions 10**

#### **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: A1173-SHIIP.j10

Path: P:\23000's\23325\Junction Assessment\A1173-SHIIP\_Junctions 10 Report

Report generation date: 05/08/2022 10:09:20

- »2021 Baseline, AM
- »2021 Baseline, PM
- »2025 Baseline, AM
- »2025 Baseline, PM
- »2025 Baseline + Committed, AM
- »2025 Baseline + Committed, PM
- »2025 Baseline + Committed + Development, AM
- »2025 Baseline + Committed + Development, PM
- »2032 Baseline, AM
- »2032 Baseline, PM
- »2032 Baseline + Committed, AM
- »2032 Baseline + Committed, PM
- »2032 Baseline + Committed + Development, AM
- »2032 Baseline + Committed + Development, PM



#### Summary of junction performance

|                |         | AM        |        |          | PM        |      |
|----------------|---------|-----------|--------|----------|-----------|------|
|                | Q (PCU) | Delay (s) | RFC    | Q (PCU)  | Delay (s) | RFC  |
|                |         | 2         | 021 B  | aseline  |           |      |
| SHIIP Access S | 0.1     | 4.30      | 0.10   | 0.1      | 2.67      | 0.12 |
| A1173 W        | 0.2     | 1.77      | 0.14   | 0.8      | 2.38      | 0.43 |
| SHIIP Access N | 0.0     | 2.95      | 0.02   | 0.0      | 4.29      | 0.04 |
| A1173 E        | 0.7     | 2.40      | 0.40   | 0.2      | 1.98      | 0.13 |
|                |         | 2         | 025 B  | aseline  |           |      |
| SHIIP Access S | 0.1     | 4.40      | 0.10   | 0.2      | 2.70      | 0.12 |
| A1173 W        | 0.2     | 1.78      | 0.15   | 0.9      | 2.43      | 0.44 |
| SHIIP Access N | 0.0     | 2.96      | 0.02   | 0.0      | 4.40      | 0.04 |
| A1173 E        | 0.8     | 2.45      | 0.41   | 0.2      | 1.99      | 0.13 |
|                |         | 2025 Ba   | seline | + Comn   | nitted    |      |
| SHIIP Access S | 0.1     | 4.61      | 0.11   | 0.2      | 2.76      | 0.12 |
| A1173 W        | 0.3     | 1.94      | 0.17   | 0.9      | 2.50      | 0.45 |
| SHIIP Access N | 0.0     | 3.07      | 0.02   | 0.0      | 4.47      | 0.04 |
| A1173 E        | 0.9     | 2.62      | 0.44   | 0.2      | 2.03      | 0.15 |
|                | 2025 B  | aseline + | Com    | mitted + | Developn  | nent |
| SHIIP Access S | 0.2     | 4.99      | 0.12   | 0.2      | 2.97      | 0.13 |
| A1173 W        | 0.4     | 2.13      | 0.23   | 1.3      | 3.06      | 0.53 |
| SHIIP Access N | 0.0     | 3.34      | 0.02   | 0.1      | 5.46      | 0.05 |
| A1173 E        | 1.0     | 2.85      | 0.48   | 0.3      | 2.18      | 0.20 |
|                |         | 2         | 032 B  | aseline  |           |      |
| SHIIP Access S | 0.2     | 4.56      | 0.11   | 0.2      | 2.73      | 0.13 |
| A1173 W        | 0.2     | 1.80      | 0.15   | 0.9      | 2.51      | 0.46 |
| SHIIP Access N | 0.0     | 2.99      | 0.02   | 0.1      | 4.57      | 0.04 |
| A1173 E        | 0.8     | 2.53      | 0.43   | 0.2      | 2.00      | 0.13 |
|                |         | 2032 Ba   | seline | + Comn   | nitted    |      |
| SHIIP Access S | 0.2     | 4.79      | 0.11   | 0.2      | 2.79      | 0.13 |
| A1173 W        | 0.3     | 1.95      | 0.18   | 1.0      | 2.59      | 0.46 |
| SHIIP Access N | 0.0     | 3.09      | 0.02   | 0.1      | 4.64      | 0.04 |
| A1173 E        | 0.9     | 2.71      | 0.46   | 0.2      | 2.05      | 0.15 |
|                | 2032 B  | aseline + | Com    | mitted + | Developn  | nent |
| SHIIP Access S | 0.2     | 5.20      | 0.12   | 0.2      | 3.01      | 0.14 |
| A1173 W        | 0.4     | 2.15      | 0.24   | 1.4      | 3.18      | 0.55 |
| SHIIP Access N | 0.0     | 3.37      | 0.02   | 0.1      | 5.72      | 0.05 |
| A1173 E        | 1.1     | 2.96      | 0.49   | 0.3      | 2.20      | 0.20 |

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



#### File summary

#### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 02/08/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |

#### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

#### **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

### **Demand Set Summary**

| ID  | Scenario name                           | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|---|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Baseline                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Baseline                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Baseline                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Baseline                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Baseline + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Baseline + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Baseline + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Baseline + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Baseline                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Baseline                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Baseline + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Baseline + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Baseline + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Baseline + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

### **Analysis Set Details**

| ī | D         | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|-----------|-------------------|---------------------------------|-------------------------------------|
| 1 | <b>A1</b> | ✓                 | 100.000                         | 100.000                             |



# 2021 Baseline, AM

#### **Data Errors and Warnings**

| Severity | erity Area Item |                                  | Area Item Description  |  |  |  |
|----------|-----------------|----------------------------------|--|--|--|--|
| Warning  | Geometry        | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |
| Warning  | Geometry        | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.38               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.38              | Α           |  |

# **Arms**

#### **Arms**

| Arm | Name           | Description | No give-way line |
|-----|----------------|-------------|------------------|
| 1   | SHIIP Access S |             |                  |
| 2   | A1173 W        |             |                  |
| 3   | SHIIP Access N |             |                  |
| 4   | A1173 E        |             |                  |

#### **Roundabout Geometry**

| Arm            | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|----------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| SHIIP Access S | 3.65  | 7.14  | 24.4   | 20.0  | 40.1  | 15.5      |            |           |
| A1173 W        | 4.92  | 10.00 | 92.2   | 20.0  | 40.1  | 13.2      |            |           |
| SHIIP Access N | 3.64  | 7.11  | 20.7   | 20.0  | 40.1  | 17.3      |            |           |
| A1173 E        | 4.93  | 10.00 | 88.5   | 20.0  | 40.1  | 14.4      |            |           |

#### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm            | Final slope | Final intercept (PCU/hr) |
|----------------|-------------|--------------------------|
| SHIIP Access S | 0.702       | 1924                     |
| A1173 W        | 0.911       | 2962                     |
| SHIIP Access N | 0.688       | 1866                     |
| A1173 E        | 0.906       | 2943                     |

The slope and intercept shown above include any corrections and adjustments.

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Baseline | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |



| Vehicle mix varies over turn   Vehicle mix varies over entry |   | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|--|---|--------------------|---------------------------|--|
| ✓  | ✓ | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| SHIIP Access S |            | ONE HOUR     | ✓            | 102                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 381                 | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 22                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 1021                | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То             |                |         |                |         |  |  |
|------|----------------|----------------|---------|----------------|---------|--|--|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |  |  |
|      | SHIIP Access S | 0              | 75      | 0              | 27      |  |  |
| From | A1173 W        | 138            | 0       | 25             | 218     |  |  |
|      | SHIIP Access N | 0              | 16      | 0              | 6       |  |  |
|      | A1173 E        | 28             | 988     | 5              | 0       |  |  |

# **Vehicle Mix**

#### HV %s

|      | То             |                |         |                |         |  |  |
|------|----------------|----------------|---------|----------------|---------|--|--|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |  |  |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |  |  |
| From | A1173 W        | 7              | 0       | 8              | 40      |  |  |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |  |  |
|      | A1173 E        | 11             | 11      | 20             | 0       |  |  |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.10    | 4.30          | 0.1         | А       | 94                     | 140                              |
| A1173 W        | 0.14    | 1.77          | 0.2         | А       | 350                    | 524                              |
| SHIIP Access N | 0.02    | 2.95          | 0.0         | А       | 20                     | 30                               |
| A1173 E        | 0.40    | 2.40          | 0.7         | Α       | 937                    | 1405                             |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 77                          | 19                            | 758                             | 1392                 | 0.055 | 77                     | 125                              | 0.0                     | 0.1                   | 3.371     | Α                                   |
| A1173 W        | 287                         | 72                            | 24                              | 2941                 | 0.098 | 286                    | 810                              | 0.0                     | 0.1                   | 1.678     | А                                   |
| SHIIP Access N | 17                          | 4                             | 288                             | 1668                 | 0.010 | 17                     | 23                               | 0.0                     | 0.0                   | 2.769     | А                                   |
| A1173 E        | 769                         | 192                           | 116                             | 2838                 | 0.271 | 767                    | 189                              | 0.0                     | 0.4                   | 1.928     | Α                                   |



#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 92                          | 23                            | 907                             | 1288                 | 0.071 | 92                     | 149                              | 0.1                     | 0.1                   | 3.707     | Α                                   |
| A1173 W        | 343                         | 86                            | 29                              | 2936                 | 0.117 | 342                    | 969                              | 0.1                     | 0.2                   | 1.716     | Α                                   |
| SHIIP Access N | 20                          | 5                             | 344                             | 1629                 | 0.012 | 20                     | 27                               | 0.0                     | 0.0                   | 2.842     | A                                   |
| A1173 E        | 918                         | 229                           | 138                             | 2818                 | 0.326 | 917                    | 226                              | 0.4                     | 0.5                   | 2.103     | Α                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 112                         | 28                            | 1110                            | 1145                 | 0.098 | 112                    | 183                              | 0.1                     | 0.1                   | 4.294     | Α                                   |
| A1173 W        | 419                         | 105                           | 35                              | 2930                 | 0.143 | 419                    | 1187                             | 0.2                     | 0.2                   | 1.773     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 421                             | 1576                 | 0.015 | 24                     | 33                               | 0.0                     | 0.0                   | 2.947     | А                                   |
| A1173 E        | 1124                        | 281                           | 169                             | 2790                 | 0.403 | 1123                   | 276                              | 0.5                     | 0.7                   | 2.397     | Α                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 112                         | 28                            | 1111                            | 1144                 | 0.098 | 112                    | 183                              | 0.1                     | 0.1                   | 4.297     | Α                                   |
| A1173 W        | 419                         | 105                           | 35                              | 2930                 | 0.143 | 419                    | 1188                             | 0.2                     | 0.2                   | 1.773     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 422                             | 1576                 | 0.015 | 24                     | 33                               | 0.0                     | 0.0                   | 2.947     | Α                                   |
| A1173 E        | 1124                        | 281                           | 170                             | 2790                 | 0.403 | 1124                   | 276                              | 0.7                     | 0.7                   | 2.399     | Α                                   |

#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 92                          | 23                            | 908                             | 1287                 | 0.071 | 92                     | 149                              | 0.1                     | 0.1                   | 3.711     | Α                                   |
| A1173 W        | 343                         | 86                            | 29                              | 2936                 | 0.117 | 343                    | 971                              | 0.2                     | 0.2                   | 1.717     | Α                                   |
| SHIIP Access N | 20                          | 5                             | 345                             | 1629                 | 0.012 | 20                     | 27                               | 0.0                     | 0.0                   | 2.842     | Α                                   |
| A1173 E        | 918                         | 229                           | 139                             | 2818                 | 0.326 | 919                    | 226                              | 0.7                     | 0.5                   | 2.107     | Α                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 77                          | 19                            | 760                             | 1390                 | 0.055 | 77                     | 125                              | 0.1                     | 0.1                   | 3.375     | Α                                   |
| A1173 W        | 287                         | 72                            | 24                              | 2940                 | 0.098 | 287                    | 813                              | 0.2                     | 0.1                   | 1.681     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 288                             | 1667                 | 0.010 | 17                     | 23                               | 0.0                     | 0.0                   | 2.772     | Α                                   |
| A1173 E        | 769                         | 192                           | 116                             | 2838                 | 0.271 | 769                    | 189                              | 0.5                     | 0.4                   | 1.932     | Α                                   |



# 2021 Baseline, PM

#### **Data Errors and Warnings**

| Severity | ity Area Item                                  |                                  | Description  |
|----------|--|----------------------------------|--|
| Warning  | Geometry                                       | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Varning Geometry A1173 E - Roundabout Geometry |                                  | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.38               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 2.38 | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Baseline | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| SHIIP Access S |            | ONE HOUR     | <b>✓</b>     | 180                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 1136                | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 35                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 320                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 143     | 0              | 37      |
| From | A1173 W        | 102            | 0       | 24             | 1010    |
|      | SHIIP Access N | 0              | 28      | 0              | 7       |
|      | A1173 E        | 23             | 292     | 5              | 0       |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 8       | 0              | 16      |
| From | A1173 W        | 25             | 0       | 25             | 9       |
|      | SHIIP Access N | 0              | 11      | 0              | 29      |
|      | A1173 E        | 26             | 36      | 40             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.12    | 2.67          | 0.1         | A       | 165                    | 248                              |
| A1173 W        | 0.43    | 2.38          | 0.8         | А       | 1042                   | 1564                             |
| SHIIP Access N | 0.04    | 4.29          | 0.0         | А       | 32                     | 48                               |
| A1173 E        | 0.13    | 1.98          | 0.2         | A       | 294                    | 440                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 136                         | 34                            | 244                             | 1752                 | 0.077 | 135                    | 94                               | 0.0                     | 0.1                   | 2.438     | Α                                   |
| A1173 W        | 855                         | 214                           | 32                              | 2934                 | 0.292 | 853                    | 348                              | 0.0                     | 0.5                   | 1.911     | А                                   |
| SHIIP Access N | 26                          | 7                             | 863                             | 1272                 | 0.021 | 26                     | 22                               | 0.0                     | 0.0                   | 3.299     | А                                   |
| A1173 E        | 241                         | 60                            | 98                              | 2855                 | 0.084 | 240                    | 792                              | 0.0                     | 0.1                   | 1.862     | А                                   |

#### 16:00 - 16:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 162                         | 40                            | 292                             | 1719                 | 0.094 | 162                    | 112                              | 0.1                     | 0.1                   | 2.532     | Α                                   |
| A1173 W        | 1021                        | 255                           | 38                              | 2928                 | 0.349 | 1021                   | 416                              | 0.5                     | 0.6                   | 2.087     | А                                   |
| SHIIP Access N | 31                          | 8                             | 1032                            | 1156                 | 0.027 | 31                     | 26                               | 0.0                     | 0.0                   | 3.655     | А                                   |
| A1173 E        | 288                         | 72                            | 117                             | 2837                 | 0.101 | 288                    | 947                              | 0.1                     | 0.2                   | 1.909     | Α                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 198                         | 50                            | 358                             | 1673                 | 0.118 | 198                    | 138                              | 0.1                     | 0.1                   | 2.674     | Α                                   |
| A1173 W        | 1251                        | 313                           | 46                              | 2920                 | 0.428 | 1250                   | 509                              | 0.6                     | 0.8                   | 2.381     | Α                                   |
| SHIIP Access N | 39                          | 10                            | 1264                            | 996                  | 0.039 | 38                     | 32                               | 0.0                     | 0.0                   | 4.292     | Α                                   |
| A1173 E        | 352                         | 88                            | 143                             | 2814                 | 0.125 | 352                    | 1160                             | 0.2                     | 0.2                   | 1.978     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 198                         | 50                            | 358                             | 1673                 | 0.118 | 198                    | 138                              | 0.1                     | 0.1                   | 2.674     | Α                                   |
| A1173 W        | 1251                        | 313                           | 46                              | 2920                 | 0.428 | 1251                   | 510                              | 0.8                     | 0.8                   | 2.383     | Α                                   |
| SHIIP Access N | 39                          | 10                            | 1265                            | 995                  | 0.039 | 39                     | 32                               | 0.0                     | 0.0                   | 4.295     | Α                                   |
| A1173 E        | 352                         | 88                            | 143                             | 2813                 | 0.125 | 352                    | 1160                             | 0.2                     | 0.2                   | 1.978     | Α                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 162                         | 40                            | 292                             | 1718                 | 0.094 | 162                    | 112                              | 0.1                     | 0.1                   | 2.535     | Α                                   |
| A1173 W        | 1021                        | 255                           | 38                              | 2928                 | 0.349 | 1022                   | 417                              | 0.8                     | 0.6                   | 2.089     | Α                                   |
| SHIIP Access N | 31                          | 8                             | 1034                            | 1155                 | 0.027 | 32                     | 26                               | 0.0                     | 0.0                   | 3.662     | Α                                   |
| A1173 E        | 288                         | 72                            | 117                             | 2837                 | 0.101 | 288                    | 948                              | 0.2                     | 0.2                   | 1.912     | А                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 136                         | 34                            | 245                             | 1752                 | 0.077 | 136                    | 94                               | 0.1                     | 0.1                   | 2.439     | Α                                   |
| A1173 W        | 855                         | 214                           | 32                              | 2934                 | 0.292 | 856                    | 349                              | 0.6                     | 0.5                   | 1.918     | А                                   |
| SHIIP Access N | 26                          | 7                             | 866                             | 1270                 | 0.021 | 26                     | 22                               | 0.0                     | 0.0                   | 3.303     | А                                   |
| A1173 E        | 241                         | 60                            | 98                              | 2854                 | 0.084 | 241                    | 794                              | 0.2                     | 0.1                   | 1.862     | Α                                   |



# 2025 Baseline, AM

#### **Data Errors and Warnings**

| Severity | Area                                   | Item                             | Description  |
|----------|--|----------------------------------|--|
| Warning  | Geometry                               | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry A1173 E - Roundabout Geometry |                                  | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.42               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.42              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| П | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ı | D3 | 2025 Baseline | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| SHIIP Access S |            | ONE HOUR     | ✓            | 105                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 392                 | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 22                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 1049                | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 77      | 0              | 28      |
| From | A1173 W        | 142            | 0       | 26             | 224     |
|      | SHIIP Access N | 0              | 16      | 0              | 6       |
|      | A1173 E        | 29             | 1015    | 5              | 0       |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |
| From | A1173 W        | 7              | 0       | 8              | 40      |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |
|      | A1173 E        | 11             | 11      | 20             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.10    | 4.40          | 0.1         | А       | 96                     | 145                              |
| A1173 W        | 0.15    | 1.78          | 0.2         | А       | 360                    | 540                              |
| SHIIP Access N | 0.02    | 2.96          | 0.0         | А       | 20                     | 30                               |
| A1173 E        | 0.41    | 2.45          | 0.8         | A       | 963                    | 1444                             |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 79                          | 20                            | 778                             | 1378                 | 0.057 | 79                     | 128                              | 0.0                     | 0.1                   | 3.415     | Α                                   |
| A1173 W        | 295                         | 74                            | 25                              | 2940                 | 0.100 | 295                    | 832                              | 0.0                     | 0.1                   | 1.683     | А                                   |
| SHIIP Access N | 17                          | 4                             | 296                             | 1662                 | 0.010 | 17                     | 23                               | 0.0                     | 0.0                   | 2.779     | А                                   |
| A1173 E        | 790                         | 197                           | 119                             | 2836                 | 0.279 | 788                    | 194                              | 0.0                     | 0.4                   | 1.950     | Α                                   |

#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 94                          | 24                            | 931                             | 1271                 | 0.074 | 94                     | 154                              | 0.1                     | 0.1                   | 3.770     | Α                                   |
| A1173 W        | 352                         | 88                            | 30                              | 2935                 | 0.120 | 352                    | 995                              | 0.1                     | 0.2                   | 1.723     | Α                                   |
| SHIIP Access N | 20                          | 5                             | 354                             | 1622                 | 0.012 | 20                     | 28                               | 0.0                     | 0.0                   | 2.854     | Α                                   |
| A1173 E        | 943                         | 236                           | 142                             | 2814                 | 0.335 | 943                    | 232                              | 0.4                     | 0.6                   | 2.135     | Α                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 116                         | 29                            | 1140                            | 1124                 | 0.103 | 115                    | 188                              | 0.1                     | 0.1                   | 4.398     | Α                                   |
| A1173 W        | 432                         | 108                           | 36                              | 2929                 | 0.147 | 431                    | 1219                             | 0.2                     | 0.2                   | 1.782     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 434                             | 1568                 | 0.015 | 24                     | 34                               | 0.0                     | 0.0                   | 2.963     | Α                                   |
| A1173 E        | 1155                        | 289                           | 174                             | 2786                 | 0.415 | 1154                   | 284                              | 0.6                     | 0.8                   | 2.449     | Α                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 116                         | 29                            | 1141                            | 1123                 | 0.103 | 116                    | 188                              | 0.1                     | 0.1                   | 4.401     | Α                                   |
| A1173 W        | 432                         | 108                           | 36                              | 2929                 | 0.147 | 432                    | 1220                             | 0.2                     | 0.2                   | 1.782     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 434                             | 1567                 | 0.015 | 24                     | 34                               | 0.0                     | 0.0                   | 2.963     | Α                                   |
| A1173 E        | 1155                        | 289                           | 174                             | 2786                 | 0.415 | 1155                   | 284                              | 0.8                     | 0.8                   | 2.451     | Α                                   |



#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 94                          | 24                            | 932                             | 1270                 | 0.074 | 95                     | 154                              | 0.1                     | 0.1                   | 3.774     | Α                                   |
| A1173 W        | 352                         | 88                            | 30                              | 2935                 | 0.120 | 353                    | 997                              | 0.2                     | 0.2                   | 1.724     | Α                                   |
| SHIIP Access N | 20                          | 5                             | 354                             | 1622                 | 0.012 | 20                     | 28                               | 0.0                     | 0.0                   | 2.856     | Α                                   |
| A1173 E        | 943                         | 236                           | 142                             | 2814                 | 0.335 | 944                    | 232                              | 0.8                     | 0.6                   | 2.139     | А                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 79                          | 20                            | 780                             | 1376                 | 0.057 | 79                     | 129                              | 0.1                     | 0.1                   | 3.419     | Α                                   |
| A1173 W        | 295                         | 74                            | 25                              | 2940                 | 0.100 | 295                    | 835                              | 0.2                     | 0.1                   | 1.686     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 297                             | 1662                 | 0.010 | 17                     | 23                               | 0.0                     | 0.0                   | 2.780     | Α                                   |
| A1173 E        | 790                         | 197                           | 119                             | 2835                 | 0.279 | 790                    | 194                              | 0.6                     | 0.4                   | 1.954     | А                                   |



# 2025 Baseline, PM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Area Item Description  |  |  |  |  |  |  |
|----------|-----------|----------------------------------|--|--|--|--|--|--|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing cauti    |  |  |  |  |  |  |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |  |  |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.42               | Α            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |  |  |
|-----------------------|----------------|-------------------|-------------|--|--|
| Left                  | Normal/unknown | 2.42              | Α           |  |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Baseline | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm            | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------|------------|---------------------------|---|---------------------|--------------------|
| SHIIP Access S |            | ONE HOUR                  | ✓ | 185                 | 100.000            |
| A1173 W        |            | ONE HOUR                  | ✓ | 1166                | 100.000            |
| SHIIP Access N |            | ONE HOUR                  | ✓ | 36                  | 100.000            |
| A1173 E        |            | ONE HOUR                  | ✓ | 328                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                          | То  |                |         |
|------|----------------|--------------------------|-----|----------------|---------|
|      |                | SHIIP Access S A1173 W S |     | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0                        | 147 | 0              | 38      |
| From | A1173 W        | 105                      | 0   | 25             | 1036    |
|      | SHIIP Access N | 0                        | 29  | 0              | 7       |
|      | A1173 E        | 24                       | 299 | 5              | 0       |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 8       | 0              | 16      |
| From | A1173 W        | 25             | 0       | 25             | 9       |
|      | SHIIP Access N | 0              | 11      | 0              | 29      |
|      | A1173 E        | 26             | 36      | 40             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm Max RFC         |      | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|---------------------|------|---------------|-------------|---------|------------------------|----------------------------------|--|
| SHIIP Access S 0.12 |      | 2.70 0.2      |             | А       | A 170                  |                                  |  |
| A1173 W             | 0.44 | 2.43          | 0.9         | А       | 1070                   | 1605                             |  |
| SHIIP Access N      | 0.04 | 4.40          | 0.0         | А       | 33                     | 50                               |  |
| A1173 E             | 0.13 | 1.99          | 0.2         | А       | 301                    | 451                              |  |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 139                         | 35                            | 250                             | 1748                 | 0.080 | 139                    | 97                               | 0.0                     | 0.1                   | 2.451     | Α                                   |
| A1173 W        | 878                         | 219                           | 32                              | 2933                 | 0.299 | 876                    | 357                              | 0.0                     | 0.5                   | 1.933     | Α                                   |
| SHIIP Access N | 27                          | 7                             | 886                             | 1257                 | 0.022 | 27                     | 23                               | 0.0                     | 0.0                   | 3.340     | Α                                   |
| A1173 E        | 247                         | 62                            | 101                             | 2852                 | 0.087 | 246                    | 812                              | 0.0                     | 0.1                   | 1.868     | А                                   |

#### 16:00 - 16:15

| . 0.00         |                             |                               |                                 |                      |       |                        |                                  |                         |                       |           |                                     |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
| SHIIP Access S | 166                         | 42                            | 299                             | 1714                 | 0.097 | 166                    | 116                              | 0.1                     | 0.1                   | 2.548     | Α                                   |
| A1173 W        | 1048                        | 262                           | 39                              | 2927                 | 0.358 | 1048                   | 427                              | 0.5                     | 0.6                   | 2.118     | Α                                   |
| SHIIP Access N | 32                          | 8                             | 1059                            | 1137                 | 0.028 | 32                     | 27                               | 0.0                     | 0.0                   | 3.717     | Α                                   |
| A1173 E        | 295                         | 74                            | 120                             | 2834                 | 0.104 | 295                    | 971                              | 0.1                     | 0.2                   | 1.916     | Α                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 204                         | 51                            | 366                             | 1666                 | 0.122 | 204                    | 142                              | 0.1                     | 0.2                   | 2.695     | Α                                   |
| A1173 W        | 1284                        | 321                           | 47                              | 2919                 | 0.440 | 1283                   | 523                              | 0.6                     | 0.9                   | 2.431     | Α                                   |
| SHIIP Access N | 40                          | 10                            | 1297                            | 973                  | 0.041 | 40                     | 33                               | 0.0                     | 0.0                   | 4.398     | А                                   |
| A1173 E        | 361                         | 90                            | 147                             | 2810                 | 0.129 | 361                    | 1189                             | 0.2                     | 0.2                   | 1.988     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 204                         | 51                            | 367                             | 1666                 | 0.122 | 204                    | 142                              | 0.2                     | 0.2                   | 2.695     | Α                                   |
| A1173 W        | 1284                        | 321                           | 47                              | 2919                 | 0.440 | 1284                   | 523                              | 0.9                     | 0.9                   | 2.433     | Α                                   |
| SHIIP Access N | 40                          | 10                            | 1298                            | 973                  | 0.041 | 40                     | 33                               | 0.0                     | 0.0                   | 4.401     | Α                                   |
| A1173 E        | 361                         | 90                            | 148                             | 2809                 | 0.129 | 361                    | 1190                             | 0.2                     | 0.2                   | 1.988     | Α                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 166                         | 42                            | 300                             | 1713                 | 0.097 | 166                    | 116                              | 0.2                     | 0.1                   | 2.551     | Α                                   |
| A1173 W        | 1048                        | 262                           | 39                              | 2927                 | 0.358 | 1049                   | 427                              | 0.9                     | 0.6                   | 2.120     | Α                                   |
| SHIIP Access N | 32                          | 8                             | 1061                            | 1136                 | 0.028 | 32                     | 27                               | 0.0                     | 0.0                   | 3.724     | Α                                   |
| A1173 E        | 295                         | 74                            | 121                             | 2834                 | 0.104 | 295                    | 973                              | 0.2                     | 0.2                   | 1.920     | А                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 139                         | 35                            | 251                             | 1748                 | 0.080 | 139                    | 97                               | 0.1                     | 0.1                   | 2.452     | Α                                   |
| A1173 W        | 878                         | 219                           | 32                              | 2933                 | 0.299 | 878                    | 358                              | 0.6                     | 0.5                   | 1.937     | Α                                   |
| SHIIP Access N | 27                          | 7                             | 888                             | 1255                 | 0.022 | 27                     | 23                               | 0.0                     | 0.0                   | 3.347     | Α                                   |
| A1173 E        | 247                         | 62                            | 101                             | 2852                 | 0.087 | 247                    | 814                              | 0.2                     | 0.1                   | 1.868     | А                                   |



# 2025 Baseline + Committed, AM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Description  |
|----------|-----------|----------------------------------|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.56               | Α            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |  |
|-----------------------|----------------|-------------------|-------------|--|
| Left                  | Normal/unknown | 2.56              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name             | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|---------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D5 | 2025 Baseline + Committed | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                | •          | ,            |              |                     |                    |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| SHIIP Access S |            | ONE HOUR     | ✓            | 105                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 460                 | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 22                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 1108                | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То             |                |         |                |         |  |  |  |  |
|------|----------------|----------------|---------|----------------|---------|--|--|--|--|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |  |  |  |  |
|      | SHIIP Access S | 0              | 77      | 0              | 28      |  |  |  |  |
| From | A1173 W        | 142            | 0       | 26             | 292     |  |  |  |  |
|      | SHIIP Access N | 0              | 16      | 0              | 6       |  |  |  |  |
|      | A1173 E        | 29             | 1074    | 5              | 0       |  |  |  |  |



|      | То             |                |         |                |         |  |  |  |  |  |
|------|----------------|----------------|---------|----------------|---------|--|--|--|--|--|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |  |  |  |  |  |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |  |  |  |  |  |
| From | A1173 W        | 7              | 0       | 8              | 49      |  |  |  |  |  |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |  |  |  |  |  |
|      | A1173 E        | 11             | 14      | 20             | 0       |  |  |  |  |  |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.11    | 4.61          | 0.1         | А       | 96                     | 145                              |
| A1173 W        | 0.17    | 1.94          | 0.3         | А       | 422                    | 633                              |
| SHIIP Access N | 0.02    | 3.07          | 0.0         | А       | 20                     | 30                               |
| A1173 E        | 0.44    | 2.62          | 0.9         | А       | 1017                   | 1525                             |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 79                          | 20                            | 822                             | 1347                 | 0.059 | 79                     | 128                              | 0.0                     | 0.1                   | 3.498     | Α                                   |
| A1173 W        | 346                         | 87                            | 25                              | 2940                 | 0.118 | 346                    | 876                              | 0.0                     | 0.2                   | 1.809     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 347                             | 1627                 | 0.010 | 17                     | 23                               | 0.0                     | 0.0                   | 2.839     | Α                                   |
| A1173 E        | 834                         | 209                           | 119                             | 2836                 | 0.294 | 832                    | 245                              | 0.0                     | 0.5                   | 2.046     | Α                                   |

#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 94                          | 24                            | 984                             | 1233                 | 0.077 | 94                     | 154                              | 0.1                     | 0.1                   | 3.894     | Α                                   |
| A1173 W        | 414                         | 103                           | 30                              | 2935                 | 0.141 | 413                    | 1048                             | 0.2                     | 0.2                   | 1.860     | А                                   |
| SHIIP Access N | 20                          | 5                             | 415                             | 1580                 | 0.013 | 20                     | 28                               | 0.0                     | 0.0                   | 2.931     | А                                   |
| A1173 E        | 996                         | 249                           | 142                             | 2814                 | 0.354 | 995                    | 293                              | 0.5                     | 0.6                   | 2.255     | Α                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 116                         | 29                            | 1205                            | 1079                 | 0.107 | 115                    | 188                              | 0.1                     | 0.1                   | 4.606     | Α                                   |
| A1173 W        | 506                         | 127                           | 36                              | 2929                 | 0.173 | 506                    | 1284                             | 0.2                     | 0.3                   | 1.937     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 508                             | 1516                 | 0.016 | 24                     | 34                               | 0.0                     | 0.0                   | 3.065     | Α                                   |
| A1173 E        | 1220                        | 305                           | 174                             | 2786                 | 0.438 | 1219                   | 359                              | 0.6                     | 0.9                   | 2.617     | Α                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 116                         | 29                            | 1206                            | 1078                 | 0.107 | 116                    | 188                              | 0.1                     | 0.1                   | 4.609     | Α                                   |
| A1173 W        | 506                         | 127                           | 36                              | 2929                 | 0.173 | 506                    | 1285                             | 0.3                     | 0.3                   | 1.937     | А                                   |
| SHIIP Access N | 24                          | 6                             | 509                             | 1516                 | 0.016 | 24                     | 34                               | 0.0                     | 0.0                   | 3.066     | Α                                   |
| A1173 E        | 1220                        | 305                           | 174                             | 2786                 | 0.438 | 1220                   | 359                              | 0.9                     | 0.9                   | 2.619     | А                                   |



#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 94                          | 24                            | 985                             | 1232                 | 0.077 | 95                     | 154                              | 0.1                     | 0.1                   | 3.900     | Α                                   |
| A1173 W        | 414                         | 103                           | 30                              | 2935                 | 0.141 | 414                    | 1050                             | 0.3                     | 0.2                   | 1.863     | А                                   |
| SHIIP Access N | 20                          | 5                             | 416                             | 1580                 | 0.013 | 20                     | 28                               | 0.0                     | 0.0                   | 2.931     | Α                                   |
| A1173 E        | 996                         | 249                           | 142                             | 2814                 | 0.354 | 997                    | 293                              | 0.9                     | 0.6                   | 2.259     | А                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 79                          | 20                            | 825                             | 1345                 | 0.059 | 79                     | 129                              | 0.1                     | 0.1                   | 3.506     | Α                                   |
| A1173 W        | 346                         | 87                            | 25                              | 2940                 | 0.118 | 346                    | 879                              | 0.2                     | 0.2                   | 1.809     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 348                             | 1627                 | 0.010 | 17                     | 23                               | 0.0                     | 0.0                   | 2.841     | Α                                   |
| A1173 E        | 834                         | 209                           | 119                             | 2835                 | 0.294 | 835                    | 246                              | 0.6                     | 0.5                   | 2.052     | А                                   |



# 2025 Baseline + Committed, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                             | Description  |
|----------|----------|----------------------------------|--|
| Warning  | Geometry | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ſ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.47               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 2.47 | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name             | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|---------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D6 | 2025 Baseline + Committed | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | <b>√</b>             |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                | •          | ,            |              |                     |                    |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| SHIIP Access S |            | ONE HOUR     | ✓            | 185                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 1185                | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 36                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 373                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 147     | 0              | 38      |
| From | A1173 W        | 105            | 0       | 25             | 1055    |
|      | SHIIP Access N | 0              | 29      | 0              | 7       |
|      | A1173 E        | 24             | 344     | 5              | 0       |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 8       | 0              | 16      |
| From | A1173 W        | 25             | 0       | 25             | 11      |
|      | SHIIP Access N | 0              | 11      | 0              | 29      |
|      | A1173 E        | 26             | 36      | 40             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.12    | 2.76          | 0.2         | А       | 170                    | 255                              |
| A1173 W        | 0.45    | 2.50          | 0.9         | А       | 1087                   | 1631                             |
| SHIIP Access N | 0.04    | 4.47          | 0.0         | А       | 33                     | 50                               |
| A1173 E        | 0.15    | 2.03          | 0.2         | A       | 342                    | 513                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 139                         | 35                            | 284                             | 1724                 | 0.081 | 139                    | 97                               | 0.0                     | 0.1                   | 2.487     | Α                                   |
| A1173 W        | 892                         | 223                           | 32                              | 2933                 | 0.304 | 890                    | 391                              | 0.0                     | 0.5                   | 1.978     | Α                                   |
| SHIIP Access N | 27                          | 7                             | 900                             | 1247                 | 0.022 | 27                     | 23                               | 0.0                     | 0.0                   | 3.366     | Α                                   |
| A1173 E        | 281                         | 70                            | 101                             | 2852                 | 0.098 | 280                    | 826                              | 0.0                     | 0.1                   | 1.894     | А                                   |

#### 16:00 - 16:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 166                         | 42                            | 340                             | 1685                 | 0.099 | 166                    | 116                              | 0.1                     | 0.1                   | 2.595     | Α                                   |
| A1173 W        | 1065                        | 266                           | 39                              | 2927                 | 0.364 | 1065                   | 467                              | 0.5                     | 0.6                   | 2.172     | А                                   |
| SHIIP Access N | 32                          | 8                             | 1076                            | 1125                 | 0.029 | 32                     | 27                               | 0.0                     | 0.0                   | 3.757     | А                                   |
| A1173 E        | 335                         | 84                            | 120                             | 2834                 | 0.118 | 335                    | 988                              | 0.1                     | 0.2                   | 1.949     | Α                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 204                         | 51                            | 416                             | 1632                 | 0.125 | 204                    | 142                              | 0.1                     | 0.2                   | 2.761     | Α                                   |
| A1173 W        | 1305                        | 326                           | 47                              | 2919                 | 0.447 | 1304                   | 572                              | 0.6                     | 0.9                   | 2.503     | Α                                   |
| SHIIP Access N | 40                          | 10                            | 1318                            | 959                  | 0.041 | 40                     | 33                               | 0.0                     | 0.0                   | 4.466     | Α                                   |
| A1173 E        | 411                         | 103                           | 147                             | 2810                 | 0.146 | 410                    | 1210                             | 0.2                     | 0.2                   | 2.031     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 204                         | 51                            | 416                             | 1632                 | 0.125 | 204                    | 142                              | 0.2                     | 0.2                   | 2.761     | Α                                   |
| A1173 W        | 1305                        | 326                           | 47                              | 2919                 | 0.447 | 1305                   | 573                              | 0.9                     | 0.9                   | 2.505     | Α                                   |
| SHIIP Access N | 40                          | 10                            | 1319                            | 958                  | 0.041 | 40                     | 33                               | 0.0                     | 0.0                   | 4.470     | Α                                   |
| A1173 E        | 411                         | 103                           | 148                             | 2809                 | 0.146 | 411                    | 1211                             | 0.2                     | 0.2                   | 2.031     | Α                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 166                         | 42                            | 340                             | 1685                 | 0.099 | 166                    | 116                              | 0.2                     | 0.1                   | 2.598     | Α                                   |
| A1173 W        | 1065                        | 266                           | 39                              | 2927                 | 0.364 | 1066                   | 468                              | 0.9                     | 0.6                   | 2.174     | А                                   |
| SHIIP Access N | 32                          | 8                             | 1078                            | 1124                 | 0.029 | 32                     | 27                               | 0.0                     | 0.0                   | 3.761     | Α                                   |
| A1173 E        | 335                         | 84                            | 121                             | 2834                 | 0.118 | 336                    | 990                              | 0.2                     | 0.2                   | 1.950     | А                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 139                         | 35                            | 285                             | 1724                 | 0.081 | 139                    | 97                               | 0.1                     | 0.1                   | 2.488     | Α                                   |
| A1173 W        | 892                         | 223                           | 32                              | 2933                 | 0.304 | 893                    | 392                              | 0.6                     | 0.5                   | 1.983     | Α                                   |
| SHIIP Access N | 27                          | 7                             | 903                             | 1245                 | 0.022 | 27                     | 23                               | 0.0                     | 0.0                   | 3.372     | А                                   |
| A1173 E        | 281                         | 70                            | 101                             | 2852                 | 0.098 | 281                    | 829                              | 0.2                     | 0.1                   | 1.894     | А                                   |



# 2025 Baseline + Committed + Development, AM

#### **Data Errors and Warnings**

| Severity | Area     | Item                             | Description  |
|----------|----------|----------------------------------|--|
| Warning  | Geometry | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| l | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
|   | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.74               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.74              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                           | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|---|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Baseline + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                | •          | ,            |              |                     |                    |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| SHIIP Access S |            | ONE HOUR     | ✓            | 105                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 623                 | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 22                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 1203                | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 77      | 0              | 28      |
| From | A1173 W        | 142            | 0       | 26             | 455     |
|      | SHIIP Access N | 0              | 16      | 0              | 6       |
|      | A1173 E        | 29             | 1169    | 5              | 0       |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |
| From | A1173 W        | 7              | 0       | 8              | 46      |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |
|      | A1173 E        | 11             | 16      | 20             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC             | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|----------------|---------------------|---------------|-------------|---------|------------------------|----------------------------------|--|
| SHIIP Access S | 0.12                | 4.99          | 0.2         | A       | 96                     | 145                              |  |
| A1173 W        | 0.23                | 2.13          | 0.4         | А       | 572                    | 858                              |  |
| SHIIP Access N | SHIIP Access N 0.02 |               | 0.0         | А       | 20                     | 30                               |  |
| A1173 E        | 0.48                | 2.85          | 1.0         | A       | 1104                   | 1656                             |  |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 79                          | 20                            | 894                             | 1297                 | 0.061 | 79                     | 128                              | 0.0                     | 0.1                   | 3.642     | Α                                   |
| A1173 W        | 469                         | 117                           | 25                              | 2940                 | 0.160 | 468                    | 948                              | 0.0                     | 0.3                   | 1.935     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 469                             | 1543                 | 0.011 | 17                     | 23                               | 0.0                     | 0.0                   | 2.996     | Α                                   |
| A1173 E        | 906                         | 226                           | 119                             | 2836                 | 0.319 | 904                    | 367                              | 0.0                     | 0.5                   | 2.158     | Α                                   |

#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 94                          | 24                            | 1069                            | 1174                 | 0.080 | 94                     | 154                              | 0.1                     | 0.1                   | 4.109     | Α                                   |
| A1173 W        | 560                         | 140                           | 30                              | 2935                 | 0.191 | 560                    | 1134                             | 0.3                     | 0.3                   | 2.015     | Α                                   |
| SHIIP Access N | 20                          | 5                             | 562                             | 1480                 | 0.013 | 20                     | 28                               | 0.0                     | 0.0                   | 3.133     | Α                                   |
| A1173 E        | 1081                        | 270                           | 142                             | 2814                 | 0.384 | 1081                   | 439                              | 0.5                     | 0.7                   | 2.405     | А                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 116                         | 29                            | 1309                            | 1005                 | 0.115 | 115                    | 188                              | 0.1                     | 0.2                   | 4.983     | Α                                   |
| A1173 W        | 686                         | 171                           | 36                              | 2929                 | 0.234 | 686                    | 1388                             | 0.3                     | 0.4                   | 2.133     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 688                             | 1393                 | 0.017 | 24                     | 34                               | 0.0                     | 0.0                   | 3.342     | Α                                   |
| A1173 E        | 1325                        | 331                           | 174                             | 2786                 | 0.475 | 1323                   | 538                              | 0.7                     | 1.0                   | 2.850     | Α                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 116                         | 29                            | 1310                            | 1004                 | 0.115 | 116                    | 188                              | 0.2                     | 0.2                   | 4.989     | Α                                   |
| A1173 W        | 686                         | 171                           | 36                              | 2929                 | 0.234 | 686                    | 1389                             | 0.4                     | 0.4                   | 2.133     | Α                                   |
| SHIIP Access N | 24                          | 6                             | 688                             | 1392                 | 0.017 | 24                     | 34                               | 0.0                     | 0.0                   | 3.342     | Α                                   |
| A1173 E        | 1325                        | 331                           | 174                             | 2786                 | 0.476 | 1325                   | 538                              | 1.0                     | 1.0                   | 2.855     | Α                                   |



#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 94                          | 24                            | 1071                            | 1172                 | 0.081 | 95                     | 154                              | 0.2                     | 0.1                   | 4.118     | Α                                   |
| A1173 W        | 560                         | 140                           | 30                              | 2935                 | 0.191 | 560                    | 1136                             | 0.4                     | 0.3                   | 2.016     | А                                   |
| SHIIP Access N | 20                          | 5                             | 562                             | 1479                 | 0.013 | 20                     | 28                               | 0.0                     | 0.0                   | 3.134     | Α                                   |
| A1173 E        | 1081                        | 270                           | 142                             | 2814                 | 0.384 | 1083                   | 440                              | 1.0                     | 0.7                   | 2.412     | Α                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 79                          | 20                            | 897                             | 1295                 | 0.061 | 79                     | 129                              | 0.1                     | 0.1                   | 3.648     | Α                                   |
| A1173 W        | 469                         | 117                           | 25                              | 2940                 | 0.160 | 469                    | 951                              | 0.3                     | 0.3                   | 1.937     | А                                   |
| SHIIP Access N | 17                          | 4                             | 471                             | 1542                 | 0.011 | 17                     | 23                               | 0.0                     | 0.0                   | 2.998     | А                                   |
| A1173 E        | 906                         | 226                           | 119                             | 2835                 | 0.319 | 906                    | 368                              | 0.7                     | 0.5                   | 2.163     | А                                   |



# 2025 Baseline + Committed + Development, PM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Description  |
|----------|-----------|----------------------------------|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.88               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 2.88 | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                           | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|---|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Baseline + Committed + Development | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

|                | •          | ,            |              |                     |                    |  |
|----------------|------------|--------------|--------------|---------------------|--------------------|--|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
| SHIIP Access S |            | ONE HOUR     | ✓            | 185                 | 100.000            |  |
| A1173 W        |            | ONE HOUR     | ✓            | 1404                | 100.000            |  |
| SHIIP Access N |            | ONE HOUR     | ✓            | 36                  | 100.000            |  |
| A1173 E        |            | ONE HOUR     | ✓            | 505                 | 100.000            |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                | То                     |     |                |         |  |  |  |  |  |  |
|------|----------------|------------------------|-----|----------------|---------|--|--|--|--|--|--|
|      |                | SHIIP Access S A1173 W |     | SHIIP Access N | A1173 E |  |  |  |  |  |  |
|      | SHIIP Access S | 0                      | 147 | 0              | 38      |  |  |  |  |  |  |
| From | A1173 W        | 105                    | 0   | 25             | 1274    |  |  |  |  |  |  |
|      | SHIIP Access N | 0                      | 29  | 0              | 7       |  |  |  |  |  |  |
|      | A1173 E        | 24                     | 476 | 5              | 0       |  |  |  |  |  |  |



|      | То             |                          |    |                |         |  |  |  |  |  |
|------|----------------|--------------------------|----|----------------|---------|--|--|--|--|--|
|      |                | SHIIP Access S A1173 W S |    | SHIIP Access N | A1173 E |  |  |  |  |  |
|      | SHIIP Access S | 0                        | 8  | 0              | 16      |  |  |  |  |  |
| From | A1173 W        | 25                       | 0  | 25             | 16      |  |  |  |  |  |
|      | SHIIP Access N | 0                        | 11 | 0              | 29      |  |  |  |  |  |
|      | A1173 E        | 26                       | 37 | 40             | 0       |  |  |  |  |  |

# Results

#### Results Summary for whole modelled period

| Arm                 | Max RFC                 | Max Delay (s) Max Q (PCU) |     | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|---------------------|-------------------------|---------------------------|-----|---------|------------------------|----------------------------------|--|
| SHIIP Access S      | HIIP Access S 0.13 2.97 |                           | 0.2 | A       | 170                    | 255                              |  |
| A1173 W             | A1173 W 0.53 3.0        |                           | 1.3 | A       | 1288                   | 1933                             |  |
| SHIIP Access N 0.05 |                         | 5.46                      | 0.1 | А       | 33                     | 50                               |  |
| A1173 E             | 0.20                    | 2.18                      | 0.3 | A       | 463                    | 695                              |  |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 139                         | 35                            | 383                             | 1655                 | 0.084 | 139                    | 97                               | 0.0                     | 0.1                   | 2.601     | Α                                   |
| A1173 W        | 1057                        | 264                           | 32                              | 2933                 | 0.360 | 1054                   | 490                              | 0.0                     | 0.7                   | 2.235     | Α                                   |
| SHIIP Access N | 27                          | 7                             | 1064                            | 1134                 | 0.024 | 27                     | 23                               | 0.0                     | 0.0                   | 3.710     | Α                                   |
| A1173 E        | 380                         | 95                            | 101                             | 2852                 | 0.133 | 379                    | 991                              | 0.0                     | 0.2                   | 1.987     | А                                   |

#### 16:00 - 16:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 166                         | 42                            | 458                             | 1602                 | 0.104 | 166                    | 116                              | 0.1                     | 0.1                   | 2.746     | Α                                   |
| A1173 W        | 1262                        | 316                           | 39                              | 2927                 | 0.431 | 1261                   | 586                              | 0.7                     | 0.9                   | 2.522     | Α                                   |
| SHIIP Access N | 32                          | 8                             | 1273                            | 990                  | 0.033 | 32                     | 27                               | 0.0                     | 0.0                   | 4.288     | Α                                   |
| A1173 E        | 454                         | 113                           | 120                             | 2834                 | 0.160 | 454                    | 1185                             | 0.2                     | 0.3                   | 2.063     | А                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 204                         | 51                            | 561                             | 1530                 | 0.133 | 204                    | 142                              | 0.1                     | 0.2                   | 2.973     | Α                                   |
| A1173 W        | 1546                        | 386                           | 47                              | 2919                 | 0.530 | 1544                   | 717                              | 0.9                     | 1.3                   | 3.052     | Α                                   |
| SHIIP Access N | 40                          | 10                            | 1558                            | 794                  | 0.050 | 40                     | 33                               | 0.0                     | 0.1                   | 5.447     | Α                                   |
| A1173 E        | 556                         | 139                           | 147                             | 2810                 | 0.198 | 556                    | 1451                             | 0.3                     | 0.3                   | 2.179     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 204                         | 51                            | 562                             | 1530                 | 0.133 | 204                    | 142                              | 0.2                     | 0.2                   | 2.973     | Α                                   |
| A1173 W        | 1546                        | 386                           | 47                              | 2919                 | 0.530 | 1546                   | 718                              | 1.3                     | 1.3                   | 3.060     | А                                   |
| SHIIP Access N | 40                          | 10                            | 1560                            | 792                  | 0.050 | 40                     | 33                               | 0.1                     | 0.1                   | 5.455     | Α                                   |
| A1173 E        | 556                         | 139                           | 148                             | 2809                 | 0.198 | 556                    | 1452                             | 0.3                     | 0.3                   | 2.179     | А                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 166                         | 42                            | 459                             | 1602                 | 0.104 | 166                    | 116                              | 0.2                     | 0.1                   | 2.747     | Α                                   |
| A1173 W        | 1262                        | 316                           | 39                              | 2927                 | 0.431 | 1264                   | 587                              | 1.3                     | 0.9                   | 2.529     | А                                   |
| SHIIP Access N | 32                          | 8                             | 1276                            | 988                  | 0.033 | 32                     | 27                               | 0.1                     | 0.0                   | 4.297     | Α                                   |
| A1173 E        | 454                         | 113                           | 121                             | 2834                 | 0.160 | 454                    | 1187                             | 0.3                     | 0.3                   | 2.064     | Α                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 139                         | 35                            | 384                             | 1654                 | 0.084 | 139                    | 97                               | 0.1                     | 0.1                   | 2.603     | Α                                   |
| A1173 W        | 1057                        | 264                           | 32                              | 2933                 | 0.360 | 1058                   | 491                              | 0.9                     | 0.7                   | 2.244     | А                                   |
| SHIIP Access N | 27                          | 7                             | 1068                            | 1131                 | 0.024 | 27                     | 23                               | 0.0                     | 0.0                   | 3.719     | Α                                   |
| A1173 E        | 380                         | 95                            | 101                             | 2852                 | 0.133 | 380                    | 994                              | 0.3                     | 0.2                   | 1.989     | Α                                   |



# 2032 Baseline, AM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Description  |
|----------|-----------|----------------------------------|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.49               | Α            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |  |
|-----------------------|----------------|-------------------|-------------|--|
| Left                  | Normal/unknown | 2.49              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 Baseline | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| SHIIP Access S |            | ONE HOUR     | ✓            | 109                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 407                 | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 23                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 1090                | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То             |                |         |                |         |  |  |  |  |  |
|------|----------------|----------------|---------|----------------|---------|--|--|--|--|--|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |  |  |  |  |  |
|      | SHIIP Access S | 0              | 80      | 0              | 29      |  |  |  |  |  |
| From | A1173 W        | 147            | 0       | 27             | 233     |  |  |  |  |  |
|      | SHIIP Access N | 0              | 17      | 0              | 6       |  |  |  |  |  |
|      | A1173 E        | 30             | 1055    | 5              | 0       |  |  |  |  |  |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |
| From | A1173 W        | 7              | 0       | 8              | 40      |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |
|      | A1173 E        | 11             | 11      | 20             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.11    | 4.56          | 0.2         | А       | 100                    | 150                              |
| A1173 W        | 0.15    | 1.80          | 0.2         | А       | 373                    | 560                              |
| SHIIP Access N | 0.02    | 2.99          | 0.0         | A       | 21                     | 32                               |
| A1173 E        | 0.43    | 2.53          | 0.8         | A       | 1000                   | 1500                             |

#### Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 82                          | 21                            | 809                             | 1356                 | 0.061 | 82                     | 133                              | 0.0                     | 0.1                   | 3.480     | Α                                   |
| A1173 W        | 306                         | 77                            | 26                              | 2939                 | 0.104 | 306                    | 865                              | 0.0                     | 0.1                   | 1.691     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 307                             | 1655                 | 0.010 | 17                     | 24                               | 0.0                     | 0.0                   | 2.791     | А                                   |
| A1173 E        | 821                         | 205                           | 123                             | 2831                 | 0.290 | 819                    | 201                              | 0.0                     | 0.5                   | 1.984     | Α                                   |

#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 98                          | 24                            | 968                             | 1245                 | 0.079 | 98                     | 159                              | 0.1                     | 0.1                   | 3.867     | Α                                   |
| A1173 W        | 366                         | 91                            | 31                              | 2935                 | 0.125 | 366                    | 1035                             | 0.1                     | 0.2                   | 1.733     | Α                                   |
| SHIIP Access N | 21                          | 5                             | 368                             | 1613                 | 0.013 | 21                     | 29                               | 0.0                     | 0.0                   | 2.870     | Α                                   |
| A1173 E        | 980                         | 245                           | 147                             | 2810                 | 0.349 | 979                    | 241                              | 0.5                     | 0.6                   | 2.184     | Α                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 120                         | 30                            | 1185                            | 1092                 | 0.110 | 120                    | 195                              | 0.1                     | 0.2                   | 4.561     | Α                                   |
| A1173 W        | 448                         | 112                           | 37                              | 2928                 | 0.153 | 448                    | 1267                             | 0.2                     | 0.2                   | 1.795     | Α                                   |
| SHIIP Access N | 25                          | 6                             | 450                             | 1556                 | 0.016 | 25                     | 35                               | 0.0                     | 0.0                   | 2.985     | А                                   |
| A1173 E        | 1200                        | 300                           | 180                             | 2780                 | 0.432 | 1199                   | 295                              | 0.6                     | 0.8                   | 2.528     | А                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 120                         | 30                            | 1186                            | 1092                 | 0.110 | 120                    | 195                              | 0.2                     | 0.2                   | 4.564     | Α                                   |
| A1173 W        | 448                         | 112                           | 37                              | 2928                 | 0.153 | 448                    | 1268                             | 0.2                     | 0.2                   | 1.795     | Α                                   |
| SHIIP Access N | 25                          | 6                             | 450                             | 1556                 | 0.016 | 25                     | 35                               | 0.0                     | 0.0                   | 2.985     | Α                                   |
| A1173 E        | 1200                        | 300                           | 181                             | 2780                 | 0.432 | 1200                   | 295                              | 0.8                     | 0.8                   | 2.530     | А                                   |



#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 98                          | 24                            | 969                             | 1244                 | 0.079 | 98                     | 159                              | 0.2                     | 0.1                   | 3.872     | Α                                   |
| A1173 W        | 366                         | 91                            | 31                              | 2935                 | 0.125 | 366                    | 1037                             | 0.2                     | 0.2                   | 1.734     | Α                                   |
| SHIIP Access N | 21                          | 5                             | 368                             | 1613                 | 0.013 | 21                     | 29                               | 0.0                     | 0.0                   | 2.870     | Α                                   |
| A1173 E        | 980                         | 245                           | 148                             | 2809                 | 0.349 | 981                    | 241                              | 0.8                     | 0.6                   | 2.188     | Α                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 82                          | 21                            | 811                             | 1354                 | 0.061 | 82                     | 133                              | 0.1                     | 0.1                   | 3.485     | Α                                   |
| A1173 W        | 306                         | 77                            | 26                              | 2939                 | 0.104 | 307                    | 868                              | 0.2                     | 0.1                   | 1.691     | А                                   |
| SHIIP Access N | 17                          | 4                             | 308                             | 1654                 | 0.010 | 17                     | 24                               | 0.0                     | 0.0                   | 2.794     | А                                   |
| A1173 E        | 821                         | 205                           | 124                             | 2831                 | 0.290 | 821                    | 202                              | 0.6                     | 0.5                   | 1.990     | Α                                   |



# 2032 Baseline, PM

#### **Data Errors and Warnings**

| Severity | erity Area Item                                 |  | Description  |  |  |  |  |
|----------|---|--|--|--|--|--|--|
| Warning  | Narning Geometry A1173 W - Roundabo<br>Geometry |  | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |  |
| Warning  | /arning Geometry A1173 E - Roundabout Geometry  |  | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing cautio   |  |  |  |  |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.48               | Α            |

#### **Junction Network**

| Driving side       | Driving side Lighting |      | Network LOS |  |
|--------------------|-----------------------|------|-------------|--|
| Left Normal/unknov |                       | 2.48 | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2032 Baseline | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| SHIIP Access S |            | ONE HOUR     | ✓            | 191                 | 100.000            |
| A1173 W        |            | ONE HOUR ✓   |              | 1211                | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 37                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 340                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | ,              |                |         |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                |                | То      |                |         |
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 152     | 0              | 39      |
| From | A1173 W        | 109            | 0       | 26             | 1076    |
|      | SHIIP Access N | 0              | 30      | 0              | 7       |
| İ    | A1173 E        | 24             | 311     | 5              | 0       |



|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 8       | 0              | 16      |
| From | A1173 W        | 25             | 0       | 25             | 9       |
|      | SHIIP Access N | 0              | 11      | 0              | 29      |
|      | A1173 E        | 26             | 36      | 40             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.13    | 2.73          | 0.2         | А       | 175                    | 263                              |
| A1173 W        | 0.46    | 2.51          | 0.9         | А       | 1111                   | 1667                             |
| SHIIP Access N | 0.04    | 4.57          | 0.1         | A       | 34                     | 51                               |
| A1173 E        | 0.13    | 2.00          | 0.2         | A       | 312                    | 468                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 144                         | 36                            | 260                             | 1741                 | 0.083 | 143                    | 100                              | 0.0                     | 0.1                   | 2.468     | Α                                   |
| A1173 W        | 912                         | 228                           | 33                              | 2932                 | 0.311 | 910                    | 370                              | 0.0                     | 0.5                   | 1.966     | Α                                   |
| SHIIP Access N | 28                          | 7                             | 919                             | 1233                 | 0.023 | 28                     | 23                               | 0.0                     | 0.0                   | 3.404     | А                                   |
| A1173 E        | 256                         | 64                            | 104                             | 2849                 | 0.090 | 255                    | 843                              | 0.0                     | 0.1                   | 1.877     | Α                                   |

#### 16:00 - 16:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 172                         | 43                            | 311                             | 1705                 | 0.101 | 172                    | 119                              | 0.1                     | 0.1                   | 2.570     | Α                                   |
| A1173 W        | 1089                        | 272                           | 40                              | 2926                 | 0.372 | 1088                   | 443                              | 0.5                     | 0.7                   | 2.165     | А                                   |
| SHIIP Access N | 33                          | 8                             | 1100                            | 1109                 | 0.030 | 33                     | 28                               | 0.0                     | 0.0                   | 3.813     | Α                                   |
| A1173 E        | 306                         | 76                            | 125                             | 2830                 | 0.108 | 306                    | 1008                             | 0.1                     | 0.2                   | 1.929     | А                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 210                         | 53                            | 381                             | 1656                 | 0.127 | 210                    | 146                              | 0.1                     | 0.2                   | 2.726     | Α                                   |
| A1173 W        | 1333                        | 333                           | 48                              | 2918                 | 0.457 | 1332                   | 542                              | 0.7                     | 0.9                   | 2.509     | Α                                   |
| SHIIP Access N | 41                          | 10                            | 1347                            | 939                  | 0.043 | 41                     | 34                               | 0.0                     | 0.1                   | 4.566     | А                                   |
| A1173 E        | 374                         | 94                            | 153                             | 2805                 | 0.133 | 374                    | 1234                             | 0.2                     | 0.2                   | 2.003     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 210                         | 53                            | 381                             | 1656                 | 0.127 | 210                    | 146                              | 0.2                     | 0.2                   | 2.726     | Α                                   |
| A1173 W        | 1333                        | 333                           | 48                              | 2918                 | 0.457 | 1333                   | 543                              | 0.9                     | 0.9                   | 2.511     | Α                                   |
| SHIIP Access N | 41                          | 10                            | 1348                            | 939                  | 0.043 | 41                     | 34                               | 0.1                     | 0.1                   | 4.570     | А                                   |
| A1173 E        | 374                         | 94                            | 153                             | 2804                 | 0.133 | 374                    | 1235                             | 0.2                     | 0.2                   | 2.004     | А                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 172                         | 43                            | 311                             | 1705                 | 0.101 | 172                    | 120                              | 0.2                     | 0.1                   | 2.571     | Α                                   |
| A1173 W        | 1089                        | 272                           | 40                              | 2926                 | 0.372 | 1090                   | 444                              | 0.9                     | 0.7                   | 2.170     | Α                                   |
| SHIIP Access N | 33                          | 8                             | 1101                            | 1108                 | 0.030 | 33                     | 28                               | 0.1                     | 0.0                   | 3.818     | Α                                   |
| A1173 E        | 306                         | 76                            | 125                             | 2830                 | 0.108 | 306                    | 1010                             | 0.2                     | 0.2                   | 1.929     | А                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 144                         | 36                            | 261                             | 1741                 | 0.083 | 144                    | 100                              | 0.1                     | 0.1                   | 2.471     | Α                                   |
| A1173 W        | 912                         | 228                           | 33                              | 2932                 | 0.311 | 912                    | 371                              | 0.7                     | 0.5                   | 1.971     | Α                                   |
| SHIIP Access N | 28                          | 7                             | 922                             | 1231                 | 0.023 | 28                     | 23                               | 0.0                     | 0.0                   | 3.412     | А                                   |
| A1173 E        | 256                         | 64                            | 105                             | 2848                 | 0.090 | 256                    | 845                              | 0.2                     | 0.1                   | 1.881     | А                                   |



# 2032 Baseline + Committed, AM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Description  |
|----------|-----------|----------------------------------|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.64               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.64              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name             | Time Period Traffic profile name type |          | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|---------------------------|---------------------------------------|----------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Baseline + Committed | AM                                    | ONE HOUR | 06:45                 | 08:15                  | 15                        | <b>√</b>             |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |  |

#### **Demand overview (Traffic)**

|                | •              | ,        |              |                     |                    |  |
|----------------|----------------|----------|--------------|---------------------|--------------------|--|
| Arm            | Arm Linked arm |          | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
| SHIIP Access S |                | ONE HOUR | ✓            | 109                 | 100.000            |  |
| A1173 W        |                | ONE HOUR | ✓            | 475                 | 100.000            |  |
| SHIIP Access N |                | ONE HOUR | ✓            | 23                  | 100.000            |  |
| A1173 E        |                | ONE HOUR | ✓            | 1149                | 100.000            |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 80      | 0              | 29      |
| From | A1173 W        | 147            | 0       | 27             | 301     |
|      | SHIIP Access N | 0              | 17      | 0              | 6       |
|      | A1173 E        | 30             | 1114    | 5              | 0       |

# **Vehicle Mix**



#### HV %s

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |
| From | A1173 W        | 7              | 0       | 8              | 49      |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |
|      | A1173 E        | 11             | 14      | 20             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm                 | Arm Max RFC |      | Max Delay (s) Max Q (PCU) |   | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|---------------------|-------------|------|---------------------------|---|------------------------|----------------------------------|--|
| SHIIP Access S 0.11 |             | 4.79 | 0.2                       | А | 100                    | 150                              |  |
| A1173 W             | 0.18        | 1.95 | 0.3                       | А | 436                    | 654                              |  |
| SHIIP Access N      | 0.02        | 3.09 | 0.0                       | А | 21                     | 32                               |  |
| A1173 E             | 0.46        | 2.71 | 0.9                       | A | 1054                   | 1582                             |  |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 82                          | 21                            | 853                             | 1325                 | 0.062 | 82                     | 133                              | 0.0                     | 0.1                   | 3.567     | Α                                   |
| A1173 W        | 358                         | 89                            | 26                              | 2939                 | 0.122 | 357                    | 909                              | 0.0                     | 0.2                   | 1.816     | А                                   |
| SHIIP Access N | 17                          | 4                             | 358                             | 1619                 | 0.011 | 17                     | 24                               | 0.0                     | 0.0                   | 2.852     | А                                   |
| A1173 E        | 865                         | 216                           | 123                             | 2832                 | 0.306 | 863                    | 252                              | 0.0                     | 0.5                   | 2.082     | Α                                   |

#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 98                          | 24                            | 1021                            | 1208                 | 0.081 | 98                     | 159                              | 0.1                     | 0.1                   | 3.997     | Α                                   |
| A1173 W        | 427                         | 107                           | 31                              | 2935                 | 0.146 | 427                    | 1088                             | 0.2                     | 0.2                   | 1.870     | Α                                   |
| SHIIP Access N | 21                          | 5                             | 429                             | 1571                 | 0.013 | 21                     | 29                               | 0.0                     | 0.0                   | 2.948     | Α                                   |
| A1173 E        | 1033                        | 258                           | 147                             | 2810                 | 0.368 | 1032                   | 302                              | 0.5                     | 0.7                   | 2.308     | А                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 120                         | 30                            | 1250                            | 1047                 | 0.115 | 120                    | 195                              | 0.1                     | 0.2                   | 4.782     | Α                                   |
| A1173 W        | 523                         | 131                           | 37                              | 2928                 | 0.179 | 523                    | 1332                             | 0.2                     | 0.3                   | 1.950     | А                                   |
| SHIIP Access N | 25                          | 6                             | 525                             | 1505                 | 0.017 | 25                     | 35                               | 0.0                     | 0.0                   | 3.089     | Α                                   |
| A1173 E        | 1265                        | 316                           | 180                             | 2780                 | 0.455 | 1264                   | 370                              | 0.7                     | 0.9                   | 2.705     | А                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 120                         | 30                            | 1251                            | 1046                 | 0.115 | 120                    | 195                              | 0.2                     | 0.2                   | 4.788     | Α                                   |
| A1173 W        | 523                         | 131                           | 37                              | 2928                 | 0.179 | 523                    | 1333                             | 0.3                     | 0.3                   | 1.950     | Α                                   |
| SHIIP Access N | 25                          | 6                             | 525                             | 1505                 | 0.017 | 25                     | 35                               | 0.0                     | 0.0                   | 3.089     | Α                                   |
| A1173 E        | 1265                        | 316                           | 181                             | 2780                 | 0.455 | 1265                   | 370                              | 0.9                     | 0.9                   | 2.708     | А                                   |



#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 98                          | 24                            | 1022                            | 1206                 | 0.081 | 98                     | 159                              | 0.2                     | 0.1                   | 4.002     | Α                                   |
| A1173 W        | 427                         | 107                           | 31                              | 2935                 | 0.146 | 427                    | 1090                             | 0.3                     | 0.2                   | 1.870     | Α                                   |
| SHIIP Access N | 21                          | 5                             | 429                             | 1571                 | 0.013 | 21                     | 29                               | 0.0                     | 0.0                   | 2.948     | Α                                   |
| A1173 E        | 1033                        | 258                           | 148                             | 2809                 | 0.368 | 1034                   | 302                              | 0.9                     | 0.7                   | 2.313     | А                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 82                          | 21                            | 856                             | 1323                 | 0.062 | 82                     | 133                              | 0.1                     | 0.1                   | 3.573     | Α                                   |
| A1173 W        | 358                         | 89                            | 26                              | 2939                 | 0.122 | 358                    | 912                              | 0.2                     | 0.2                   | 1.817     | А                                   |
| SHIIP Access N | 17                          | 4                             | 359                             | 1619                 | 0.011 | 17                     | 24                               | 0.0                     | 0.0                   | 2.856     | Α                                   |
| A1173 E        | 865                         | 216                           | 124                             | 2831                 | 0.306 | 866                    | 253                              | 0.7                     | 0.5                   | 2.088     | А                                   |



# 2032 Baseline + Committed, PM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Area Item Description  |  |  |  |
|----------|-----------|----------------------------------|--|--|--|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |  |  |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.54               | Α            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |  |
|-----------------------|----------------|-------------------|-------------|--|
| Left                  | Normal/unknown | 2.54              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name             | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|---------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D12 | 2032 Baseline + Committed | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | nicle mix varies over turn Vehicle mix varies over entry |                | PCU Factor for a HV (PCU) |  |
|------------------------------|--|----------------|---------------------------|--|
| ✓                            | ✓  | HV Percentages | 2.00                      |  |

#### **Demand overview (Traffic)**

|                | •          |              |              |                     |                    |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| SHIIP Access S |            | ONE HOUR     | ✓            | 191                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 1230                | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 37                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 384                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 152     | 0              | 39      |
| From | A1173 W        | 109            | 0       | 26             | 1095    |
|      | SHIIP Access N | 0              | 30      | 0              | 7       |
|      | A1173 E        | 24             | 355     | 5              | 0       |

# **Vehicle Mix**



#### HV %s

|      | То             |                |         |                |         |  |  |  |  |
|------|----------------|----------------|---------|----------------|---------|--|--|--|--|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |  |  |  |  |
|      | SHIIP Access S | 0              | 8       | 0              | 16      |  |  |  |  |
| From | A1173 W        | 25             | 0       | 25             | 11      |  |  |  |  |
|      | SHIIP Access N | 0              | 11      | 0              | 29      |  |  |  |  |
|      | A1173 E        | 26             | 36      | 40             | 0       |  |  |  |  |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.13    | 2.79          | 0.2         | А       | 175                    | 263                              |
| A1173 W        | 0.46    | 2.59          | 1.0         | А       | 1129                   | 1693                             |
| SHIIP Access N | 0.04    | 4.64          | 0.1         | A       | 34                     | 51                               |
| A1173 E        | 0.15    | 2.05          | 0.2         | A       | 352                    | 529                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 144                         | 36                            | 293                             | 1718                 | 0.084 | 143                    | 100                              | 0.0                     | 0.1                   | 2.504     | Α                                   |
| A1173 W        | 926                         | 232                           | 33                              | 2932                 | 0.316 | 924                    | 403                              | 0.0                     | 0.5                   | 2.013     | Α                                   |
| SHIIP Access N | 28                          | 7                             | 934                             | 1224                 | 0.023 | 28                     | 23                               | 0.0                     | 0.0                   | 3.431     | Α                                   |
| A1173 E        | 289                         | 72                            | 104                             | 2849                 | 0.101 | 288                    | 857                              | 0.0                     | 0.2                   | 1.903     | А                                   |

#### 16:00 - 16:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 172                         | 43                            | 350                             | 1678                 | 0.102 | 172                    | 119                              | 0.1                     | 0.1                   | 2.618     | Α                                   |
| A1173 W        | 1106                        | 276                           | 40                              | 2926                 | 0.378 | 1105                   | 483                              | 0.5                     | 0.7                   | 2.221     | А                                   |
| SHIIP Access N | 33                          | 8                             | 1117                            | 1098                 | 0.030 | 33                     | 28                               | 0.0                     | 0.0                   | 3.856     | Α                                   |
| A1173 E        | 345                         | 86                            | 125                             | 2830                 | 0.122 | 345                    | 1025                             | 0.2                     | 0.2                   | 1.961     | А                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 210                         | 53                            | 429                             | 1622                 | 0.130 | 210                    | 146                              | 0.1                     | 0.2                   | 2.791     | Α                                   |
| A1173 W        | 1354                        | 339                           | 48                              | 2918                 | 0.464 | 1353                   | 591                              | 0.7                     | 1.0                   | 2.584     | Α                                   |
| SHIIP Access N | 41                          | 10                            | 1367                            | 925                  | 0.044 | 41                     | 34                               | 0.0                     | 0.1                   | 4.640     | Α                                   |
| A1173 E        | 423                         | 106                           | 153                             | 2805                 | 0.151 | 423                    | 1255                             | 0.2                     | 0.2                   | 2.045     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 210                         | 53                            | 429                             | 1622                 | 0.130 | 210                    | 146                              | 0.2                     | 0.2                   | 2.792     | Α                                   |
| A1173 W        | 1354                        | 339                           | 48                              | 2918                 | 0.464 | 1354                   | 591                              | 1.0                     | 1.0                   | 2.586     | Α                                   |
| SHIIP Access N | 41                          | 10                            | 1369                            | 924                  | 0.044 | 41                     | 34                               | 0.1                     | 0.1                   | 4.645     | Α                                   |
| A1173 E        | 423                         | 106                           | 153                             | 2804                 | 0.151 | 423                    | 1256                             | 0.2                     | 0.2                   | 2.046     | Α                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 172                         | 43                            | 351                             | 1677                 | 0.102 | 172                    | 120                              | 0.2                     | 0.1                   | 2.619     | Α                                   |
| A1173 W        | 1106                        | 276                           | 40                              | 2926                 | 0.378 | 1107                   | 483                              | 1.0                     | 0.7                   | 2.226     | Α                                   |
| SHIIP Access N | 33                          | 8                             | 1119                            | 1096                 | 0.030 | 33                     | 28                               | 0.1                     | 0.0                   | 3.861     | Α                                   |
| A1173 E        | 345                         | 86                            | 125                             | 2830                 | 0.122 | 345                    | 1027                             | 0.2                     | 0.2                   | 1.961     | А                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 144                         | 36                            | 294                             | 1717                 | 0.084 | 144                    | 100                              | 0.1                     | 0.1                   | 2.505     | Α                                   |
| A1173 W        | 926                         | 232                           | 33                              | 2932                 | 0.316 | 927                    | 405                              | 0.7                     | 0.5                   | 2.019     | А                                   |
| SHIIP Access N | 28                          | 7                             | 936                             | 1222                 | 0.023 | 28                     | 23                               | 0.0                     | 0.0                   | 3.440     | Α                                   |
| A1173 E        | 289                         | 72                            | 105                             | 2848                 | 0.102 | 289                    | 860                              | 0.2                     | 0.2                   | 1.903     | А                                   |



# 2032 Baseline + Committed + Development, AM

#### **Data Errors and Warnings**

| Severity | Area Item |                                  | Description  |
|----------|-----------|----------------------------------|--|
| Warning  | Geometry  | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry  | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
|   | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.83               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 2.83 | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                           | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|---|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Baseline + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                |            | /            |              |                     |                    |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| SHIIP Access S |            | ONE HOUR     | ✓            | 109                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 638                 | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 23                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 1245                | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 80      | 0              | 29      |
| From | A1173 W        | 147            | 0       | 27             | 464     |
|      | SHIIP Access N | 0              | 17      | 0              | 6       |
|      | A1173 E        | 30             | 1210    | 5              | 0       |

# **Vehicle Mix**



#### HV %s

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 20      | 0              | 33      |
| From | A1173 W        | 7              | 0       | 8              | 46      |
|      | SHIIP Access N | 0              | 25      | 0              | 33      |
|      | A1173 E        | 11             | 16      | 20             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.12    | 5.20          | 0.2         | А       | 100                    | 150                              |
| A1173 W        | 0.24    | 2.15          | 0.4         | А       | 585                    | 878                              |
| SHIIP Access N | 0.02    | 3.37          | 0.0         | A       | 21                     | 32                               |
| A1173 E        | 0.49    | 2.96          | 1.1         | А       | 1142                   | 1714                             |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 82                          | 21                            | 925                             | 1274                 | 0.064 | 82                     | 133                              | 0.0                     | 0.1                   | 3.718     | Α                                   |
| A1173 W        | 480                         | 120                           | 25                              | 2939                 | 0.163 | 479                    | 981                              | 0.0                     | 0.3                   | 1.943     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 481                             | 1535                 | 0.011 | 17                     | 24                               | 0.0                     | 0.0                   | 3.011     | А                                   |
| A1173 E        | 937                         | 234                           | 123                             | 2832                 | 0.331 | 935                    | 375                              | 0.0                     | 0.6                   | 2.196     | Α                                   |

#### 07:00 - 07:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 98                          | 24                            | 1107                            | 1147                 | 0.085 | 98                     | 159                              | 0.1                     | 0.1                   | 4.227     | Α                                   |
| A1173 W        | 574                         | 143                           | 31                              | 2935                 | 0.195 | 573                    | 1174                             | 0.3                     | 0.3                   | 2.025     | Α                                   |
| SHIIP Access N | 21                          | 5                             | 575                             | 1470                 | 0.014 | 21                     | 29                               | 0.0                     | 0.0                   | 3.153     | Α                                   |
| A1173 E        | 1119                        | 280                           | 147                             | 2810                 | 0.398 | 1118                   | 448                              | 0.6                     | 0.8                   | 2.465     | А                                   |

#### 07:15 - 07:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 120                         | 30                            | 1355                            | 973                  | 0.123 | 120                    | 195                              | 0.1                     | 0.2                   | 5.197     | Α                                   |
| A1173 W        | 702                         | 176                           | 37                              | 2928                 | 0.240 | 702                    | 1437                             | 0.3                     | 0.4                   | 2.148     | Α                                   |
| SHIIP Access N | 25                          | 6                             | 704                             | 1381                 | 0.018 | 25                     | 35                               | 0.0                     | 0.0                   | 3.370     | Α                                   |
| A1173 E        | 1371                        | 343                           | 180                             | 2780                 | 0.493 | 1369                   | 549                              | 0.8                     | 1.1                   | 2.956     | Α                                   |

#### 07:30 - 07:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 120                         | 30                            | 1356                            | 972                  | 0.123 | 120                    | 195                              | 0.2                     | 0.2                   | 5.205     | Α                                   |
| A1173 W        | 702                         | 176                           | 37                              | 2928                 | 0.240 | 702                    | 1439                             | 0.4                     | 0.4                   | 2.148     | Α                                   |
| SHIIP Access N | 25                          | 6                             | 705                             | 1381                 | 0.018 | 25                     | 35                               | 0.0                     | 0.0                   | 3.371     | Α                                   |
| A1173 E        | 1371                        | 343                           | 181                             | 2780                 | 0.493 | 1371                   | 549                              | 1.1                     | 1.1                   | 2.960     | А                                   |



#### 07:45 - 08:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 98                          | 24                            | 1109                            | 1146                 | 0.086 | 98                     | 159                              | 0.2                     | 0.1                   | 4.235     | Α                                   |
| A1173 W        | 574                         | 143                           | 31                              | 2935                 | 0.195 | 574                    | 1177                             | 0.4                     | 0.3                   | 2.027     | Α                                   |
| SHIIP Access N | 21                          | 5                             | 576                             | 1470                 | 0.014 | 21                     | 29                               | 0.0                     | 0.0                   | 3.154     | Α                                   |
| A1173 E        | 1119                        | 280                           | 148                             | 2809                 | 0.398 | 1121                   | 449                              | 1.1                     | 0.8                   | 2.472     | A                                   |

#### 08:00 - 08:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 82                          | 21                            | 928                             | 1272                 | 0.065 | 82                     | 133                              | 0.1                     | 0.1                   | 3.726     | Α                                   |
| A1173 W        | 480                         | 120                           | 26                              | 2939                 | 0.163 | 481                    | 985                              | 0.3                     | 0.3                   | 1.946     | Α                                   |
| SHIIP Access N | 17                          | 4                             | 482                             | 1534                 | 0.011 | 17                     | 24                               | 0.0                     | 0.0                   | 3.013     | Α                                   |
| A1173 E        | 937                         | 234                           | 124                             | 2831                 | 0.331 | 938                    | 376                              | 0.8                     | 0.6                   | 2.206     | Α                                   |



# 2032 Baseline + Committed + Development, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                             | Description  |
|----------|----------|----------------------------------|--|
| Warning  | Geometry | A1173 W - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |
| Warning  | Geometry | A1173 E - Roundabout<br>Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type       | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------------|-----------------------|------------|--------------------|--------------|
| ſ | 1        | untitled | Standard Roundabout |                       | 1, 2, 3, 4 | 2.97               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 2.97 | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                           | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|---|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Baseline + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

|                | •          | ,            |              |                     |                    |
|----------------|------------|--------------|--------------|---------------------|--------------------|
| Arm            | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| SHIIP Access S |            | ONE HOUR     | ✓            | 191                 | 100.000            |
| A1173 W        |            | ONE HOUR     | ✓            | 1449                | 100.000            |
| SHIIP Access N |            | ONE HOUR     | ✓            | 37                  | 100.000            |
| A1173 E        |            | ONE HOUR     | ✓            | 516                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 152     | 0              | 39      |
| From | A1173 W        | 109            | 0       | 26             | 1314    |
|      | SHIIP Access N | 0              | 30      | 0              | 7       |
|      | A1173 E        | 24             | 487     | 5              | 0       |

# **Vehicle Mix**



#### HV %s

|      |                |                | То      |                |         |
|------|----------------|----------------|---------|----------------|---------|
|      |                | SHIIP Access S | A1173 W | SHIIP Access N | A1173 E |
|      | SHIIP Access S | 0              | 8       | 0              | 16      |
| From | A1173 W        | 25             | 0       | 25             | 16      |
|      | SHIIP Access N | 0              | 11      | 0              | 29      |
|      | A1173 E        | 26             | 37      | 40             | 0       |

# Results

#### Results Summary for whole modelled period

| Arm            | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|----------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| SHIIP Access S | 0.14    | 3.01          | 0.2         | A       | 175                    | 263                              |
| A1173 W        | 0.55    | 3.18          | 1.4         | А       | 1330                   | 1994                             |
| SHIIP Access N | 0.05    | 5.72          | 0.1         | А       | 34                     | 51                               |
| A1173 E        | 0.20    | 2.20          | 0.3         | А       | 473                    | 710                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 144                         | 36                            | 392                             | 1648                 | 0.087 | 143                    | 100                              | 0.0                     | 0.1                   | 2.620     | Α                                   |
| A1173 W        | 1091                        | 273                           | 33                              | 2932                 | 0.372 | 1088                   | 502                              | 0.0                     | 0.7                   | 2.277     | Α                                   |
| SHIIP Access N | 28                          | 7                             | 1098                            | 1111                 | 0.025 | 28                     | 23                               | 0.0                     | 0.0                   | 3.789     | Α                                   |
| A1173 E        | 388                         | 97                            | 104                             | 2849                 | 0.136 | 388                    | 1021                             | 0.0                     | 0.2                   | 1.996     | А                                   |

#### 16:00 - 16:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 172                         | 43                            | 469                             | 1595                 | 0.108 | 172                    | 119                              | 0.1                     | 0.1                   | 2.771     | Α                                   |
| A1173 W        | 1303                        | 326                           | 40                              | 2926                 | 0.445 | 1302                   | 601                              | 0.7                     | 0.9                   | 2.586     | А                                   |
| SHIIP Access N | 33                          | 8                             | 1313                            | 962                  | 0.035 | 33                     | 28                               | 0.0                     | 0.0                   | 4.417     | Α                                   |
| A1173 E        | 464                         | 116                           | 125                             | 2830                 | 0.164 | 464                    | 1222                             | 0.2                     | 0.3                   | 2.076     | А                                   |

#### 16:15 - 16:30

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 210                         | 53                            | 574                             | 1521                 | 0.138 | 210                    | 146                              | 0.1                     | 0.2                   | 3.008     | Α                                   |
| A1173 W        | 1595                        | 399                           | 48                              | 2918                 | 0.547 | 1594                   | 736                              | 0.9                     | 1.4                   | 3.169     | Α                                   |
| SHIIP Access N | 41                          | 10                            | 1608                            | 760                  | 0.054 | 41                     | 34                               | 0.0                     | 0.1                   | 5.708     | Α                                   |
| A1173 E        | 568                         | 142                           | 153                             | 2805                 | 0.203 | 568                    | 1496                             | 0.3                     | 0.3                   | 2.196     | Α                                   |

#### 16:30 - 16:45

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 210                         | 53                            | 575                             | 1520                 | 0.138 | 210                    | 146                              | 0.2                     | 0.2                   | 3.009     | Α                                   |
| A1173 W        | 1595                        | 399                           | 48                              | 2918                 | 0.547 | 1595                   | 737                              | 1.4                     | 1.4                   | 3.177     | Α                                   |
| SHIIP Access N | 41                          | 10                            | 1610                            | 758                  | 0.054 | 41                     | 34                               | 0.1                     | 0.1                   | 5.718     | Α                                   |
| A1173 E        | 568                         | 142                           | 153                             | 2804                 | 0.203 | 568                    | 1497                             | 0.3                     | 0.3                   | 2.196     | Α                                   |



#### 16:45 - 17:00

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 172                         | 43                            | 470                             | 1594                 | 0.108 | 172                    | 120                              | 0.2                     | 0.1                   | 2.772     | Α                                   |
| A1173 W        | 1303                        | 326                           | 40                              | 2926                 | 0.445 | 1304                   | 602                              | 1.4                     | 0.9                   | 2.596     | Α                                   |
| SHIIP Access N | 33                          | 8                             | 1316                            | 960                  | 0.035 | 33                     | 28                               | 0.1                     | 0.0                   | 4.427     | Α                                   |
| A1173 E        | 464                         | 116                           | 125                             | 2830                 | 0.164 | 464                    | 1224                             | 0.3                     | 0.3                   | 2.076     | Α                                   |

#### 17:00 - 17:15

| Arm            | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|----------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| SHIIP Access S | 144                         | 36                            | 393                             | 1648                 | 0.087 | 144                    | 100                              | 0.1                     | 0.1                   | 2.624     | Α                                   |
| A1173 W        | 1091                        | 273                           | 33                              | 2932                 | 0.372 | 1092                   | 504                              | 0.9                     | 0.7                   | 2.285     | Α                                   |
| SHIIP Access N | 28                          | 7                             | 1102                            | 1108                 | 0.025 | 28                     | 23                               | 0.0                     | 0.0                   | 3.802     | А                                   |
| A1173 E        | 388                         | 97                            | 105                             | 2848                 | 0.136 | 389                    | 1025                             | 0.3                     | 0.2                   | 1.999     | Α                                   |

## Annex TN2 F

A160/ Humber Road/ Manby Road Roundabout



## **Junctions 10**

#### **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021

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Filename: A160-Humber Road-Manby Road RevC.j10

Path: P:\23000's\23325\Junction Assessment\A160-Humber Road-Manby Road RevC\_Junctions 10 Report

**Report generation date:** 05/08/2022 10:13:40

- »2021 Base, AM »2021 Base, PM
- »2025 Base, AM
- »2025 Base, PM
- »2025 Base + Committed, AM
- »2025 Base + Committed, PM
- »2025 Base + Committed + Development, AM
- »2025 Base + Committed + Development, PM
- »2032 Base, AM
- »2032 Base, PM
- »2032 Base + Committed, AM
- »2032 Base + Committed, PM
- »2032 Base + Committed + Development, AM
- »2032 Base + Committed + Development, PM



## Summary of junction performance

|                         |         | AM        |        |           | PM        |      |
|-------------------------|---------|-----------|--------|-----------|-----------|------|
|                         | Q (PCU) | Delay (s) | RFC    | Q (PCU)   | Delay (s) | RFC  |
|                         |         |           | 2021   | Base      |           |      |
| A - Humber Road         | 0.3     | 2.91      | 0.16   | 0.7       | 2.95      | 0.33 |
| B - Manby Road          | 0.3     | 1.94      | 0.22   | 0.2       | 1.92      | 0.14 |
| C - Port Service Access | 0.0     | 4.41      | 0.01   | 0.0       | 4.43      | 0.01 |
| D - A160                | 0.5     | 2.81      | 0.26   | 0.4       | 2.57      | 0.20 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
|                         |         |           | 2025   | Base      |           |      |
| A - Humber Road         | 0.4     | 2.95      | 0.17   | 0.7       | 3.04      | 0.34 |
| B - Manby Road          | 0.4     | 1.98      | 0.23   | 0.2       | 1.96      | 0.15 |
| C - Port Service Access | 0.0     | 4.53      | 0.01   | 0.0       | 4.53      | 0.01 |
| D - A160                | 0.5     | 2.89      | 0.27   | 0.4       | 2.61      | 0.21 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
|                         |         | 2025 E    | Base - | - Commi   | tted      |      |
| A - Humber Road         | 0.4     | 2.89      | 0.18   | 1.4       | 3.80      | 0.52 |
| B - Manby Road          | 0.5     | 2.08      | 0.29   | 0.3       | 2.41      | 0.18 |
| C - Port Service Access | 0.0     | 6.88      | 0.01   | 0.0       | 5.80      | 0.01 |
| D - A160                | 1.0     | 3.71      | 0.45   | 0.4       | 2.64      | 0.22 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
|                         | 2025 E  | Base + C  | omm    | itted + D | evelopm   | ent  |
| A - Humber Road         | 0.4     | 2.89      | 0.19   | 1.4       | 3.89      | 0.53 |
| B - Manby Road          | 0.5     | 2.11      | 0.29   | 0.3       | 2.46      | 0.19 |
| C - Port Service Access | 0.0     | 7.01      | 0.01   | 0.0       | 5.94      | 0.01 |
| D - A160                | 1.1     | 3.85      | 0.47   | 0.5       | 2.71      | 0.24 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
|                         |         |           | 2032   | Base      |           |      |
| A - Humber Road         | 0.4     | 3.01      | 0.18   | 0.8       | 3.19      | 0.37 |
| B - Manby Road          | 0.4     | 2.05      | 0.24   | 0.2       | 2.02      | 0.16 |
| C - Port Service Access | 0.0     | 4.73      | 0.01   | 0.0       | 4.72      | 0.01 |
| D - A160                | 0.6     | 3.01      | 0.29   | 0.4       | 2.67      | 0.23 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
|                         |         | 2032 E    | Base + | - Commi   | tted      |      |
| A - Humber Road         | 0.4     | 2.96      | 0.19   | 1.5       | 4.06      | 0.55 |
| B - Manby Road          | 0.5     | 2.16      | 0.31   | 0.3       | 2.50      | 0.20 |
| C - Port Service Access | 0.0     | 7.24      | 0.01   | 0.0       | 6.11      | 0.01 |
| D - A160                | 1.1     | 3.93      | 0.47   | 0.5       | 2.71      | 0.24 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
|                         | 2032    | Base + C  | omm    | itted + D | evelopm   | ent  |
| A - Humber Road         | 0.4     | 2.96      | 0.20   | 1.6       | 4.17      | 0.56 |
| B - Manby Road          | 0.5     | 2.19      | 0.31   | 0.3       | 2.56      | 0.20 |
| C - Port Service Access | 0.0     | 7.37      | 0.01   | 0.0       | 6.27      | 0.01 |
| D - A160                | 1.2     | 4.09      | 0.49   | 0.5       | 2.78      | 0.26 |
| E - Conco Access        | 0.0     | 0.00      | 0.00   | 0.0       | 0.00      | 0.00 |
| _ 531100 A00000         | 0.0     | 0.00      | 0.00   |           | 0.00      | 3.00 |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



## File summary

#### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |

#### Units

|   | Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|---|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| Γ | m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

#### **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

## **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

## **Analysis Set Details**

| I | D  | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |
|---|----|-------------------|---------------------------------|-------------------------------------|--|
| F | ١١ | ✓                 | 100.000                         | 100.000                             |  |



# **2021 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.52               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.52              | Α           |

## **Arms**

#### **Arms**

| Arm | Name                | Description | No give-way line |
|-----|---------------------|-------------|------------------|
| Α   | Humber Road         |             |                  |
| В   | Manby Road          |             |                  |
| С   | Port Service Access |             |                  |
| D   | A160                |             |                  |
| Е   | Conco Access        |             |                  |

#### **Roundabout Geometry**

| _                       |       |       | I      |       |       |           |            |           |
|-------------------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| Arm                     | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
| A - Humber Road         | 7.00  | 7.00  | 0.0    | 35.0  | 86.0  | 36.0      |            |           |
| B - Manby Road          | 8.00  | 8.30  | 5.0    | 57.0  | 86.0  | 30.0      |            |           |
| C - Port Service Access | 3.00  | 8.10  | 4.5    | 17.2  | 87.0  | 33.0      |            |           |
| D - A160                | 7.00  | 7.00  | 0.0    | 20.0  | 87.0  | 41.0      |            |           |
| E - Conco Access        | 7.80  | 9.70  | 15.0   | 10.0  | 87.0  | 52.0      |            |           |

#### **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |
|-------------------------|---------------------------|------------------------------|------------------------------|--|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |  |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |  |
| C - Port Service Access | 451                       |                              | 0.00                         |  |
| D - A160                | 191                       | ✓                            | 40.56                        |  |
| E - Conco Access        | 476                       |                              | 0.00                         |  |

#### Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| · · · · · · · · · · · · · · · · · · · |             |                          |  |  |  |  |
|---------------------------------------|-------------|--------------------------|--|--|--|--|
| Arm                                   | Final slope | Final intercept (PCU/hr) |  |  |  |  |
| A - Humber Road                       | 1.096       | 2872                     |  |  |  |  |
| B - Manby Road                        | 1.238       | 3347                     |  |  |  |  |
| C - Port Service Access               | 0.761       | 1981                     |  |  |  |  |
| D - A160                              | 1.033       | 2777                     |  |  |  |  |
| E - Conco Access                      | 1.050       | 3186                     |  |  |  |  |

The slope and intercept shown above include any corrections and adjustments.



# Traffic Demand

#### **Demand Set Details**

|   | ID | Scenario name | cenario name   Time Period name   Traffic |          | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|---|----------|--------------------|---------------------|---------------------------|-------------------|
| I | D1 | 2021 Base     | AM  | ONE HOUR | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 381                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 565                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 561                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 0                   | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 12              | 58             | 1                       | 310      | 0                |
| F    | B - Manby Road          | 330             | 3              | 1                       | 231      | 0                |
| From | C - Port Service Access | 4               | 0              | 0                       | 2        | 0                |
|      | D - A160                | 367             | 180            | 3                       | 9        | 2                |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# **Vehicle Mix**

#### HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 42              | 38             | 100                     | 92       | 0                |
| F    | B - Manby Road          | 22              | 67             | 100                     | 22       | 0                |
| From | C - Port Service Access | 100             | 0              | 0                       | 0        | 0                |
|      | D - A160                | 48              | 19             | 100                     | 67       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# Results

#### Results Summary for whole modelled period

|                         |         | •             |             |         |                        |                                  |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
| A - Humber Road         | 0.16    | 2.91          | 0.3         | А       | 350                    | 524                              |
| B - Manby Road          | 0.22    | 1.94          | 0.3         | А       | 518                    | 778                              |
| C - Port Service Access | 0.01    | 4.41          | 0.0         | А       | 6                      | 8                                |
| D - A160                | 0.26    | 2.81          | 0.5         | A       | 515                    | 772                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | Α       | 0                      | 0                                |



## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 287                         | 72                            | 146                             | 2712                 | 0.106 | 286                    | 536                              | 0.0                     | 0.2                   | 2.662        | Α                                   |
| B - Manby Road          | 425                         | 106                           | 251                             | 3036                 | 0.140 | 425                    | 181                              | 0.0                     | 0.2                   | 1.685        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 672                             | 1470                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 3.685        | Α                                   |
| D - A160                | 422                         | 106                           | 262                             | 2506                 | 0.169 | 421                    | 415                              | 0.0                     | 0.3                   | 2.378        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 682                             | 2470                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 343                         | 86                            | 175                             | 2680                 | 0.128 | 342                    | 641                              | 0.2                     | 0.3                   | 2.761        | А                                   |
| B - Manby Road          | 508                         | 127                           | 301                             | 2975                 | 0.171 | 508                    | 217                              | 0.2                     | 0.3                   | 1.783        | А                                   |
| C - Port Service Access | 5                           | 1                             | 804                             | 1369                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 3.959        | А                                   |
| D - A160                | 504                         | 126                           | 314                             | 2453                 | 0.206 | 504                    | 496                              | 0.3                     | 0.4                   | 2.544        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 816                             | 2330                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 419                         | 105                           | 215                             | 2637                 | 0.159 | 419                    | 784                              | 0.3                     | 0.3                   | 2.911        | Α                                   |
| B - Manby Road          | 622                         | 156                           | 369                             | 2891                 | 0.215 | 622                    | 265                              | 0.3                     | 0.3                   | 1.939        | Α                                   |
| C - Port Service Access | 7                           | 2                             | 985                             | 1232                 | 0.005 | 7                      | 6                                | 0.0                     | 0.0                   | 4.408        | А                                   |
| D - A160                | 618                         | 154                           | 384                             | 2380                 | 0.259 | 617                    | 607                              | 0.4                     | 0.5                   | 2.813        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 999                             | 2137                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 419                         | 105                           | 215                             | 2637                 | 0.159 | 419                    | 785                              | 0.3                     | 0.3                   | 2.911        | А                                   |
| B - Manby Road          | 622                         | 156                           | 369                             | 2891                 | 0.215 | 622                    | 265                              | 0.3                     | 0.3                   | 1.939        | A                                   |
| C - Port Service Access | 7                           | 2                             | 985                             | 1231                 | 0.005 | 7                      | 6                                | 0.0                     | 0.0                   | 4.409        | А                                   |
| D - A160                | 618                         | 154                           | 384                             | 2380                 | 0.260 | 618                    | 608                              | 0.5                     | 0.5                   | 2.813        | А                                   |
| E - Conco Access        | 0                           | 0                             | 1000                            | 2136                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 343                         | 86                            | 175                             | 2680                 | 0.128 | 343                    | 642                              | 0.3                     | 0.3                   | 2.764        | А                                   |
| B - Manby Road          | 508                         | 127                           | 301                             | 2974                 | 0.171 | 508                    | 217                              | 0.3                     | 0.3                   | 1.787        | A                                   |
| C - Port Service Access | 5                           | 1                             | 805                             | 1368                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 3.961        | Α                                   |
| D - A160                | 504                         | 126                           | 314                             | 2453                 | 0.206 | 505                    | 497                              | 0.5                     | 0.4                   | 2.546        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 817                             | 2328                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 287                         | 72                            | 147                             | 2711                 | 0.106 | 287                    | 537                              | 0.3                     | 0.2                   | 2.665        | Α                                   |
| B - Manby Road          | 425                         | 106                           | 252                             | 3035                 | 0.140 | 426                    | 182                              | 0.3                     | 0.2                   | 1.688        | А                                   |
| C - Port Service Access | 5                           | 1                             | 674                             | 1468                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 3.691        | Α                                   |
| D - A160                | 422                         | 106                           | 263                             | 2506                 | 0.169 | 423                    | 416                              | 0.4                     | 0.3                   | 2.381        | А                                   |
| E - Conco Access        | 0                           | 0                             | 684                             | 2468                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

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# 2021 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | ction Name Junction type |                  | Use circulating lanes |               | Junction Delay (s) | Junction LOS |  |
|---|----------|--------------------------|------------------|-----------------------|---------------|--------------------|--------------|--|
| ı | 1        | untitled                 | Large Roundabout |                       | A, B, C, D, E | 2.62               | Α            |  |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 2.62              | Α           |  |  |

#### **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

#### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | ne Time Period name Traffic profile type |          | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |  |
|----|---------------|--|----------|--------------------|---------------------|---------------------------|-------------------|--|
| D2 | 2021 Base     | PM                                       | ONE HOUR | 15:45              | 17:15               | 15                        | ✓                 |  |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |  |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 759                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 341                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 10                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 474                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                      |                                |     |                         |          |                  |  |  |  |  |  |  |  |  |
|------|-------------------------|--------------------------------|-----|-------------------------|----------|------------------|--|--|--|--|--|--|--|--|
|      |                         | A - Humber Road B - Manby Road |     | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |  |  |
|      | A - Humber Road         | 49                             | 303 | 0                       | 407      | 0                |  |  |  |  |  |  |  |  |
|      | B - Manby Road          | 115                            | 11  | 1                       | 214      | 0                |  |  |  |  |  |  |  |  |
| From | C - Port Service Access | 0                              | 4   | 0                       | 6        | 0                |  |  |  |  |  |  |  |  |
|      | D - A160                | 223                            | 240 | 4                       | 5        | 2                |  |  |  |  |  |  |  |  |
|      | E - Conco Access        | 0                              | 2   | 0                       | 1        | 0                |  |  |  |  |  |  |  |  |

# **Vehicle Mix**

#### HV %s

|      |                         | То              |                |                         |          |                  |  |  |  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |  |  |
|      | A - Humber Road         | 37              | 21             | 0                       | 61       | 0                |  |  |  |  |  |  |  |  |
| F    | B - Manby Road          | 37              | 37 9           |                         | 20       | 0                |  |  |  |  |  |  |  |  |
| From | C - Port Service Access | 0               | 50             | 0                       | 67       | 0                |  |  |  |  |  |  |  |  |
|      | D - A160                | 91              | 20             | 75                      | 40       | 100              |  |  |  |  |  |  |  |  |
|      | E - Conco Access        | 0               | 0              | 0                       | 100      | 0                |  |  |  |  |  |  |  |  |

# Results

## Results Summary for whole modelled period

| Arm Max RFC             |      | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.33 | 2.95          | 0.7         | А       | 696                    | 1045                             |
| B - Manby Road          | 0.14 | 1.92          | 0.2         | 0.2 A   |                        | 469                              |
| C - Port Service Access | 0.01 | 4.43          | 0.0         | А       | 9                      | 14                               |
| D - A160                | 0.20 | 2.57          | 0.4         | А       | 435                    | 652                              |
| E - Conco Access        | 0.00 | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 571                         | 143                           | 198                             | 2655                 | 0.215 | 570                    | 291                              | 0.0                     | 0.4                   | 2.431        | Α                                   |
| B - Manby Road          | 257                         | 64                            | 349                             | 2915                 | 0.088 | 256                    | 419                              | 0.0                     | 0.1                   | 1.691        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 602                             | 1523                 | 0.005 | 7                      | 4                                | 0.0                     | 0.0                   | 3.793        | Α                                   |
| D - A160                | 357                         | 89                            | 134                             | 2638                 | 0.135 | 356                    | 475                              | 0.0                     | 0.2                   | 2.309        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 489                             | 2673                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 682                         | 171                           | 237                             | 2612                 | 0.261 | 682                    | 348                              | 0.4                     | 0.5                   | 2.626        | А                                   |
| B - Manby Road          | 307                         | 77                            | 418                             | 2830                 | 0.108 | 306                    | 501                              | 0.1                     | 0.2                   | 1.781        | Α                                   |
| C - Port Service Access | 9                           | 2                             | 720                             | 1433                 | 0.006 | 9                      | 4                                | 0.0                     | 0.0                   | 4.037        | А                                   |
| D - A160                | 426                         | 107                           | 161                             | 2611                 | 0.163 | 426                    | 568                              | 0.2                     | 0.3                   | 2.412        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 585                             | 2572                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 836                         | 209                           | 290                             | 2554                 | 0.327 | 835                    | 426                              | 0.5                     | 0.7                   | 2.947        | Α                                   |
| B - Manby Road          | 375                         | 94                            | 512                             | 2714                 | 0.138 | 375                    | 614                              | 0.2                     | 0.2                   | 1.923        | Α                                   |
| C - Port Service Access | 11                          | 3                             | 881                             | 1310                 | 0.008 | 11                     | 6                                | 0.0                     | 0.0                   | 4.425        | А                                   |
| D - A160                | 522                         | 130                           | 197                             | 2574                 | 0.203 | 522                    | 695                              | 0.3                     | 0.4                   | 2.569        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 716                             | 2434                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 836                         | 209                           | 291                             | 2553                 | 0.327 | 836                    | 426                              | 0.7                     | 0.7                   | 2.950        | А                                   |
| B - Manby Road          | 375                         | 94                            | 512                             | 2713                 | 0.138 | 375                    | 614                              | 0.2                     | 0.2                   | 1.924        | А                                   |
| C - Port Service Access | 11                          | 3                             | 882                             | 1310                 | 0.008 | 11                     | 6                                | 0.0                     | 0.0                   | 4.427        | Α                                   |
| D - A160                | 522                         | 130                           | 197                             | 2574                 | 0.203 | 522                    | 696                              | 0.4                     | 0.4                   | 2.569        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 717                             | 2434                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 682                         | 171                           | 238                             | 2612                 | 0.261 | 683                    | 348                              | 0.7                     | 0.5                   | 2.629        | Α                                   |
| B - Manby Road          | 307                         | 77                            | 418                             | 2829                 | 0.108 | 307                    | 502                              | 0.2                     | 0.2                   | 1.785        | А                                   |
| C - Port Service Access | 9                           | 2                             | 721                             | 1433                 | 0.006 | 9                      | 4                                | 0.0                     | 0.0                   | 4.041        | А                                   |
| D - A160                | 426                         | 107                           | 161                             | 2611                 | 0.163 | 426                    | 569                              | 0.4                     | 0.3                   | 2.415        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 586                             | 2571                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 571                         | 143                           | 199                             | 2654                 | 0.215 | 572                    | 292                              | 0.5                     | 0.4                   | 2.436        | А                                   |
| B - Manby Road          | 257                         | 64                            | 350                             | 2913                 | 0.088 | 257                    | 420                              | 0.2                     | 0.1                   | 1.692        | А                                   |
| C - Port Service Access | 8                           | 2                             | 603                             | 1522                 | 0.005 | 8                      | 4                                | 0.0                     | 0.0                   | 3.799        | Α                                   |
| D - A160                | 357                         | 89                            | 135                             | 2638                 | 0.135 | 357                    | 476                              | 0.3                     | 0.2                   | 2.313        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 490                             | 2671                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# **2025 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.57               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.57              | Α           |

#### **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

#### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix v | aries over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|---------------|-----------------|-------------------------------|--------------------|---------------------------|
|               | ✓               | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 399                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 590                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 585                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 0                   | 100.000            |



# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         | То              |                |                         |          |                  |  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |
|      | A - Humber Road         | 13              | 61             | 1                       | 324      | 0                |  |  |  |  |  |  |
|      | B - Manby Road          | 345             | 3              | 1                       | 241      | 0                |  |  |  |  |  |  |
| From | C - Port Service Access | 4               | 0              | 0                       | 2        | 0                |  |  |  |  |  |  |
|      | D - A160                | 383             | 188            | 3                       | 9        | 2                |  |  |  |  |  |  |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |  |  |  |  |  |  |

# **Vehicle Mix**

#### HV %s

|      |                         | То              |                |                         |          |                  |  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |
|      | A - Humber Road         | 42              | 38             | 100                     | 92       | 0                |  |  |  |  |  |  |
| F    | B - Manby Road          | 22              | 67             | 100                     | 22       | 0                |  |  |  |  |  |  |
| From | C - Port Service Access | 100             | 0              | 0                       | 0        | 0                |  |  |  |  |  |  |
|      | D - A160                | 48              | 19             | 100                     | 67       | 100              |  |  |  |  |  |  |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |  |  |  |  |  |  |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.17    | 2.95          | 0.4         | А       | 366                    | 549                              |
| B - Manby Road          | 0.23    | 1.98          | 0.4         | А       | 541                    | 812                              |
| C - Port Service Access | 0.01    | 4.53          | 0.0         | А       | 6                      | 8                                |
| D - A160                | 0.27    | 2.89          | 0.5         | А       | 537                    | 805                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 300                         | 75                            | 152                             | 2705                 | 0.111 | 299                    | 560                              | 0.0                     | 0.2                   | 2.682        | Α                                   |
| B - Manby Road          | 444                         | 111                           | 263                             | 3022                 | 0.147 | 443                    | 189                              | 0.0                     | 0.2                   | 1.706        | А                                   |
| C - Port Service Access | 5                           | 1                             | 702                             | 1447                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 3.743        | Α                                   |
| D - A160                | 440                         | 110                           | 274                             | 2494                 | 0.177 | 439                    | 433                              | 0.0                     | 0.3                   | 2.412        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 712                             | 2439                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 359                         | 90                            | 182                             | 2672                 | 0.134 | 358                    | 669                              | 0.2                     | 0.3                   | 2.788        | Α                                   |
| B - Manby Road          | 530                         | 133                           | 314                             | 2958                 | 0.179 | 530                    | 226                              | 0.2                     | 0.3                   | 1.812        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 840                             | 1342                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 4.040        | А                                   |
| D - A160                | 526                         | 131                           | 328                             | 2438                 | 0.216 | 526                    | 518                              | 0.3                     | 0.4                   | 2.592        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 852                             | 2292                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 439                         | 110                           | 223                             | 2627                 | 0.167 | 439                    | 820                              | 0.3                     | 0.4                   | 2.948        | Α                                   |
| B - Manby Road          | 650                         | 162                           | 385                             | 2870                 | 0.226 | 649                    | 277                              | 0.3                     | 0.4                   | 1.981        | Α                                   |
| C - Port Service Access | 7                           | 2                             | 1029                            | 1198                 | 0.006 | 7                      | 6                                | 0.0                     | 0.0                   | 4.532        | Α                                   |
| D - A160                | 644                         | 161                           | 402                             | 2362                 | 0.273 | 644                    | 634                              | 0.4                     | 0.5                   | 2.885        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1043                            | 2091                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 439                         | 110                           | 224                             | 2627                 | 0.167 | 439                    | 820                              | 0.4                     | 0.4                   | 2.948        | Α                                   |
| B - Manby Road          | 650                         | 162                           | 385                             | 2870                 | 0.226 | 650                    | 277                              | 0.4                     | 0.4                   | 1.981        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1029                            | 1198                 | 0.006 | 7                      | 6                                | 0.0                     | 0.0                   | 4.533        | А                                   |
| D - A160                | 644                         | 161                           | 402                             | 2362                 | 0.273 | 644                    | 634                              | 0.5                     | 0.5                   | 2.886        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1044                            | 2090                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 359                         | 90                            | 183                             | 2672                 | 0.134 | 359                    | 670                              | 0.4                     | 0.3                   | 2.789        | Α                                   |
| B - Manby Road          | 530                         | 133                           | 315                             | 2957                 | 0.179 | 531                    | 227                              | 0.4                     | 0.3                   | 1.815        | А                                   |
| C - Port Service Access | 5                           | 1                             | 841                             | 1341                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 4.043        | Α                                   |
| D - A160                | 526                         | 131                           | 328                             | 2438                 | 0.216 | 526                    | 518                              | 0.5                     | 0.4                   | 2.596        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 853                             | 2291                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 300                         | 75                            | 153                             | 2704                 | 0.111 | 301                    | 561                              | 0.3                     | 0.2                   | 2.684        | Α                                   |
| B - Manby Road          | 444                         | 111                           | 264                             | 3021                 | 0.147 | 444                    | 190                              | 0.3                     | 0.2                   | 1.707        | А                                   |
| C - Port Service Access | 5                           | 1                             | 704                             | 1445                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 3.750        | А                                   |
| D - A160                | 440                         | 110                           | 275                             | 2493                 | 0.177 | 441                    | 434                              | 0.4                     | 0.3                   | 2.416        | А                                   |
| E - Conco Access        | 0                           | 0                             | 714                             | 2436                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.69               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.69              | Α           |  |

#### **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

#### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 792                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 355                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 10                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 494                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 51              | 316            | 0                       | 425      | 0                |
|      | B - Manby Road          | 120             | 11             | 1                       | 223      | 0                |
| From | C - Port Service Access | 0               | 4              | 0                       | 6        | 0                |
|      | D - A160                | 233             | 250            | 4                       | 5        | 2                |
|      | E - Conco Access        | 0               | 2              | 0                       | 1        | 0                |

# **Vehicle Mix**

## HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 37              | 21             | 0                       | 61       | 0                |
| F    | B - Manby Road          | 37              | 9              | 100                     | 20       | 0                |
| From | C - Port Service Access | 0               | 50             | 0                       | 67       | 0                |
|      | D - A160                | 91              | 20             | 75                      | 40       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 100      | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.34    | 3.04          | 0.7         | A       | 727                    | 1090                             |
| B - Manby Road          | 0.15    | 1.96          | 0.2         | А       | 326                    | 489                              |
| C - Port Service Access | 0.01    | 4.53          | 0.0         | А       | 9                      | 14                               |
| D - A160                | 0.21    | 2.61          | 0.4         | А       | 453                    | 680                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 596                         | 149                           | 206                             | 2647                 | 0.225 | 595                    | 303                              | 0.0                     | 0.4                   | 2.468        | Α                                   |
| B - Manby Road          | 267                         | 67                            | 364                             | 2896                 | 0.092 | 267                    | 436                              | 0.0                     | 0.1                   | 1.710        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 627                             | 1504                 | 0.005 | 7                      | 4                                | 0.0                     | 0.0                   | 3.843        | А                                   |
| D - A160                | 372                         | 93                            | 140                             | 2633                 | 0.141 | 371                    | 495                              | 0.0                     | 0.2                   | 2.330        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 509                             | 2651                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 712                         | 178                           | 246                             | 2602                 | 0.274 | 712                    | 363                              | 0.4                     | 0.5                   | 2.681        | А                                   |
| B - Manby Road          | 319                         | 80                            | 436                             | 2808                 | 0.114 | 319                    | 522                              | 0.1                     | 0.2                   | 1.807        | А                                   |
| C - Port Service Access | 9                           | 2                             | 750                             | 1410                 | 0.006 | 9                      | 4                                | 0.0                     | 0.0                   | 4.104        | A                                   |
| D - A160                | 444                         | 111                           | 167                             | 2605                 | 0.171 | 444                    | 592                              | 0.2                     | 0.3                   | 2.440        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 609                             | 2546                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 872                         | 218                           | 301                             | 2542                 | 0.343 | 871                    | 445                              | 0.5                     | 0.7                   | 3.033        | Α                                   |
| B - Manby Road          | 391                         | 98                            | 533                             | 2687                 | 0.145 | 391                    | 639                              | 0.2                     | 0.2                   | 1.959        | А                                   |
| C - Port Service Access | 11                          | 3                             | 919                             | 1282                 | 0.009 | 11                     | 6                                | 0.0                     | 0.0                   | 4.524        | А                                   |
| D - A160                | 544                         | 136                           | 205                             | 2566                 | 0.212 | 544                    | 725                              | 0.3                     | 0.4                   | 2.608        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 746                             | 2403                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 872                         | 218                           | 302                             | 2541                 | 0.343 | 872                    | 445                              | 0.7                     | 0.7                   | 3.036        | Α                                   |
| B - Manby Road          | 391                         | 98                            | 534                             | 2686                 | 0.146 | 391                    | 640                              | 0.2                     | 0.2                   | 1.960        | А                                   |
| C - Port Service Access | 11                          | 3                             | 919                             | 1281                 | 0.009 | 11                     | 6                                | 0.0                     | 0.0                   | 4.526        | Α                                   |
| D - A160                | 544                         | 136                           | 205                             | 2566                 | 0.212 | 544                    | 726                              | 0.4                     | 0.4                   | 2.608        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 746                             | 2402                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 712                         | 178                           | 247                             | 2602                 | 0.274 | 713                    | 363                              | 0.7                     | 0.5                   | 2.686        | Α                                   |
| B - Manby Road          | 319                         | 80                            | 436                             | 2807                 | 0.114 | 319                    | 523                              | 0.2                     | 0.2                   | 1.808        | А                                   |
| C - Port Service Access | 9                           | 2                             | 751                             | 1409                 | 0.006 | 9                      | 4                                | 0.0                     | 0.0                   | 4.106        | Α                                   |
| D - A160                | 444                         | 111                           | 167                             | 2604                 | 0.171 | 444                    | 593                              | 0.4                     | 0.3                   | 2.443        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 610                             | 2546                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 596                         | 149                           | 206                             | 2646                 | 0.225 | 597                    | 304                              | 0.5                     | 0.4                   | 2.476        | Α                                   |
| B - Manby Road          | 267                         | 67                            | 365                             | 2895                 | 0.092 | 267                    | 438                              | 0.2                     | 0.1                   | 1.714        | А                                   |
| C - Port Service Access | 8                           | 2                             | 629                             | 1502                 | 0.005 | 8                      | 4                                | 0.0                     | 0.0                   | 3.848        | Α                                   |
| D - A160                | 372                         | 93                            | 140                             | 2632                 | 0.141 | 372                    | 496                              | 0.3                     | 0.2                   | 2.333        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 511                             | 2650                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2025 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.96               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.96              | Α           |

#### **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

#### Slope / Intercept / Capacity

[same as above]

# Traffic Demand

#### **Demand Set Details**

|   | ID | Scenario name         | Time Period name Traffic profile |          | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |  |
|---|----|-----------------------|----------------------------------|----------|--------------------|---------------------|---------------------------|-------------------|--|
| ı | D5 | 2025 Base + Committed | AM                               | ONE HOUR | 06:45              | 08:15               | 15                        | ✓                 |  |

| Vehicle mix varie | s over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|-------------------|-------------|-------------------------------|--------------------|---------------------------|
| ✓                 |             | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 431                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | <b>✓</b>     | 753                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 906                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | <b>√</b>     | 0                   | 100.000            |



# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 14              | 84             | 1                       | 332      | 0                |
|      | B - Manby Road          | 473             | 3              | 1                       | 276      | 0                |
| From | C - Port Service Access | 4               | 0              | 0                       | 2        | 0                |
|      | D - A160                | 693             | 199            | 3                       | 9        | 2                |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# **Vehicle Mix**

#### HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 36              | 27             | 100                     | 91       | 0                |
| F    | B - Manby Road          | 16              | 67             | 100                     | 19       | 0                |
| From | C - Port Service Access | 100             | 0              | 0                       | 100      | 0                |
|      | D - A160                | 27              | 18             | 100                     | 67       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.18    | 2.89          | 0.4         | A       | 395                    | 593                              |
| B - Manby Road          | 0.29    | 2.08          | 0.5         | А       | 691                    | 1036                             |
| C - Port Service Access | 0.01    | 6.88          | 0.0         | A       | 6                      | 8                                |
| D - A160                | 0.45    | 3.71          | 1.0         | А       | 831                    | 1247                             |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 324                         | 81                            | 161                             | 2696                 | 0.120 | 324                    | 889                              | 0.0                     | 0.2                   | 2.606        | А                                   |
| B - Manby Road          | 567                         | 142                           | 269                             | 3014                 | 0.188 | 566                    | 215                              | 0.0                     | 0.3                   | 1.724        | А                                   |
| C - Port Service Access | 5                           | 1                             | 832                             | 1348                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 5.357        | А                                   |
| D - A160                | 682                         | 171                           | 371                             | 2394                 | 0.285 | 680                    | 465                              | 0.0                     | 0.5                   | 2.633        | А                                   |
| E - Conco Access        | 0                           | 0                             | 1050                            | 2084                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



#### 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 387                         | 97                            | 192                             | 2661                 | 0.146 | 387                    | 1064                             | 0.2                     | 0.3                   | 2.720        | Α                                   |
| B - Manby Road          | 677                         | 169                           | 323                             | 2948                 | 0.230 | 677                    | 257                              | 0.3                     | 0.3                   | 1.858        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 995                             | 1224                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 5.907        | А                                   |
| D - A160                | 814                         | 204                           | 444                             | 2319                 | 0.351 | 814                    | 556                              | 0.5                     | 0.7                   | 2.999        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1256                            | 1868                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 475                         | 119                           | 235                             | 2614                 | 0.182 | 474                    | 1302                             | 0.3                     | 0.4                   | 2.891        | Α                                   |
| B - Manby Road          | 829                         | 207                           | 395                             | 2858                 | 0.290 | 829                    | 315                              | 0.3                     | 0.5                   | 2.080        | Α                                   |
| C - Port Service Access | 7                           | 2                             | 1218                            | 1054                 | 0.006 | 7                      | 5                                | 0.0                     | 0.0                   | 6.873        | А                                   |
| D - A160                | 998                         | 249                           | 544                             | 2216                 | 0.450 | 996                    | 681                              | 0.7                     | 1.0                   | 3.701        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1538                            | 1572                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 475                         | 119                           | 236                             | 2614                 | 0.182 | 475                    | 1304                             | 0.4                     | 0.4                   | 2.891        | Α                                   |
| B - Manby Road          | 829                         | 207                           | 395                             | 2858                 | 0.290 | 829                    | 315                              | 0.5                     | 0.5                   | 2.081        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1219                            | 1053                 | 0.006 | 7                      | 6                                | 0.0                     | 0.0                   | 6.877        | Α                                   |
| D - A160                | 998                         | 249                           | 544                             | 2215                 | 0.450 | 998                    | 682                              | 1.0                     | 1.0                   | 3.707        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1539                            | 1570                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 387                         | 97                            | 193                             | 2661                 | 0.146 | 388                    | 1066                             | 0.4                     | 0.3                   | 2.722        | Α                                   |
| B - Manby Road          | 677                         | 169                           | 323                             | 2947                 | 0.230 | 677                    | 257                              | 0.5                     | 0.4                   | 1.859        | А                                   |
| C - Port Service Access | 5                           | 1                             | 996                             | 1223                 | 0.004 | 5                      | 5                                | 0.0                     | 0.0                   | 5.914        | А                                   |
| D - A160                | 814                         | 204                           | 444                             | 2318                 | 0.351 | 816                    | 557                              | 1.0                     | 0.7                   | 3.008        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1258                            | 1865                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 324                         | 81                            | 161                             | 2695                 | 0.120 | 325                    | 892                              | 0.3                     | 0.2                   | 2.611        | А                                   |
| B - Manby Road          | 567                         | 142                           | 270                             | 3012                 | 0.188 | 567                    | 216                              | 0.4                     | 0.3                   | 1.726        | А                                   |
| C - Port Service Access | 5                           | 1                             | 834                             | 1346                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 5.365        | Α                                   |
| D - A160                | 682                         | 171                           | 372                             | 2393                 | 0.285 | 683                    | 466                              | 0.7                     | 0.5                   | 2.641        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1053                            | 2080                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2025 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | n Name Junction type |                  | Use circulating lanes | Use circulating lanes |      | Junction LOS |
|---|----------|----------------------|------------------|-----------------------|-----------------------|------|--------------|
| ı | 1        | untitled             | Large Roundabout |                       | A, B, C, D, E         | 3.27 | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.27              | Α           |  |  |

#### **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

#### Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

#### **Demand Set Details**

| I | D Scenario name Ti      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| C | 6 2025 Base + Committed | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 1189                | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 379                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | <b>√</b>     | 10                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 513                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                      |                                |     |                         |          |                  |  |  |  |  |  |  |  |  |
|------|-------------------------|--------------------------------|-----|-------------------------|----------|------------------|--|--|--|--|--|--|--|--|
|      |                         | A - Humber Road B - Manby Road |     | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |  |  |
|      | A - Humber Road         | 61                             | 405 | 0                       | 723      | 0                |  |  |  |  |  |  |  |  |
|      | B - Manby Road          | 138                            | 11  | 1                       | 229      | 0                |  |  |  |  |  |  |  |  |
| From | C - Port Service Access | 0                              | 4   | 0                       | 6        | 0                |  |  |  |  |  |  |  |  |
|      | D - A160                | 236                            | 266 | 4                       | 5        | 2                |  |  |  |  |  |  |  |  |
|      | E - Conco Access        | 0                              | 2   | 0                       | 1        | 0                |  |  |  |  |  |  |  |  |

# **Vehicle Mix**

#### HV %s

|      |                         | То                             |    |                         |          |                  |  |  |  |  |  |  |  |  |  |
|------|-------------------------|--------------------------------|----|-------------------------|----------|------------------|--|--|--|--|--|--|--|--|--|
|      |                         | A - Humber Road B - Manby Road |    | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |  |  |  |
|      | A - Humber Road         | 31                             | 17 | 0                       | 35       | 0                |  |  |  |  |  |  |  |  |  |
| F    | B - Manby Road          | 32                             | 9  | 100                     | 20       | 0                |  |  |  |  |  |  |  |  |  |
| From | C - Port Service Access | 0                              | 50 | 0                       | 67       | 0                |  |  |  |  |  |  |  |  |  |
|      | D - A160                | 89                             | 19 | 75                      | 40       | 100              |  |  |  |  |  |  |  |  |  |
|      | E - Conco Access        | 0                              | 0  | 0                       | 100      | 0                |  |  |  |  |  |  |  |  |  |

# Results

## Results Summary for whole modelled period

| Arm Max RFC             |      | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.52 | 3.80          | 1.4         | А       | 1091                   | 1637                             |
| B - Manby Road          | 0.18 | 2.41          | 0.3         | A 348   |                        | 522                              |
| C - Port Service Access | 0.01 | 5.80          | 0.0         | A       | 9                      | 14                               |
| D - A160                | 0.22 | 2.64          | 0.4         | А       | 471                    | 706                              |
| E - Conco Access        | 0.00 | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 895                         | 224                           | 218                             | 2633                 | 0.340 | 893                    | 327                              | 0.0                     | 0.7                   | 2.646        | Α                                   |
| B - Manby Road          | 285                         | 71                            | 595                             | 2610                 | 0.109 | 285                    | 515                              | 0.0                     | 0.2                   | 1.917        | А                                   |
| C - Port Service Access | 8                           | 2                             | 876                             | 1314                 | 0.006 | 7                      | 4                                | 0.0                     | 0.0                   | 4.401        | Α                                   |
| D - A160                | 386                         | 97                            | 161                             | 2611                 | 0.148 | 385                    | 723                              | 0.0                     | 0.2                   | 2.334        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 544                             | 2614                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



#### 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1069                        | 267                           | 261                             | 2586                 | 0.413 | 1068                   | 391                              | 0.7                     | 0.9                   | 3.035        | Α                                   |
| B - Manby Road          | 341                         | 85                            | 712                             | 2465                 | 0.138 | 341                    | 616                              | 0.2                     | 0.2                   | 2.098        | А                                   |
| C - Port Service Access | 9                           | 2                             | 1048                            | 1183                 | 0.008 | 9                      | 4                                | 0.0                     | 0.0                   | 4.897        | Α                                   |
| D - A160                | 461                         | 115                           | 192                             | 2579                 | 0.179 | 461                    | 865                              | 0.2                     | 0.3                   | 2.454        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 651                             | 2502                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1309                        | 327                           | 319                             | 2522                 | 0.519 | 1307                   | 479                              | 0.9                     | 1.4                   | 3.783        | Α                                   |
| B - Manby Road          | 417                         | 104                           | 872                             | 2268                 | 0.184 | 417                    | 754                              | 0.2                     | 0.3                   | 2.409        | А                                   |
| C - Port Service Access | 11                          | 3                             | 1283                            | 1004                 | 0.011 | 11                     | 6                                | 0.0                     | 0.0                   | 5.789        | А                                   |
| D - A160                | 565                         | 141                           | 235                             | 2534                 | 0.223 | 564                    | 1059                             | 0.3                     | 0.4                   | 2.639        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 798                             | 2349                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1309                        | 327                           | 319                             | 2522                 | 0.519 | 1309                   | 479                              | 1.4                     | 1.4                   | 3.800        | Α                                   |
| B - Manby Road          | 417                         | 104                           | 873                             | 2266                 | 0.184 | 417                    | 755                              | 0.3                     | 0.3                   | 2.411        | А                                   |
| C - Port Service Access | 11                          | 3                             | 1285                            | 1003                 | 0.011 | 11                     | 6                                | 0.0                     | 0.0                   | 5.796        | А                                   |
| D - A160                | 565                         | 141                           | 236                             | 2534                 | 0.223 | 565                    | 1060                             | 0.4                     | 0.4                   | 2.639        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 798                             | 2348                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1069                        | 267                           | 261                             | 2586                 | 0.413 | 1071                   | 391                              | 1.4                     | 0.9                   | 3.046        | Α                                   |
| B - Manby Road          | 341                         | 85                            | 714                             | 2463                 | 0.138 | 341                    | 618                              | 0.3                     | 0.2                   | 2.101        | Α                                   |
| C - Port Service Access | 9                           | 2                             | 1051                            | 1181                 | 0.008 | 9                      | 4                                | 0.0                     | 0.0                   | 4.905        | Α                                   |
| D - A160                | 461                         | 115                           | 193                             | 2578                 | 0.179 | 462                    | 867                              | 0.4                     | 0.3                   | 2.457        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 652                             | 2501                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 895                         | 224                           | 218                             | 2633                 | 0.340 | 896                    | 328                              | 0.9                     | 0.7                   | 2.656        | Α                                   |
| B - Manby Road          | 285                         | 71                            | 598                             | 2607                 | 0.109 | 286                    | 517                              | 0.2                     | 0.2                   | 1.920        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 879                             | 1312                 | 0.006 | 8                      | 4                                | 0.0                     | 0.0                   | 4.411        | Α                                   |
| D - A160                | 386                         | 97                            | 161                             | 2611                 | 0.148 | 386                    | 726                              | 0.3                     | 0.3                   | 2.337        | А                                   |
| E - Conco Access        | 0                           | 0                             | 546                             | 2613                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2025 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.05               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.05              | Α           |

#### **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

#### Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM                  | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 454                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 757                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 936                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 0                   | 100.000            |



## Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 14              | 88             | 1                       | 351      | 0                |
|      | B - Manby Road          | 477             | 3              | 1                       | 276      | 0                |
| From | C - Port Service Access | 4               | 0              | 0                       | 2        | 0                |
|      | D - A160                | 723             | 199            | 3                       | 9        | 2                |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# Vehicle Mix

## HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 36              | 26             | 100                     | 88       | 0                |
|      | B - Manby Road          | 16              | 67             | 100                     | 19       | 0                |
| From | C - Port Service Access | 100             | 0              | 0                       | 100      | 0                |
|      | D - A160                | 28              | 18             | 100                     | 67       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.19    | 2.89          | 0.4         | А       | 417                    | 625                              |
| B - Manby Road          | 0.29    | 2.11          | 0.5         | Α       | 695                    | 1042                             |
| C - Port Service Access | 0.01    | 7.01          | 0.0         | А       | 6                      | 8                                |
| D - A160                | 0.47    | 3.85          | 1.1         | А       | 859                    | 1288                             |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |

## Main Results for each time segment

## 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 342                         | 85                            | 161                             | 2696                 | 0.127 | 341                    | 915                              | 0.0                     | 0.2                   | 2.594        | Α                                   |
| B - Manby Road          | 570                         | 142                           | 284                             | 2996                 | 0.190 | 569                    | 218                              | 0.0                     | 0.3                   | 1.739        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 849                             | 1335                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 5.410        | Α                                   |
| D - A160                | 705                         | 176                           | 374                             | 2391                 | 0.295 | 703                    | 479                              | 0.0                     | 0.5                   | 2.689        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1075                            | 2057                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 408                         | 102                           | 192                             | 2661                 | 0.153 | 408                    | 1094                             | 0.2                     | 0.3                   | 2.712        | Α                                   |
| B - Manby Road          | 681                         | 170                           | 340                             | 2927                 | 0.233 | 680                    | 260                              | 0.3                     | 0.4                   | 1.878        | А                                   |
| C - Port Service Access | 5                           | 1                             | 1015                            | 1208                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 5.984        | Α                                   |
| D - A160                | 841                         | 210                           | 447                             | 2315                 | 0.364 | 841                    | 573                              | 0.5                     | 0.7                   | 3.081        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1286                            | 1836                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 500                         | 125                           | 235                             | 2614                 | 0.191 | 499                    | 1340                             | 0.3                     | 0.4                   | 2.890        | Α                                   |
| B - Manby Road          | 833                         | 208                           | 416                             | 2832                 | 0.294 | 833                    | 319                              | 0.4                     | 0.5                   | 2.112        | Α                                   |
| C - Port Service Access | 7                           | 2                             | 1243                            | 1035                 | 0.006 | 7                      | 5                                | 0.0                     | 0.0                   | 7.002        | Α                                   |
| D - A160                | 1031                        | 258                           | 548                             | 2211                 | 0.466 | 1029                   | 702                              | 0.7                     | 1.1                   | 3.841        | А                                   |
| E - Conco Access        | 0                           | 0                             | 1575                            | 1533                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 500                         | 125                           | 236                             | 2614                 | 0.191 | 500                    | 1341                             | 0.4                     | 0.4                   | 2.891        | Α                                   |
| B - Manby Road          | 833                         | 208                           | 416                             | 2832                 | 0.294 | 833                    | 319                              | 0.5                     | 0.5                   | 2.112        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1244                            | 1034                 | 0.006 | 7                      | 6                                | 0.0                     | 0.0                   | 7.006        | Α                                   |
| D - A160                | 1031                        | 258                           | 548                             | 2211                 | 0.466 | 1031                   | 702                              | 1.1                     | 1.1                   | 3.851        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1577                            | 1531                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 408                         | 102                           | 193                             | 2661                 | 0.153 | 409                    | 1096                             | 0.4                     | 0.3                   | 2.714        | А                                   |
| B - Manby Road          | 681                         | 170                           | 340                             | 2926                 | 0.233 | 681                    | 261                              | 0.5                     | 0.4                   | 1.880        | А                                   |
| C - Port Service Access | 5                           | 1                             | 1017                            | 1207                 | 0.004 | 5                      | 5                                | 0.0                     | 0.0                   | 5.992        | А                                   |
| D - A160                | 841                         | 210                           | 448                             | 2314                 | 0.364 | 843                    | 574                              | 1.1                     | 0.7                   | 3.091        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1289                            | 1833                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 342                         | 85                            | 161                             | 2695                 | 0.127 | 342                    | 918                              | 0.3                     | 0.2                   | 2.597        | А                                   |
| B - Manby Road          | 570                         | 142                           | 285                             | 2995                 | 0.190 | 570                    | 219                              | 0.4                     | 0.3                   | 1.740        | А                                   |
| C - Port Service Access | 5                           | 1                             | 851                             | 1333                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 5.418        | А                                   |
| D - A160                | 705                         | 176                           | 375                             | 2390                 | 0.295 | 705                    | 481                              | 0.7                     | 0.5                   | 2.699        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1079                            | 2053                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | A                                   |



# 2025 Base + Committed + Development, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.34               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.34              | Α           |

## **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## Traffic Demand

## **Demand Set Details**

| ID | Scenario name                       | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM                  | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 1217                | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 383                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 10                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 553                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



## Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 61              | 409            | 0                       | 747      | 0                |
|      | B - Manby Road          | 142             | 11             | 1                       | 229      | 0                |
| From | C - Port Service Access | 0               | 4              | 0                       | 6        | 0                |
|      | D - A160                | 276             | 266            | 4                       | 5        | 2                |
|      | E - Conco Access        | 0               | 2              | 0                       | 1        | 0                |

# Vehicle Mix

## HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 31              | 16             | 0                       | 35       | 0                |
|      | B - Manby Road          | 31              | 9              | 100                     | 20       | 0                |
| From | C - Port Service Access | 0               | 50             | 0                       | 67       | 0                |
|      | D - A160                | 82              | 19             | 75                      | 40       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 100      | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.53    | 3.89          | 1.4         | А       | 1117                   | 1675                             |
| B - Manby Road          | 0.19    | 2.46          | 0.3         | А       | 351                    | 527                              |
| C - Port Service Access | 0.01    | 5.94          | 0.0         | А       | 9                      | 14                               |
| D - A160                | 0.24    | 2.71          | 0.5         | А       | 507                    | 761                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |

## Main Results for each time segment

## 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 916                         | 229                           | 218                             | 2633                 | 0.348 | 914                    | 360                              | 0.0                     | 0.7                   | 2.666        | Α                                   |
| B - Manby Road          | 288                         | 72                            | 613                             | 2588                 | 0.111 | 288                    | 518                              | 0.0                     | 0.2                   | 1.935        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 897                             | 1298                 | 0.006 | 7                      | 4                                | 0.0                     | 0.0                   | 4.455        | Α                                   |
| D - A160                | 416                         | 104                           | 164                             | 2608                 | 0.160 | 415                    | 741                              | 0.0                     | 0.3                   | 2.375        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 577                             | 2580                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1094                        | 274                           | 261                             | 2586                 | 0.423 | 1093                   | 430                              | 0.7                     | 0.9                   | 3.078        | Α                                   |
| B - Manby Road          | 344                         | 86                            | 734                             | 2439                 | 0.141 | 344                    | 620                              | 0.2                     | 0.2                   | 2.124        | Α                                   |
| C - Port Service Access | 9                           | 2                             | 1073                            | 1164                 | 0.008 | 9                      | 4                                | 0.0                     | 0.0                   | 4.978        | Α                                   |
| D - A160                | 497                         | 124                           | 196                             | 2575                 | 0.193 | 497                    | 887                              | 0.3                     | 0.3                   | 2.507        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 691                             | 2461                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1340                        | 335                           | 319                             | 2522                 | 0.531 | 1338                   | 527                              | 0.9                     | 1.4                   | 3.877        | Α                                   |
| B - Manby Road          | 422                         | 105                           | 898                             | 2235                 | 0.189 | 421                    | 759                              | 0.2                     | 0.3                   | 2.453        | А                                   |
| C - Port Service Access | 11                          | 3                             | 1314                            | 981                  | 0.011 | 11                     | 6                                | 0.0                     | 0.0                   | 5.929        | А                                   |
| D - A160                | 609                         | 152                           | 240                             | 2529                 | 0.241 | 608                    | 1085                             | 0.3                     | 0.5                   | 2.712        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 846                             | 2298                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1340                        | 335                           | 319                             | 2522                 | 0.531 | 1340                   | 527                              | 1.4                     | 1.4                   | 3.890        | Α                                   |
| B - Manby Road          | 422                         | 105                           | 900                             | 2233                 | 0.189 | 422                    | 760                              | 0.3                     | 0.3                   | 2.455        | А                                   |
| C - Port Service Access | 11                          | 3                             | 1316                            | 980                  | 0.011 | 11                     | 6                                | 0.0                     | 0.0                   | 5.937        | А                                   |
| D - A160                | 609                         | 152                           | 240                             | 2529                 | 0.241 | 609                    | 1087                             | 0.5                     | 0.5                   | 2.713        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 847                             | 2297                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1094                        | 274                           | 261                             | 2586                 | 0.423 | 1096                   | 431                              | 1.4                     | 0.9                   | 3.090        | А                                   |
| B - Manby Road          | 344                         | 86                            | 736                             | 2436                 | 0.141 | 345                    | 621                              | 0.3                     | 0.2                   | 2.127        | А                                   |
| C - Port Service Access | 9                           | 2                             | 1076                            | 1162                 | 0.008 | 9                      | 4                                | 0.0                     | 0.0                   | 4.989        | А                                   |
| D - A160                | 497                         | 124                           | 196                             | 2574                 | 0.193 | 498                    | 889                              | 0.5                     | 0.3                   | 2.511        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 692                             | 2460                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 916                         | 229                           | 218                             | 2633                 | 0.348 | 917                    | 361                              | 0.9                     | 0.7                   | 2.682        | Α                                   |
| B - Manby Road          | 288                         | 72                            | 616                             | 2585                 | 0.112 | 289                    | 520                              | 0.2                     | 0.2                   | 1.938        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 901                             | 1296                 | 0.006 | 8                      | 4                                | 0.0                     | 0.0                   | 4.464        | Α                                   |
| D - A160                | 416                         | 104                           | 164                             | 2608                 | 0.160 | 417                    | 744                              | 0.3                     | 0.3                   | 2.380        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 579                             | 2578                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



# **2032 Base, AM**

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | nction Name Junction type |                  | Use circulating lanes |               | Junction Delay (s) | Junction LOS |  |
|---|----------|---------------------------|------------------|-----------------------|---------------|--------------------|--------------|--|
| ı | 1        | untitled                  | Large Roundabout |                       | A, B, C, D, E | 2.65               | Α            |  |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 2.65              | Α           |  |  |

## **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ſ | D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 424                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 628                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 624                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 0                   | 100.000            |



## Demand (PCU/hr)

|      |                         |                                | То  |                         |          |                  |
|------|-------------------------|--------------------------------|-----|-------------------------|----------|------------------|
|      |                         | A - Humber Road B - Manby Road |     | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 13                             | 65  | 1                       | 345      | 0                |
|      | B - Manby Road          | 367                            | 3   | 1                       | 257      | 0                |
| From | C - Port Service Access | 4                              | 0   | 0                       | 2        | 0                |
|      | D - A160                | 409                            | 200 | 3                       | 10       | 2                |
|      | E - Conco Access        | 0                              | 0   | 0                       | 0        | 0                |

## **Vehicle Mix**

## HV %s

|      |                         | То              |                |                         |          |                  |  |  |  |  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |  |  |  |
|      | A - Humber Road         | 42              | 38             | 100                     | 92       | 0                |  |  |  |  |  |  |  |  |  |
| F    | B - Manby Road          | 22              | 67             | 100                     | 22       | 0                |  |  |  |  |  |  |  |  |  |
| From | C - Port Service Access | 100             | 0              | 0                       | 0        | 0                |  |  |  |  |  |  |  |  |  |
|      | D - A160                | 48              | 19             | 100                     | 67       | 100              |  |  |  |  |  |  |  |  |  |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |  |  |  |  |  |  |  |  |  |

## Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.18    | 3.01          | 0.4         | А       | 389                    | 584                              |
| B - Manby Road          | 0.24    | 2.05          | 0.4         | А       | 576                    | 864                              |
| C - Port Service Access | 0.01    | 4.73          | 0.0         | А       | 6                      | 8                                |
| D - A160                | 0.29    | 3.01          | 0.6         | А       | 573                    | 859                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 319                         | 80                            | 162                             | 2694                 | 0.118 | 318                    | 596                              | 0.0                     | 0.2                   | 2.715        | А                                   |
| B - Manby Road          | 473                         | 118                           | 279                             | 3002                 | 0.158 | 472                    | 201                              | 0.0                     | 0.2                   | 1.739        | А                                   |
| C - Port Service Access | 5                           | 1                             | 747                             | 1412                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 3.834        | А                                   |
| D - A160                | 470                         | 117                           | 291                             | 2477                 | 0.190 | 468                    | 461                              | 0.0                     | 0.3                   | 2.468        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 758                             | 2390                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 381                         | 95                            | 194                             | 2659                 | 0.143 | 381                    | 712                              | 0.2                     | 0.3                   | 2.833        | Α                                   |
| B - Manby Road          | 565                         | 141                           | 334                             | 2933                 | 0.192 | 564                    | 241                              | 0.2                     | 0.3                   | 1.856        | А                                   |
| C - Port Service Access | 5                           | 1                             | 894                             | 1301                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 4.168        | А                                   |
| D - A160                | 561                         | 140                           | 348                             | 2418                 | 0.232 | 561                    | 552                              | 0.3                     | 0.4                   | 2.670        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 907                             | 2234                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 467                         | 117                           | 238                             | 2612                 | 0.179 | 466                    | 872                              | 0.3                     | 0.4                   | 3.009        | Α                                   |
| B - Manby Road          | 691                         | 173                           | 409                             | 2840                 | 0.243 | 691                    | 295                              | 0.3                     | 0.4                   | 2.047        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1095                            | 1148                 | 0.006 | 7                      | 6                                | 0.0                     | 0.0                   | 4.731        | А                                   |
| D - A160                | 687                         | 172                           | 426                             | 2337                 | 0.294 | 686                    | 676                              | 0.4                     | 0.6                   | 3.005        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1110                            | 2021                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 467                         | 117                           | 238                             | 2611                 | 0.179 | 467                    | 873                              | 0.4                     | 0.4                   | 3.009        | Α                                   |
| B - Manby Road          | 691                         | 173                           | 410                             | 2840                 | 0.243 | 691                    | 295                              | 0.4                     | 0.4                   | 2.047        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1096                            | 1147                 | 0.006 | 7                      | 6                                | 0.0                     | 0.0                   | 4.733        | Α                                   |
| D - A160                | 687                         | 172                           | 426                             | 2337                 | 0.294 | 687                    | 676                              | 0.6                     | 0.6                   | 3.005        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1111                            | 2020                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 381                         | 95                            | 194                             | 2659                 | 0.143 | 382                    | 714                              | 0.4                     | 0.3                   | 2.836        | Α                                   |
| B - Manby Road          | 565                         | 141                           | 335                             | 2933                 | 0.193 | 565                    | 241                              | 0.4                     | 0.3                   | 1.860        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 895                             | 1300                 | 0.004 | 5                      | 4                                | 0.0                     | 0.0                   | 4.171        | А                                   |
| D - A160                | 561                         | 140                           | 348                             | 2417                 | 0.232 | 562                    | 552                              | 0.6                     | 0.4                   | 2.672        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 908                             | 2233                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 319                         | 80                            | 163                             | 2694                 | 0.119 | 319                    | 597                              | 0.3                     | 0.2                   | 2.718        | А                                   |
| B - Manby Road          | 473                         | 118                           | 280                             | 3000                 | 0.158 | 473                    | 202                              | 0.3                     | 0.2                   | 1.740        | А                                   |
| C - Port Service Access | 5                           | 1                             | 750                             | 1411                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 3.841        | Α                                   |
| D - A160                | 470                         | 117                           | 292                             | 2476                 | 0.190 | 470                    | 463                              | 0.4                     | 0.3                   | 2.472        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 760                             | 2388                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# **2032 Base, PM**

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.79               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.79              | Α           |

## **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle r | nix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|-----------|----------------------|-------------------------------|--------------------|---------------------------|
|           | ✓                    | ✓                             | HV Percentages     | 2.00                      |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 843                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 379                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 11                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 527                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



## Demand (PCU/hr)

|      |                         | То              |                |                         |          |                  |  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |
|      | A - Humber Road         | 54              | 337            | 0                       | 452      | 0                |  |  |  |  |  |  |
|      | B - Manby Road          | 128             | 12             | 1                       | 238      | 0                |  |  |  |  |  |  |
| From | C - Port Service Access | 0               | 4              | 0                       | 7        | 0                |  |  |  |  |  |  |
|      | D - A160                | 248             | 267            | 4                       | 6        | 2                |  |  |  |  |  |  |
|      | E - Conco Access        | 0               | 2              | 0                       | 1        | 0                |  |  |  |  |  |  |

## **Vehicle Mix**

## HV %s

|      | То                      |                 |                |                         |          |                  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |
|      | A - Humber Road         | 37              | 21             | 0                       | 61       | 0                |  |  |  |  |  |
|      | B - Manby Road          | 37              | 9              | 100                     | 20       | 0                |  |  |  |  |  |
| From | C - Port Service Access | 0               | 50             | 0                       | 67       | 0                |  |  |  |  |  |
|      | D - A160                | 91              | 20             | 75                      | 40       | 100              |  |  |  |  |  |
|      | E - Conco Access        | 0               | 0              | 0                       | 100      | 0                |  |  |  |  |  |

## Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.37    | 3.19          | 0.8         | А       | 774                    | 1160                             |
| B - Manby Road          | 0.16    | 2.02          | 0.2         | А       | 348                    | 522                              |
| C - Port Service Access | 0.01    | 4.72          | 0.0         | А       | 10                     | 15                               |
| D - A160                | 0.23    | 2.67          | 0.4         | А       | 484                    | 725                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | Α       | 0                      | 0                                |

## Main Results for each time segment

15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 635                         | 159                           | 220                             | 2631                 | 0.241 | 633                    | 323                              | 0.0                     | 0.4                   | 2.534        | Α                                   |
| B - Manby Road          | 285                         | 71                            | 387                             | 2868                 | 0.100 | 285                    | 465                              | 0.0                     | 0.1                   | 1.741        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 668                             | 1472                 | 0.006 | 8                      | 4                                | 0.0                     | 0.0                   | 3.943        | Α                                   |
| D - A160                | 397                         | 99                            | 149                             | 2624                 | 0.151 | 396                    | 528                              | 0.0                     | 0.3                   | 2.364        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 543                             | 2616                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 758                         | 189                           | 263                             | 2584                 | 0.293 | 757                    | 386                              | 0.4                     | 0.6                   | 2.776        | Α                                   |
| B - Manby Road          | 341                         | 85                            | 464                             | 2773                 | 0.123 | 341                    | 557                              | 0.1                     | 0.2                   | 1.848        | А                                   |
| C - Port Service Access | 10                          | 2                             | 800                             | 1373                 | 0.007 | 10                     | 4                                | 0.0                     | 0.0                   | 4.237        | А                                   |
| D - A160                | 474                         | 118                           | 178                             | 2593                 | 0.183 | 473                    | 632                              | 0.3                     | 0.3                   | 2.486        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 650                             | 2504                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 928                         | 232                           | 322                             | 2519                 | 0.369 | 927                    | 473                              | 0.6                     | 8.0                   | 3.183        | Α                                   |
| B - Manby Road          | 417                         | 104                           | 568                             | 2644                 | 0.158 | 417                    | 682                              | 0.2                     | 0.2                   | 2.019        | Α                                   |
| C - Port Service Access | 12                          | 3                             | 979                             | 1236                 | 0.010 | 12                     | 6                                | 0.0                     | 0.0                   | 4.717        | А                                   |
| D - A160                | 580                         | 145                           | 218                             | 2552                 | 0.227 | 580                    | 773                              | 0.3                     | 0.4                   | 2.672        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 795                             | 2351                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 928                         | 232                           | 323                             | 2518                 | 0.369 | 928                    | 473                              | 0.8                     | 0.8                   | 3.186        | Α                                   |
| B - Manby Road          | 417                         | 104                           | 568                             | 2644                 | 0.158 | 417                    | 683                              | 0.2                     | 0.2                   | 2.020        | А                                   |
| C - Port Service Access | 12                          | 3                             | 980                             | 1235                 | 0.010 | 12                     | 6                                | 0.0                     | 0.0                   | 4.720        | А                                   |
| D - A160                | 580                         | 145                           | 218                             | 2552                 | 0.227 | 580                    | 774                              | 0.4                     | 0.4                   | 2.672        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 796                             | 2350                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 758                         | 189                           | 264                             | 2583                 | 0.293 | 759                    | 387                              | 0.8                     | 0.6                   | 2.781        | А                                   |
| B - Manby Road          | 341                         | 85                            | 464                             | 2772                 | 0.123 | 341                    | 558                              | 0.2                     | 0.2                   | 1.849        | Α                                   |
| C - Port Service Access | 10                          | 2                             | 801                             | 1372                 | 0.007 | 10                     | 4                                | 0.0                     | 0.0                   | 4.240        | Α                                   |
| D - A160                | 474                         | 118                           | 178                             | 2593                 | 0.183 | 474                    | 633                              | 0.4                     | 0.3                   | 2.489        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 651                             | 2503                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 635                         | 159                           | 221                             | 2630                 | 0.241 | 635                    | 324                              | 0.6                     | 0.4                   | 2.541        | А                                   |
| B - Manby Road          | 285                         | 71                            | 389                             | 2866                 | 0.100 | 285                    | 467                              | 0.2                     | 0.1                   | 1.742        | А                                   |
| C - Port Service Access | 8                           | 2                             | 671                             | 1471                 | 0.006 | 8                      | 4                                | 0.0                     | 0.0                   | 3.947        | А                                   |
| D - A160                | 397                         | 99                            | 149                             | 2623                 | 0.151 | 397                    | 530                              | 0.3                     | 0.3                   | 2.369        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 545                             | 2614                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2032 Base + Committed, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.10               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.10              | Α           |

## **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name         | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM                  | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 458                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 791                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 944                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 0                   | 100.000            |



## Demand (PCU/hr)

|      |                         | То              |                |                         |          |                  |  |  |  |  |  |  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|--|--|--|--|--|--|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |
|      | A - Humber Road         | 15              | 88             | 1                       | 354      | 0                |  |  |  |  |  |  |
|      | B - Manby Road          | 495             | 3              | 1                       | 292      | 0                |  |  |  |  |  |  |
| From | C - Port Service Access | 4               | 0              | 0                       | 2        | 0                |  |  |  |  |  |  |
|      | D - A160                | 718             | 211            | 3                       | 10       | 2                |  |  |  |  |  |  |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |  |  |  |  |  |  |

## **Vehicle Mix**

## HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 36              | 27             | 100                     | 91       | 0                |
|      | B - Manby Road          | 16              | 67             | 100                     | 19       | 0                |
| From | C - Port Service Access | 100             | 0              | 0                       | 100      | 0                |
|      | D - A160                | 27              | 18             | 100                     | 67       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.19    | 2.96          | 0.4         | А       | 420                    | 630                              |
| B - Manby Road          | 0.31    | 2.16          | 0.5         | А       | 726                    | 1089                             |
| C - Port Service Access | 0.01    | 7.24          | 0.0         | А       | 6                      | 8                                |
| D - A160                | 0.47    | 3.93          | 1.1         | А       | 866                    | 1299                             |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |

## Main Results for each time segment

## 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 345                         | 86                            | 170                             | 2685                 | 0.128 | 344                    | 925                              | 0.0                     | 0.3                   | 2.644        | Α                                   |
| B - Manby Road          | 596                         | 149                           | 287                             | 2991                 | 0.199 | 594                    | 227                              | 0.0                     | 0.3                   | 1.761        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 878                             | 1313                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 5.502        | Α                                   |
| D - A160                | 711                         | 178                           | 388                             | 2376                 | 0.299 | 709                    | 494                              | 0.0                     | 0.5                   | 2.704        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1096                            | 2036                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 412                         | 103                           | 204                             | 2649                 | 0.155 | 411                    | 1107                             | 0.3                     | 0.3                   | 2.768        | Α                                   |
| B - Manby Road          | 711                         | 178                           | 344                             | 2921                 | 0.243 | 711                    | 271                              | 0.3                     | 0.4                   | 1.909        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 1050                            | 1182                 | 0.005 | 5                      | 4                                | 0.0                     | 0.0                   | 6.120        | Α                                   |
| D - A160                | 849                         | 212                           | 465                             | 2297                 | 0.369 | 848                    | 591                              | 0.5                     | 0.7                   | 3.113        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1311                            | 1810                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 504                         | 126                           | 250                             | 2599                 | 0.194 | 504                    | 1355                             | 0.3                     | 0.4                   | 2.957        | Α                                   |
| B - Manby Road          | 871                         | 218                           | 421                             | 2825                 | 0.308 | 870                    | 332                              | 0.4                     | 0.5                   | 2.159        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1286                            | 1002                 | 0.007 | 7                      | 5                                | 0.0                     | 0.0                   | 7.232        | А                                   |
| D - A160                | 1039                        | 260                           | 569                             | 2189                 | 0.475 | 1038                   | 724                              | 0.7                     | 1.1                   | 3.915        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1604                            | 1502                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 504                         | 126                           | 250                             | 2598                 | 0.194 | 504                    | 1356                             | 0.4                     | 0.4                   | 2.957        | А                                   |
| B - Manby Road          | 871                         | 218                           | 422                             | 2825                 | 0.308 | 871                    | 333                              | 0.5                     | 0.5                   | 2.160        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1287                            | 1001                 | 0.007 | 7                      | 6                                | 0.0                     | 0.0                   | 7.237        | Α                                   |
| D - A160                | 1039                        | 260                           | 569                             | 2189                 | 0.475 | 1039                   | 724                              | 1.1                     | 1.1                   | 3.927        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1606                            | 1500                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 412                         | 103                           | 204                             | 2648                 | 0.155 | 412                    | 1109                             | 0.4                     | 0.3                   | 2.770        | А                                   |
| B - Manby Road          | 711                         | 178                           | 345                             | 2920                 | 0.243 | 712                    | 272                              | 0.5                     | 0.4                   | 1.914        | А                                   |
| C - Port Service Access | 5                           | 1                             | 1052                            | 1181                 | 0.005 | 5                      | 5                                | 0.0                     | 0.0                   | 6.128        | А                                   |
| D - A160                | 849                         | 212                           | 465                             | 2297                 | 0.370 | 850                    | 592                              | 1.1                     | 0.7                   | 3.126        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1314                            | 1807                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 345                         | 86                            | 171                             | 2685                 | 0.128 | 345                    | 928                              | 0.3                     | 0.3                   | 2.649        | Α                                   |
| B - Manby Road          | 596                         | 149                           | 289                             | 2990                 | 0.199 | 596                    | 228                              | 0.4                     | 0.3                   | 1.765        | А                                   |
| C - Port Service Access | 5                           | 1                             | 881                             | 1311                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 5.513        | Α                                   |
| D - A160                | 711                         | 178                           | 389                             | 2375                 | 0.299 | 711                    | 496                              | 0.7                     | 0.5                   | 2.715        | А                                   |
| E - Conco Access        | 0                           | 0                             | 1099                            | 2032                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2032 Base + Committed, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.45               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.45              | Α           |  |  |

## **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name         | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D12 | 2032 Base + Committed | PM                  | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 1239                | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 403                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 11                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 546                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



## Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 64              | 425            | 0                       | 750      | 0                |
|      | B - Manby Road          | 146             | 12             | 1                       | 244      | 0                |
| From | C - Port Service Access | 0               | 4              | 0                       | 7        | 0                |
|      | D - A160                | 251             | 283            | 4                       | 6        | 2                |
|      | E - Conco Access        | 0               | 2              | 0                       | 1        | 0                |

## **Vehicle Mix**

## HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 31              | 17             | 0                       | 35       | 0                |
|      | B - Manby Road          | 32              | 9              | 100                     | 20       | 0                |
| From | C - Port Service Access | 0               | 50             | 0                       | 67       | 0                |
|      | D - A160                | 89              | 19             | 75                      | 40       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 100      | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.55    | 4.06          | 1.5         | А       | 1137                   | 1705                             |
| B - Manby Road          | 0.20    | 2.50          | 0.3         | А       | 370                    | 555                              |
| C - Port Service Access | 0.01    | 6.11          | 0.0         | А       | 10                     | 15                               |
| D - A160                | 0.24    | 2.71          | 0.5         | А       | 501                    | 752                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |

## Main Results for each time segment

## 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 933                         | 233                           | 232                             | 2618                 | 0.356 | 930                    | 346                              | 0.0                     | 0.7                   | 2.726        | Α                                   |
| B - Manby Road          | 303                         | 76                            | 618                             | 2581                 | 0.118 | 303                    | 544                              | 0.0                     | 0.2                   | 1.956        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 917                             | 1283                 | 0.006 | 8                      | 4                                | 0.0                     | 0.0                   | 4.529        | Α                                   |
| D - A160                | 411                         | 103                           | 170                             | 2602                 | 0.158 | 410                    | 756                              | 0.0                     | 0.3                   | 2.370        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 578                             | 2579                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1114                        | 278                           | 278                             | 2568                 | 0.434 | 1113                   | 414                              | 0.7                     | 1.0                   | 3.167        | Α                                   |
| B - Manby Road          | 362                         | 91                            | 740                             | 2431                 | 0.149 | 362                    | 650                              | 0.2                     | 0.2                   | 2.154        | Α                                   |
| C - Port Service Access | 10                          | 2                             | 1098                            | 1146                 | 0.009 | 10                     | 4                                | 0.0                     | 0.0                   | 5.083        | Α                                   |
| D - A160                | 491                         | 123                           | 203                             | 2567                 | 0.191 | 491                    | 904                              | 0.3                     | 0.3                   | 2.502        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 692                             | 2460                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1364                        | 341                           | 340                             | 2499                 | 0.546 | 1362                   | 507                              | 1.0                     | 1.5                   | 4.045        | А                                   |
| B - Manby Road          | 444                         | 111                           | 906                             | 2226                 | 0.199 | 443                    | 796                              | 0.2                     | 0.3                   | 2.501        | А                                   |
| C - Port Service Access | 12                          | 3                             | 1344                            | 958                  | 0.013 | 12                     | 6                                | 0.0                     | 0.0                   | 6.101        | А                                   |
| D - A160                | 601                         | 150                           | 249                             | 2520                 | 0.239 | 601                    | 1107                             | 0.3                     | 0.5                   | 2.707        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 847                             | 2297                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1364                        | 341                           | 340                             | 2499                 | 0.546 | 1364                   | 508                              | 1.5                     | 1.5                   | 4.060        | Α                                   |
| B - Manby Road          | 444                         | 111                           | 907                             | 2224                 | 0.200 | 444                    | 797                              | 0.3                     | 0.3                   | 2.503        | А                                   |
| C - Port Service Access | 12                          | 3                             | 1345                            | 957                  | 0.013 | 12                     | 6                                | 0.0                     | 0.0                   | 6.110        | Α                                   |
| D - A160                | 601                         | 150                           | 249                             | 2520                 | 0.239 | 601                    | 1109                             | 0.5                     | 0.5                   | 2.707        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 848                             | 2296                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:45 - 17:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1114                        | 278                           | 278                             | 2567                 | 0.434 | 1116                   | 415                              | 1.5                     | 1.0                   | 3.180        | Α                                   |
| B - Manby Road          | 362                         | 91                            | 742                             | 2428                 | 0.149 | 363                    | 652                              | 0.3                     | 0.2                   | 2.158        | А                                   |
| C - Port Service Access | 10                          | 2                             | 1100                            | 1144                 | 0.009 | 10                     | 4                                | 0.0                     | 0.0                   | 5.092        | А                                   |
| D - A160                | 491                         | 123                           | 203                             | 2567                 | 0.191 | 491                    | 907                              | 0.5                     | 0.3                   | 2.503        | А                                   |
| E - Conco Access        | 0                           | 0                             | 693                             | 2459                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 933                         | 233                           | 233                             | 2617                 | 0.356 | 934                    | 347                              | 1.0                     | 0.7                   | 2.742        | Α                                   |
| B - Manby Road          | 303                         | 76                            | 621                             | 2578                 | 0.118 | 304                    | 546                              | 0.2                     | 0.2                   | 1.961        | А                                   |
| C - Port Service Access | 8                           | 2                             | 921                             | 1280                 | 0.006 | 8                      | 4                                | 0.0                     | 0.0                   | 4.539        | А                                   |
| D - A160                | 411                         | 103                           | 170                             | 2601                 | 0.158 | 411                    | 759                              | 0.3                     | 0.3                   | 2.375        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 580                             | 2577                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



# 2032 Base + Committed + Development, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | inction Name Junction type |                  | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |  |
|---|----------|----------------------------|------------------|-----------------------|---------------|--------------------|--------------|--|
| ı | 1        | untitled                   | Large Roundabout |                       | A, B, C, D, E | 3.19               | Α            |  |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.19              | Α           |  |  |

## **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 480                 | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 795                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 6                   | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 975                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 0                   | 100.000            |



## Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 15              | 92             | 1                       | 372      | 0                |
|      | B - Manby Road          | 499             | 3              | 1                       | 292      | 0                |
| From | C - Port Service Access | 4               | 0              | 0                       | 2        | 0                |
|      | D - A160                | 749             | 211            | 3                       | 10       | 2                |
|      | E - Conco Access        | 0               | 0              | 0                       | 0        | 0                |

# Vehicle Mix

## HV %s

|      | То                      |                                |    |                         |          |                  |  |  |  |  |  |  |  |
|------|-------------------------|--------------------------------|----|-------------------------|----------|------------------|--|--|--|--|--|--|--|
|      |                         | A - Humber Road B - Manby Road |    | C - Port Service Access | D - A160 | E - Conco Access |  |  |  |  |  |  |  |
|      | A - Humber Road         | 36                             | 26 | 100                     | 88       | 0                |  |  |  |  |  |  |  |
|      | B - Manby Road          | 16                             | 67 | 100                     | 19       | 0                |  |  |  |  |  |  |  |
| From | C - Port Service Access | 100                            | 0  | 0                       | 100      | 0                |  |  |  |  |  |  |  |
|      | D - A160                | 28                             | 18 | 100                     | 67       | 100              |  |  |  |  |  |  |  |
|      | E - Conco Access        | 0                              | 0  | 0                       | 0        | 0                |  |  |  |  |  |  |  |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC Max Delay (s) |      | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|-----------------------|------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.20                  | 2.96 | 0.4         | А       | 440                    | 661                              |
| B - Manby Road          | 0.31                  | 2.19 | 0.5         | А       | 730                    | 1094                             |
| C - Port Service Access | 0.01                  | 7.37 | 0.0         | А       | 6                      | 8                                |
| D - A160                | 0.49                  | 4.09 | 1.2         | А       | 895                    | 1342                             |
| E - Conco Access        | 0.00                  | 0.00 | 0.0         | A       | 0                      | 0                                |

## Main Results for each time segment

## 06:45 - 07:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 361                         | 90                            | 170                             | 2685                 | 0.135 | 360                    | 951                              | 0.0                     | 0.3                   | 2.630        | Α                                   |
| B - Manby Road          | 599                         | 150                           | 301                             | 2975                 | 0.201 | 597                    | 230                              | 0.0                     | 0.3                   | 1.776        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 895                             | 1300                 | 0.003 | 4                      | 4                                | 0.0                     | 0.0                   | 5.556        | Α                                   |
| D - A160                | 734                         | 184                           | 391                             | 2373                 | 0.309 | 732                    | 508                              | 0.0                     | 0.6                   | 2.765        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1122                            | 2008                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |



## 07:00 - 07:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 432                         | 108                           | 204                             | 2649                 | 0.163 | 431                    | 1138                             | 0.3                     | 0.3                   | 2.759        | Α                                   |
| B - Manby Road          | 715                         | 179                           | 360                             | 2901                 | 0.246 | 714                    | 275                              | 0.3                     | 0.4                   | 1.930        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 1070                            | 1167                 | 0.005 | 5                      | 4                                | 0.0                     | 0.0                   | 6.199        | А                                   |
| D - A160                | 877                         | 219                           | 468                             | 2293                 | 0.382 | 876                    | 607                              | 0.6                     | 0.8                   | 3.203        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1342                            | 1777                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:15 - 07:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 528                         | 132                           | 250                             | 2599                 | 0.203 | 528                    | 1393                             | 0.3                     | 0.4                   | 2.955        | Α                                   |
| B - Manby Road          | 875                         | 219                           | 441                             | 2801                 | 0.313 | 875                    | 336                              | 0.4                     | 0.5                   | 2.192        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1310                            | 984                  | 0.007 | 7                      | 5                                | 0.0                     | 0.0                   | 7.368        | А                                   |
| D - A160                | 1073                        | 268                           | 573                             | 2185                 | 0.491 | 1072                   | 744                              | 0.8                     | 1.2                   | 4.082        | А                                   |
| E - Conco Access        | 0                           | 0                             | 1643                            | 1461                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:30 - 07:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 528                         | 132                           | 250                             | 2598                 | 0.203 | 528                    | 1395                             | 0.4                     | 0.4                   | 2.955        | Α                                   |
| B - Manby Road          | 875                         | 219                           | 442                             | 2801                 | 0.313 | 875                    | 337                              | 0.5                     | 0.5                   | 2.192        | А                                   |
| C - Port Service Access | 7                           | 2                             | 1311                            | 983                  | 0.007 | 7                      | 6                                | 0.0                     | 0.0                   | 7.373        | А                                   |
| D - A160                | 1073                        | 268                           | 574                             | 2184                 | 0.491 | 1073                   | 744                              | 1.2                     | 1.2                   | 4.089        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1645                            | 1459                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 07:45 - 08:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 432                         | 108                           | 204                             | 2648                 | 0.163 | 432                    | 1141                             | 0.4                     | 0.3                   | 2.763        | А                                   |
| B - Manby Road          | 715                         | 179                           | 361                             | 2900                 | 0.246 | 715                    | 276                              | 0.5                     | 0.4                   | 1.932        | Α                                   |
| C - Port Service Access | 5                           | 1                             | 1072                            | 1165                 | 0.005 | 5                      | 5                                | 0.0                     | 0.0                   | 6.208        | А                                   |
| D - A160                | 877                         | 219                           | 469                             | 2293                 | 0.382 | 878                    | 608                              | 1.2                     | 0.8                   | 3.215        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1345                            | 1774                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 08:00 - 08:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 361                         | 90                            | 171                             | 2685                 | 0.135 | 362                    | 955                              | 0.3                     | 0.3                   | 2.635        | Α                                   |
| B - Manby Road          | 599                         | 150                           | 302                             | 2973                 | 0.201 | 599                    | 231                              | 0.4                     | 0.3                   | 1.777        | А                                   |
| C - Port Service Access | 5                           | 1                             | 897                             | 1298                 | 0.003 | 5                      | 4                                | 0.0                     | 0.0                   | 5.564        | Α                                   |
| D - A160                | 734                         | 184                           | 392                             | 2372                 | 0.310 | 735                    | 509                              | 8.0                     | 0.6                   | 2.779        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 1126                            | 2004                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2032 Base + Committed + Development, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.53               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.53              | Α           |

## **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm                     | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------------|---------------------------|------------------------------|------------------------------|
| A - Humber Road         | 100                       | ✓                            | 44.23                        |
| B - Manby Road          | 145                       | ✓                            | 32.42                        |
| C - Port Service Access | 451                       |                              | 0.00                         |
| D - A160                | 191                       | ✓                            | 40.56                        |
| E - Conco Access        | 476                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

| Arm                     | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------------|------------|--------------|--------------|---------------------|--------------------|
| A - Humber Road         |            | ONE HOUR     | ✓            | 1268                | 100.000            |
| B - Manby Road          |            | ONE HOUR     | ✓            | 407                 | 100.000            |
| C - Port Service Access |            | ONE HOUR     | ✓            | 11                  | 100.000            |
| D - A160                |            | ONE HOUR     | ✓            | 586                 | 100.000            |
| E - Conco Access        |            | ONE HOUR     | ✓            | 3                   | 100.000            |



## Demand (PCU/hr)

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 64              | 429            | 0                       | 775      | 0                |
|      | B - Manby Road          | 150             | 12             | 1                       | 244      | 0                |
| From | C - Port Service Access | 0               | 4              | 0                       | 7        | 0                |
|      | D - A160                | 291             | 283            | 4                       | 6        | 2                |
|      | E - Conco Access        | 0               | 2              | 0                       | 1        | 0                |

# Vehicle Mix

## HV %s

|      |                         |                 | То             |                         |          |                  |
|------|-------------------------|-----------------|----------------|-------------------------|----------|------------------|
|      |                         | A - Humber Road | B - Manby Road | C - Port Service Access | D - A160 | E - Conco Access |
|      | A - Humber Road         | 31              | 16             | 0                       | 35       | 0                |
|      | B - Manby Road          | 32              | 9              | 100                     | 20       | 0                |
| From | C - Port Service Access | 0               | 50             | 0                       | 67       | 0                |
|      | D - A160                | 82              | 19             | 75                      | 40       | 100              |
|      | E - Conco Access        | 0               | 0              | 0                       | 100      | 0                |

# Results

## Results Summary for whole modelled period

| Arm                     | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - Humber Road         | 0.56    | 4.17          | 1.6         | А       | 1164                   | 1745                             |
| B - Manby Road          | 0.20    | 2.56          | 0.3         | А       | 373                    | 560                              |
| C - Port Service Access | 0.01    | 6.27          | 0.0         | А       | 10                     | 15                               |
| D - A160                | 0.26    | 2.78          | 0.5         | A       | 538                    | 807                              |
| E - Conco Access        | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |

## Main Results for each time segment

## 15:45 - 16:00

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 955                         | 239                           | 232                             | 2618                 | 0.365 | 952                    | 379                              | 0.0                     | 0.7                   | 2.755        | Α                                   |
| B - Manby Road          | 306                         | 77                            | 637                             | 2558                 | 0.120 | 306                    | 546                              | 0.0                     | 0.2                   | 1.980        | Α                                   |
| C - Port Service Access | 8                           | 2                             | 939                             | 1266                 | 0.007 | 8                      | 4                                | 0.0                     | 0.0                   | 4.589        | Α                                   |
| D - A160                | 441                         | 110                           | 173                             | 2599                 | 0.170 | 440                    | 775                              | 0.0                     | 0.3                   | 2.410        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 611                             | 2544                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |



## 16:00 - 16:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1140                        | 285                           | 278                             | 2568                 | 0.444 | 1139                   | 454                              | 0.7                     | 1.0                   | 3.214        | Α                                   |
| B - Manby Road          | 366                         | 91                            | 762                             | 2403                 | 0.152 | 366                    | 654                              | 0.2                     | 0.2                   | 2.189        | Α                                   |
| C - Port Service Access | 10                          | 2                             | 1124                            | 1126                 | 0.009 | 10                     | 4                                | 0.0                     | 0.0                   | 5.173        | А                                   |
| D - A160                | 527                         | 132                           | 207                             | 2564                 | 0.205 | 526                    | 927                              | 0.3                     | 0.4                   | 2.554        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 731                             | 2418                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:15 - 16:30

| Arm                     | Total<br>Demand<br>(PCU/hr) | Demand Arrivals flow Capacity RFC |      | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |       |   |
|-------------------------|-----------------------------|-----------------------------------|------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|-------|---|
| A - Humber Road         | 1396                        | 349                               | 340  | 2499                   | 0.559                            | 1394                    | 556                   | 1.0          | 1.6                                 | 4.150 | А |
| B - Manby Road          | 448                         | 112                               | 933  | 2192                   | 0.204                            | 448                     | 800                   | 0.2          | 0.3                                 | 2.557 | А |
| C - Port Service Access | 12                          | 3                                 | 1375 | 934                    | 0.013                            | 12                      | 6                     | 0.0          | 0.0                                 | 6.261 | А |
| D - A160                | 645                         | 161                               | 253  | 2516                   | 0.256                            | 645                     | 1135                  | 0.4          | 0.5                                 | 2.782 | Α |
| E - Conco Access        | 0                           | 0                                 | 895  | 2246                   | 0.000                            | 0                       | 2                     | 0.0          | 0.0                                 | 0.000 | Α |

## 16:30 - 16:45

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 1396                        | 349                           | 340                             | 2499                 | 0.559 | 1396                   | 556                              | 1.6                     | 1.6                   | 4.168        | Α                                   |
| B - Manby Road          | 448                         | 112                           | 935                             | 2190                 | 0.205 | 448                    | 802                              | 0.3                     | 0.3                   | 2.560        | А                                   |
| C - Port Service Access | 12                          | 3                             | 1377                            | 933                  | 0.013 | 12                     | 6                                | 0.0                     | 0.0                   | 6.271        | Α                                   |
| D - A160                | 645                         | 161                           | 253                             | 2516                 | 0.256 | 645                    | 1136                             | 0.5                     | 0.5                   | 2.782        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 896                             | 2245                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:45 - 17:00

| Arm                     |      |     | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |     |       |   |
|-------------------------|------|-----|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|-----|-------|---|
| A - Humber Road         | 1140 | 285 | 278                    | 2567                             | 0.444                   | 1142                  | 454          | 1.6                                 | 1.0 | 3.233 | А |
| B - Manby Road          | 366  | 91  | 765                    | 2400                             | 0.152                   | 366                   | 656          | 0.3                                 | 0.2 | 2.193 | А |
| C - Port Service Access | 10   | 2   | 1127                   | 1124                             | 0.009                   | 10                    | 4            | 0.0                                 | 0.0 | 5.184 | Α |
| D - A160                | 527  | 132 | 207                    | 2563                             | 0.206                   | 527                   | 929          | 0.5                                 | 0.4 | 2.558 | Α |
| E - Conco Access        | 0    | 0   | 733                    | 2417                             | 0.000                   | 0                     | 2            | 0.0                                 | 0.0 | 0.000 | Α |

## 17:00 - 17:15

| Arm                     | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - Humber Road         | 955                         | 239                           | 233                             | 2617                 | 0.365 | 956                    | 380                              | 1.0                     | 0.7                   | 2.771        | А                                   |
| B - Manby Road          | 306                         | 77                            | 640                             | 2555                 | 0.120 | 307                    | 549                              | 0.2                     | 0.2                   | 1.985        | А                                   |
| C - Port Service Access | 8                           | 2                             | 943                             | 1264                 | 0.007 | 8                      | 4                                | 0.0                     | 0.0                   | 4.601        | Α                                   |
| D - A160                | 441                         | 110                           | 173                             | 2598                 | 0.170 | 441                    | 778                              | 0.4                     | 0.3                   | 2.415        | Α                                   |
| E - Conco Access        | 0                           | 0                             | 613                             | 2542                 | 0.000 | 0                      | 2                                | 0.0                     | 0.0                   | 0.000        | Α                                   |

## Annex TN2 G

A160/ Ulceby Road/ Habrough Road/ East Halton Road Roundabout



## **Junctions 10**

## **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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Filename: A160-Habrough Road-Ulceby Road-E Halton Road RevC.j10

Path: P:\23000's\23325\Junction Assessment\A160-Habrough Road-Ulceby Road-E Halton Road RevC\_Junctions 10 Report

Report generation date: 05/08/2022 10:17:21

- »2021 Base, AM
- »2021 Base, PM
- »2025 Base, AM
- »2025 Base, PM
- »2025 Base + Committed, AM
- »2025 Base + Committed, PM
- »2025 Base + Committed + Development, AM
- »2025 Base + Committed + Development, PM
- »2032 Base, AM
- »2032 Base, PM
- »2032 Base + Committed, AM
- »2032 Base + Committed, PM
- »2032 Base + Committed + Development, AM
- »2032 Base + Committed + Development, PM



## Summary of junction performance

|                   |         | AM        |       |           | PM        |      |
|-------------------|---------|-----------|-------|-----------|-----------|------|
|                   | Q (PCU) | Delay (s) | RFC   | Q (PCU)   | Delay (s) | RFC  |
|                   |         |           | 2021  | Base      |           |      |
| A - A160 E        | 0.4     | 2.52      | 0.18  | 0.9       | 2.70      | 0.41 |
| B - Habrough Road | 0.3     | 2.75      | 0.20  | 0.1       | 3.34      | 0.10 |
| C - A160 W        | 1.0     | 2.63      | 0.46  | 0.4       | 2.27      | 0.22 |
| D - Ulceby Road   | 0.3     | 5.88      | 0.20  | 0.1       | 3.18      | 0.07 |
| E - E Halton Road | 0.4     | 4.93      | 0.22  | 0.3       | 2.72      | 0.22 |
|                   |         |           | 2025  | Base      |           |      |
| A - A160 E        | 0.4     | 2.56      | 0.19  | 1.0       | 2.83      | 0.43 |
| B - Habrough Road | 0.3     | 2.84      | 0.21  | 0.1       | 3.52      | 0.11 |
| C - A160 W        | 1.1     | 2.77      | 0.48  | 0.5       | 2.32      | 0.23 |
| D - Ulceby Road   | 0.4     | 6.44      | 0.22  | 0.1       | 3.25      | 0.07 |
| E - E Halton Road | 0.4     | 5.28      | 0.24  | 0.3       | 2.80      | 0.23 |
|                   |         | 2025 E    | ase 1 | - Commi   | tted      |      |
| A - A160 E        | 0.6     | 2.48      | 0.31  | 1.2       | 3.06      | 0.48 |
| B - Habrough Road | 0.4     | 3.70      | 0.27  | 0.1       | 4.00      | 0.13 |
| C - A160 W        | 1.5     | 3.27      | 0.57  | 0.7       | 2.45      | 0.34 |
| D - Ulceby Road   | 0.5     | 9.26      | 0.28  | 0.1       | 3.98      | 0.09 |
| E - E Halton Road | 0.5     | 7.08      | 0.30  | 0.4       | 3.49      | 0.27 |
|                   | 2025 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - A160 E        | 0.7     | 2.50      | 0.31  | 1.2       | 3.11      | 0.49 |
| B - Habrough Road | 0.4     | 3.76      | 0.27  | 0.2       | 4.10      | 0.13 |
| C - A160 W        | 1.6     | 3.37      | 0.58  | 0.8       | 2.51      | 0.36 |
| D - Ulceby Road   | 0.5     | 9.75      | 0.30  | 0.1       | 4.09      | 0.09 |
| E - E Halton Road | 0.6     | 7.37      | 0.31  | 0.4       | 3.60      | 0.28 |
|                   |         |           | 2032  | Base      |           |      |
| A - A160 E        | 0.5     | 2.63      | 0.20  | 1.1       | 3.05      | 0.46 |
| B - Habrough Road | 0.3     | 3.00      | 0.24  | 0.2       | 3.82      | 0.13 |
| C - A160 W        | 1.3     | 3.01      | 0.52  | 0.5       | 2.39      | 0.25 |
| D - Ulceby Road   | 0.4     | 7.59      | 0.26  | 0.1       | 3.36      | 0.08 |
| E - E Halton Road | 0.5     | 5.96      | 0.28  | 0.4       | 2.92      | 0.25 |
|                   |         | 2032 E    | ase + | - Commi   | tted      |      |
| A - A160 E        | 0.7     | 2.56      | 0.32  | 1.4       | 3.32      | 0.52 |
| B - Habrough Road | 0.4     | 3.97      | 0.29  | 0.2       | 4.39      | 0.15 |
| C - A160 W        | 1.8     | 3.62      | 0.61  | 0.8       | 2.54      | 0.36 |
| D - Ulceby Road   | 0.7     | 11.83     | 0.35  | 0.1       | 4.14      | 0.10 |
| E - E Halton Road | 0.7     | 8.36      | 0.35  | 0.5       | 3.67      | 0.29 |
|                   | 2032 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - A160 E        | 0.7     | 2.58      | 0.33  | 1.4       | 3.39      | 0.53 |
| B - Habrough Road | 0.4     | 4.04      | 0.30  | 0.2       | 4.51      | 0.15 |
| C - A160 W        | 1.9     | 3.75      | 0.62  | 0.8       | 2.60      | 0.38 |
| D - Ulceby Road   | 0.7     | 12.64     | 0.37  | 0.2       | 4.26      | 0.10 |
| E - E Halton Road | 0.7     | 8.77      | 0.36  | 0.5       | 3.80      | 0.30 |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



## File summary

## **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |
|             |            |

## Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

## **Analysis Options**

| Vehicle<br>length<br>(m) | (Calculate () | Calculate<br>detailed<br>queueing<br>delay | Show lane queues in feet / metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|---------------|--|-----------------------------------|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |               |  |                                   |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

## **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

## **Analysis Set Details**

| I | D  | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|----|-------------------|---------------------------------|-------------------------------------|
| 1 | ١١ | ✓                 | 100.000                         | 100.000                             |



# **2021 Base, AM**

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.07               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.07              | Α           |

## **Arms**

#### **Arms**

| Arm | Name          | Description | No give-way line |
|-----|---------------|-------------|------------------|
| Α   | A160 E        |             |                  |
| В   | Habrough Road |             |                  |
| С   | A160 W        |             |                  |
| D   | Ulceby Road   |             |                  |
| Е   | E Halton Road |             |                  |

## **Roundabout Geometry**

| Arm               | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|-------------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| A - A160 E        | 8.00  | 9.20  | 20.0   | 50.0  | 100.0 | 35.0      |            |           |
| B - Habrough Road | 3.80  | 6.90  | 13.7   | 15.0  | 100.0 | 51.0      |            |           |
| C - A160 W        | 8.00  | 9.40  | 15.0   | 36.0  | 100.0 | 38.0      |            |           |
| D - Ulceby Road   | 3.90  | 6.90  | 10.2   | 33.0  | 100.0 | 35.0      |            |           |
| E - E Halton Road | 3.60  | 7.50  | 12.5   | 27.0  | 100.0 | 38.0      |            |           |

## **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

## Slope / Intercept / Capacity

## Roundabout Slope and Intercept used in model

| Arm               | Final slope | Final intercept (PCU/hr) |
|-------------------|-------------|--------------------------|
| A - A160 E        | 1.250       | 3529                     |
| B - Habrough Road | 0.824       | 2336                     |
| C - A160 W        | 1.232       | 3486                     |
| D - Ulceby Road   | 0.815       | 2337                     |
| E - E Halton Road | 0.826       | 2365                     |

The slope and intercept shown above include any corrections and adjustments.



# Traffic Demand

## **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| I | D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 507                 | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 311                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1263                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 173                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 242                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То                |            |                   |            |                 |                   |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |
|      | A - A160 E        | 1          | 16                | 420        | 37              | 33                |  |  |  |
| F    | B - Habrough Road | 145        | 0                 | 51         | 3               | 112               |  |  |  |
| From | C - A160 W        | 944        | 38                | 0          | 35              | 246               |  |  |  |
|      | D - Ulceby Road   | 79         | 8                 | 67         | 0               | 19                |  |  |  |
|      | E - E Halton Road | 46         | 42                | 145        | 9               | 0                 |  |  |  |

## **Vehicle Mix**

#### HV %s

|      | То                |            |                   |            |                 |                   |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |
|      | A - A160 E        | 100        | 69                | 82         | 62              | 55                |  |  |  |  |
| F    | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |  |  |  |  |
| From | C - A160 W        | 21         | 3                 | 0          | 49              | 13                |  |  |  |  |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |  |  |  |  |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |  |  |  |  |

## Results

## Results Summary for whole modelled period

|                   | •       | <u> </u>      |             |         |                        |                                  |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
| A - A160 E        | 0.18    | 2.52          | 0.4         | А       | 465                    | 698                              |
| B - Habrough Road | 0.20    | 2.75          | 0.3         | A       | 285                    | 428                              |
| C - A160 W        | 0.46    | 2.63          | 1.0         | A       | 1159                   | 1738                             |
| D - Ulceby Road   | 0.20    | 5.88          | 0.3         | A       | 159                    | 238                              |
| E - E Halton Road | 0.22    | 4.93          | 0.4         | Α       | 222                    | 333                              |



## Main Results for each time segment

## 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 382                         | 95                            | 232                             | 3239                 | 0.118 | 381                    | 913                              | 0.0                     | 0.2                   | 2.242        | Α                                   |
| B - Habrough Road | 234                         | 59                            | 534                             | 1895                 | 0.124 | 234                    | 78                               | 0.0                     | 0.1                   | 2.233        | Α                                   |
| C - A160 W        | 951                         | 238                           | 255                             | 3172                 | 0.300 | 949                    | 513                              | 0.0                     | 0.5                   | 1.931        | Α                                   |
| D - Ulceby Road   | 130                         | 33                            | 1141                            | 1408                 | 0.093 | 130                    | 63                               | 0.0                     | 0.1                   | 3.610        | А                                   |
| E - E Halton Road | 182                         | 46                            | 963                             | 1569                 | 0.116 | 182                    | 308                              | 0.0                     | 0.2                   | 3.309        | Α                                   |

## 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 456                         | 114                           | 277                             | 3182                 | 0.143 | 456                    | 1092                             | 0.2                     | 0.3                   | 2.350        | А                                   |
| B - Habrough Road | 280                         | 70                            | 640                             | 1809                 | 0.155 | 279                    | 93                               | 0.1                     | 0.2                   | 2.426        | А                                   |
| C - A160 W        | 1135                        | 284                           | 305                             | 3110                 | 0.365 | 1135                   | 614                              | 0.5                     | 0.7                   | 2.175        | А                                   |
| D - Ulceby Road   | 156                         | 39                            | 1365                            | 1226                 | 0.127 | 155                    | 75                               | 0.1                     | 0.2                   | 4.312        | Α                                   |
| E - E Halton Road | 218                         | 54                            | 1152                            | 1413                 | 0.154 | 217                    | 368                              | 0.2                     | 0.2                   | 3.842        | А                                   |

## 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 558                         | 140                           | 340                             | 3104                 | 0.180 | 558                    | 1336                             | 0.3                     | 0.4                   | 2.516        | А                                   |
| B - Habrough Road | 342                         | 86                            | 783                             | 1691                 | 0.203 | 342                    | 114                              | 0.2                     | 0.3                   | 2.752        | А                                   |
| C - A160 W        | 1391                        | 348                           | 374                             | 3026                 | 0.460 | 1389                   | 751                              | 0.7                     | 1.0                   | 2.623        | А                                   |
| D - Ulceby Road   | 190                         | 48                            | 1671                            | 976                  | 0.195 | 190                    | 92                               | 0.2                     | 0.3                   | 5.868        | А                                   |
| E - E Halton Road | 266                         | 67                            | 1410                            | 1200                 | 0.222 | 266                    | 451                              | 0.2                     | 0.4                   | 4.919        | А                                   |

## 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 558                         | 140                           | 340                             | 3103                 | 0.180 | 558                    | 1338                             | 0.4                     | 0.4                   | 2.517        | Α                                   |
| B - Habrough Road | 342                         | 86                            | 784                             | 1690                 | 0.203 | 342                    | 115                              | 0.3                     | 0.3                   | 2.753        | А                                   |
| C - A160 W        | 1391                        | 348                           | 374                             | 3025                 | 0.460 | 1391                   | 752                              | 1.0                     | 1.0                   | 2.627        | А                                   |
| D - Ulceby Road   | 190                         | 48                            | 1672                            | 975                  | 0.195 | 190                    | 92                               | 0.3                     | 0.3                   | 5.884        | А                                   |
| E - E Halton Road | 266                         | 67                            | 1411                            | 1198                 | 0.222 | 266                    | 451                              | 0.4                     | 0.4                   | 4.930        | А                                   |

## 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 456                         | 114                           | 278                             | 3180                 | 0.143 | 456                    | 1094                             | 0.4                     | 0.3                   | 2.353        | Α                                   |
| B - Habrough Road | 280                         | 70                            | 641                             | 1808                 | 0.155 | 280                    | 94                               | 0.3                     | 0.2                   | 2.431        | Α                                   |
| C - A160 W        | 1135                        | 284                           | 306                             | 3109                 | 0.365 | 1137                   | 615                              | 1.0                     | 0.7                   | 2.179        | Α                                   |
| D - Ulceby Road   | 156                         | 39                            | 1367                            | 1224                 | 0.127 | 156                    | 76                               | 0.3                     | 0.2                   | 4.327        | Α                                   |
| E - E Halton Road | 218                         | 54                            | 1154                            | 1411                 | 0.154 | 218                    | 369                              | 0.4                     | 0.2                   | 3.854        | А                                   |

## 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 382                         | 95                            | 233                             | 3237                 | 0.118 | 382                    | 915                              | 0.3                     | 0.2                   | 2.243        | А                                   |
| B - Habrough Road | 234                         | 59                            | 537                             | 1894                 | 0.124 | 234                    | 78                               | 0.2                     | 0.1                   | 2.238        | А                                   |
| C - A160 W        | 951                         | 238                           | 256                             | 3171                 | 0.300 | 952                    | 515                              | 0.7                     | 0.5                   | 1.937        | А                                   |
| D - Ulceby Road   | 130                         | 33                            | 1144                            | 1405                 | 0.093 | 130                    | 63                               | 0.2                     | 0.1                   | 3.621        | А                                   |
| E - E Halton Road | 182                         | 46                            | 966                             | 1567                 | 0.116 | 182                    | 309                              | 0.2                     | 0.2                   | 3.322        | Α                                   |

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# 2021 Base, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.64               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.64              | Α           |

## **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 1076                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 116                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 621                 | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 106                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 374                 | 100.000            |



## Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 10         | 114               | 777        | 66              | 109               |
|      | B - Habrough Road | 17         | 0                 | 39         | 18              | 42                |
| From | C - A160 W        | 356        | 59                | 0          | 72              | 134               |
|      | D - Ulceby Road   | 31         | 14                | 39         | 0               | 22                |
|      | E - E Halton Road | 38         | 109               | 198        | 29              | 0                 |

## **Vehicle Mix**

## HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 30         | 42              | 59                |
| F    | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 78         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 7                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

## Results

## Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160 E        | 0.41    | 2.70          | 0.9         | А       | 987                    | 1481                             |
| B - Habrough Road | 0.10    | 3.34          | 0.1         | А       | 106                    | 160                              |
| C - A160 W        | 0.22    | 2.27          | 0.4         | А       | 570                    | 855                              |
| D - Ulceby Road   | 0.07    | 3.18          | 0.1         | А       | 97                     | 146                              |
| E - E Halton Road | 0.22    | 2.72          | 0.3         | Α       | 343                    | 515                              |

## Main Results for each time segment

15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 810                         | 203                           | 336                             | 3108                 | 0.261 | 808                    | 340                              | 0.0                     | 0.5                   | 2.025        | Α                                   |
| B - Habrough Road | 87                          | 22                            | 922                             | 1576                 | 0.055 | 87                     | 222                              | 0.0                     | 0.1                   | 2.455        | А                                   |
| C - A160 W        | 468                         | 117                           | 219                             | 3217                 | 0.145 | 466                    | 791                              | 0.0                     | 0.3                   | 1.989        | А                                   |
| D - Ulceby Road   | 80                          | 20                            | 546                             | 1892                 | 0.042 | 80                     | 139                              | 0.0                     | 0.1                   | 2.754        | А                                   |
| E - E Halton Road | 282                         | 70                            | 395                             | 2038                 | 0.138 | 281                    | 231                              | 0.0                     | 0.2                   | 2.283        | Α                                   |



## 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 967                         | 242                           | 403                             | 3025                 | 0.320 | 967                    | 406                              | 0.5                     | 0.6                   | 2.265        | Α                                   |
| B - Habrough Road | 104                         | 26                            | 1103                            | 1427                 | 0.073 | 104                    | 266                              | 0.1                     | 0.1                   | 2.763        | Α                                   |
| C - A160 W        | 558                         | 140                           | 261                             | 3164                 | 0.176 | 558                    | 946                              | 0.3                     | 0.3                   | 2.099        | Α                                   |
| D - Ulceby Road   | 95                          | 24                            | 653                             | 1805                 | 0.053 | 95                     | 166                              | 0.1                     | 0.1                   | 2.920        | Α                                   |
| E - E Halton Road | 336                         | 84                            | 473                             | 1974                 | 0.170 | 336                    | 276                              | 0.2                     | 0.2                   | 2.450        | Α                                   |

## 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1185                        | 296                           | 493                             | 2912                 | 0.407 | 1184                   | 497                              | 0.6                     | 0.9                   | 2.696        | Α                                   |
| B - Habrough Road | 128                         | 32                            | 1351                            | 1223                 | 0.104 | 128                    | 326                              | 0.1                     | 0.1                   | 3.337        | Α                                   |
| C - A160 W        | 684                         | 171                           | 320                             | 3092                 | 0.221 | 683                    | 1158                             | 0.3                     | 0.4                   | 2.271        | А                                   |
| D - Ulceby Road   | 117                         | 29                            | 800                             | 1686                 | 0.069 | 117                    | 204                              | 0.1                     | 0.1                   | 3.182        | А                                   |
| E - E Halton Road | 412                         | 103                           | 579                             | 1887                 | 0.218 | 411                    | 338                              | 0.2                     | 0.3                   | 2.721        | А                                   |

## 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1185                        | 296                           | 493                             | 2912                 | 0.407 | 1185                   | 498                              | 0.9                     | 0.9                   | 2.699        | Α                                   |
| B - Habrough Road | 128                         | 32                            | 1352                            | 1222                 | 0.105 | 128                    | 326                              | 0.1                     | 0.1                   | 3.340        | А                                   |
| C - A160 W        | 684                         | 171                           | 320                             | 3092                 | 0.221 | 684                    | 1159                             | 0.4                     | 0.4                   | 2.272        | А                                   |
| D - Ulceby Road   | 117                         | 29                            | 800                             | 1685                 | 0.069 | 117                    | 204                              | 0.1                     | 0.1                   | 3.183        | Α                                   |
| E - E Halton Road | 412                         | 103                           | 579                             | 1886                 | 0.218 | 412                    | 338                              | 0.3                     | 0.3                   | 2.722        | А                                   |

## 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 967                         | 242                           | 403                             | 3025                 | 0.320 | 968                    | 407                              | 0.9                     | 0.6                   | 2.270        | А                                   |
| B - Habrough Road | 104                         | 26                            | 1105                            | 1425                 | 0.073 | 104                    | 266                              | 0.1                     | 0.1                   | 2.767        | Α                                   |
| C - A160 W        | 558                         | 140                           | 262                             | 3164                 | 0.176 | 559                    | 948                              | 0.4                     | 0.3                   | 2.102        | Α                                   |
| D - Ulceby Road   | 95                          | 24                            | 654                             | 1804                 | 0.053 | 95                     | 166                              | 0.1                     | 0.1                   | 2.921        | Α                                   |
| E - E Halton Road | 336                         | 84                            | 473                             | 1974                 | 0.170 | 337                    | 276                              | 0.3                     | 0.2                   | 2.454        | Α                                   |

## 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 810                         | 203                           | 338                             | 3107                 | 0.261 | 811                    | 341                              | 0.6                     | 0.5                   | 2.033        | Α                                   |
| B - Habrough Road | 87                          | 22                            | 925                             | 1574                 | 0.056 | 87                     | 223                              | 0.1                     | 0.1                   | 2.459        | А                                   |
| C - A160 W        | 468                         | 117                           | 219                             | 3216                 | 0.145 | 468                    | 793                              | 0.3                     | 0.3                   | 1.992        | Α                                   |
| D - Ulceby Road   | 80                          | 20                            | 548                             | 1891                 | 0.042 | 80                     | 139                              | 0.1                     | 0.1                   | 2.759        | А                                   |
| E - E Halton Road | 282                         | 70                            | 396                             | 2037                 | 0.138 | 282                    | 231                              | 0.2                     | 0.2                   | 2.288        | А                                   |



# 2025 Base, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.23               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.23              | Α           |  |  |

## **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

## Slope / Intercept / Capacity

[same as above]

## **Traffic Demand**

## **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ſ | D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix v | aries over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|---------------|-----------------|-------------------------------|--------------------|---------------------------|--|
|               | ✓               | ✓                             | HV Percentages     | 2.00                      |  |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-------------------|------------|--------------|--------------|---------------------|--------------------|--|
| A - A160 E        |            | ONE HOUR     | ✓            | 530                 | 100.000            |  |
| B - Habrough Road |            | ONE HOUR     | ✓            | 324                 | 100.000            |  |
| C - A160 W        |            | ONE HOUR     | ✓            | 1320                | 100.000            |  |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 180                 | 100.000            |  |
| E - E Halton Road |            | ONE HOUR     | ✓            | 252                 | 100.000            |  |



## Demand (PCU/hr)

|      | То                |            |                   |            |                 |                   |  |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |  |
|      | A - A160 E        | 1          | 17                | 439        | 39              | 34                |  |  |  |  |  |
|      | B - Habrough Road | 151        | 0                 | 53         | 3               | 117               |  |  |  |  |  |
| From | C - A160 W        | 986        | 40                | 0          | 37              | 257               |  |  |  |  |  |
|      | D - Ulceby Road   | 82         | 8                 | 70         | 0               | 20                |  |  |  |  |  |
|      | E - E Halton Road | 48         | 44                | 151        | 9               | 0                 |  |  |  |  |  |

## **Vehicle Mix**

## HV %s

|      | То                |            |                   |            |                 |                   |  |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |  |
|      | A - A160 E        | 100        | 69                | 82         | 62              | 55                |  |  |  |  |  |
| F    | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |  |  |  |  |  |
| From | C - A160 W        | 21         | 3                 | 0          | 49              | 13                |  |  |  |  |  |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |  |  |  |  |  |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |  |  |  |  |  |

## Results

## Results Summary for whole modelled period

| Arm               | Arm Max RFC Max Delay |      | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------|-----------------------|------|-------------|---------|------------------------|----------------------------------|--|
| A - A160 E        | 0.19                  | 2.56 | 0.4         | А       | 486                    | 730                              |  |
| B - Habrough Road | 0.21                  | 2.84 | 0.3         | А       | 297                    | 446                              |  |
| C - A160 W        | 0.48                  | 2.77 | 1.1         | A       | 1211                   | 1817                             |  |
| D - Ulceby Road   | 0.22                  | 6.44 | 0.4         | A       | 165                    | 248                              |  |
| E - E Halton Road | 0.24                  | 5.28 | 0.4         | А       | 231                    | 347                              |  |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 399                         | 100                           | 242                             | 3227                 | 0.124 | 398                    | 952                              | 0.0                     | 0.3                   | 2.265        | Α                                   |
| B - Habrough Road | 244                         | 61                            | 558                             | 1876                 | 0.130 | 243                    | 82                               | 0.0                     | 0.2                   | 2.273        | А                                   |
| C - A160 W        | 994                         | 248                           | 266                             | 3159                 | 0.315 | 992                    | 535                              | 0.0                     | 0.5                   | 1.981        | А                                   |
| D - Ulceby Road   | 136                         | 34                            | 1191                            | 1367                 | 0.099 | 135                    | 66                               | 0.0                     | 0.1                   | 3.746        | Α                                   |
| E - E Halton Road | 190                         | 47                            | 1005                            | 1535                 | 0.124 | 189                    | 321                              | 0.0                     | 0.2                   | 3.413        | Α                                   |



### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 476                         | 119                           | 289                             | 3167                 | 0.150 | 476                    | 1139                             | 0.3                     | 0.3                   | 2.380        | Α                                   |
| B - Habrough Road | 291                         | 73                            | 667                             | 1786                 | 0.163 | 291                    | 98                               | 0.2                     | 0.2                   | 2.482        | Α                                   |
| C - A160 W        | 1187                        | 297                           | 318                             | 3095                 | 0.383 | 1186                   | 640                              | 0.5                     | 0.7                   | 2.249        | А                                   |
| D - Ulceby Road   | 162                         | 40                            | 1425                            | 1177                 | 0.138 | 162                    | 79                               | 0.1                     | 0.2                   | 4.548        | Α                                   |
| E - E Halton Road | 227                         | 57                            | 1202                            | 1372                 | 0.165 | 226                    | 385                              | 0.2                     | 0.3                   | 4.011        | Α                                   |

### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 584                         | 146                           | 354                             | 3086                 | 0.189 | 583                    | 1394                             | 0.3                     | 0.4                   | 2.559        | Α                                   |
| B - Habrough Road | 357                         | 89                            | 817                             | 1663                 | 0.215 | 356                    | 120                              | 0.2                     | 0.3                   | 2.841        | Α                                   |
| C - A160 W        | 1453                        | 363                           | 389                             | 3007                 | 0.483 | 1452                   | 784                              | 0.7                     | 1.1                   | 2.761        | А                                   |
| D - Ulceby Road   | 198                         | 50                            | 1744                            | 916                  | 0.216 | 198                    | 97                               | 0.2                     | 0.4                   | 6.420        | Α                                   |
| E - E Halton Road | 277                         | 69                            | 1471                            | 1149                 | 0.241 | 277                    | 471                              | 0.3                     | 0.4                   | 5.266        | Α                                   |

### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 584                         | 146                           | 355                             | 3085                 | 0.189 | 584                    | 1396                             | 0.4                     | 0.4                   | 2.560        | А                                   |
| B - Habrough Road | 357                         | 89                            | 818                             | 1662                 | 0.215 | 357                    | 120                              | 0.3                     | 0.3                   | 2.843        | А                                   |
| C - A160 W        | 1453                        | 363                           | 390                             | 3006                 | 0.483 | 1453                   | 785                              | 1.1                     | 1.1                   | 2.766        | А                                   |
| D - Ulceby Road   | 198                         | 50                            | 1746                            | 915                  | 0.217 | 198                    | 97                               | 0.4                     | 0.4                   | 6.442        | Α                                   |
| E - E Halton Road | 277                         | 69                            | 1473                            | 1147                 | 0.242 | 277                    | 471                              | 0.4                     | 0.4                   | 5.281        | А                                   |

### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 476                         | 119                           | 290                             | 3166                 | 0.151 | 477                    | 1142                             | 0.4                     | 0.3                   | 2.382        | Α                                   |
| B - Habrough Road | 291                         | 73                            | 669                             | 1785                 | 0.163 | 292                    | 98                               | 0.3                     | 0.2                   | 2.487        | Α                                   |
| C - A160 W        | 1187                        | 297                           | 319                             | 3094                 | 0.384 | 1188                   | 642                              | 1.1                     | 0.7                   | 2.257        | Α                                   |
| D - Ulceby Road   | 162                         | 40                            | 1428                            | 1174                 | 0.138 | 162                    | 79                               | 0.4                     | 0.2                   | 4.564        | Α                                   |
| E - E Halton Road | 227                         | 57                            | 1205                            | 1369                 | 0.165 | 227                    | 385                              | 0.4                     | 0.3                   | 4.024        | А                                   |

# 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 399                         | 100                           | 243                             | 3225                 | 0.124 | 399                    | 955                              | 0.3                     | 0.3                   | 2.267        | Α                                   |
| B - Habrough Road | 244                         | 61                            | 560                             | 1875                 | 0.130 | 244                    | 82                               | 0.2                     | 0.2                   | 2.278        | А                                   |
| C - A160 W        | 994                         | 248                           | 267                             | 3158                 | 0.315 | 995                    | 537                              | 0.7                     | 0.5                   | 1.988        | Α                                   |
| D - Ulceby Road   | 136                         | 34                            | 1195                            | 1364                 | 0.099 | 136                    | 66                               | 0.2                     | 0.1                   | 3.759        | А                                   |
| E - E Halton Road | 190                         | 47                            | 1008                            | 1532                 | 0.124 | 190                    | 322                              | 0.3                     | 0.2                   | 3.427        | А                                   |



# **2025 Base, PM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

| ١ | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
|   | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.74               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.74              | Α           |

# **Arms**

### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 1123                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 122                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 648                 | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 111                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 391                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 10         | 119               | 811        | 69              | 114               |
|      | B - Habrough Road | 18         | 0                 | 41         | 19              | 44                |
| From | C - A160 W        | 371        | 62                | 0          | 75              | 140               |
|      | D - Ulceby Road   | 32         | 15                | 41         | 0               | 23                |
|      | E - E Halton Road | 40         | 114               | 207        | 30              | 0                 |

# **Vehicle Mix**

# HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 30         | 42              | 59                |
| F    | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 78         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 8                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160 E        | 0.43    | 2.83          | 1.0         | А       | 1030                   | 1546                             |
| B - Habrough Road | 0.11    | 3.52          | 0.1         | А       | 112                    | 168                              |
| C - A160 W        | 0.23    | 2.32          | 0.5         | A       | 595                    | 892                              |
| D - Ulceby Road   | 0.07    | 3.25          | 0.1         | A       | 102                    | 153                              |
| E - E Halton Road | 0.23    | 2.80          | 0.3         | A       | 359                    | 538                              |

# Main Results for each time segment

15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 845                         | 211                           | 352                             | 3088                 | 0.274 | 844                    | 354                              | 0.0                     | 0.5                   | 2.075        | А                                   |
| B - Habrough Road | 92                          | 23                            | 963                             | 1543                 | 0.060 | 92                     | 233                              | 0.0                     | 0.1                   | 2.519        | А                                   |
| C - A160 W        | 488                         | 122                           | 228                             | 3205                 | 0.152 | 487                    | 826                              | 0.0                     | 0.3                   | 2.011        | А                                   |
| D - Ulceby Road   | 84                          | 21                            | 570                             | 1873                 | 0.045 | 83                     | 145                              | 0.0                     | 0.1                   | 2.791        | Α                                   |
| E - E Halton Road | 294                         | 74                            | 412                             | 2024                 | 0.145 | 294                    | 241                              | 0.0                     | 0.2                   | 2.319        | А                                   |



### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1010                        | 252                           | 421                             | 3002                 | 0.336 | 1009                   | 423                              | 0.5                     | 0.7                   | 2.340        | Α                                   |
| B - Habrough Road | 110                         | 27                            | 1152                            | 1387                 | 0.079 | 110                    | 279                              | 0.1                     | 0.1                   | 2.861        | А                                   |
| C - A160 W        | 583                         | 146                           | 273                             | 3150                 | 0.185 | 582                    | 988                              | 0.3                     | 0.3                   | 2.130        | Α                                   |
| D - Ulceby Road   | 100                         | 25                            | 682                             | 1782                 | 0.056 | 100                    | 173                              | 0.1                     | 0.1                   | 2.969        | Α                                   |
| E - E Halton Road | 352                         | 88                            | 493                             | 1957                 | 0.180 | 351                    | 288                              | 0.2                     | 0.2                   | 2.500        | Α                                   |

### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1236                        | 309                           | 516                             | 2884                 | 0.429 | 1235                   | 518                              | 0.7                     | 1.0                   | 2.828        | А                                   |
| B - Habrough Road | 134                         | 34                            | 1410                            | 1174                 | 0.114 | 134                    | 341                              | 0.1                     | 0.1                   | 3.515        | Α                                   |
| C - A160 W        | 713                         | 178                           | 334                             | 3074                 | 0.232 | 713                    | 1210                             | 0.3                     | 0.5                   | 2.316        | Α                                   |
| D - Ulceby Road   | 122                         | 31                            | 835                             | 1657                 | 0.074 | 122                    | 212                              | 0.1                     | 0.1                   | 3.254        | Α                                   |
| E - E Halton Road | 430                         | 108                           | 604                             | 1866                 | 0.231 | 430                    | 353                              | 0.2                     | 0.3                   | 2.797        | А                                   |

### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1236                        | 309                           | 516                             | 2883                 | 0.429 | 1236                   | 519                              | 1.0                     | 1.0                   | 2.831        | А                                   |
| B - Habrough Road | 134                         | 34                            | 1411                            | 1173                 | 0.115 | 134                    | 341                              | 0.1                     | 0.1                   | 3.519        | А                                   |
| C - A160 W        | 713                         | 178                           | 335                             | 3074                 | 0.232 | 713                    | 1211                             | 0.5                     | 0.5                   | 2.316        | А                                   |
| D - Ulceby Road   | 122                         | 31                            | 836                             | 1656                 | 0.074 | 122                    | 212                              | 0.1                     | 0.1                   | 3.255        | Α                                   |
| E - E Halton Road | 430                         | 108                           | 604                             | 1865                 | 0.231 | 430                    | 353                              | 0.3                     | 0.3                   | 2.797        | А                                   |

### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1010                        | 252                           | 422                             | 3001                 | 0.336 | 1011                   | 424                              | 1.0                     | 0.7                   | 2.344        | А                                   |
| B - Habrough Road | 110                         | 27                            | 1154                            | 1385                 | 0.079 | 110                    | 279                              | 0.1                     | 0.1                   | 2.866        | Α                                   |
| C - A160 W        | 583                         | 146                           | 274                             | 3149                 | 0.185 | 583                    | 990                              | 0.5                     | 0.3                   | 2.131        | А                                   |
| D - Ulceby Road   | 100                         | 25                            | 683                             | 1781                 | 0.056 | 100                    | 174                              | 0.1                     | 0.1                   | 2.971        | Α                                   |
| E - E Halton Road | 352                         | 88                            | 494                             | 1957                 | 0.180 | 352                    | 289                              | 0.3                     | 0.2                   | 2.504        | Α                                   |

# 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 845                         | 211                           | 353                             | 3087                 | 0.274 | 846                    | 355                              | 0.7                     | 0.5                   | 2.083        | Α                                   |
| B - Habrough Road | 92                          | 23                            | 966                             | 1540                 | 0.060 | 92                     | 234                              | 0.1                     | 0.1                   | 2.526        | А                                   |
| C - A160 W        | 488                         | 122                           | 229                             | 3204                 | 0.152 | 488                    | 829                              | 0.3                     | 0.3                   | 2.015        | А                                   |
| D - Ulceby Road   | 84                          | 21                            | 572                             | 1871                 | 0.045 | 84                     | 145                              | 0.1                     | 0.1                   | 2.793        | А                                   |
| E - E Halton Road | 294                         | 74                            | 414                             | 2023                 | 0.146 | 295                    | 242                              | 0.2                     | 0.2                   | 2.324        | А                                   |



# 2025 Base + Committed, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.74               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.74              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

|   | ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ı | D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varie | s over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|-------------------|-------------|-------------------------------|--------------------|---------------------------|
| ✓                 |             | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 857                 | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 330                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1557                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 180                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 252                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 1          | 18                | 765        | 39              | 34                |
|      | B - Habrough Road | 157        | 0                 | 53         | 3               | 117               |
| From | C - A160 W        | 1223       | 40                | 0          | 37              | 257               |
|      | D - Ulceby Road   | 82         | 8                 | 70         | 0               | 20                |
|      | E - E Halton Road | 48         | 44                | 151        | 9               | 0                 |

# **Vehicle Mix**

# HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 65                | 46         | 62              | 55                |
| F    | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |
| From | C - A160 W        | 17         | 3                 | 0          | 49              | 13                |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm                    | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|------------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - A160 E             | 0.31    | 2.48          | 0.6         | А       | 786                    | 1180                             |  |
| B - Habrough Road      | 0.27    | 3.70          | 0.4         | А       | 303                    | 454                              |  |
| C - A160 W             | 0.57    | 3.27          | 1.5         | А       | 1429                   | 2143                             |  |
| D - Ulceby Road        | 0.28    | 9.26          | 0.5         | А       | 165                    | 248                              |  |
| E - E Halton Road 0.30 |         | 7.08          | 0.5         | Α       | 231                    | 347                              |  |

# Main Results for each time segment

### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 645                         | 161                           | 241                             | 3227                 | 0.200 | 644                    | 1135                             | 0.0                     | 0.4                   | 2.053        | Α                                   |
| B - Habrough Road | 248                         | 62                            | 803                             | 1675                 | 0.148 | 248                    | 83                               | 0.0                     | 0.2                   | 2.598        | А                                   |
| C - A160 W        | 1172                        | 293                           | 270                             | 3153                 | 0.372 | 1169                   | 780                              | 0.0                     | 0.7                   | 2.111        | А                                   |
| D - Ulceby Road   | 136                         | 34                            | 1374                            | 1218                 | 0.111 | 135                    | 66                               | 0.0                     | 0.2                   | 4.258        | Α                                   |
| E - E Halton Road | 190                         | 47                            | 1187                            | 1384                 | 0.137 | 189                    | 321                              | 0.0                     | 0.2                   | 3.843        | Α                                   |



### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 770                         | 193                           | 289                             | 3167                 | 0.243 | 770                    | 1357                             | 0.4                     | 0.5                   | 2.213        | Α                                   |
| B - Habrough Road | 297                         | 74                            | 960                             | 1545                 | 0.192 | 296                    | 99                               | 0.2                     | 0.2                   | 2.972        | А                                   |
| C - A160 W        | 1400                        | 350                           | 323                             | 3088                 | 0.453 | 1399                   | 933                              | 0.7                     | 1.0                   | 2.481        | Α                                   |
| D - Ulceby Road   | 162                         | 40                            | 1643                            | 999                  | 0.162 | 161                    | 79                               | 0.2                     | 0.2                   | 5.510        | Α                                   |
| E - E Halton Road | 227                         | 57                            | 1420                            | 1191                 | 0.190 | 226                    | 384                              | 0.2                     | 0.3                   | 4.758        | Α                                   |

### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 944                         | 236                           | 353                             | 3087                 | 0.306 | 943                    | 1661                             | 0.5                     | 0.6                   | 2.475        | Α                                   |
| B - Habrough Road | 363                         | 91                            | 1175                            | 1368                 | 0.266 | 363                    | 121                              | 0.2                     | 0.4                   | 3.690        | А                                   |
| C - A160 W        | 1714                        | 429                           | 396                             | 2999                 | 0.572 | 1712                   | 1142                             | 1.0                     | 1.5                   | 3.254        | А                                   |
| D - Ulceby Road   | 198                         | 50                            | 2011                            | 699                  | 0.284 | 197                    | 97                               | 0.2                     | 0.5                   | 9.182        | Α                                   |
| E - E Halton Road | 277                         | 69                            | 1738                            | 929                  | 0.299 | 276                    | 471                              | 0.3                     | 0.5                   | 7.034        | А                                   |

### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 944                         | 236                           | 355                             | 3085                 | 0.306 | 944                    | 1664                             | 0.6                     | 0.6                   | 2.477        | Α                                   |
| B - Habrough Road | 363                         | 91                            | 1177                            | 1366                 | 0.266 | 363                    | 121                              | 0.4                     | 0.4                   | 3.698        | А                                   |
| C - A160 W        | 1714                        | 429                           | 396                             | 2998                 | 0.572 | 1714                   | 1144                             | 1.5                     | 1.5                   | 3.266        | А                                   |
| D - Ulceby Road   | 198                         | 50                            | 2014                            | 697                  | 0.284 | 198                    | 97                               | 0.5                     | 0.5                   | 9.259        | А                                   |
| E - E Halton Road | 277                         | 69                            | 1741                            | 926                  | 0.300 | 277                    | 471                              | 0.5                     | 0.5                   | 7.080        | Α                                   |

### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 770                         | 193                           | 291                             | 3165                 | 0.243 | 771                    | 1361                             | 0.6                     | 0.5                   | 2.216        | А                                   |
| B - Habrough Road | 297                         | 74                            | 963                             | 1543                 | 0.192 | 297                    | 99                               | 0.4                     | 0.2                   | 2.979        | А                                   |
| C - A160 W        | 1400                        | 350                           | 324                             | 3087                 | 0.453 | 1402                   | 936                              | 1.5                     | 1.0                   | 2.492        | А                                   |
| D - Ulceby Road   | 162                         | 40                            | 1647                            | 996                  | 0.163 | 163                    | 79                               | 0.5                     | 0.3                   | 5.550        | Α                                   |
| E - E Halton Road | 227                         | 57                            | 1424                            | 1188                 | 0.191 | 228                    | 385                              | 0.5                     | 0.3                   | 4.789        | А                                   |

# 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 645                         | 161                           | 243                             | 3225                 | 0.200 | 646                    | 1139                             | 0.5                     | 0.4                   | 2.059        | Α                                   |
| B - Habrough Road | 248                         | 62                            | 806                             | 1672                 | 0.149 | 249                    | 83                               | 0.2                     | 0.2                   | 2.608        | А                                   |
| C - A160 W        | 1172                        | 293                           | 271                             | 3152                 | 0.372 | 1173                   | 783                              | 1.0                     | 0.7                   | 2.122        | Α                                   |
| D - Ulceby Road   | 136                         | 34                            | 1378                            | 1214                 | 0.112 | 136                    | 66                               | 0.3                     | 0.2                   | 4.281        | А                                   |
| E - E Halton Road | 190                         | 47                            | 1192                            | 1380                 | 0.137 | 190                    | 323                              | 0.3                     | 0.2                   | 3.863        | А                                   |



# 2025 Base + Committed, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.99               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.99              | Α           |

# **Arms**

### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| I | D Scenario name Ti      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| E | 6 2025 Base + Committed | PM               | ONE HOUR 15:45       |                    | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR ✓   |              | 1266                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 122                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 960                 | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 111                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 391                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                           |     |                 |                   |
|------|-------------------|------------|------------------------------|-----|-----------------|-------------------|
|      |                   | A - A160 E | A - A160 E B - Habrough Road |     | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 10         | 124                          | 949 | 69              | 114               |
| F    | B - Habrough Road | 18         | 0                            | 41  | 19              | 44                |
| From | C - A160 W        | 683        | 62                           | 0   | 75              | 140               |
|      | D - Ulceby Road   | 32         | 15                           | 41  | 0               | 23                |
|      | E - E Halton Road | 40         | 114                          | 207 | 30              | 0                 |

# **Vehicle Mix**

### HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 26         | 42              | 59                |
| F    | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 42         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 8                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC                   | Max RFC Max Delay (s) |     | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------------------------|-----------------------|-----|---------|------------------------|----------------------------------|
| A - A160 E        | 0.48                      | 3.06                  | 1.2 | А       | 1162                   | 1743                             |
| B - Habrough Road | - Habrough Road 0.13 4.00 |                       | 0.1 | А       | 112                    | 168                              |
| C - A160 W        | 0.34                      | 2.45                  | 0.7 | А       | 881                    | 1321                             |
| D - Ulceby Road   | - Ulceby Road 0.09        |                       | 0.1 | А       | 102                    | 153                              |
| E - E Halton Road | 0.27                      | 3.49                  | 0.4 | Α       | 359                    | 538                              |

### Main Results for each time segment

15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 953                         | 238                           | 352                             | 3088                 | 0.309 | 951                    | 588                              | 0.0                     | 0.6                   | 2.128        | Α                                   |
| B - Habrough Road | 92                          | 23                            | 1066                            | 1457                 | 0.063 | 92                     | 237                              | 0.0                     | 0.1                   | 2.677        | А                                   |
| C - A160 W        | 723                         | 181                           | 228                             | 3205                 | 0.225 | 721                    | 930                              | 0.0                     | 0.4                   | 1.989        | А                                   |
| D - Ulceby Road   | 84                          | 21                            | 804                             | 1682                 | 0.050 | 83                     | 145                              | 0.0                     | 0.1                   | 3.125        | Α                                   |
| E - E Halton Road | 294                         | 74                            | 647                             | 1831                 | 0.161 | 294                    | 241                              | 0.0                     | 0.2                   | 2.611        | А                                   |



### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1138                        | 285                           | 421                             | 3002                 | 0.379 | 1137                   | 703                              | 0.6                     | 0.8                   | 2.439        | Α                                   |
| B - Habrough Road | 110                         | 27                            | 1276                            | 1285                 | 0.085 | 110                    | 283                              | 0.1                     | 0.1                   | 3.110        | Α                                   |
| C - A160 W        | 863                         | 216                           | 273                             | 3150                 | 0.274 | 863                    | 1112                             | 0.4                     | 0.5                   | 2.161        | Α                                   |
| D - Ulceby Road   | 100                         | 25                            | 962                             | 1553                 | 0.064 | 100                    | 173                              | 0.1                     | 0.1                   | 3.436        | Α                                   |
| E - E Halton Road | 352                         | 88                            | 774                             | 1726                 | 0.204 | 351                    | 288                              | 0.2                     | 0.3                   | 2.921        | Α                                   |

# 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1394                        | 348                           | 516                             | 2884                 | 0.483 | 1392                   | 861                              | 0.8                     | 1.2                   | 3.049        | Α                                   |
| B - Habrough Road | 134                         | 34                            | 1562                            | 1049                 | 0.128 | 134                    | 346                              | 0.1                     | 0.1                   | 3.994        | Α                                   |
| C - A160 W        | 1057                        | 264                           | 334                             | 3075                 | 0.344 | 1056                   | 1361                             | 0.5                     | 0.7                   | 2.448        | А                                   |
| D - Ulceby Road   | 122                         | 31                            | 1178                            | 1377                 | 0.089 | 122                    | 212                              | 0.1                     | 0.1                   | 3.979        | Α                                   |
| E - E Halton Road | 430                         | 108                           | 947                             | 1582                 | 0.272 | 430                    | 353                              | 0.3                     | 0.4                   | 3.483        | А                                   |

### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1394                        | 348                           | 516                             | 2883                 | 0.483 | 1394                   | 862                              | 1.2                     | 1.2                   | 3.055        | А                                   |
| B - Habrough Road | 134                         | 34                            | 1563                            | 1048                 | 0.128 | 134                    | 347                              | 0.1                     | 0.1                   | 4.002        | А                                   |
| C - A160 W        | 1057                        | 264                           | 335                             | 3074                 | 0.344 | 1057                   | 1363                             | 0.7                     | 0.7                   | 2.450        | A                                   |
| D - Ulceby Road   | 122                         | 31                            | 1179                            | 1377                 | 0.089 | 122                    | 212                              | 0.1                     | 0.1                   | 3.982        | Α                                   |
| E - E Halton Road | 430                         | 108                           | 948                             | 1582                 | 0.272 | 430                    | 353                              | 0.4                     | 0.4                   | 3.487        | Α                                   |

### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1138                        | 285                           | 422                             | 3001                 | 0.379 | 1140                   | 705                              | 1.2                     | 0.8                   | 2.449        | Α                                   |
| B - Habrough Road | 110                         | 27                            | 1278                            | 1283                 | 0.086 | 110                    | 284                              | 0.1                     | 0.1                   | 3.117        | Α                                   |
| C - A160 W        | 863                         | 216                           | 274                             | 3149                 | 0.274 | 864                    | 1115                             | 0.7                     | 0.5                   | 2.163        | Α                                   |
| D - Ulceby Road   | 100                         | 25                            | 964                             | 1552                 | 0.064 | 100                    | 174                              | 0.1                     | 0.1                   | 3.442        | Α                                   |
| E - E Halton Road | 352                         | 88                            | 775                             | 1725                 | 0.204 | 352                    | 289                              | 0.4                     | 0.3                   | 2.925        | Α                                   |

# 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 953                         | 238                           | 353                             | 3087                 | 0.309 | 954                    | 590                              | 0.8                     | 0.6                   | 2.134        | Α                                   |
| B - Habrough Road | 92                          | 23                            | 1070                            | 1454                 | 0.063 | 92                     | 237                              | 0.1                     | 0.1                   | 2.685        | А                                   |
| C - A160 W        | 723                         | 181                           | 229                             | 3204                 | 0.226 | 723                    | 933                              | 0.5                     | 0.4                   | 1.994        | Α                                   |
| D - Ulceby Road   | 84                          | 21                            | 807                             | 1680                 | 0.050 | 84                     | 145                              | 0.1                     | 0.1                   | 3.131        | А                                   |
| E - E Halton Road | 294                         | 74                            | 649                             | 1829                 | 0.161 | 295                    | 242                              | 0.3                     | 0.2                   | 2.619        | А                                   |



# 2025 Base + Committed + Development, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |  |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|--|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.84               | Α            |  |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 3.84              | Α           |  |  |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |  |
|-------------------|---------------------------|------------------------------|------------------------------|--|--|
| A - A160 E        | 154                       | ✓                            | 32.18                        |  |  |
| B - Habrough Road | 329                       |                              | 0.00                         |  |  |
| C - A160 W        | 163                       | ✓                            | 37.87                        |  |  |
| D - Ulceby Road   | 791                       |                              | 0.00                         |  |  |
| E - E Halton Road | 687                       |                              | 0.00                         |  |  |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 875                 | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 330                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1585                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 180                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 252                 | 100.000            |



# Demand (PCU/hr)

|      |                   | То         |                   |            |                 |                   |  |  |  |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |  |  |  |
|      | A - A160 E        | 1 19       |                   | 782        | 39              | 34                |  |  |  |  |  |  |  |
|      | B - Habrough Road | 157        | 0                 | 53         | 3               | 117               |  |  |  |  |  |  |  |
| From | C - A160 W        | 1251       | 40                | 0          | 37              | 257               |  |  |  |  |  |  |  |
|      | D - Ulceby Road   | 82         | 8                 | 70         | 0               | 20                |  |  |  |  |  |  |  |
|      | E - E Halton Road | 48         | 44                | 151        | 9               | 0                 |  |  |  |  |  |  |  |

# **Vehicle Mix**

# HV %s

|      |                   | То         |                   |            |                 |                   |  |  |  |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |  |  |  |
|      | A - A160 E        | 100        | 59                | 46         | 62              | 55                |  |  |  |  |  |  |  |
|      | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |  |  |  |  |  |  |  |
| From | C - A160 W        | 18         | 3                 | 0          | 49              | 13                |  |  |  |  |  |  |  |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |  |  |  |  |  |  |  |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |  |  |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - A160 E 0.31   |         | 2.50 0.7      |             | A 803   |                        | 1204                             |  |
| B - Habrough Road | 0.27    | 3.76          | 0.4         | Α       | 303                    | 454                              |  |
| C - A160 W        | 0.58    | 3.37          | 1.6         | А       | 1454                   | 2182                             |  |
| D - Ulceby Road   | 0.30    | 9.75          | 0.5         | А       | 165                    | 248                              |  |
| E - E Halton Road | 0.31    | 7.37          | 0.6         | А       | 231                    | 347                              |  |

# Main Results for each time segment

### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 659                         | 165                           | 241                             | 3227                 | 0.204 | 657                    | 1156                             | 0.0                     | 0.4                   | 2.062        | Α                                   |
| B - Habrough Road | 248                         | 62                            | 815                             | 1664                 | 0.149 | 248                    | 83                               | 0.0                     | 0.2                   | 2.618        | Α                                   |
| C - A160 W        | 1193                        | 298                           | 270                             | 3153                 | 0.378 | 1190                   | 793                              | 0.0                     | 0.7                   | 2.148        | Α                                   |
| D - Ulceby Road   | 136                         | 34                            | 1395                            | 1201                 | 0.113 | 135                    | 66                               | 0.0                     | 0.2                   | 4.327        | Α                                   |
| E - E Halton Road | 190                         | 47                            | 1208                            | 1367                 | 0.139 | 189                    | 321                              | 0.0                     | 0.2                   | 3.899        | Α                                   |



### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 787                         | 197                           | 289                             | 3167                 | 0.248 | 786                    | 1382                             | 0.4                     | 0.5                   | 2.226        | Α                                   |
| B - Habrough Road | 297                         | 74                            | 975                             | 1532                 | 0.194 | 296                    | 100                              | 0.2                     | 0.2                   | 3.002        | Α                                   |
| C - A160 W        | 1425                        | 356                           | 323                             | 3088                 | 0.461 | 1424                   | 949                              | 0.7                     | 1.0                   | 2.536        | Α                                   |
| D - Ulceby Road   | 162                         | 40                            | 1668                            | 978                  | 0.165 | 161                    | 79                               | 0.2                     | 0.3                   | 5.649        | Α                                   |
| E - E Halton Road | 227                         | 57                            | 1445                            | 1171                 | 0.194 | 226                    | 384                              | 0.2                     | 0.3                   | 4.862        | А                                   |

### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 963                         | 241                           | 353                             | 3087                 | 0.312 | 963                    | 1692                             | 0.5                     | 0.7                   | 2.496        | Α                                   |
| B - Habrough Road | 363                         | 91                            | 1194                            | 1352                 | 0.269 | 363                    | 122                              | 0.2                     | 0.4                   | 3.747        | А                                   |
| C - A160 W        | 1745                        | 436                           | 396                             | 2999                 | 0.582 | 1743                   | 1161                             | 1.0                     | 1.6                   | 3.354        | A                                   |
| D - Ulceby Road   | 198                         | 50                            | 2042                            | 674                  | 0.294 | 197                    | 97                               | 0.3                     | 0.5                   | 9.659        | А                                   |
| E - E Halton Road | 277                         | 69                            | 1768                            | 904                  | 0.307 | 276                    | 471                              | 0.3                     | 0.6                   | 7.316        | А                                   |

### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 963                         | 241                           | 355                             | 3085                 | 0.312 | 963                    | 1694                             | 0.7                     | 0.7                   | 2.498        | Α                                   |
| B - Habrough Road | 363                         | 91                            | 1196                            | 1351                 | 0.269 | 363                    | 122                              | 0.4                     | 0.4                   | 3.756        | А                                   |
| C - A160 W        | 1745                        | 436                           | 396                             | 2998                 | 0.582 | 1745                   | 1163                             | 1.6                     | 1.6                   | 3.369        | А                                   |
| D - Ulceby Road   | 198                         | 50                            | 2045                            | 672                  | 0.295 | 198                    | 97                               | 0.5                     | 0.5                   | 9.750        | А                                   |
| E - E Halton Road | 277                         | 69                            | 1771                            | 901                  | 0.308 | 277                    | 471                              | 0.6                     | 0.6                   | 7.369        | Α                                   |

### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 787                         | 197                           | 291                             | 3165                 | 0.249 | 787                    | 1386                             | 0.7                     | 0.5                   | 2.230        | Α                                   |
| B - Habrough Road | 297                         | 74                            | 978                             | 1530                 | 0.194 | 297                    | 100                              | 0.4                     | 0.2                   | 3.009        | Α                                   |
| C - A160 W        | 1425                        | 356                           | 324                             | 3087                 | 0.462 | 1427                   | 951                              | 1.6                     | 1.0                   | 2.549        | А                                   |
| D - Ulceby Road   | 162                         | 40                            | 1672                            | 975                  | 0.166 | 163                    | 79                               | 0.5                     | 0.3                   | 5.694        | Α                                   |
| E - E Halton Road | 227                         | 57                            | 1450                            | 1167                 | 0.194 | 228                    | 385                              | 0.6                     | 0.3                   | 4.898        | А                                   |

# 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 659                         | 165                           | 243                             | 3225                 | 0.204 | 659                    | 1160                             | 0.5                     | 0.4                   | 2.066        | А                                   |
| B - Habrough Road | 248                         | 62                            | 818                             | 1662                 | 0.150 | 249                    | 84                               | 0.2                     | 0.2                   | 2.625        | Α                                   |
| C - A160 W        | 1193                        | 298                           | 271                             | 3152                 | 0.379 | 1194                   | 796                              | 1.0                     | 0.7                   | 2.159        | Α                                   |
| D - Ulceby Road   | 136                         | 34                            | 1399                            | 1197                 | 0.113 | 136                    | 66                               | 0.3                     | 0.2                   | 4.351        | Α                                   |
| E - E Halton Road | 190                         | 47                            | 1213                            | 1363                 | 0.139 | 190                    | 323                              | 0.3                     | 0.2                   | 3.920        | Α                                   |



# 2025 Base + Committed + Development, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.05               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.05              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# Traffic Demand

### **Demand Set Details**

| ID | Scenario name                       | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM                  | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 1291                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 122                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 999                 | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 111                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 391                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 10         | 126               | 972        | 69              | 114               |
|      | B - Habrough Road | 18         | 0                 | 41         | 19              | 44                |
| From | C - A160 W        | 722        | 62                | 0          | 75              | 140               |
|      | D - Ulceby Road   | 32         | 15                | 41         | 0               | 23                |
|      | E - E Halton Road | 40         | 114               | 207        | 30              | 0                 |

# Vehicle Mix

# HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 26         | 42              | 59                |
|      | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 42         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 7                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160 E        | 0.49    | 3.11          | 1.2         | А       | 1185                   | 1777                             |
| B - Habrough Road | 0.13    | 4.10          | 0.2         | А       | 112                    | 168                              |
| C - A160 W        | 0.36    | 2.51          | 0.8         | А       | 917                    | 1375                             |
| D - Ulceby Road   | 0.09    | 4.09          | 0.1         | A       | 102                    | 153                              |
| E - E Halton Road | 0.28    | 3.60          | 0.4         | А       | 359                    | 538                              |

# Main Results for each time segment

### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 972                         | 243                           | 352                             | 3088                 | 0.315 | 970                    | 617                              | 0.0                     | 0.6                   | 2.145        | Α                                   |
| B - Habrough Road | 92                          | 23                            | 1084                            | 1443                 | 0.064 | 92                     | 238                              | 0.0                     | 0.1                   | 2.705        | Α                                   |
| C - A160 W        | 752                         | 188                           | 228                             | 3205                 | 0.235 | 750                    | 947                              | 0.0                     | 0.4                   | 2.016        | Α                                   |
| D - Ulceby Road   | 84                          | 21                            | 834                             | 1658                 | 0.050 | 83                     | 145                              | 0.0                     | 0.1                   | 3.167        | Α                                   |
| E - E Halton Road | 294                         | 74                            | 676                             | 1806                 | 0.163 | 293                    | 241                              | 0.0                     | 0.2                   | 2.653        | Α                                   |



### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1161                        | 290                           | 421                             | 3002                 | 0.387 | 1160                   | 739                              | 0.6                     | 0.8                   | 2.468        | Α                                   |
| B - Habrough Road | 110                         | 27                            | 1296                            | 1268                 | 0.087 | 110                    | 285                              | 0.1                     | 0.1                   | 3.156        | Α                                   |
| C - A160 W        | 898                         | 225                           | 273                             | 3150                 | 0.285 | 898                    | 1133                             | 0.4                     | 0.5                   | 2.197        | Α                                   |
| D - Ulceby Road   | 100                         | 25                            | 997                             | 1525                 | 0.065 | 100                    | 173                              | 0.1                     | 0.1                   | 3.499        | Α                                   |
| E - E Halton Road | 352                         | 88                            | 809                             | 1697                 | 0.207 | 351                    | 288                              | 0.2                     | 0.3                   | 2.984        | Α                                   |

### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1421                        | 355                           | 516                             | 2884                 | 0.493 | 1420                   | 904                              | 0.8                     | 1.2                   | 3.103        | Α                                   |
| B - Habrough Road | 134                         | 34                            | 1587                            | 1029                 | 0.131 | 134                    | 349                              | 0.1                     | 0.2                   | 4.087        | А                                   |
| C - A160 W        | 1100                        | 275                           | 334                             | 3075                 | 0.358 | 1099                   | 1387                             | 0.5                     | 0.8                   | 2.504        | A                                   |
| D - Ulceby Road   | 122                         | 31                            | 1221                            | 1343                 | 0.091 | 122                    | 212                              | 0.1                     | 0.1                   | 4.087        | А                                   |
| E - E Halton Road | 430                         | 108                           | 990                             | 1547                 | 0.278 | 430                    | 353                              | 0.3                     | 0.4                   | 3.593        | А                                   |

### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1421                        | 355                           | 516                             | 2883                 | 0.493 | 1421                   | 905                              | 1.2                     | 1.2                   | 3.112        | Α                                   |
| B - Habrough Road | 134                         | 34                            | 1589                            | 1027                 | 0.131 | 134                    | 349                              | 0.2                     | 0.2                   | 4.095        | А                                   |
| C - A160 W        | 1100                        | 275                           | 335                             | 3074                 | 0.358 | 1100                   | 1388                             | 0.8                     | 0.8                   | 2.507        | А                                   |
| D - Ulceby Road   | 122                         | 31                            | 1222                            | 1342                 | 0.091 | 122                    | 212                              | 0.1                     | 0.1                   | 4.089        | Α                                   |
| E - E Halton Road | 430                         | 108                           | 991                             | 1546                 | 0.278 | 430                    | 353                              | 0.4                     | 0.4                   | 3.598        | Α                                   |

### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1161                        | 290                           | 422                             | 3001                 | 0.387 | 1162                   | 740                              | 1.2                     | 0.8                   | 2.476        | Α                                   |
| B - Habrough Road | 110                         | 27                            | 1299                            | 1266                 | 0.087 | 110                    | 285                              | 0.2                     | 0.1                   | 3.163        | Α                                   |
| C - A160 W        | 898                         | 225                           | 274                             | 3149                 | 0.285 | 899                    | 1135                             | 0.8                     | 0.6                   | 2.200        | Α                                   |
| D - Ulceby Road   | 100                         | 25                            | 999                             | 1523                 | 0.066 | 100                    | 174                              | 0.1                     | 0.1                   | 3.506        | Α                                   |
| E - E Halton Road | 352                         | 88                            | 810                             | 1696                 | 0.207 | 352                    | 289                              | 0.4                     | 0.3                   | 2.989        | А                                   |

# 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 972                         | 243                           | 353                             | 3087                 | 0.315 | 973                    | 619                              | 0.8                     | 0.6                   | 2.154        | Α                                   |
| B - Habrough Road | 92                          | 23                            | 1087                            | 1440                 | 0.064 | 92                     | 239                              | 0.1                     | 0.1                   | 2.712        | А                                   |
| C - A160 W        | 752                         | 188                           | 229                             | 3204                 | 0.235 | 753                    | 950                              | 0.6                     | 0.4                   | 2.019        | Α                                   |
| D - Ulceby Road   | 84                          | 21                            | 836                             | 1656                 | 0.050 | 84                     | 145                              | 0.1                     | 0.1                   | 3.171        | А                                   |
| E - E Halton Road | 294                         | 74                            | 678                             | 1805                 | 0.163 | 295                    | 242                              | 0.3                     | 0.2                   | 2.661        | А                                   |



# **2032 Base, AM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.54               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.54              | Α           |

# **Arms**

### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ſ | D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | <b>✓</b>     | 565                 | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 346                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1406                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 193                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 269                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 1          | 18                | 468        | 41              | 37                |
|      | B - Habrough Road | 161        | 0                 | 57         | 3               | 125               |
| From | C - A160 W        | 1051       | 42                | 0          | 39              | 274               |
|      | D - Ulceby Road   | 88         | 9                 | 75         | 0               | 21                |
|      | E - E Halton Road | 51         | 47                | 161        | 10              | 0                 |

# **Vehicle Mix**

### HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 69                | 82         | 62              | 55                |
| F    | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |
| From | C - A160 W        | 21         | 3                 | 0          | 49              | 13                |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC              | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------|----------------------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - A160 E        | 0.20                 | 2.63          | 0.5         | А       | 518                    | 778                              |  |
| B - Habrough Road | 0.24                 | 3.00          | 0.3         | А       | 317                    | 476                              |  |
| C - A160 W        | 0.52                 | 3.01          | 1.3         | А       | 1290                   | 1935                             |  |
| D - Ulceby Road   | 0.26                 | 7.59          | 0.4         | А       | 177                    | 266                              |  |
| E - E Halton Road | - E Halton Road 0.28 |               | 0.5         | Α       | 247                    | 370                              |  |

# Main Results for each time segment

### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 425                         | 106                           | 258                             | 3206                 | 0.133 | 424                    | 1015                             | 0.0                     | 0.3                   | 2.303        | А                                   |
| B - Habrough Road | 260                         | 65                            | 595                             | 1845                 | 0.141 | 260                    | 87                               | 0.0                     | 0.2                   | 2.339        | А                                   |
| C - A160 W        | 1059                        | 265                           | 284                             | 3137                 | 0.337 | 1056                   | 571                              | 0.0                     | 0.6                   | 2.063        | А                                   |
| D - Ulceby Road   | 145                         | 36                            | 1270                            | 1303                 | 0.112 | 145                    | 70                               | 0.0                     | 0.2                   | 3.984        | А                                   |
| E - E Halton Road | 203                         | 51                            | 1072                            | 1479                 | 0.137 | 202                    | 343                              | 0.0                     | 0.2                   | 3.594        | А                                   |



### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 508                         | 127                           | 309                             | 3143                 | 0.162 | 508                    | 1214                             | 0.3                     | 0.3                   | 2.431        | А                                   |
| B - Habrough Road | 311                         | 78                            | 712                             | 1749                 | 0.178 | 311                    | 104                              | 0.2                     | 0.2                   | 2.580        | А                                   |
| C - A160 W        | 1264                        | 316                           | 340                             | 3068                 | 0.412 | 1263                   | 684                              | 0.6                     | 0.8                   | 2.379        | А                                   |
| D - Ulceby Road   | 174                         | 43                            | 1519                            | 1100                 | 0.158 | 173                    | 84                               | 0.2                     | 0.2                   | 4.980        | А                                   |
| E - E Halton Road | 242                         | 60                            | 1282                            | 1306                 | 0.185 | 241                    | 411                              | 0.2                     | 0.3                   | 4.316        | А                                   |

### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 622                         | 156                           | 378                             | 3056                 | 0.204 | 622                    | 1487                             | 0.3                     | 0.5                   | 2.631        | Α                                   |
| B - Habrough Road | 381                         | 95                            | 872                             | 1618                 | 0.236 | 381                    | 127                              | 0.2                     | 0.3                   | 3.000        | А                                   |
| C - A160 W        | 1548                        | 387                           | 416                             | 2974                 | 0.521 | 1546                   | 837                              | 0.8                     | 1.3                   | 3.005        | А                                   |
| D - Ulceby Road   | 212                         | 53                            | 1860                            | 822                  | 0.258 | 212                    | 102                              | 0.2                     | 0.4                   | 7.550        | Α                                   |
| E - E Halton Road | 296                         | 74                            | 1569                            | 1068                 | 0.277 | 295                    | 503                              | 0.3                     | 0.5                   | 5.937        | А                                   |

### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 622                         | 156                           | 379                             | 3055                 | 0.204 | 622                    | 1489                             | 0.5                     | 0.5                   | 2.632        | А                                   |
| B - Habrough Road | 381                         | 95                            | 873                             | 1617                 | 0.236 | 381                    | 128                              | 0.3                     | 0.3                   | 3.002        | А                                   |
| C - A160 W        | 1548                        | 387                           | 416                             | 2974                 | 0.521 | 1548                   | 838                              | 1.3                     | 1.3                   | 3.013        | А                                   |
| D - Ulceby Road   | 212                         | 53                            | 1862                            | 821                  | 0.259 | 212                    | 102                              | 0.4                     | 0.4                   | 7.589        | Α                                   |
| E - E Halton Road | 296                         | 74                            | 1571                            | 1066                 | 0.278 | 296                    | 503                              | 0.5                     | 0.5                   | 5.963        | Α                                   |

### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 508                         | 127                           | 310                             | 3141                 | 0.162 | 508                    | 1217                             | 0.5                     | 0.3                   | 2.433        | Α                                   |
| B - Habrough Road | 311                         | 78                            | 714                             | 1747                 | 0.178 | 311                    | 105                              | 0.3                     | 0.2                   | 2.586        | Α                                   |
| C - A160 W        | 1264                        | 316                           | 340                             | 3067                 | 0.412 | 1266                   | 685                              | 1.3                     | 0.8                   | 2.387        | Α                                   |
| D - Ulceby Road   | 174                         | 43                            | 1522                            | 1097                 | 0.158 | 174                    | 84                               | 0.4                     | 0.2                   | 5.007        | Α                                   |
| E - E Halton Road | 242                         | 60                            | 1285                            | 1303                 | 0.186 | 243                    | 411                              | 0.5                     | 0.3                   | 4.337        | А                                   |

# 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 425                         | 106                           | 259                             | 3204                 | 0.133 | 426                    | 1019                             | 0.3                     | 0.3                   | 2.305        | А                                   |
| B - Habrough Road | 260                         | 65                            | 598                             | 1843                 | 0.141 | 261                    | 87                               | 0.2                     | 0.2                   | 2.346        | А                                   |
| C - A160 W        | 1059                        | 265                           | 285                             | 3135                 | 0.338 | 1059                   | 574                              | 8.0                     | 0.6                   | 2.070        | Α                                   |
| D - Ulceby Road   | 145                         | 36                            | 1274                            | 1299                 | 0.112 | 146                    | 70                               | 0.2                     | 0.2                   | 4.003        | А                                   |
| E - E Halton Road | 203                         | 51                            | 1075                            | 1476                 | 0.137 | 203                    | 344                              | 0.3                     | 0.2                   | 3.608        | А                                   |



# **2032 Base, PM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 2.90               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.90              | Α           |

# **Arms**

### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle r | nix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|-----------|----------------------|-------------------------------|--------------------|---------------------------|
|           | ✓                    | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 1195                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 129                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 690                 | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 117                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 415                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 11         | 127               | 863        | 73              | 121               |
|      | B - Habrough Road | 19         | 0                 | 43         | 20              | 47                |
| From | C - A160 W        | 395        | 66                | 0          | 80              | 149               |
|      | D - Ulceby Road   | 34         | 16                | 43         | 0               | 24                |
|      | E - E Halton Road | 42         | 121               | 220        | 32              | 0                 |

# **Vehicle Mix**

# HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 30         | 42              | 59                |
| F    | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 78         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 7                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160 E        | 0.46    | 3.05          | 1.1         | А       | 1097                   | 1645                             |
| B - Habrough Road | 0.13    | 3.82          | 0.2         | А       | 118                    | 178                              |
| C - A160 W        | 0.25    | 2.39          | 0.5         | A       | 633                    | 950                              |
| D - Ulceby Road   | 0.08    | 3.36          | 0.1         | А       | 107                    | 161                              |
| E - E Halton Road | 0.25    | 2.92          | 0.4         | Α       | 381                    | 571                              |

# Main Results for each time segment

15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 900                         | 225                           | 374                             | 3061                 | 0.294 | 898                    | 376                              | 0.0                     | 0.5                   | 2.153        | Α                                   |
| B - Habrough Road | 97                          | 24                            | 1024                            | 1493                 | 0.065 | 97                     | 248                              | 0.0                     | 0.1                   | 2.619        | Α                                   |
| C - A160 W        | 519                         | 130                           | 243                             | 3188                 | 0.163 | 518                    | 878                              | 0.0                     | 0.3                   | 2.048        | А                                   |
| D - Ulceby Road   | 88                          | 22                            | 607                             | 1843                 | 0.048 | 88                     | 154                              | 0.0                     | 0.1                   | 2.840        | Α                                   |
| E - E Halton Road | 312                         | 78                            | 439                             | 2003                 | 0.156 | 312                    | 256                              | 0.0                     | 0.2                   | 2.373        | Α                                   |



### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1074                        | 269                           | 447                             | 2969                 | 0.362 | 1074                   | 450                              | 0.5                     | 0.7                   | 2.458        | Α                                   |
| B - Habrough Road | 116                         | 29                            | 1224                            | 1327                 | 0.087 | 116                    | 296                              | 0.1                     | 0.1                   | 3.018        | Α                                   |
| C - A160 W        | 620                         | 155                           | 290                             | 3129                 | 0.198 | 620                    | 1050                             | 0.3                     | 0.4                   | 2.180        | Α                                   |
| D - Ulceby Road   | 105                         | 26                            | 726                             | 1746                 | 0.060 | 105                    | 184                              | 0.1                     | 0.1                   | 3.038        | А                                   |
| E - E Halton Road | 373                         | 93                            | 525                             | 1931                 | 0.193 | 373                    | 306                              | 0.2                     | 0.3                   | 2.575        | А                                   |

### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1316                        | 329                           | 548                             | 2844                 | 0.463 | 1314                   | 551                              | 0.7                     | 1.1                   | 3.046        | Α                                   |
| B - Habrough Road | 142                         | 36                            | 1499                            | 1101                 | 0.129 | 142                    | 363                              | 0.1                     | 0.1                   | 3.812        | Α                                   |
| C - A160 W        | 760                         | 190                           | 355                             | 3049                 | 0.249 | 759                    | 1286                             | 0.4                     | 0.5                   | 2.389        | Α                                   |
| D - Ulceby Road   | 129                         | 32                            | 889                             | 1613                 | 0.080 | 129                    | 225                              | 0.1                     | 0.1                   | 3.358        | Α                                   |
| E - E Halton Road | 457                         | 114                           | 643                             | 1834                 | 0.249 | 457                    | 375                              | 0.3                     | 0.4                   | 2.914        | А                                   |

### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1316                        | 329                           | 548                             | 2843                 | 0.463 | 1316                   | 552                              | 1.1                     | 1.1                   | 3.052        | А                                   |
| B - Habrough Road | 142                         | 36                            | 1501                            | 1100                 | 0.129 | 142                    | 363                              | 0.1                     | 0.2                   | 3.818        | А                                   |
| C - A160 W        | 760                         | 190                           | 356                             | 3048                 | 0.249 | 760                    | 1287                             | 0.5                     | 0.5                   | 2.389        | А                                   |
| D - Ulceby Road   | 129                         | 32                            | 890                             | 1613                 | 0.080 | 129                    | 226                              | 0.1                     | 0.1                   | 3.359        | Α                                   |
| E - E Halton Road | 457                         | 114                           | 643                             | 1834                 | 0.249 | 457                    | 375                              | 0.4                     | 0.4                   | 2.915        | Α                                   |

### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1074                        | 269                           | 448                             | 2968                 | 0.362 | 1076                   | 451                              | 1.1                     | 0.7                   | 2.465        | Α                                   |
| B - Habrough Road | 116                         | 29                            | 1227                            | 1325                 | 0.088 | 116                    | 297                              | 0.2                     | 0.1                   | 3.024        | Α                                   |
| C - A160 W        | 620                         | 155                           | 291                             | 3128                 | 0.198 | 621                    | 1052                             | 0.5                     | 0.4                   | 2.183        | Α                                   |
| D - Ulceby Road   | 105                         | 26                            | 727                             | 1745                 | 0.060 | 105                    | 185                              | 0.1                     | 0.1                   | 3.040        | Α                                   |
| E - E Halton Road | 373                         | 93                            | 525                             | 1931                 | 0.193 | 373                    | 307                              | 0.4                     | 0.3                   | 2.580        | Α                                   |

# 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 900                         | 225                           | 375                             | 3060                 | 0.294 | 900                    | 377                              | 0.7                     | 0.5                   | 2.160        | Α                                   |
| B - Habrough Road | 97                          | 24                            | 1027                            | 1490                 | 0.065 | 97                     | 249                              | 0.1                     | 0.1                   | 2.627        | А                                   |
| C - A160 W        | 519                         | 130                           | 243                             | 3187                 | 0.163 | 520                    | 881                              | 0.4                     | 0.3                   | 2.052        | А                                   |
| D - Ulceby Road   | 88                          | 22                            | 609                             | 1841                 | 0.048 | 88                     | 154                              | 0.1                     | 0.1                   | 2.843        | А                                   |
| E - E Halton Road | 312                         | 78                            | 440                             | 2001                 | 0.156 | 313                    | 257                              | 0.3                     | 0.2                   | 2.379        | А                                   |



# 2032 Base + Committed, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 4.23               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 4.23              | Α           |  |  |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| ID  | Scenario name         | Time Period<br>name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|---------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM                  | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 892                 | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 352                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1643                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 193                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 269                 | 100.000            |



# Demand (PCU/hr)

|      |                   | То         |                   |            |                 |                   |  |  |  |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |  |  |  |
|      | A - A160 E        | 1          | 19                | 794        | 41              | 37                |  |  |  |  |  |  |  |
|      | B - Habrough Road | 167        | 0                 | 57         | 3               | 125               |  |  |  |  |  |  |  |
| From | C - A160 W        | 1288       | 42                | 0          | 39              | 274               |  |  |  |  |  |  |  |
|      | D - Ulceby Road   | 88         | 9                 | 75         | 0               | 21                |  |  |  |  |  |  |  |
|      | E - E Halton Road | 51         | 47                | 161        | 10              | 0                 |  |  |  |  |  |  |  |

# Vehicle Mix

# HV %s

|      |                   | То         |                   |            |                 |                   |  |  |  |  |  |  |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|--|--|--|--|--|--|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |  |  |  |  |  |  |
|      | A - A160 E        | 100        | 65                | 46         | 62              | 55                |  |  |  |  |  |  |
|      | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |  |  |  |  |  |  |
| From | C - A160 W        | 17         | 3                 | 0          | 49              | 13                |  |  |  |  |  |  |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |  |  |  |  |  |  |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |  |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm Max RFC       |      | Max Delay (s) | Max Delay (s) Max Q (PCU) |   | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------------|------|---------------|---------------------------|---|------------------------|----------------------------------|--|
| A - A160 E 0.32   |      | 2.56          | 0.7                       | А | 819                    | 1228                             |  |
| B - Habrough Road | 0.29 | 0.29 3.97     |                           | Α | 323                    | 485                              |  |
| C - A160 W 0.61   |      | 3.62          | 1.8                       | А | 1508                   | 2261                             |  |
| D - Ulceby Road   | 0.35 | 11.83         | 0.7                       | В | 177                    | 266                              |  |
| E - E Halton Road | 0.35 | 8.36          | 0.7                       | А | 247                    | 370                              |  |

# Main Results for each time segment

### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 672                         | 168                           | 258                             | 3206                 | 0.209 | 670                    | 1198                             | 0.0                     | 0.4                   | 2.091        | Α                                   |
| B - Habrough Road | 265                         | 66                            | 840                             | 1644                 | 0.161 | 264                    | 88                               | 0.0                     | 0.2                   | 2.688        | Α                                   |
| C - A160 W        | 1237                        | 309                           | 288                             | 3131                 | 0.395 | 1234                   | 816                              | 0.0                     | 0.8                   | 2.206        | А                                   |
| D - Ulceby Road   | 145                         | 36                            | 1452                            | 1154                 | 0.126 | 145                    | 70                               | 0.0                     | 0.2                   | 4.569        | А                                   |
| E - E Halton Road | 203                         | 51                            | 1254                            | 1329                 | 0.152 | 202                    | 343                              | 0.0                     | 0.2                   | 4.072        | А                                   |



### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 802                         | 200                           | 309                             | 3143                 | 0.255 | 801                    | 1432                             | 0.4                     | 0.5                   | 2.266        | Α                                   |
| B - Habrough Road | 316                         | 79                            | 1005                            | 1508                 | 0.210 | 316                    | 105                              | 0.2                     | 0.3                   | 3.113        | Α                                   |
| C - A160 W        | 1477                        | 369                           | 345                             | 3061                 | 0.482 | 1476                   | 976                              | 0.8                     | 1.1                   | 2.642        | Α                                   |
| D - Ulceby Road   | 174                         | 43                            | 1737                            | 922                  | 0.188 | 173                    | 84                               | 0.2                     | 0.3                   | 6.157        | Α                                   |
| E - E Halton Road | 242                         | 60                            | 1500                            | 1125                 | 0.215 | 241                    | 410                              | 0.2                     | 0.3                   | 5.194        | А                                   |

### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A160 E        | 982                         | 246                           | 377                             | 3057                 | 0.321 | 981                    | 1753                             | 0.5                     | 0.7                   | 2.557     | Α                                   |
| B - Habrough Road | 388                         | 97                            | 1230                            | 1323                 | 0.293 | 387                    | 128                              | 0.3                     | 0.4                   | 3.962     | Α                                   |
| C - A160 W        | 1809                        | 452                           | 422                             | 2966                 | 0.610 | 1806                   | 1195                             | 1.1                     | 1.8                   | 3.606     | Α                                   |
| D - Ulceby Road   | 212                         | 53                            | 2126                            | 605                  | 0.351 | 211                    | 102                              | 0.3                     | 0.7                   | 11.659    | В                                   |
| E - E Halton Road | 296                         | 74                            | 1835                            | 849                  | 0.349 | 295                    | 502                              | 0.3                     | 0.7                   | 8.276     | А                                   |

### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A160 E        | 982                         | 246                           | 379                             | 3055                 | 0.321 | 982                    | 1756                             | 0.7                     | 0.7                   | 2.559     | Α                                   |
| B - Habrough Road | 388                         | 97                            | 1232                            | 1321                 | 0.293 | 388                    | 129                              | 0.4                     | 0.4                   | 3.974     | Α                                   |
| C - A160 W        | 1809                        | 452                           | 423                             | 2966                 | 0.610 | 1809                   | 1197                             | 1.8                     | 1.8                   | 3.625     | Α                                   |
| D - Ulceby Road   | 212                         | 53                            | 2129                            | 603                  | 0.353 | 212                    | 102                              | 0.7                     | 0.7                   | 11.827    | В                                   |
| E - E Halton Road | 296                         | 74                            | 1839                            | 845                  | 0.350 | 296                    | 503                              | 0.7                     | 0.7                   | 8.364     | А                                   |

### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 802                         | 200                           | 311                             | 3140                 | 0.255 | 803                    | 1437                             | 0.7                     | 0.5                   | 2.273        | Α                                   |
| B - Habrough Road | 316                         | 79                            | 1008                            | 1505                 | 0.210 | 317                    | 106                              | 0.4                     | 0.3                   | 3.125        | Α                                   |
| C - A160 W        | 1477                        | 369                           | 346                             | 3060                 | 0.483 | 1480                   | 979                              | 1.8                     | 1.1                   | 2.660        | Α                                   |
| D - Ulceby Road   | 174                         | 43                            | 1742                            | 918                  | 0.189 | 175                    | 84                               | 0.7                     | 0.3                   | 6.225        | Α                                   |
| E - E Halton Road | 242                         | 60                            | 1505                            | 1121                 | 0.216 | 243                    | 412                              | 0.7                     | 0.4                   | 5.243        | Α                                   |

# 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 672                         | 168                           | 260                             | 3204                 | 0.210 | 672                    | 1202                             | 0.5                     | 0.4                   | 2.096        | Α                                   |
| B - Habrough Road | 265                         | 66                            | 843                             | 1641                 | 0.161 | 265                    | 88                               | 0.3                     | 0.2                   | 2.698        | А                                   |
| C - A160 W        | 1237                        | 309                           | 289                             | 3130                 | 0.395 | 1238                   | 819                              | 1.1                     | 0.8                   | 2.220        | А                                   |
| D - Ulceby Road   | 145                         | 36                            | 1458                            | 1150                 | 0.126 | 146                    | 70                               | 0.3                     | 0.2                   | 4.598        | А                                   |
| E - E Halton Road | 203                         | 51                            | 1259                            | 1325                 | 0.153 | 203                    | 344                              | 0.4                     | 0.2                   | 4.099        | А                                   |



# 2032 Base + Committed, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

### **Junctions**

|   | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ſ | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 3.19               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.19              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D12 | 2032 Base + Committed | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 1338                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 129                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1002                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 117                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 415                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 11         | 132               | 1001       | 73              | 121               |
|      | B - Habrough Road | 19         | 0                 | 43         | 20              | 47                |
| From | C - A160 W        | 707        | 66                | 0          | 80              | 149               |
|      | D - Ulceby Road   | 34         | 16                | 43         | 0               | 24                |
|      | E - E Halton Road | 42         | 121               | 220        | 32              | 0                 |

# **Vehicle Mix**

### HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 26         | 42              | 59                |
|      | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 42         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 7                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm               | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160 E        | 0.52    | 3.32          | 1.4         | А       | 1228                   | 1842                             |
| B - Habrough Road | 0.15    | 4.39          | 0.2         | Α       | 118                    | 178                              |
| C - A160 W        | 0.36    | 2.54          | 0.8         | А       | 919                    | 1379                             |
| D - Ulceby Road   | 0.10    | 4.14          | 0.1         | А       | 107                    | 161                              |
| E - E Halton Road | 0.29    | 3.67          | 0.5         | A       | 381                    | 571                              |

# Main Results for each time segment

### 15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1007                        | 252                           | 374                             | 3061                 | 0.329 | 1005                   | 611                              | 0.0                     | 0.6                   | 2.210        | Α                                   |
| B - Habrough Road | 97                          | 24                            | 1127                            | 1407                 | 0.069 | 97                     | 252                              | 0.0                     | 0.1                   | 2.790        | Α                                   |
| C - A160 W        | 754                         | 189                           | 243                             | 3188                 | 0.237 | 753                    | 981                              | 0.0                     | 0.4                   | 2.028        | Α                                   |
| D - Ulceby Road   | 88                          | 22                            | 841                             | 1652                 | 0.053 | 88                     | 154                              | 0.0                     | 0.1                   | 3.187        | Α                                   |
| E - E Halton Road | 312                         | 78                            | 673                             | 1809                 | 0.173 | 312                    | 256                              | 0.0                     | 0.2                   | 2.680        | Α                                   |



### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1203                        | 301                           | 447                             | 2969                 | 0.405 | 1202                   | 730                              | 0.6                     | 0.9                   | 2.574        | Α                                   |
| B - Habrough Road | 116                         | 29                            | 1348                            | 1225                 | 0.095 | 116                    | 301                              | 0.1                     | 0.1                   | 3.296        | Α                                   |
| C - A160 W        | 901                         | 225                           | 290                             | 3129                 | 0.288 | 900                    | 1174                             | 0.4                     | 0.6                   | 2.216        | Α                                   |
| D - Ulceby Road   | 105                         | 26                            | 1006                            | 1518                 | 0.069 | 105                    | 184                              | 0.1                     | 0.1                   | 3.529        | Α                                   |
| E - E Halton Road | 373                         | 93                            | 805                             | 1700                 | 0.220 | 373                    | 306                              | 0.2                     | 0.3                   | 3.025        | А                                   |

### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1473                        | 368                           | 548                             | 2844                 | 0.518 | 1471                   | 894                              | 0.9                     | 1.3                   | 3.312        | Α                                   |
| B - Habrough Road | 142                         | 36                            | 1650                            | 976                  | 0.146 | 142                    | 368                              | 0.1                     | 0.2                   | 4.381        | А                                   |
| C - A160 W        | 1103                        | 276                           | 355                             | 3049                 | 0.362 | 1102                   | 1437                             | 0.6                     | 0.8                   | 2.536        | А                                   |
| D - Ulceby Road   | 129                         | 32                            | 1232                            | 1334                 | 0.097 | 129                    | 225                              | 0.1                     | 0.1                   | 4.137        | Α                                   |
| E - E Halton Road | 457                         | 114                           | 986                             | 1550                 | 0.295 | 456                    | 375                              | 0.3                     | 0.5                   | 3.667        | Α                                   |

### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1473                        | 368                           | 548                             | 2843                 | 0.518 | 1473                   | 895                              | 1.3                     | 1.4                   | 3.321        | А                                   |
| B - Habrough Road | 142                         | 36                            | 1653                            | 974                  | 0.146 | 142                    | 369                              | 0.2                     | 0.2                   | 4.392        | A                                   |
| C - A160 W        | 1103                        | 276                           | 356                             | 3048                 | 0.362 | 1103                   | 1439                             | 0.8                     | 0.8                   | 2.539        | A                                   |
| D - Ulceby Road   | 129                         | 32                            | 1233                            | 1333                 | 0.097 | 129                    | 226                              | 0.1                     | 0.1                   | 4.141        | Α                                   |
| E - E Halton Road | 457                         | 114                           | 987                             | 1550                 | 0.295 | 457                    | 375                              | 0.5                     | 0.5                   | 3.672        | Α                                   |

### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1203                        | 301                           | 448                             | 2968                 | 0.405 | 1205                   | 732                              | 1.4                     | 0.9                   | 2.585        | А                                   |
| B - Habrough Road | 116                         | 29                            | 1352                            | 1222                 | 0.095 | 116                    | 302                              | 0.2                     | 0.1                   | 3.308        | А                                   |
| C - A160 W        | 901                         | 225                           | 291                             | 3128                 | 0.288 | 902                    | 1177                             | 0.8                     | 0.6                   | 2.219        | Α                                   |
| D - Ulceby Road   | 105                         | 26                            | 1008                            | 1516                 | 0.069 | 105                    | 185                              | 0.1                     | 0.1                   | 3.536        | Α                                   |
| E - E Halton Road | 373                         | 93                            | 806                             | 1699                 | 0.220 | 374                    | 307                              | 0.5                     | 0.3                   | 3.033        | А                                   |

# 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1007                        | 252                           | 375                             | 3059                 | 0.329 | 1008                   | 613                              | 0.9                     | 0.6                   | 2.219        | Α                                   |
| B - Habrough Road | 97                          | 24                            | 1131                            | 1404                 | 0.069 | 97                     | 252                              | 0.1                     | 0.1                   | 2.800        | Α                                   |
| C - A160 W        | 754                         | 189                           | 243                             | 3186                 | 0.237 | 755                    | 985                              | 0.6                     | 0.4                   | 2.031        | Α                                   |
| D - Ulceby Road   | 88                          | 22                            | 844                             | 1650                 | 0.053 | 88                     | 154                              | 0.1                     | 0.1                   | 3.192        | Α                                   |
| E - E Halton Road | 312                         | 78                            | 675                             | 1807                 | 0.173 | 313                    | 257                              | 0.3                     | 0.2                   | 2.686        | А                                   |



# 2032 Base + Committed + Development, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| ı | Junction | Name     | Junction type    | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|---------------|--------------------|--------------|
| ı | 1        | untitled | Large Roundabout |                       | A, B, C, D, E | 4.37               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 4.37              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| I | ID | Scenario name                       | Time Period<br>name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|---|----|-------------------------------------|---------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D | 13 | 2032 Base + Committed + Development | AM                  | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 910                 | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 352                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1671                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 193                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 269                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 1          | 21                | 810        | 41              | 37                |
|      | B - Habrough Road | 167        | 0                 | 57         | 3               | 125               |
| From | C - A160 W        | 1316       | 42                | 0          | 39              | 274               |
|      | D - Ulceby Road   | 88         | 9                 | 75         | 0               | 21                |
|      | E - E Halton Road | 51         | 47                | 161        | 10              | 0                 |

# **Vehicle Mix**

### HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 59                | 46         | 62              | 55                |
|      | B - Habrough Road | 1          | 0                 | 6          | 33              | 4                 |
| From | C - A160 W        | 18         | 3                 | 0          | 49              | 13                |
|      | D - Ulceby Road   | 35         | 13                | 22         | 0               | 32                |
|      | E - E Halton Road | 39         | 7                 | 32         | 22              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm                    | Max RFC                | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|------------------------|------------------------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - A160 E             | A - A160 E 0.33        |               | 0.7         | А       | 835                    | 1253                             |  |
| B - Habrough Road      | 3 - Habrough Road 0.30 |               | 0.4         | Α       | 323                    | 485                              |  |
| C - A160 W             | 0.62                   | 3.75          | 1.9         | А       | 1533                   | 2300                             |  |
| D - Ulceby Road        | O - Ulceby Road 0.37   |               | 0.7         | В       | 177                    | 266                              |  |
| E - E Halton Road 0.36 |                        | 8.77          | 0.7         | A       | 247                    | 370                              |  |

# Main Results for each time segment

### 06:45 - 07:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 685                         | 171                           | 258                             | 3206                 | 0.214 | 683                    | 1219                             | 0.0                     | 0.4                   | 2.101        | Α                                   |
| B - Habrough Road | 265                         | 66                            | 852                             | 1634                 | 0.162 | 264                    | 89                               | 0.0                     | 0.2                   | 2.707        | Α                                   |
| C - A160 W        | 1258                        | 315                           | 288                             | 3131                 | 0.402 | 1255                   | 828                              | 0.0                     | 0.8                   | 2.246        | Α                                   |
| D - Ulceby Road   | 145                         | 36                            | 1473                            | 1137                 | 0.128 | 145                    | 70                               | 0.0                     | 0.2                   | 4.648        | Α                                   |
| E - E Halton Road | 203                         | 51                            | 1275                            | 1311                 | 0.154 | 202                    | 343                              | 0.0                     | 0.2                   | 4.136        | А                                   |



### 07:00 - 07:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 818                         | 205                           | 309                             | 3143                 | 0.260 | 818                    | 1458                             | 0.4                     | 0.5                   | 2.281        | Α                                   |
| B - Habrough Road | 316                         | 79                            | 1019                            | 1496                 | 0.212 | 316                    | 107                              | 0.2                     | 0.3                   | 3.144        | Α                                   |
| C - A160 W        | 1502                        | 376                           | 345                             | 3061                 | 0.491 | 1501                   | 991                              | 0.8                     | 1.1                   | 2.703        | Α                                   |
| D - Ulceby Road   | 174                         | 43                            | 1762                            | 902                  | 0.192 | 173                    | 84                               | 0.2                     | 0.3                   | 6.330        | Α                                   |
| E - E Halton Road | 242                         | 60                            | 1525                            | 1105                 | 0.219 | 241                    | 410                              | 0.2                     | 0.4                   | 5.319        | Α                                   |

### 07:15 - 07:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A160 E        | 1002                        | 250                           | 377                             | 3058                 | 0.328 | 1001                   | 1783                             | 0.5                     | 0.7                   | 2.579     | Α                                   |
| B - Habrough Road | 388                         | 97                            | 1247                            | 1308                 | 0.296 | 387                    | 131                              | 0.3                     | 0.4                   | 4.024     | Α                                   |
| C - A160 W        | 1840                        | 460                           | 422                             | 2966                 | 0.620 | 1837                   | 1212                             | 1.1                     | 1.9                   | 3.726     | Α                                   |
| D - Ulceby Road   | 212                         | 53                            | 2157                            | 580                  | 0.366 | 211                    | 102                              | 0.3                     | 0.7                   | 12.432    | В                                   |
| E - E Halton Road | 296                         | 74                            | 1865                            | 823                  | 0.360 | 295                    | 502                              | 0.4                     | 0.7                   | 8.667     | А                                   |

### 07:30 - 07:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A160 E        | 1002                        | 250                           | 379                             | 3055                 | 0.328 | 1002                   | 1787                             | 0.7                     | 0.7                   | 2.582     | Α                                   |
| B - Habrough Road | 388                         | 97                            | 1250                            | 1306                 | 0.297 | 388                    | 131                              | 0.4                     | 0.4                   | 4.037     | Α                                   |
| C - A160 W        | 1840                        | 460                           | 423                             | 2966                 | 0.620 | 1840                   | 1214                             | 1.9                     | 1.9                   | 3.749     | Α                                   |
| D - Ulceby Road   | 212                         | 53                            | 2160                            | 578                  | 0.368 | 212                    | 102                              | 0.7                     | 0.7                   | 12.638    | В                                   |
| E - E Halton Road | 296                         | 74                            | 1869                            | 820                  | 0.361 | 296                    | 503                              | 0.7                     | 0.7                   | 8.770     | Α                                   |

### 07:45 - 08:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 818                         | 205                           | 311                             | 3140                 | 0.261 | 819                    | 1463                             | 0.7                     | 0.5                   | 2.285        | Α                                   |
| B - Habrough Road | 316                         | 79                            | 1023                            | 1493                 | 0.212 | 317                    | 107                              | 0.4                     | 0.3                   | 3.154        | Α                                   |
| C - A160 W        | 1502                        | 376                           | 346                             | 3060                 | 0.491 | 1505                   | 994                              | 1.9                     | 1.1                   | 2.720        | Α                                   |
| D - Ulceby Road   | 174                         | 43                            | 1767                            | 898                  | 0.193 | 175                    | 84                               | 0.7                     | 0.3                   | 6.406        | Α                                   |
| E - E Halton Road | 242                         | 60                            | 1531                            | 1100                 | 0.220 | 243                    | 412                              | 0.7                     | 0.4                   | 5.373        | А                                   |

# 08:00 - 08:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 685                         | 171                           | 260                             | 3204                 | 0.214 | 686                    | 1223                             | 0.5                     | 0.4                   | 2.107        | Α                                   |
| B - Habrough Road | 265                         | 66                            | 855                             | 1631                 | 0.162 | 265                    | 90                               | 0.3                     | 0.2                   | 2.718        | А                                   |
| C - A160 W        | 1258                        | 315                           | 289                             | 3130                 | 0.402 | 1259                   | 831                              | 1.1                     | 0.8                   | 2.260        | А                                   |
| D - Ulceby Road   | 145                         | 36                            | 1479                            | 1133                 | 0.128 | 146                    | 70                               | 0.3                     | 0.2                   | 4.680        | А                                   |
| E - E Halton Road | 203                         | 51                            | 1280                            | 1307                 | 0.155 | 203                    | 344                              | 0.4                     | 0.2                   | 4.164        | А                                   |



# 2032 Base + Committed + Development, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | ction Name Junction type |                  | Use circulating lanes | Arm order     | Junction Delay (s) | Junction LOS |
|----------|--------------------------|------------------|-----------------------|---------------|--------------------|--------------|
| 1        | untitled                 | Large Roundabout |                       | A, B, C, D, E | 3.25               | Α            |

### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.25              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm               | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------------|---------------------------|------------------------------|------------------------------|
| A - A160 E        | 154                       | ✓                            | 32.18                        |
| B - Habrough Road | 329                       |                              | 0.00                         |
| C - A160 W        | 163                       | ✓                            | 37.87                        |
| D - Ulceby Road   | 791                       |                              | 0.00                         |
| E - E Halton Road | 687                       |                              | 0.00                         |

### Slope / Intercept / Capacity

[same as above]

# Traffic Demand

### **Demand Set Details**

| ID  | Scenario name                       | Scenario name Time Period raffic profile name type |          | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|--|----------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Base + Committed + Development | PM   | ONE HOUR | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm               | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160 E        |            | ONE HOUR     | ✓            | 1362                | 100.000            |
| B - Habrough Road |            | ONE HOUR     | ✓            | 129                 | 100.000            |
| C - A160 W        |            | ONE HOUR     | ✓            | 1041                | 100.000            |
| D - Ulceby Road   |            | ONE HOUR     | ✓            | 117                 | 100.000            |
| E - E Halton Road |            | ONE HOUR     | ✓            | 415                 | 100.000            |



# Demand (PCU/hr)

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 11         | 133               | 1024       | 73              | 121               |
|      | B - Habrough Road | 19         | 0                 | 43         | 20              | 47                |
| From | C - A160 W        | 746        | 66                | 0          | 80              | 149               |
|      | D - Ulceby Road   | 34         | 16                | 43         | 0               | 24                |
|      | E - E Halton Road | 42         | 121               | 220        | 32              | 0                 |

# Vehicle Mix

### HV %s

|      |                   |            | То                |            |                 |                   |
|------|-------------------|------------|-------------------|------------|-----------------|-------------------|
|      |                   | A - A160 E | B - Habrough Road | C - A160 W | D - Ulceby Road | E - E Halton Road |
|      | A - A160 E        | 100        | 1                 | 26         | 42              | 59                |
|      | B - Habrough Road | 6          | 0                 | 0          | 0               | 2                 |
| From | C - A160 W        | 42         | 5                 | 0          | 32              | 37                |
|      | D - Ulceby Road   | 52         | 7                 | 38         | 0               | 50                |
|      | E - E Halton Road | 42         | 1                 | 13         | 14              | 0                 |

# Results

# Results Summary for whole modelled period

| Arm                    | Max RFC     | Max Delay (s) Max Q (PCU) |          | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------------------|-------------|---------------------------|----------|---------|------------------------|----------------------------------|
| A - A160 E             | A160 E 0.53 |                           | 3.39 1.4 |         | 1250                   | 1875                             |
| B - Habrough Road 0.15 |             | 4.51                      | 0.2      | А       | 118                    | 178                              |
| C - A160 W             | 0.38        | 2.60                      | 0.8      | А       | 955                    | 1433                             |
| D - Ulceby Road        | 0.10        | 4.26                      | 0.2      | A       | 107                    | 161                              |
| E - E Halton Road      | 0.30        | 3.80                      | 0.5      | А       | 381                    | 571                              |

# Main Results for each time segment

15:45 - 16:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1025                        | 256                           | 374                             | 3061                 | 0.335 | 1023                   | 640                              | 0.0                     | 0.6                   | 2.229        | Α                                   |
| B - Habrough Road | 97                          | 24                            | 1144                            | 1393                 | 0.070 | 97                     | 252                              | 0.0                     | 0.1                   | 2.821        | Α                                   |
| C - A160 W        | 784                         | 196                           | 243                             | 3188                 | 0.246 | 782                    | 999                              | 0.0                     | 0.4                   | 2.055        | Α                                   |
| D - Ulceby Road   | 88                          | 22                            | 871                             | 1628                 | 0.054 | 88                     | 154                              | 0.0                     | 0.1                   | 3.236        | Α                                   |
| E - E Halton Road | 312                         | 78                            | 702                             | 1785                 | 0.175 | 311                    | 256                              | 0.0                     | 0.2                   | 2.724        | Α                                   |



### 16:00 - 16:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1224                        | 306                           | 447                             | 2969                 | 0.412 | 1223                   | 765                              | 0.6                     | 0.9                   | 2.605        | Α                                   |
| B - Habrough Road | 116                         | 29                            | 1369                            | 1208                 | 0.096 | 116                    | 302                              | 0.1                     | 0.1                   | 3.347        | Α                                   |
| C - A160 W        | 936                         | 234                           | 290                             | 3129                 | 0.299 | 935                    | 1195                             | 0.4                     | 0.6                   | 2.255        | Α                                   |
| D - Ulceby Road   | 105                         | 26                            | 1041                            | 1489                 | 0.071 | 105                    | 184                              | 0.1                     | 0.1                   | 3.601        | Α                                   |
| E - E Halton Road | 373                         | 93                            | 840                             | 1671                 | 0.223 | 373                    | 306                              | 0.2                     | 0.3                   | 3.093        | Α                                   |

### 16:15 - 16:30

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1500                        | 375                           | 548                             | 2844                 | 0.527 | 1498                   | 937                              | 0.9                     | 1.4                   | 3.376        | Α                                   |
| B - Habrough Road | 142                         | 36                            | 1676                            | 955                  | 0.149 | 142                    | 369                              | 0.1                     | 0.2                   | 4.493        | А                                   |
| C - A160 W        | 1146                        | 287                           | 355                             | 3049                 | 0.376 | 1145                   | 1462                             | 0.6                     | 0.8                   | 2.597        | А                                   |
| D - Ulceby Road   | 129                         | 32                            | 1275                            | 1299                 | 0.099 | 129                    | 225                              | 0.1                     | 0.2                   | 4.261        | Α                                   |
| E - E Halton Road | 457                         | 114                           | 1029                            | 1515                 | 0.302 | 456                    | 375                              | 0.3                     | 0.5                   | 3.790        | Α                                   |

### 16:30 - 16:45

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1500                        | 375                           | 548                             | 2843                 | 0.527 | 1500                   | 938                              | 1.4                     | 1.4                   | 3.386        | А                                   |
| B - Habrough Road | 142                         | 36                            | 1678                            | 953                  | 0.149 | 142                    | 370                              | 0.2                     | 0.2                   | 4.505        | A                                   |
| C - A160 W        | 1146                        | 287                           | 356                             | 3048                 | 0.376 | 1146                   | 1464                             | 0.8                     | 0.8                   | 2.600        | А                                   |
| D - Ulceby Road   | 129                         | 32                            | 1276                            | 1298                 | 0.099 | 129                    | 226                              | 0.2                     | 0.2                   | 4.264        | А                                   |
| E - E Halton Road | 457                         | 114                           | 1029                            | 1514                 | 0.302 | 457                    | 375                              | 0.5                     | 0.5                   | 3.796        | Α                                   |

### 16:45 - 17:00

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1224                        | 306                           | 448                             | 2968                 | 0.413 | 1226                   | 767                              | 1.4                     | 0.9                   | 2.615        | Α                                   |
| B - Habrough Road | 116                         | 29                            | 1372                            | 1205                 | 0.096 | 116                    | 303                              | 0.2                     | 0.1                   | 3.357        | А                                   |
| C - A160 W        | 936                         | 234                           | 291                             | 3128                 | 0.299 | 937                    | 1198                             | 0.8                     | 0.6                   | 2.259        | А                                   |
| D - Ulceby Road   | 105                         | 26                            | 1043                            | 1487                 | 0.071 | 105                    | 185                              | 0.2                     | 0.1                   | 3.609        | Α                                   |
| E - E Halton Road | 373                         | 93                            | 841                             | 1670                 | 0.223 | 374                    | 307                              | 0.5                     | 0.3                   | 3.098        | А                                   |

# 17:00 - 17:15

| Arm               | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|-------------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160 E        | 1025                        | 256                           | 375                             | 3059                 | 0.335 | 1026                   | 642                              | 0.9                     | 0.6                   | 2.239        | Α                                   |
| B - Habrough Road | 97                          | 24                            | 1149                            | 1390                 | 0.070 | 97                     | 253                              | 0.1                     | 0.1                   | 2.831        | А                                   |
| C - A160 W        | 784                         | 196                           | 243                             | 3186                 | 0.246 | 784                    | 1002                             | 0.6                     | 0.4                   | 2.061        | Α                                   |
| D - Ulceby Road   | 88                          | 22                            | 873                             | 1626                 | 0.054 | 88                     | 154                              | 0.1                     | 0.1                   | 3.244        | Α                                   |
| E - E Halton Road | 312                         | 78                            | 704                             | 1783                 | 0.175 | 313                    | 257                              | 0.3                     | 0.2                   | 2.731        | А                                   |

# Annex TN2 H

A180/ A1173 Roundabout



# **Junctions 10**

### **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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Filename: A180-A1173 RevD.j10

Path: P:\23000's\23325\Junction Assessment Report generation date: 11/08/2022 12:11:23

»2021 Base, AM

»2021 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 Base + Committed, AM

»2025 Base + Committed, PM

»2025 Base + Committed + Development, AM

»2025 Base + Committed + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 Base + Committed, AM

»2032 Base + Committed, PM

»2032 Base + Committed + Development, AM

»2032 Base + Committed + Development, PM



# Summary of junction performance

|             |         | AM        |       |           | PM        |      |  |
|-------------|---------|-----------|-------|-----------|-----------|------|--|
|             | Q (PCU) | Delay (s) | RFC   | Q (PCU)   | Delay (s) | RFC  |  |
|             | 2021    |           |       | Base      |           |      |  |
| A - A1173 N | 0.1     | 1.84      | 0.07  | 0.6       | 2.15      | 0.38 |  |
| B - A180 E  | 0.4     | 1.75      | 0.26  | 0.2       | 1.93      | 0.16 |  |
| C - A1173 S | 0.3     | 2.55      | 0.22  | 0.1       | 1.92      | 0.09 |  |
| D - A180 W  | 0.3     | 2.83      | 0.17  | 0.1       | 2.04      | 0.06 |  |
| ·           |         |           | 2025  | Base      |           |      |  |
| A - A1173 N | 0.1     | 1.85      | 0.08  | 0.7       | 2.19      | 0.39 |  |
| B - A180 E  | 0.4     | 1.77      | 0.27  | 0.2       | 1.95      | 0.17 |  |
| C - A1173 S | 0.3     | 2.60      | 0.23  | 0.1       | 1.94      | 0.09 |  |
| D - A180 W  | 0.3     | 2.89      | 0.18  | 0.1       | 2.05      | 0.07 |  |
|             |         | 2025 B    | ase + | - Commi   | tted      |      |  |
| A - A1173 N | 0.3     | 2.09      | 0.19  | 1.3       | 3.07      | 0.54 |  |
| B - A180 E  | 0.7     | 2.39      | 0.38  | 0.4       | 2.51      | 0.26 |  |
| C - A1173 S | 0.6     | 3.98      | 0.37  | 0.2       | 2.35      | 0.14 |  |
| D - A180 W  | 0.7     | 4.22      | 0.35  | 0.2       | 2.24      | 0.11 |  |
|             | 2025 I  | Base + C  | ommi  | itted + D | evelopm   | ent  |  |
| A - A1173 N | 0.4     | 2.22      | 0.23  | 1.6       | 3.55      | 0.60 |  |
| B - A180 E  | 0.7     | 2.61      | 0.40  | 0.4       | 2.80      | 0.28 |  |
| C - A1173 S | 0.7     | 4.41      | 0.40  | 0.2       | 2.60      | 0.16 |  |
| D - A180 W  | 1.1     | 5.26      | 0.46  | 0.4       | 2.56      | 0.21 |  |
|             |         |           | 2032  | Base      |           |      |  |
| A - A1173 N | 0.1     | 1.86      | 0.08  | 0.7       | 2.26      | 0.40 |  |
| B - A180 E  | 0.4     | 1.80      | 0.28  | 0.2       | 1.99      | 0.18 |  |
| C - A1173 S | 0.3     | 2.69      | 0.24  | 0.1       | 1.97      | 0.09 |  |
| D - A180 W  | 0.3     | 3.00      | 0.19  | 0.1       | 2.07      | 0.07 |  |
|             |         | 2032 B    | ase + | - Commi   | tted      |      |  |
| A - A1173 N | 0.3     | 2.11      | 0.19  | 1.4       | 3.21      | 0.56 |  |
| B - A180 E  | 0.7     | 2.45      | 0.39  | 0.4       | 2.57      | 0.27 |  |
| C - A1173 S | 0.7     | 4.16      | 0.39  | 0.2       | 2.39      | 0.15 |  |
| D - A180 W  | 0.7     | 4.43      | 0.37  | 0.2       | 2.27      | 0.12 |  |
|             | 2032    | Base + C  | ommi  | itted + D | evelopm   | ent  |  |
| A - A1173 N | 0.4     | 2.24      | 0.23  | 1.7       | 3.72      | 0.61 |  |
| B - A180 E  | 0.8     | 2.68      | 0.41  | 0.4       | 2.87      | 0.29 |  |
| C - A1173 S | 0.7     | 4.64      | 0.42  | 0.2       | 2.64      | 0.16 |  |
| D - A180 W  | 1.1     | 5.58      | 0.48  | 0.4       | 2.60      | 0.21 |  |

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



# File summary

# **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |

# Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

# **Analysis Options**

| ehicle<br>ength<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of<br>iterations for<br>roundabouts |
|------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                   |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500  |

# **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

# **Analysis Set Details**

| I | ID         | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |  |
|---|------------|-------------------|---------------------------------|-------------------------------------|--|--|
| I | <b>A</b> 1 | ✓                 | 100.000                         | 100.000                             |  |  |



# 2021 Base, AM

# **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.16               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.16              | Α           |

# Arms

#### **Arms**

| Arm | Name    | Description | No give-way line |
|-----|---------|-------------|------------------|
| Α   | A1173 N |             |                  |
| В   | A180 E  |             |                  |
| С   | A1173 S |             |                  |
| D   | A180 W  |             |                  |

# **Roundabout Geometry**

| Arm         | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|-------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| A - A1173 N | 3.65  | 8.60  | 49.0   | 42.5  | 100.0 | 16.0      |            |           |
| B - A180 E  | 6.70  | 7.40  | 15.0   | 47.0  | 100.0 | 11.0      |            |           |
| C - A1173 S | 3.65  | 8.50  | 21.0   | 22.0  | 100.0 | 43.0      |            |           |
| D - A180 W  | 6.80  | 8.00  | 10.0   | 31.0  | 100.0 | 15.0      |            |           |

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 205                       | ✓                            | 47.00                        |
| B - A180 E  | 108                       | ✓                            | 105.00                       |
| C - A1173 S | 735                       | ✓                            | 34.00                        |
| D - A180 W  | 976                       | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

## Roundabout Slope and Intercept used in model

| Arm         | Final slope | Final intercept (PCU/hr) |
|-------------|-------------|--------------------------|
| A - A1173 N | 1.163       | 3128                     |
| B - A180 E  | 1.198       | 3042                     |
| C - A1173 S | 0.864       | 2496                     |
| D - A180 W  | 1.014       | 2885                     |

The slope and intercept shown above include any corrections and adjustments.



# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | <b>✓</b>     | 192                 | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 685                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 374                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 292                 | 100.000            |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 105        | 18          | 69         |  |
| From | B - A180 E  | 597         | 0          | 86          | 2          |  |
|      | C - A1173 S | 114         | 175        | 0           | 85         |  |
|      | D - A180 W  | 281         | 0          | 11          | 0          |  |

# **Vehicle Mix**

#### HV %s

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 20         | 44          | 72         |  |
| From | B - A180 E  | 5           | 0          | 5           | 0          |  |
|      | C - A1173 S | 4           | 1          | 0           | 4          |  |
|      | D - A180 W  | 24          | 0          | 18          | 0          |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| A - A1173 N | 0.07    | 1.84          | 0.1         | А       | 176                    | 264                              |  |
| B - A180 E  | 0.26    | 1.75          | 0.4         | А       | 629                    | 943                              |  |
| C - A1173 S | 0.22    | 2.55          | 0.3         | А       | 343                    | 515                              |  |
| D - A180 W  | 0.17    | 2.83          | 0.3         | А       | 268                    | 402                              |  |



# Main Results for each time segment

## 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 145                         | 36                            | 140                             | 2965                 | 0.049 | 144                    | 745                              | 0.0                     | 0.1                   | 1.748     | Α                                   |
| B - A180 E  | 516                         | 129                           | 74                              | 2954                 | 0.175 | 515                    | 210                              | 0.0                     | 0.2                   | 1.549     | Α                                   |
| C - A1173 S | 282                         | 70                            | 502                             | 2062                 | 0.137 | 281                    | 86                               | 0.0                     | 0.2                   | 2.073     | Α                                   |
| D - A180 W  | 220                         | 55                            | 666                             | 2210                 | 0.099 | 219                    | 117                              | 0.0                     | 0.1                   | 2.238     | Α                                   |

## 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 173                         | 43                            | 167                             | 2933                 | 0.059 | 173                    | 891                              | 0.1                     | 0.1                   | 1.785     | Α                                   |
| B - A180 E  | 616                         | 154                           | 88                              | 2936                 | 0.210 | 616                    | 252                              | 0.2                     | 0.3                   | 1.627     | Α                                   |
| C - A1173 S | 336                         | 84                            | 600                             | 1977                 | 0.170 | 336                    | 103                              | 0.2                     | 0.2                   | 2.249     | Α                                   |
| D - A180 W  | 263                         | 66                            | 796                             | 2078                 | 0.126 | 262                    | 140                              | 0.1                     | 0.2                   | 2.454     | А                                   |

## 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 211                         | 53                            | 205                             | 2890                 | 0.073 | 211                    | 1092                             | 0.1                     | 0.1                   | 1.840     | Α                                   |
| B - A180 E  | 754                         | 189                           | 108                             | 2913                 | 0.259 | 754                    | 308                              | 0.3                     | 0.4                   | 1.750     | Α                                   |
| C - A1173 S | 412                         | 103                           | 735                             | 1861                 | 0.221 | 411                    | 127                              | 0.2                     | 0.3                   | 2.547     | Α                                   |
| D - A180 W  | 321                         | 80                            | 975                             | 1896                 | 0.170 | 321                    | 172                              | 0.2                     | 0.3                   | 2.828     | Α                                   |

# 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 211                         | 53                            | 205                             | 2890                 | 0.073 | 211                    | 1092                             | 0.1                     | 0.1                   | 1.841     | Α                                   |
| B - A180 E  | 754                         | 189                           | 108                             | 2912                 | 0.259 | 754                    | 308                              | 0.4                     | 0.4                   | 1.750     | А                                   |
| C - A1173 S | 412                         | 103                           | 735                             | 1861                 | 0.221 | 412                    | 127                              | 0.3                     | 0.3                   | 2.548     | Α                                   |
| D - A180 W  | 321                         | 80                            | 976                             | 1896                 | 0.170 | 321                    | 172                              | 0.3                     | 0.3                   | 2.829     | А                                   |

# 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 173                         | 43                            | 167                             | 2933                 | 0.059 | 173                    | 892                              | 0.1                     | 0.1                   | 1.789     | Α                                   |
| B - A180 E  | 616                         | 154                           | 88                              | 2936                 | 0.210 | 616                    | 252                              | 0.4                     | 0.3                   | 1.631     | Α                                   |
| C - A1173 S | 336                         | 84                            | 601                             | 1977                 | 0.170 | 337                    | 103                              | 0.3                     | 0.2                   | 2.252     | Α                                   |
| D - A180 W  | 263                         | 66                            | 797                             | 2077                 | 0.126 | 263                    | 140                              | 0.3                     | 0.2                   | 2.456     | Α                                   |

# 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 145                         | 36                            | 140                             | 2965                 | 0.049 | 145                    | 747                              | 0.1                     | 0.1                   | 1.748     | А                                   |
| B - A180 E  | 516                         | 129                           | 74                              | 2953                 | 0.175 | 516                    | 211                              | 0.3                     | 0.2                   | 1.550     | Α                                   |
| C - A1173 S | 282                         | 70                            | 503                             | 2061                 | 0.137 | 282                    | 87                               | 0.2                     | 0.2                   | 2.076     | Α                                   |
| D - A180 W  | 220                         | 55                            | 667                             | 2208                 | 0.100 | 220                    | 118                              | 0.2                     | 0.1                   | 2.240     | А                                   |



# 2021 Base, PM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| ĺ | 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.07               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.07              | Α           |  |

# Arms

#### **Arms**

[same as above]

# **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |
|-------------|---------------------------|------------------------------|------------------------------|--|
| A - A1173 N | 206                       | ✓                            | 47.00                        |  |
| B - A180 E  | 510                       | ✓                            | 105.00                       |  |
| C - A1173 S | 447                       | ✓                            | 34.00                        |  |
| D - A180 W  | 326                       | ✓                            | 113.00                       |  |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | <b>✓</b>          |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | <b>✓</b>     | 985                 | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 355                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 170                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 156                 | 100.000            |



# Demand (PCU/hr)

|      |             | То          |            |             |            |  |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |  |
|      | A - A1173 N | 0           | 584        | 146         | 255        |  |  |  |  |  |
| From | B - A180 E  | 151         | 0          | 204         | 0          |  |  |  |  |  |
|      | C - A1173 S | 21          | 124        | 0           | 25         |  |  |  |  |  |
|      | D - A180 W  | 93          | 1          | 62          | 0          |  |  |  |  |  |

# **Vehicle Mix**

# HV %s

|      |             | То          |            |             |            |  |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |  |
|      | A - A1173 N | 0           | 2          | 6           | 25         |  |  |  |  |  |
| From | B - A180 E  | 12          | 0          | 3           | 0          |  |  |  |  |  |
|      | C - A1173 S | 33          | 1          | 0           | 8          |  |  |  |  |  |
|      | D - A180 W  | 78          | 0          | 8           | 0          |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm         | Arm Max RFC Max Delay (s   |      | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|----------------------------|------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | - <b>A1173 N</b> 0.38 2.15 |      | 0.6         | 0.6 A   |                        | 1356                             |
| B - A180 E  | 0.16                       | 1.93 | 0.2         | А       | 326                    | 489                              |
| C - A1173 S | 0.09                       | 1.92 | 0.1         | A       | 156                    | 234                              |
| D - A180 W  | 0.06                       | 2.04 | 0.1         | A       | 143                    | 215                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 742                         | 185                           | 141                             | 2964                 | 0.250 | 740                    | 199                              | 0.0                     | 0.4                   | 1.744     | Α                                   |
| B - A180 E  | 267                         | 67                            | 348                             | 2562                 | 0.104 | 267                    | 533                              | 0.0                     | 0.1                   | 1.671     | Α                                   |
| C - A1173 S | 128                         | 32                            | 305                             | 2284                 | 0.056 | 128                    | 310                              | 0.0                     | 0.1                   | 1.754     | Α                                   |
| D - A180 W  | 117                         | 29                            | 222                             | 2778                 | 0.042 | 117                    | 210                              | 0.0                     | 0.1                   | 1.906     | Α                                   |

## 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 885                         | 221                           | 168                             | 2932                 | 0.302 | 885                    | 238                              | 0.4                     | 0.5                   | 1.894     | Α                                   |
| B - A180 E  | 319                         | 80                            | 416                             | 2487                 | 0.128 | 319                    | 637                              | 0.1                     | 0.2                   | 1.770     | Α                                   |
| C - A1173 S | 153                         | 38                            | 365                             | 2229                 | 0.069 | 153                    | 370                              | 0.1                     | 0.1                   | 1.821     | Α                                   |
| D - A180 W  | 140                         | 35                            | 266                             | 2728                 | 0.051 | 140                    | 252                              | 0.1                     | 0.1                   | 1.961     | Α                                   |



# 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1085                        | 271                           | 206                             | 2888                 | 0.376 | 1084                   | 292                              | 0.5                     | 0.6                   | 2.148     | Α                                   |
| B - A180 E  | 391                         | 98                            | 509                             | 2383                 | 0.164 | 391                    | 780                              | 0.2                     | 0.2                   | 1.926     | Α                                   |
| C - A1173 S | 187                         | 47                            | 447                             | 2154                 | 0.087 | 187                    | 453                              | 0.1                     | 0.1                   | 1.923     | Α                                   |
| D - A180 W  | 172                         | 43                            | 326                             | 2659                 | 0.065 | 172                    | 308                              | 0.1                     | 0.1                   | 2.040     | А                                   |

## 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1085                        | 271                           | 206                             | 2888                 | 0.376 | 1085                   | 292                              | 0.6                     | 0.6                   | 2.150     | Α                                   |
| B - A180 E  | 391                         | 98                            | 510                             | 2383                 | 0.164 | 391                    | 781                              | 0.2                     | 0.2                   | 1.927     | Α                                   |
| C - A1173 S | 187                         | 47                            | 447                             | 2154                 | 0.087 | 187                    | 454                              | 0.1                     | 0.1                   | 1.924     | Α                                   |
| D - A180 W  | 172                         | 43                            | 326                             | 2659                 | 0.065 | 172                    | 308                              | 0.1                     | 0.1                   | 2.040     | А                                   |

# 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 885                         | 221                           | 168                             | 2932                 | 0.302 | 886                    | 238                              | 0.6                     | 0.5                   | 1.898     | Α                                   |
| B - A180 E  | 319                         | 80                            | 417                             | 2486                 | 0.128 | 319                    | 638                              | 0.2                     | 0.2                   | 1.773     | А                                   |
| C - A1173 S | 153                         | 38                            | 365                             | 2229                 | 0.069 | 153                    | 371                              | 0.1                     | 0.1                   | 1.822     | А                                   |
| D - A180 W  | 140                         | 35                            | 266                             | 2728                 | 0.051 | 140                    | 252                              | 0.1                     | 0.1                   | 1.961     | Α                                   |

## 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 742                         | 185                           | 141                             | 2964                 | 0.250 | 742                    | 200                              | 0.5                     | 0.4                   | 1.747     | Α                                   |
| B - A180 E  | 267                         | 67                            | 349                             | 2561                 | 0.104 | 267                    | 534                              | 0.2                     | 0.1                   | 1.675     | Α                                   |
| C - A1173 S | 128                         | 32                            | 306                             | 2283                 | 0.056 | 128                    | 310                              | 0.1                     | 0.1                   | 1.755     | А                                   |
| D - A180 W  | 117                         | 29                            | 223                             | 2778                 | 0.042 | 118                    | 211                              | 0.1                     | 0.1                   | 1.909     | Α                                   |



# **2025** Base, AM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.19               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.19              | Α           |

# **Arms**

#### **Arms**

[same as above]

# **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 210                       | ✓                            | 47.00                        |
| B - A180 E  | 110                       | ✓                            | 105.00                       |
| C - A1173 S | 755                       | ✓                            | 34.00                        |
| D - A180 W  | 1002                      | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | <b>✓</b>     | 197                 | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 703                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 384                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 300                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 108        | 18          | 71         |
| From | B - A180 E  | 613         | 0          | 88          | 2          |
|      | C - A1173 S | 117         | 180        | 0           | 87         |
|      | D - A180 W  | 289         | 0          | 11          | 0          |

# **Vehicle Mix**

# HV %s

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 20         | 44          | 72         |  |
| From | B - A180 E  | 5           | 0          | 5           | 0          |  |
|      | C - A1173 S | 4           | 1          | 0           | 4          |  |
|      | D - A180 W  | 24          | 0          | 18          | 0          |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.08    | 1.85          | 0.1         | А       | 181                    | 271                              |
| B - A180 E  | 0.27    | 1.77          | 0.4         | А       | 645                    | 968                              |
| C - A1173 S | 0.23    | 2.60          | 0.3         | А       | 352                    | 529                              |
| D - A180 W  | 0.18    | 2.89          | 0.3         | Α       | 275                    | 413                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 148                         | 37                            | 143                             | 2960                 | 0.050 | 148                    | 766                              | 0.0                     | 0.1                   | 1.753     | Α                                   |
| B - A180 E  | 529                         | 132                           | 75                              | 2951                 | 0.179 | 528                    | 216                              | 0.0                     | 0.2                   | 1.559     | Α                                   |
| C - A1173 S | 289                         | 72                            | 516                             | 2048                 | 0.141 | 288                    | 88                               | 0.0                     | 0.2                   | 2.099     | А                                   |
| D - A180 W  | 226                         | 56                            | 684                             | 2190                 | 0.103 | 225                    | 120                              | 0.0                     | 0.1                   | 2.268     | А                                   |

# 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 177                         | 44                            | 172                             | 2927                 | 0.061 | 177                    | 916                              | 0.1                     | 0.1                   | 1.792     | Α                                   |
| B - A180 E  | 632                         | 158                           | 90                              | 2934                 | 0.215 | 632                    | 259                              | 0.2                     | 0.3                   | 1.641     | Α                                   |
| C - A1173 S | 345                         | 86                            | 616                             | 1961                 | 0.176 | 345                    | 105                              | 0.2                     | 0.2                   | 2.284     | Α                                   |
| D - A180 W  | 270                         | 67                            | 818                             | 2055                 | 0.131 | 270                    | 144                              | 0.1                     | 0.2                   | 2.495     | Α                                   |



# 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 217                         | 54                            | 210                             | 2882                 | 0.075 | 217                    | 1121                             | 0.1                     | 0.1                   | 1.849     | Α                                   |
| B - A180 E  | 774                         | 194                           | 110                             | 2909                 | 0.266 | 774                    | 317                              | 0.3                     | 0.4                   | 1.768     | Α                                   |
| C - A1173 S | 423                         | 106                           | 755                             | 1842                 | 0.230 | 422                    | 129                              | 0.2                     | 0.3                   | 2.601     | А                                   |
| D - A180 W  | 330                         | 83                            | 1001                            | 1869                 | 0.177 | 330                    | 176                              | 0.2                     | 0.3                   | 2.894     | Α                                   |

## 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 217                         | 54                            | 210                             | 2882                 | 0.075 | 217                    | 1122                             | 0.1                     | 0.1                   | 1.849     | Α                                   |
| B - A180 E  | 774                         | 194                           | 110                             | 2909                 | 0.266 | 774                    | 317                              | 0.4                     | 0.4                   | 1.769     | Α                                   |
| C - A1173 S | 423                         | 106                           | 755                             | 1841                 | 0.230 | 423                    | 129                              | 0.3                     | 0.3                   | 2.602     | Α                                   |
| D - A180 W  | 330                         | 83                            | 1002                            | 1869                 | 0.177 | 330                    | 176                              | 0.3                     | 0.3                   | 2.895     | А                                   |

# 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 177                         | 44                            | 172                             | 2927                 | 0.061 | 177                    | 917                              | 0.1                     | 0.1                   | 1.793     | Α                                   |
| B - A180 E  | 632                         | 158                           | 90                              | 2934                 | 0.215 | 632                    | 259                              | 0.4                     | 0.3                   | 1.644     | Α                                   |
| C - A1173 S | 345                         | 86                            | 617                             | 1960                 | 0.176 | 346                    | 105                              | 0.3                     | 0.2                   | 2.288     | А                                   |
| D - A180 W  | 270                         | 67                            | 819                             | 2054                 | 0.131 | 270                    | 144                              | 0.3                     | 0.2                   | 2.500     | А                                   |

## 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 148                         | 37                            | 144                             | 2959                 | 0.050 | 148                    | 768                              | 0.1                     | 0.1                   | 1.756     | Α                                   |
| B - A180 E  | 529                         | 132                           | 75                              | 2951                 | 0.179 | 529                    | 217                              | 0.3                     | 0.2                   | 1.562     | Α                                   |
| C - A1173 S | 289                         | 72                            | 517                             | 2047                 | 0.141 | 289                    | 88                               | 0.2                     | 0.2                   | 2.100     | Α                                   |
| D - A180 W  | 226                         | 56                            | 685                             | 2188                 | 0.103 | 226                    | 121                              | 0.2                     | 0.1                   | 2.271     | Α                                   |



# **2025 Base, PM**

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.10               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.10              | Α           |  |

# **Arms**

#### **Arms**

[same as above]

# **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 211                       | ✓                            | 47.00                        |
| B - A180 E  | 524                       | ✓                            | 105.00                       |
| C - A1173 S | 459                       | ✓                            | 34.00                        |
| D - A180 W  | 335                       | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | ✓            | 1011                | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 364                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 175                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 160                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 599        | 150         | 262        |  |
| From | B - A180 E  | 155         | 0          | 209         | 0          |  |
|      | C - A1173 S | 22          | 127        | 0           | 26         |  |
|      | D - A180 W  | 95          | 1          | 64          | 0          |  |

# **Vehicle Mix**

# HV %s

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 2          | 6           | 25         |
| From | B - A180 E  | 12          | 0          | 3           | 0          |
|      | C - A1173 S | 33          | 1          | 0           | 8          |
|      | D - A180 W  | 78          | 0          | 8           | 0          |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.39    | 2.19          | 0.7         | А       | 928                    | 1392                             |
| B - A180 E  | 0.17    | 1.95          | 0.2         | А       | 334                    | 501                              |
| C - A1173 S | 0.09    | 1.94          | 0.1         | A       | 161                    | 241                              |
| D - A180 W  | 0.07    | 2.05          | 0.1         | А       | 147                    | 220                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 761                         | 190                           | 144                             | 2959                 | 0.257 | 760                    | 204                              | 0.0                     | 0.4                   | 1.764     | Α                                   |
| B - A180 E  | 274                         | 69                            | 358                             | 2549                 | 0.107 | 274                    | 546                              | 0.0                     | 0.1                   | 1.686     | Α                                   |
| C - A1173 S | 132                         | 33                            | 313                             | 2274                 | 0.058 | 131                    | 318                              | 0.0                     | 0.1                   | 1.766     | Α                                   |
| D - A180 W  | 120                         | 30                            | 228                             | 2770                 | 0.043 | 120                    | 216                              | 0.0                     | 0.1                   | 1.912     | Α                                   |

## 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 909                         | 227                           | 173                             | 2926                 | 0.311 | 908                    | 244                              | 0.4                     | 0.5                   | 1.922     | Α                                   |
| B - A180 E  | 327                         | 82                            | 428                             | 2472                 | 0.132 | 327                    | 653                              | 0.1                     | 0.2                   | 1.789     | Α                                   |
| C - A1173 S | 157                         | 39                            | 375                             | 2218                 | 0.071 | 157                    | 380                              | 0.1                     | 0.1                   | 1.836     | Α                                   |
| D - A180 W  | 144                         | 36                            | 273                             | 2718                 | 0.053 | 144                    | 259                              | 0.1                     | 0.1                   | 1.968     | Α                                   |



# 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1113                        | 278                           | 211                             | 2881                 | 0.386 | 1112                   | 299                              | 0.5                     | 0.7                   | 2.192     | Α                                   |
| B - A180 E  | 401                         | 100                           | 524                             | 2366                 | 0.169 | 401                    | 800                              | 0.2                     | 0.2                   | 1.953     | Α                                   |
| C - A1173 S | 193                         | 48                            | 459                             | 2141                 | 0.090 | 193                    | 465                              | 0.1                     | 0.1                   | 1.943     | Α                                   |
| D - A180 W  | 176                         | 44                            | 335                             | 2647                 | 0.067 | 176                    | 317                              | 0.1                     | 0.1                   | 2.051     | А                                   |

## 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1113                        | 278                           | 211                             | 2881                 | 0.386 | 1113                   | 299                              | 0.7                     | 0.7                   | 2.194     | Α                                   |
| B - A180 E  | 401                         | 100                           | 524                             | 2365                 | 0.169 | 401                    | 800                              | 0.2                     | 0.2                   | 1.954     | Α                                   |
| C - A1173 S | 193                         | 48                            | 459                             | 2141                 | 0.090 | 193                    | 466                              | 0.1                     | 0.1                   | 1.943     | Α                                   |
| D - A180 W  | 176                         | 44                            | 335                             | 2647                 | 0.067 | 176                    | 317                              | 0.1                     | 0.1                   | 2.051     | А                                   |

# 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 909                         | 227                           | 173                             | 2926                 | 0.311 | 910                    | 245                              | 0.7                     | 0.5                   | 1.925     | Α                                   |
| B - A180 E  | 327                         | 82                            | 428                             | 2471                 | 0.132 | 327                    | 654                              | 0.2                     | 0.2                   | 1.790     | Α                                   |
| C - A1173 S | 157                         | 39                            | 375                             | 2218                 | 0.071 | 157                    | 381                              | 0.1                     | 0.1                   | 1.840     | А                                   |
| D - A180 W  | 144                         | 36                            | 273                             | 2718                 | 0.053 | 144                    | 259                              | 0.1                     | 0.1                   | 1.970     | Α                                   |

## 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 761                         | 190                           | 145                             | 2958                 | 0.257 | 762                    | 205                              | 0.5                     | 0.4                   | 1.765     | Α                                   |
| B - A180 E  | 274                         | 69                            | 359                             | 2548                 | 0.108 | 274                    | 548                              | 0.2                     | 0.1                   | 1.690     | Α                                   |
| C - A1173 S | 132                         | 33                            | 314                             | 2273                 | 0.058 | 132                    | 319                              | 0.1                     | 0.1                   | 1.767     | Α                                   |
| D - A180 W  | 120                         | 30                            | 229                             | 2769                 | 0.044 | 121                    | 217                              | 0.1                     | 0.1                   | 1.912     | Α                                   |



# 2025 Base + Committed, AM

# **Data Errors and Warnings**

| Severity | rity Area Item |                                      | Description  |
|----------|----------------|--------------------------------------|--|
| Warning  | Geometry       | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 3.06               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 3.06              | Α           |  |

# **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |  |
|-------------|---------------------------|------------------------------|------------------------------|--|--|
| A - A1173 N | 295                       | ✓                            | 47.00                        |  |  |
| B - A180 E  | 351                       | ✓                            | 105.00                       |  |  |
| C - A1173 S | 1165                      | ✓                            | 34.00                        |  |  |
| D - A180 W  | 1285                      | ✓                            | 113.00                       |  |  |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm  | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-------------|-------------|--------------|--------------|---------------------|--------------------|--|
| A - A1173 N | A - A1173 N |              | ✓            | 478                 | 100.000            |  |
| B - A180 E  |             | ONE HOUR     | ✓            | 890                 | 100.000            |  |
| C - A1173 S |             | ONE HOUR     | ✓            | 503                 | 100.000            |  |
| D - A180 W  |             | ONE HOUR     | ✓            | 509                 | 100.000            |  |



# Demand (PCU/hr)

|      |             | То          |            |             |            |  |  |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |  |  |
|      | A - A1173 N | 0           | 178        | 27          | 273        |  |  |  |  |  |  |
| From | B - A180 E  | 783         | 0          | 105         | 2          |  |  |  |  |  |  |
|      | C - A1173 S | 135         | 249        | 0           | 119        |  |  |  |  |  |  |
|      | D - A180 W  | 490         | 0          | 19          | 0          |  |  |  |  |  |  |

# **Vehicle Mix**

# HV %s

|      |             | То          |            |             |            |  |  |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |  |  |
|      | A - A1173 N | 0           | 25         | 38          | 33         |  |  |  |  |  |  |
| From | B - A180 E  | 7           | 0          | 4           | 0          |  |  |  |  |  |  |
|      | C - A1173 S | 4           | 1          | 0           | 3          |  |  |  |  |  |  |
|      | D - A180 W  | 22          | 0          | 11          | 0          |  |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm         | Arm Max RFC Max Delay (s)  |      | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|-------------|----------------------------|------|-------------|---------|------------------------|----------------------------------|--|
| A - A1173 N | - <b>A1173 N</b> 0.19 2.09 |      | 0.3         | A       | 439                    | 658                              |  |
| B - A180 E  | 0.38 2.39                  |      | 0.7         | А       | 817                    | 1225                             |  |
| C - A1173 S | 0.37                       | 3.98 | 0.6         | A       | 462                    | 692                              |  |
| D - A180 W  | 0.35                       | 4.22 | 0.7         | A       | 467                    | 701                              |  |

# Main Results for each time segment

## 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 360                         | 90                            | 201                             | 2877                 | 0.125 | 359                    | 1057                             | 0.0                     | 0.2                   | 1.860     | Α                                   |
| B - A180 E  | 670                         | 168                           | 240                             | 2711                 | 0.247 | 669                    | 321                              | 0.0                     | 0.3                   | 1.879     | Α                                   |
| C - A1173 S | 379                         | 95                            | 795                             | 1770                 | 0.214 | 378                    | 113                              | 0.0                     | 0.3                   | 2.640     | Α                                   |
| D - A180 W  | 383                         | 96                            | 877                             | 1984                 | 0.193 | 382                    | 296                              | 0.0                     | 0.3                   | 2.730     | Α                                   |

# 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 430                         | 107                           | 241                             | 2832                 | 0.152 | 430                    | 1265                             | 0.2                     | 0.2                   | 1.950     | Α                                   |
| B - A180 E  | 800                         | 200                           | 287                             | 2657                 | 0.301 | 800                    | 384                              | 0.3                     | 0.5                   | 2.066     | Α                                   |
| C - A1173 S | 452                         | 113                           | 951                             | 1648                 | 0.274 | 452                    | 136                              | 0.3                     | 0.4                   | 3.078     | Α                                   |
| D - A180 W  | 458                         | 114                           | 1048                            | 1822                 | 0.251 | 457                    | 354                              | 0.3                     | 0.4                   | 3.207     | Α                                   |



# 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 526                         | 132                           | 295                             | 2770                 | 0.190 | 526                    | 1548                             | 0.2                     | 0.3                   | 2.088     | Α                                   |
| B - A180 E  | 980                         | 245                           | 351                             | 2584                 | 0.379 | 979                    | 470                              | 0.5                     | 0.6                   | 2.391     | Α                                   |
| C - A1173 S | 554                         | 138                           | 1164                            | 1480                 | 0.374 | 553                    | 166                              | 0.4                     | 0.6                   | 3.969     | Α                                   |
| D - A180 W  | 560                         | 140                           | 1284                            | 1599                 | 0.350 | 559                    | 433                              | 0.4                     | 0.7                   | 4.205     | Α                                   |

## 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 526                         | 132                           | 295                             | 2769                 | 0.190 | 526                    | 1550                             | 0.3                     | 0.3                   | 2.088     | Α                                   |
| B - A180 E  | 980                         | 245                           | 351                             | 2583                 | 0.379 | 980                    | 470                              | 0.6                     | 0.7                   | 2.393     | Α                                   |
| C - A1173 S | 554                         | 138                           | 1165                            | 1479                 | 0.374 | 554                    | 166                              | 0.6                     | 0.6                   | 3.978     | Α                                   |
| D - A180 W  | 560                         | 140                           | 1285                            | 1598                 | 0.351 | 560                    | 434                              | 0.7                     | 0.7                   | 4.217     | А                                   |

# 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 430                         | 107                           | 241                             | 2831                 | 0.152 | 430                    | 1268                             | 0.3                     | 0.2                   | 1.953     | Α                                   |
| B - A180 E  | 800                         | 200                           | 287                             | 2657                 | 0.301 | 801                    | 384                              | 0.7                     | 0.5                   | 2.068     | Α                                   |
| C - A1173 S | 452                         | 113                           | 952                             | 1647                 | 0.275 | 453                    | 136                              | 0.6                     | 0.4                   | 3.085     | Α                                   |
| D - A180 W  | 458                         | 114                           | 1050                            | 1820                 | 0.251 | 459                    | 355                              | 0.7                     | 0.4                   | 3.218     | А                                   |

## 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 360                         | 90                            | 202                             | 2876                 | 0.125 | 360                    | 1061                             | 0.2                     | 0.2                   | 1.864     | Α                                   |
| B - A180 E  | 670                         | 168                           | 240                             | 2710                 | 0.247 | 670                    | 322                              | 0.5                     | 0.4                   | 1.884     | А                                   |
| C - A1173 S | 379                         | 95                            | 797                             | 1769                 | 0.214 | 379                    | 114                              | 0.4                     | 0.3                   | 2.649     | А                                   |
| D - A180 W  | 383                         | 96                            | 879                             | 1982                 | 0.193 | 384                    | 297                              | 0.4                     | 0.3                   | 2.740     | А                                   |



# 2025 Base + Committed, PM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.79               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.79              | Α           |

# **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 290                       | ✓                            | 47.00                        |
| B - A180 E  | 780                       | ✓                            | 105.00                       |
| C - A1173 S | 718                       | ✓                            | 34.00                        |
| D - A180 W  | 448                       | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

## **Demand Set Details**

| П | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D | 2025 Base + Committed | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | <b>✓</b>     | 1373                | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 484                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 243                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 256                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 760        | 169         | 444        |
| From | B - A180 E  | 208         | 0          | 276         | 0          |
|      | C - A1173 S | 32          | 167        | 0           | 44         |
|      | D - A180 W  | 160         | 1          | 95          | 0          |

# **Vehicle Mix**

# HV %s

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 3          | 6           | 19         |  |
| From | B - A180 E  | 13          | 0          | 3           | 0          |  |
|      | C - A1173 S | 34          | 1          | 0           | 5          |  |
|      | D - A180 W  | 71          | 0          | 5           | 0          |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.54    | 3.07          | 1.3         | А       | 1260                   | 1890                             |
| B - A180 E  | 0.26    | 2.51          | 0.4         | А       | 444                    | 666                              |
| C - A1173 S | 0.14    | 2.35          | 0.2         | А       | 223                    | 334                              |
| D - A180 W  | 0.11    | 2.24          | 0.2         | А       | 235                    | 352                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1034                        | 258                           | 198                             | 2882                 | 0.359 | 1031                   | 300                              | 0.0                     | 0.6                   | 2.099     | Α                                   |
| B - A180 E  | 364                         | 91                            | 532                             | 2327                 | 0.157 | 364                    | 697                              | 0.0                     | 0.2                   | 1.962     | Α                                   |
| C - A1173 S | 183                         | 46                            | 490                             | 2075                 | 0.088 | 183                    | 406                              | 0.0                     | 0.1                   | 1.999     | Α                                   |
| D - A180 W  | 193                         | 48                            | 306                             | 2662                 | 0.072 | 192                    | 367                              | 0.0                     | 0.1                   | 2.016     | Α                                   |

## 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1234                        | 309                           | 236                             | 2838                 | 0.435 | 1233                   | 359                              | 0.6                     | 0.8                   | 2.424     | Α                                   |
| B - A180 E  | 435                         | 109                           | 636                             | 2218                 | 0.196 | 435                    | 834                              | 0.2                     | 0.3                   | 2.162     | Α                                   |
| C - A1173 S | 218                         | 55                            | 586                             | 1992                 | 0.110 | 218                    | 485                              | 0.1                     | 0.1                   | 2.133     | Α                                   |
| D - A180 W  | 230                         | 58                            | 366                             | 2594                 | 0.089 | 230                    | 438                              | 0.1                     | 0.1                   | 2.106     | Α                                   |



# 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1512                        | 378                           | 289                             | 2777                 | 0.544 | 1510                   | 440                              | 0.8                     | 1.3                   | 3.067     | Α                                   |
| B - A180 E  | 533                         | 133                           | 779                             | 2068                 | 0.258 | 532                    | 1021                             | 0.3                     | 0.4                   | 2.510     | Α                                   |
| C - A1173 S | 268                         | 67                            | 717                             | 1878                 | 0.142 | 267                    | 594                              | 0.1                     | 0.2                   | 2.349     | Α                                   |
| D - A180 W  | 282                         | 70                            | 448                             | 2501                 | 0.113 | 282                    | 537                              | 0.1                     | 0.2                   | 2.243     | А                                   |

## 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1512                        | 378                           | 290                             | 2777                 | 0.544 | 1512                   | 440                              | 1.3                     | 1.3                   | 3.075     | Α                                   |
| B - A180 E  | 533                         | 133                           | 780                             | 2067                 | 0.258 | 533                    | 1022                             | 0.4                     | 0.4                   | 2.512     | Α                                   |
| C - A1173 S | 268                         | 67                            | 718                             | 1878                 | 0.142 | 268                    | 595                              | 0.2                     | 0.2                   | 2.350     | Α                                   |
| D - A180 W  | 282                         | 70                            | 448                             | 2501                 | 0.113 | 282                    | 537                              | 0.2                     | 0.2                   | 2.244     | Α                                   |

# 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1234                        | 309                           | 237                             | 2837                 | 0.435 | 1236                   | 360                              | 1.3                     | 0.8                   | 2.434     | Α                                   |
| B - A180 E  | 435                         | 109                           | 637                             | 2216                 | 0.196 | 436                    | 835                              | 0.4                     | 0.3                   | 2.166     | Α                                   |
| C - A1173 S | 218                         | 55                            | 587                             | 1991                 | 0.110 | 219                    | 486                              | 0.2                     | 0.1                   | 2.135     | Α                                   |
| D - A180 W  | 230                         | 58                            | 366                             | 2593                 | 0.089 | 230                    | 439                              | 0.2                     | 0.1                   | 2.109     | Α                                   |

## 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1034                        | 258                           | 198                             | 2881                 | 0.359 | 1035                   | 301                              | 0.8                     | 0.6                   | 2.107     | Α                                   |
| B - A180 E  | 364                         | 91                            | 533                             | 2325                 | 0.157 | 365                    | 699                              | 0.3                     | 0.2                   | 1.965     | Α                                   |
| C - A1173 S | 183                         | 46                            | 491                             | 2074                 | 0.088 | 183                    | 407                              | 0.1                     | 0.1                   | 2.001     | Α                                   |
| D - A180 W  | 193                         | 48                            | 307                             | 2661                 | 0.072 | 193                    | 368                              | 0.1                     | 0.1                   | 2.017     | Α                                   |



# 2025 Base + Committed + Development, AM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 3.54               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.54              | Α           |

# **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 295                       | ✓                            | 47.00                        |
| B - A180 E  | 453                       | ✓                            | 105.00                       |
| C - A1173 S | 1266                      | ✓                            | 34.00                        |
| D - A180 W  | 1295                      | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR                | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | ✓            | 573                 | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 893                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 509                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 663                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 181        | 30          | 362        |  |
| From | B - A180 E  | 786         | 0          | 105         | 2          |  |
|      | C - A1173 S | 141         | 249        | 0           | 119        |  |
|      | D - A180 W  | 644         | 0          | 19          | 0          |  |

# **Vehicle Mix**

#### HV %s

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 25         | 39          | 35         |
| From | B - A180 E  | 7           | 0          | 4           | 0          |
|      | C - A1173 S | 6           | 1          | 0           | 3          |
|      | D - A180 W  | 26          | 0          | 11          | 0          |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.23    | 2.22          | 0.4         | А       | 526                    | 789                              |
| B - A180 E  | 0.40    | 2.61          | 0.7 A       |         | 819                    | 1229                             |
| C - A1173 S | 0.40    | 4.41          | 0.7         | A       | 467                    | 701                              |
| D - A180 W  | 0.46    | 5.26          | 1.1         | А       | 608                    | 913                              |

# Main Results for each time segment

# 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 431                         | 108                           | 201                             | 2877                 | 0.150 | 430                    | 1179                             | 0.0                     | 0.2                   | 1.941     | Α                                   |
| B - A180 E  | 672                         | 168                           | 309                             | 2615                 | 0.257 | 671                    | 323                              | 0.0                     | 0.4                   | 1.973     | Α                                   |
| C - A1173 S | 383                         | 96                            | 864                             | 1708                 | 0.224 | 382                    | 116                              | 0.0                     | 0.3                   | 2.788     | Α                                   |
| D - A180 W  | 499                         | 125                           | 883                             | 1978                 | 0.252 | 497                    | 363                              | 0.0                     | 0.4                   | 3.050     | Α                                   |

## 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 515                         | 129                           | 241                             | 2832                 | 0.182 | 515                    | 1411                             | 0.2                     | 0.3                   | 2.049     | Α                                   |
| B - A180 E  | 803                         | 201                           | 369                             | 2547                 | 0.315 | 802                    | 386                              | 0.4                     | 0.5                   | 2.199     | Α                                   |
| C - A1173 S | 458                         | 114                           | 1033                            | 1578                 | 0.290 | 457                    | 138                              | 0.3                     | 0.4                   | 3.300     | А                                   |
| D - A180 W  | 596                         | 149                           | 1056                            | 1814                 | 0.329 | 595                    | 434                              | 0.4                     | 0.6                   | 3.705     | А                                   |



# 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 631                         | 158                           | 295                             | 2770                 | 0.228 | 631                    | 1727                             | 0.3                     | 0.4                   | 2.218     | Α                                   |
| B - A180 E  | 983                         | 246                           | 452                             | 2454                 | 0.401 | 982                    | 473                              | 0.5                     | 0.7                   | 2.606     | А                                   |
| C - A1173 S | 560                         | 140                           | 1265                            | 1399                 | 0.400 | 559                    | 169                              | 0.4                     | 0.7                   | 4.400     | А                                   |
| D - A180 W  | 730                         | 182                           | 1293                            | 1591                 | 0.459 | 728                    | 531                              | 0.6                     | 1.1                   | 5.229     | А                                   |

## 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 631                         | 158                           | 295                             | 2769                 | 0.228 | 631                    | 1730                             | 0.4                     | 0.4                   | 2.219     | Α                                   |
| B - A180 E  | 983                         | 246                           | 453                             | 2454                 | 0.401 | 983                    | 473                              | 0.7                     | 0.7                   | 2.609     | Α                                   |
| C - A1173 S | 560                         | 140                           | 1266                            | 1399                 | 0.401 | 560                    | 170                              | 0.7                     | 0.7                   | 4.415     | Α                                   |
| D - A180 W  | 730                         | 182                           | 1295                            | 1589                 | 0.459 | 730                    | 532                              | 1.1                     | 1.1                   | 5.258     | А                                   |

# 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 515                         | 129                           | 241                             | 2831                 | 0.182 | 515                    | 1415                             | 0.4                     | 0.3                   | 2.050     | Α                                   |
| B - A180 E  | 803                         | 201                           | 370                             | 2547                 | 0.315 | 804                    | 387                              | 0.7                     | 0.5                   | 2.204     | А                                   |
| C - A1173 S | 458                         | 114                           | 1035                            | 1577                 | 0.290 | 459                    | 139                              | 0.7                     | 0.4                   | 3.312     | А                                   |
| D - A180 W  | 596                         | 149                           | 1059                            | 1812                 | 0.329 | 598                    | 435                              | 1.1                     | 0.6                   | 3.729     | Α                                   |

## 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 431                         | 108                           | 202                             | 2876                 | 0.150 | 432                    | 1184                             | 0.3                     | 0.2                   | 1.943     | Α                                   |
| B - A180 E  | 672                         | 168                           | 310                             | 2614                 | 0.257 | 673                    | 324                              | 0.5                     | 0.4                   | 1.978     | А                                   |
| C - A1173 S | 383                         | 96                            | 866                             | 1706                 | 0.225 | 384                    | 116                              | 0.4                     | 0.3                   | 2.798     | Α                                   |
| D - A180 W  | 499                         | 125                           | 886                             | 1975                 | 0.253 | 500                    | 364                              | 0.6                     | 0.4                   | 3.067     | Α                                   |



# 2025 Base + Committed + Development, PM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 3.16               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 3.16              | Α           |  |

# **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |
|-------------|---------------------------|------------------------------|------------------------------|--|
| A - A1173 N | 290                       | ✓                            | 47.00                        |  |
| B - A180 E  | 922                       | ✓                            | 105.00                       |  |
| C - A1173 S | 857                       | ✓                            | 34.00                        |  |
| D - A180 W  | 461                       | ✓                            | 113.00                       |  |

# Slope / Intercept / Capacity

[same as above]

# Traffic Demand

## **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm Linked arm |  | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|----------------|--|--------------|--------------|---------------------|--------------------|--|
| A - A1173 N    |  | ONE HOUR     | ✓            | 1505                | 100.000            |  |
| B - A180 E     |  | ONE HOUR     | ✓            | 487                 | 100.000            |  |
| C - A1173 S    |  | ONE HOUR     | ✓            | 252                 | 100.000            |  |
| D - A180 W     |  | ONE HOUR     | ✓            | 463                 | 100.000            |  |



# Demand (PCU/hr)

|      | То          |             |            |             |            |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |
|      | A - A1173 N | 0           | 763        | 175         | 567        |  |  |  |  |
| From | B - A180 E  | 211         | 0          | 276         | 0          |  |  |  |  |
|      | C - A1173 S | 41          | 167        | 0           | 44         |  |  |  |  |
|      | D - A180 W  | 367         | 1          | 95          | 0          |  |  |  |  |

# **Vehicle Mix**

#### HV %9

|      | То          |             |            |             |            |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |
|      | A - A1173 N | 0           | 3          | 8           | 23         |  |  |  |  |
| From | B - A180 E  | 13          | 0          | 3           | 0          |  |  |  |  |
|      | C - A1173 S | 36          | 1          | 0           | 5          |  |  |  |  |
|      | D - A180 W  | 54          | 0          | 5           | 0          |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.60    | 3.55          | 1.6         | А       | 1381                   | 2072                             |
| B - A180 E  | 0.28    | 2.80          | 0.4         | А       | 447                    | 670                              |
| C - A1173 S | 0.16    | 2.60          | 0.2         | А       | 231                    | 347                              |
| D - A180 W  | 0.21    | 2.56          | 0.4         | А       | 425                    | 637                              |

# Main Results for each time segment

# 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1133                        | 283                           | 198                             | 2882                 | 0.393 | 1130                   | 465                              | 0.0                     | 0.7                   | 2.264     | Α                                   |
| B - A180 E  | 367                         | 92                            | 629                             | 2212                 | 0.166 | 366                    | 699                              | 0.0                     | 0.2                   | 2.087     | Α                                   |
| C - A1173 S | 190                         | 47                            | 584                             | 1976                 | 0.096 | 189                    | 410                              | 0.0                     | 0.1                   | 2.139     | Α                                   |
| D - A180 W  | 349                         | 87                            | 315                             | 2650                 | 0.132 | 348                    | 459                              | 0.0                     | 0.2                   | 2.196     | A                                   |

## 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1353                        | 338                           | 236                             | 2838                 | 0.477 | 1352                   | 556                              | 0.7                     | 1.0                   | 2.674     | Α                                   |
| B - A180 E  | 438                         | 109                           | 752                             | 2086                 | 0.210 | 438                    | 836                              | 0.2                     | 0.3                   | 2.338     | Α                                   |
| C - A1173 S | 227                         | 57                            | 699                             | 1879                 | 0.121 | 226                    | 491                              | 0.1                     | 0.1                   | 2.311     | А                                   |
| D - A180 W  | 416                         | 104                           | 376                             | 2580                 | 0.161 | 416                    | 549                              | 0.2                     | 0.3                   | 2.335     | А                                   |



# 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1657                        | 414                           | 289                             | 2777                 | 0.597 | 1655                   | 681                              | 1.0                     | 1.6                   | 3.532     | Α                                   |
| B - A180 E  | 536                         | 134                           | 920                             | 1915                 | 0.280 | 536                    | 1024                             | 0.3                     | 0.4                   | 2.796     | Α                                   |
| C - A1173 S | 277                         | 69                            | 855                             | 1747                 | 0.159 | 277                    | 600                              | 0.1                     | 0.2                   | 2.599     | Α                                   |
| D - A180 W  | 510                         | 127                           | 461                             | 2485                 | 0.205 | 509                    | 672                              | 0.3                     | 0.4                   | 2.558     | А                                   |

## 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1657                        | 414                           | 290                             | 2777                 | 0.597 | 1657                   | 682                              | 1.6                     | 1.6                   | 3.547     | Α                                   |
| B - A180 E  | 536                         | 134                           | 922                             | 1913                 | 0.280 | 536                    | 1025                             | 0.4                     | 0.4                   | 2.799     | Α                                   |
| C - A1173 S | 277                         | 69                            | 857                             | 1746                 | 0.159 | 277                    | 601                              | 0.2                     | 0.2                   | 2.601     | Α                                   |
| D - A180 W  | 510                         | 127                           | 461                             | 2484                 | 0.205 | 510                    | 673                              | 0.4                     | 0.4                   | 2.559     | А                                   |

# 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1353                        | 338                           | 237                             | 2837                 | 0.477 | 1355                   | 557                              | 1.6                     | 1.0                   | 2.684     | Α                                   |
| B - A180 E  | 438                         | 109                           | 754                             | 2084                 | 0.210 | 438                    | 838                              | 0.4                     | 0.3                   | 2.342     | Α                                   |
| C - A1173 S | 227                         | 57                            | 701                             | 1878                 | 0.121 | 227                    | 491                              | 0.2                     | 0.1                   | 2.316     | А                                   |
| D - A180 W  | 416                         | 104                           | 377                             | 2579                 | 0.161 | 417                    | 550                              | 0.4                     | 0.3                   | 2.338     | Α                                   |

## 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1133                        | 283                           | 198                             | 2881                 | 0.393 | 1134                   | 466                              | 1.0                     | 0.7                   | 2.276     | Α                                   |
| B - A180 E  | 367                         | 92                            | 631                             | 2210                 | 0.166 | 367                    | 702                              | 0.3                     | 0.2                   | 2.092     | А                                   |
| C - A1173 S | 190                         | 47                            | 586                             | 1974                 | 0.096 | 190                    | 411                              | 0.1                     | 0.1                   | 2.143     | Α                                   |
| D - A180 W  | 349                         | 87                            | 316                             | 2648                 | 0.132 | 349                    | 460                              | 0.3                     | 0.2                   | 2.197     | Α                                   |



# **2032 Base, AM**

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.25               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.25              | Α           |

# **Arms**

# Arms

[same as above]

# **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 219                       | ✓                            | 47.00                        |
| B - A180 E  | 116                       | ✓                            | 105.00                       |
| C - A1173 S | 786                       | ✓                            | 34.00                        |
| D - A180 W  | 1043                      | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | ✓            | 205                 | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 732                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 400                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 312                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 112        | 19          | 74         |
| From | B - A180 E  | 638         | 0          | 92          | 2          |
|      | C - A1173 S | 122         | 187        | 0           | 91         |
|      | D - A180 W  | 300         | 0          | 12          | 0          |

# **Vehicle Mix**

# HV %s

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 0 20       |             | 72         |
| From | B - A180 E  | 5           | 0          | 5           | 0          |
|      | C - A1173 S | 4           | 1          | 0           | 4          |
|      | D - A180 W  | 24          | 0          | 18          | 0          |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.08    | 1.86          | 0.1         | А       | 188                    | 282                              |
| B - A180 E  | 0.28    | 1.80          | 0.4         | А       | 672                    | 1008                             |
| C - A1173 S | 0.24    | 2.69          | 0.3         | А       | 367                    | 551                              |
| D - A180 W  | 0.19    | 3.00          | 0.3         | А       | 286                    | 429                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 154                         | 39                            | 149                             | 2951                 | 0.052 | 154                    | 796                              | 0.0                     | 0.1                   | 1.763     | Α                                   |
| B - A180 E  | 551                         | 138                           | 79                              | 2946                 | 0.187 | 550                    | 225                              | 0.0                     | 0.2                   | 1.577     | Α                                   |
| C - A1173 S | 301                         | 75                            | 537                             | 2026                 | 0.149 | 300                    | 92                               | 0.0                     | 0.2                   | 2.139     | А                                   |
| D - A180 W  | 235                         | 59                            | 712                             | 2158                 | 0.109 | 234                    | 125                              | 0.0                     | 0.2                   | 2.315     | А                                   |

# 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 184                         | 46                            | 179                             | 2917                 | 0.063 | 184                    | 952                              | 0.1                     | 0.1                   | 1.804     | Α                                   |
| B - A180 E  | 658                         | 165                           | 94                              | 2927                 | 0.225 | 658                    | 269                              | 0.2                     | 0.3                   | 1.664     | Α                                   |
| C - A1173 S | 360                         | 90                            | 642                             | 1936                 | 0.186 | 359                    | 111                              | 0.2                     | 0.2                   | 2.342     | Α                                   |
| D - A180 W  | 280                         | 70                            | 851                             | 2019                 | 0.139 | 280                    | 150                              | 0.2                     | 0.2                   | 2.561     | Α                                   |



# 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 226                         | 56                            | 219                             | 2870                 | 0.079 | 226                    | 1166                             | 0.1                     | 0.1                   | 1.864     | Α                                   |
| B - A180 E  | 806                         | 201                           | 116                             | 2902                 | 0.278 | 806                    | 329                              | 0.3                     | 0.4                   | 1.802     | Α                                   |
| C - A1173 S | 440                         | 110                           | 786                             | 1812                 | 0.243 | 440                    | 135                              | 0.2                     | 0.3                   | 2.690     | Α                                   |
| D - A180 W  | 344                         | 86                            | 1042                            | 1828                 | 0.188 | 343                    | 184                              | 0.2                     | 0.3                   | 3.000     | Α                                   |

## 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 226                         | 56                            | 219                             | 2870                 | 0.079 | 226                    | 1167                             | 0.1                     | 0.1                   | 1.865     | Α                                   |
| B - A180 E  | 806                         | 201                           | 116                             | 2902                 | 0.278 | 806                    | 329                              | 0.4                     | 0.4                   | 1.802     | Α                                   |
| C - A1173 S | 440                         | 110                           | 786                             | 1812                 | 0.243 | 440                    | 135                              | 0.3                     | 0.3                   | 2.691     | Α                                   |
| D - A180 W  | 344                         | 86                            | 1043                            | 1828                 | 0.188 | 344                    | 184                              | 0.3                     | 0.3                   | 3.001     | А                                   |

# 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 184                         | 46                            | 179                             | 2917                 | 0.063 | 184                    | 954                              | 0.1                     | 0.1                   | 1.805     | Α                                   |
| B - A180 E  | 658                         | 165                           | 94                              | 2927                 | 0.225 | 658                    | 269                              | 0.4                     | 0.3                   | 1.668     | А                                   |
| C - A1173 S | 360                         | 90                            | 642                             | 1935                 | 0.186 | 360                    | 111                              | 0.3                     | 0.2                   | 2.344     | А                                   |
| D - A180 W  | 280                         | 70                            | 852                             | 2018                 | 0.139 | 281                    | 150                              | 0.3                     | 0.2                   | 2.566     | Α                                   |

## 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 154                         | 39                            | 150                             | 2951                 | 0.052 | 154                    | 798                              | 0.1                     | 0.1                   | 1.764     | Α                                   |
| B - A180 E  | 551                         | 138                           | 79                              | 2945                 | 0.187 | 551                    | 225                              | 0.3                     | 0.2                   | 1.578     | Α                                   |
| C - A1173 S | 301                         | 75                            | 538                             | 2024                 | 0.149 | 301                    | 93                               | 0.2                     | 0.2                   | 2.144     | А                                   |
| D - A180 W  | 235                         | 59                            | 713                             | 2157                 | 0.109 | 235                    | 126                              | 0.2                     | 0.2                   | 2.320     | Α                                   |



# **2032 Base, PM**

## **Data Errors and Warnings**

| Severity | Area Item |                                      | Area Item  |  | Description |  |  |  |  |  |
|----------|-----------|--------------------------------------|--|--|-------------|--|--|--|--|--|
| Warning  | Geometry  | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |  |             |  |  |  |  |  |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.16               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.16              | Α           |  |

# Arms

# Arms

[same as above]

# **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 219                       | ✓                            | 47.00                        |
| B - A180 E  | 543                       | ✓                            | 105.00                       |
| C - A1173 S | 477                       | ✓                            | 34.00                        |
| D - A180 W  | 347                       | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | ✓            | 1049                | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 378                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 181                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 166                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 622        | 155         | 272        |  |
| From | B - A180 E  | 161         | 0          | 217         | 0          |  |
|      | C - A1173 S | 22          | 132        | 0           | 27         |  |
|      | D - A180 W  | 99          | 1          | 66          | 0          |  |

# **Vehicle Mix**

# HV %s

|      |             |             | То         |             |            |  |
|------|-------------|-------------|------------|-------------|------------|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |
|      | A - A1173 N | 0           | 2          | 6           | 25         |  |
| From | B - A180 E  | 12          | 0          | 3           | 0          |  |
|      | C - A1173 S | 33          | 1          | 0           | 8          |  |
|      | D - A180 W  | 78          | 0          | 8           | 0          |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.40    | 2.26          | 0.7         | А       | 963                    | 1444                             |
| B - A180 E  | 0.18    | 1.99          | 0.2         | А       | 347                    | 520                              |
| C - A1173 S | 0.09    | 1.97          | 0.1         | А       | 166                    | 249                              |
| D - A180 W  | 0.07    | 2.07          | 0.1         | А       | 152                    | 228                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 790                         | 197                           | 150                             | 2951                 | 0.268 | 788                    | 212                              | 0.0                     | 0.4                   | 1.793     | Α                                   |
| B - A180 E  | 285                         | 71                            | 370                             | 2532                 | 0.112 | 284                    | 567                              | 0.0                     | 0.1                   | 1.707     | Α                                   |
| C - A1173 S | 136                         | 34                            | 325                             | 2260                 | 0.060 | 136                    | 329                              | 0.0                     | 0.1                   | 1.780     | Α                                   |
| D - A180 W  | 125                         | 31                            | 237                             | 2758                 | 0.045 | 125                    | 225                              | 0.0                     | 0.1                   | 1.927     | А                                   |

## 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 943                         | 236                           | 179                             | 2917                 | 0.323 | 943                    | 253                              | 0.4                     | 0.5                   | 1.964     | Α                                   |
| B - A180 E  | 340                         | 85                            | 443                             | 2452                 | 0.139 | 340                    | 678                              | 0.1                     | 0.2                   | 1.816     | Α                                   |
| C - A1173 S | 163                         | 41                            | 389                             | 2202                 | 0.074 | 163                    | 394                              | 0.1                     | 0.1                   | 1.854     | Α                                   |
| D - A180 W  | 149                         | 37                            | 283                             | 2705                 | 0.055 | 149                    | 269                              | 0.1                     | 0.1                   | 1.986     | Α                                   |



# 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1155                        | 289                           | 219                             | 2870                 | 0.402 | 1154                   | 310                              | 0.5                     | 0.7                   | 2.258     | Α                                   |
| B - A180 E  | 416                         | 104                           | 542                             | 2343                 | 0.178 | 416                    | 831                              | 0.2                     | 0.2                   | 1.992     | Α                                   |
| C - A1173 S | 199                         | 50                            | 476                             | 2122                 | 0.094 | 199                    | 482                              | 0.1                     | 0.1                   | 1.966     | А                                   |
| D - A180 W  | 183                         | 46                            | 347                             | 2631                 | 0.069 | 183                    | 329                              | 0.1                     | 0.1                   | 2.072     | Α                                   |

## 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1155                        | 289                           | 219                             | 2870                 | 0.402 | 1155                   | 310                              | 0.7                     | 0.7                   | 2.260     | Α                                   |
| B - A180 E  | 416                         | 104                           | 543                             | 2342                 | 0.178 | 416                    | 831                              | 0.2                     | 0.2                   | 1.992     | Α                                   |
| C - A1173 S | 199                         | 50                            | 477                             | 2122                 | 0.094 | 199                    | 482                              | 0.1                     | 0.1                   | 1.967     | Α                                   |
| D - A180 W  | 183                         | 46                            | 347                             | 2631                 | 0.069 | 183                    | 329                              | 0.1                     | 0.1                   | 2.072     | А                                   |

# 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 943                         | 236                           | 179                             | 2917                 | 0.323 | 944                    | 254                              | 0.7                     | 0.5                   | 1.966     | Α                                   |
| B - A180 E  | 340                         | 85                            | 444                             | 2452                 | 0.139 | 340                    | 679                              | 0.2                     | 0.2                   | 1.817     | Α                                   |
| C - A1173 S | 163                         | 41                            | 390                             | 2201                 | 0.074 | 163                    | 394                              | 0.1                     | 0.1                   | 1.854     | Α                                   |
| D - A180 W  | 149                         | 37                            | 283                             | 2704                 | 0.055 | 149                    | 269                              | 0.1                     | 0.1                   | 1.986     | Α                                   |

## 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 790                         | 197                           | 150                             | 2951                 | 0.268 | 790                    | 212                              | 0.5                     | 0.4                   | 1.794     | А                                   |
| B - A180 E  | 285                         | 71                            | 371                             | 2531                 | 0.112 | 285                    | 569                              | 0.2                     | 0.1                   | 1.710     | А                                   |
| C - A1173 S | 136                         | 34                            | 326                             | 2259                 | 0.060 | 136                    | 330                              | 0.1                     | 0.1                   | 1.781     | А                                   |
| D - A180 W  | 125                         | 31                            | 237                             | 2757                 | 0.045 | 125                    | 225                              | 0.1                     | 0.1                   | 1.929     | Α                                   |



# 2032 Base + Committed, AM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 3.17               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 3.17              | Α           |  |

# **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |  |
|-------------|---------------------------|------------------------------|------------------------------|--|--|
| A - A1173 N | 304                       | ✓                            | 47.00                        |  |  |
| B - A180 E  | 356                       | ✓                            | 105.00                       |  |  |
| C - A1173 S | 1196                      | ✓                            | 34.00                        |  |  |
| D - A180 W  | 1325                      | ✓                            | 113.00                       |  |  |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm Linked arm |  | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|----------------|--|--------------|--------------|---------------------|--------------------|--|
| A - A1173 N    |  | ONE HOUR     | ✓            | 485                 | 100.000            |  |
| B - A180 E     |  | ONE HOUR     | ✓            | 919                 | 100.000            |  |
| C - A1173 S    |  | ONE HOUR     | ✓            | 518                 | 100.000            |  |
| D - A180 W     |  | ONE HOUR     | ✓            | 522                 | 100.000            |  |



# Demand (PCU/hr)

|      | То          |             |            |             |            |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |
|      | A - A1173 N | 0           | 182        | 27          | 276        |  |  |  |  |
| From | B - A180 E  | 808         | 0          | 109         | 2          |  |  |  |  |
|      | C - A1173 S | 139         | 256        | 0           | 123        |  |  |  |  |
|      | D - A180 W  | 502         | 0          | 20          | 0          |  |  |  |  |

# **Vehicle Mix**

#### HV %9

|      | То          |             |            |             |            |  |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |  |
|      | A - A1173 N | 0           | 25         | 38          | 33         |  |  |  |  |  |
| From | B - A180 E  | 7           | 0          | 4           | 0          |  |  |  |  |  |
|      | C - A1173 S | 4           | 1          | 0           | 3          |  |  |  |  |  |
|      | D - A180 W  | 22          | 0          | 11          | 0          |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.19    | 2.11          | 0.3         | А       | 445                    | 668                              |
| B - A180 E  | 0.39    | 2.45          | 0.7         | А       | 843                    | 1265                             |
| C - A1173 S | 0.39    | 4.16          | 0.7         | А       | 475                    | 713                              |
| D - A180 W  | 0.37    | 4.43          | 0.7         | А       | 479                    | 718                              |

# Main Results for each time segment

# 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 365                         | 91                            | 207                             | 2868                 | 0.127 | 364                    | 1088                             | 0.0                     | 0.2                   | 1.870     | Α                                   |
| B - A180 E  | 692                         | 173                           | 243                             | 2707                 | 0.256 | 690                    | 329                              | 0.0                     | 0.4                   | 1.903     | Α                                   |
| C - A1173 S | 390                         | 97                            | 816                             | 1751                 | 0.223 | 389                    | 117                              | 0.0                     | 0.3                   | 2.699     | А                                   |
| D - A180 W  | 393                         | 98                            | 904                             | 1957                 | 0.201 | 392                    | 301                              | 0.0                     | 0.3                   | 2.795     | Α                                   |

## 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 436                         | 109                           | 248                             | 2822                 | 0.155 | 436                    | 1302                             | 0.2                     | 0.2                   | 1.963     | Α                                   |
| B - A180 E  | 826                         | 207                           | 290                             | 2652                 | 0.311 | 826                    | 393                              | 0.4                     | 0.5                   | 2.101     | А                                   |
| C - A1173 S | 466                         | 116                           | 976                             | 1626                 | 0.286 | 465                    | 140                              | 0.3                     | 0.4                   | 3.169     | Α                                   |
| D - A180 W  | 469                         | 117                           | 1081                            | 1791                 | 0.262 | 469                    | 360                              | 0.3                     | 0.4                   | 3.308     | Α                                   |



# 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 534                         | 133                           | 303                             | 2758                 | 0.194 | 534                    | 1593                             | 0.2                     | 0.3                   | 2.105     | Α                                   |
| B - A180 E  | 1012                        | 253                           | 355                             | 2578                 | 0.393 | 1011                   | 482                              | 0.5                     | 0.7                   | 2.448     | А                                   |
| C - A1173 S | 570                         | 143                           | 1195                            | 1455                 | 0.392 | 569                    | 172                              | 0.4                     | 0.7                   | 4.153     | Α                                   |
| D - A180 W  | 575                         | 144                           | 1323                            | 1564                 | 0.367 | 574                    | 441                              | 0.4                     | 0.7                   | 4.412     | А                                   |

## 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 534                         | 133                           | 304                             | 2758                 | 0.194 | 534                    | 1595                             | 0.3                     | 0.3                   | 2.106     | Α                                   |
| B - A180 E  | 1012                        | 253                           | 356                             | 2578                 | 0.393 | 1012                   | 482                              | 0.7                     | 0.7                   | 2.450     | Α                                   |
| C - A1173 S | 570                         | 143                           | 1196                            | 1454                 | 0.392 | 570                    | 172                              | 0.7                     | 0.7                   | 4.164     | Α                                   |
| D - A180 W  | 575                         | 144                           | 1325                            | 1563                 | 0.368 | 575                    | 442                              | 0.7                     | 0.7                   | 4.427     | А                                   |

# 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 436                         | 109                           | 249                             | 2821                 | 0.155 | 436                    | 1305                             | 0.3                     | 0.2                   | 1.966     | Α                                   |
| B - A180 E  | 826                         | 207                           | 291                             | 2652                 | 0.312 | 827                    | 394                              | 0.7                     | 0.5                   | 2.103     | Α                                   |
| C - A1173 S | 466                         | 116                           | 977                             | 1625                 | 0.287 | 467                    | 140                              | 0.7                     | 0.4                   | 3.182     | А                                   |
| D - A180 W  | 469                         | 117                           | 1083                            | 1789                 | 0.262 | 470                    | 361                              | 0.7                     | 0.4                   | 3.319     | Α                                   |

## 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 365                         | 91                            | 208                             | 2867                 | 0.127 | 365                    | 1092                             | 0.2                     | 0.2                   | 1.871     | Α                                   |
| B - A180 E  | 692                         | 173                           | 243                             | 2706                 | 0.256 | 692                    | 330                              | 0.5                     | 0.4                   | 1.905     | Α                                   |
| C - A1173 S | 390                         | 97                            | 818                             | 1749                 | 0.223 | 390                    | 118                              | 0.4                     | 0.3                   | 2.709     | А                                   |
| D - A180 W  | 393                         | 98                            | 906                             | 1955                 | 0.201 | 393                    | 302                              | 0.4                     | 0.3                   | 2.803     | Α                                   |



# 2032 Base + Committed, PM

## **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 2.89               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.89              | Α           |

# **Arms**

#### **Arms**

[same as above]

## **Roundabout Geometry**

[same as above]

# **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 297                       | ✓                            | 47.00                        |
| B - A180 E  | 799                       | ✓                            | 105.00                       |
| C - A1173 S | 735                       | ✓                            | 34.00                        |
| D - A180 W  | 461                       | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

## **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D12 | 2032 Base + Committed | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | ✓            | 1412                | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 498                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 250                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 261                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 783        | 175         | 454        |
| From | B - A180 E  | 214         | 0          | 284         | 0          |
|      | C - A1173 S | 33          | 172        | 0           | 45         |
|      | D - A180 W  | 163         | 1          | 97          | 0          |

# **Vehicle Mix**

#### HV %9

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 3          | 6           | 19         |
| From | B - A180 E  | 13          | 0          | 3           | 0          |
|      | C - A1173 S | 34          | 1          | 0           | 5          |
|      | D - A180 W  | 71          | 0          | 5           | 0          |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.56    | 3.21          | 1.4         | А       | 1296                   | 1944                             |
| B - A180 E  | 0.27    | 2.57          | 0.4         | A       | 457                    | 685                              |
| C - A1173 S | 0.15    | 2.39          | 0.2         | А       | 229                    | 344                              |
| D - A180 W  | 0.12    | 2.27          | 0.2         | А       | 239                    | 359                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1063                        | 266                           | 203                             | 2874                 | 0.370 | 1061                   | 308                              | 0.0                     | 0.6                   | 2.141     | Α                                   |
| B - A180 E  | 375                         | 94                            | 545                             | 2311                 | 0.162 | 374                    | 718                              | 0.0                     | 0.2                   | 1.989     | Α                                   |
| C - A1173 S | 188                         | 47                            | 502                             | 2063                 | 0.091 | 188                    | 418                              | 0.0                     | 0.1                   | 2.019     | Α                                   |
| D - A180 W  | 196                         | 49                            | 315                             | 2649                 | 0.074 | 196                    | 375                              | 0.0                     | 0.1                   | 2.029     | A                                   |

#### 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1269                        | 317                           | 243                             | 2829                 | 0.449 | 1268                   | 368                              | 0.6                     | 0.9                   | 2.491     | Α                                   |
| B - A180 E  | 448                         | 112                           | 652                             | 2199                 | 0.204 | 447                    | 859                              | 0.2                     | 0.3                   | 2.200     | А                                   |
| C - A1173 S | 225                         | 56                            | 600                             | 1978                 | 0.114 | 225                    | 500                              | 0.1                     | 0.1                   | 2.159     | А                                   |
| D - A180 W  | 235                         | 59                            | 376                             | 2580                 | 0.091 | 235                    | 448                              | 0.1                     | 0.1                   | 2.122     | А                                   |



## 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1555                        | 389                           | 297                             | 2767                 | 0.562 | 1553                   | 451                              | 0.9                     | 1.4                   | 3.198     | Α                                   |
| B - A180 E  | 548                         | 137                           | 798                             | 2046                 | 0.268 | 548                    | 1051                             | 0.3                     | 0.4                   | 2.573     | Α                                   |
| C - A1173 S | 275                         | 69                            | 735                             | 1861                 | 0.148 | 275                    | 612                              | 0.1                     | 0.2                   | 2.386     | Α                                   |
| D - A180 W  | 287                         | 72                            | 461                             | 2485                 | 0.116 | 287                    | 549                              | 0.1                     | 0.2                   | 2.265     | А                                   |

#### 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1555                        | 389                           | 297                             | 2766                 | 0.562 | 1555                   | 451                              | 1.4                     | 1.4                   | 3.209     | А                                   |
| B - A180 E  | 548                         | 137                           | 799                             | 2045                 | 0.268 | 548                    | 1053                             | 0.4                     | 0.4                   | 2.575     | Α                                   |
| C - A1173 S | 275                         | 69                            | 735                             | 1861                 | 0.148 | 275                    | 612                              | 0.2                     | 0.2                   | 2.387     | Α                                   |
| D - A180 W  | 287                         | 72                            | 461                             | 2484                 | 0.116 | 287                    | 549                              | 0.2                     | 0.2                   | 2.266     | Α                                   |

## 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1269                        | 317                           | 243                             | 2829                 | 0.449 | 1271                   | 369                              | 1.4                     | 0.9                   | 2.502     | Α                                   |
| B - A180 E  | 448                         | 112                           | 654                             | 2197                 | 0.204 | 448                    | 861                              | 0.4                     | 0.3                   | 2.205     | Α                                   |
| C - A1173 S | 225                         | 56                            | 601                             | 1976                 | 0.114 | 225                    | 500                              | 0.2                     | 0.1                   | 2.160     | А                                   |
| D - A180 W  | 235                         | 59                            | 377                             | 2579                 | 0.091 | 235                    | 449                              | 0.2                     | 0.1                   | 2.123     | Α                                   |

#### 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1063                        | 266                           | 203                             | 2874                 | 0.370 | 1064                   | 309                              | 0.9                     | 0.6                   | 2.151     | Α                                   |
| B - A180 E  | 375                         | 94                            | 547                             | 2309                 | 0.162 | 375                    | 720                              | 0.3                     | 0.2                   | 1.994     | Α                                   |
| C - A1173 S | 188                         | 47                            | 503                             | 2061                 | 0.091 | 188                    | 419                              | 0.1                     | 0.1                   | 2.020     | Α                                   |
| D - A180 W  | 196                         | 49                            | 316                             | 2648                 | 0.074 | 197                    | 376                              | 0.1                     | 0.1                   | 2.030     | А                                   |



# 2032 Base + Committed + Development, AM

#### **Data Errors and Warnings**

| Severity | ity Area Item |                                      | Description  |
|----------|---------------|--------------------------------------|--|
| Warning  | Geometry      | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 3.69               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.69              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|-------------|---------------------------|------------------------------|------------------------------|
| A - A1173 N | 304                       | ✓                            | 47.00                        |
| B - A180 E  | 458                       | ✓                            | 105.00                       |
| C - A1173 S | 1297                      | ✓                            | 34.00                        |
| D - A180 W  | 1336                      | ✓                            | 113.00                       |

# Slope / Intercept / Capacity

[same as above]

# Traffic Demand

### **Demand Set Details**

| ID  | Scenario name                       | Time Period Traffic profile type |          | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|----------------------------------|----------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM                               | ONE HOUR | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-------------|------------|--------------|--------------|---------------------|--------------------|
| A - A1173 N |            | ONE HOUR     | ✓            | 581                 | 100.000            |
| B - A180 E  |            | ONE HOUR     | ✓            | 922                 | 100.000            |
| C - A1173 S |            | ONE HOUR     | ✓            | 525                 | 100.000            |
| D - A180 W  |            | ONE HOUR     | ✓            | 676                 | 100.000            |



# Demand (PCU/hr)

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 185        | 31          | 365        |
| From | B - A180 E  | 811         | 0          | 109         | 2          |
|      | C - A1173 S | 146         | 256        | 0           | 123        |
|      | D - A180 W  | 656         | 0          | 20          | 0          |

# Vehicle Mix

#### HV %9

|      |             |             | То         |             |            |
|------|-------------|-------------|------------|-------------|------------|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |
|      | A - A1173 N | 0           | 25         | 39          | 35         |
| From | B - A180 E  | 7           | 0          | 4           | 0          |
|      | C - A1173 S | 6           | 1          | 0           | 3          |
|      | D - A180 W  | 26          | 0          | 11          | 0          |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.23    | 2.24          | 0.4         | А       | 533                    | 800                              |
| B - A180 E  | 0.41    | 2.68          | 0.8         | A       | 846                    | 1269                             |
| C - A1173 S | 0.42    | 4.64          | 0.7         | А       | 482                    | 723                              |
| D - A180 W  | 0.48    | 5.58          | 1.1         | A       | 620                    | 930                              |

# Main Results for each time segment

## 06:45 - 07:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 437                         | 109                           | 207                             | 2868                 | 0.153 | 436                    | 1211                             | 0.0                     | 0.2                   | 1.952     | Α                                   |
| B - A180 E  | 694                         | 174                           | 312                             | 2610                 | 0.266 | 693                    | 331                              | 0.0                     | 0.4                   | 1.999     | Α                                   |
| C - A1173 S | 395                         | 99                            | 885                             | 1690                 | 0.234 | 394                    | 120                              | 0.0                     | 0.3                   | 2.854     | Α                                   |
| D - A180 W  | 509                         | 127                           | 911                             | 1950                 | 0.261 | 507                    | 368                              | 0.0                     | 0.4                   | 3.126     | Α                                   |

#### 07:00 - 07:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 522                         | 131                           | 248                             | 2822                 | 0.185 | 522                    | 1449                             | 0.2                     | 0.3                   | 2.063     | Α                                   |
| B - A180 E  | 829                         | 207                           | 374                             | 2541                 | 0.326 | 828                    | 396                              | 0.4                     | 0.5                   | 2.240     | Α                                   |
| C - A1173 S | 472                         | 118                           | 1058                            | 1557                 | 0.303 | 471                    | 144                              | 0.3                     | 0.4                   | 3.407     | А                                   |
| D - A180 W  | 608                         | 152                           | 1090                            | 1783                 | 0.341 | 607                    | 440                              | 0.4                     | 0.6                   | 3.839     | А                                   |



## 07:15 - 07:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 640                         | 160                           | 303                             | 2759                 | 0.232 | 639                    | 1773                             | 0.3                     | 0.4                   | 2.239     | Α                                   |
| B - A180 E  | 1015                        | 254                           | 458                             | 2447                 | 0.415 | 1014                   | 485                              | 0.5                     | 0.8                   | 2.677     | Α                                   |
| C - A1173 S | 578                         | 145                           | 1296                            | 1376                 | 0.420 | 577                    | 176                              | 0.4                     | 0.7                   | 4.627     | А                                   |
| D - A180 W  | 744                         | 186                           | 1334                            | 1555                 | 0.479 | 742                    | 539                              | 0.6                     | 1.1                   | 5.547     | Α                                   |

#### 07:30 - 07:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 640                         | 160                           | 304                             | 2758                 | 0.232 | 640                    | 1776                             | 0.4                     | 0.4                   | 2.240     | Α                                   |
| B - A180 E  | 1015                        | 254                           | 458                             | 2447                 | 0.415 | 1015                   | 486                              | 0.8                     | 0.8                   | 2.680     | Α                                   |
| C - A1173 S | 578                         | 145                           | 1297                            | 1375                 | 0.420 | 578                    | 176                              | 0.7                     | 0.7                   | 4.644     | Α                                   |
| D - A180 W  | 744                         | 186                           | 1336                            | 1553                 | 0.479 | 744                    | 539                              | 1.1                     | 1.1                   | 5.584     | А                                   |

## 07:45 - 08:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 522                         | 131                           | 249                             | 2821                 | 0.185 | 523                    | 1453                             | 0.4                     | 0.3                   | 2.067     | Α                                   |
| B - A180 E  | 829                         | 207                           | 374                             | 2541                 | 0.326 | 830                    | 397                              | 0.8                     | 0.5                   | 2.244     | А                                   |
| C - A1173 S | 472                         | 118                           | 1060                            | 1556                 | 0.303 | 473                    | 144                              | 0.7                     | 0.5                   | 3.421     | А                                   |
| D - A180 W  | 608                         | 152                           | 1092                            | 1781                 | 0.341 | 610                    | 441                              | 1.1                     | 0.7                   | 3.864     | Α                                   |

#### 08:00 - 08:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 437                         | 109                           | 208                             | 2867                 | 0.153 | 438                    | 1216                             | 0.3                     | 0.2                   | 1.953     | Α                                   |
| B - A180 E  | 694                         | 174                           | 313                             | 2609                 | 0.266 | 695                    | 332                              | 0.5                     | 0.4                   | 2.005     | А                                   |
| C - A1173 S | 395                         | 99                            | 887                             | 1688                 | 0.234 | 396                    | 121                              | 0.5                     | 0.3                   | 2.867     | Α                                   |
| D - A180 W  | 509                         | 127                           | 914                             | 1947                 | 0.261 | 510                    | 369                              | 0.7                     | 0.4                   | 3.146     | Α                                   |



# 2032 Base + Committed + Development, PM

#### **Data Errors and Warnings**

| Severity | Area     | Item                                 | Description  |
|----------|----------|--------------------------------------|--|
| Warning  | Geometry | A - A1173 N -<br>Roundabout Geometry | Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution. |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order  | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|------------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C, D | 3.28               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 3.28              | Α           |  |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm         | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |  |
|-------------|---------------------------|------------------------------|------------------------------|--|
| A - A1173 N | 297                       | ✓                            | 47.00                        |  |
| B - A180 E  | 940                       | ✓                            | 105.00                       |  |
| C - A1173 S | 874                       | ✓                            | 34.00                        |  |
| D - A180 W  | 475                       | ✓                            | 113.00                       |  |

# Slope / Intercept / Capacity

[same as above]

# Traffic Demand

### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile<br>type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|-------------------------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR                | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm         | Arm Linked arm |          | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-------------|----------------|----------|--------------|---------------------|--------------------|--|
| A - A1173 N |                | ONE HOUR | ✓            | 1543                | 100.000            |  |
| B - A180 E  |                | ONE HOUR | ✓            | 501                 | 100.000            |  |
| C - A1173 S |                | ONE HOUR | ✓            | 259                 | 100.000            |  |
| D - A180 W  |                | ONE HOUR | ✓            | 468                 | 100.000            |  |



# Demand (PCU/hr)

|      | То          |             |            |             |            |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |
|      | A - A1173 N | 0           | 786        | 180         | 577        |  |  |  |  |
| From | B - A180 E  | 217         | 0          | 284         | 0          |  |  |  |  |
|      | C - A1173 S | 42          | 172        | 0           | 45         |  |  |  |  |
|      | D - A180 W  | 370         | 1          | 97          | 0          |  |  |  |  |

# **Vehicle Mix**

#### HV %9

|      | То          |             |            |             |            |  |  |  |  |
|------|-------------|-------------|------------|-------------|------------|--|--|--|--|
|      |             | A - A1173 N | B - A180 E | C - A1173 S | D - A180 W |  |  |  |  |
|      | A - A1173 N | 0           | 3          | 8           | 23         |  |  |  |  |
| From | B - A180 E  | 13          | 0          | 3           | 0          |  |  |  |  |
|      | C - A1173 S | 36          | 1          | 0           | 5          |  |  |  |  |
|      | D - A180 W  | 55          | 0          | 5           | 0          |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm         | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|-------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A1173 N | 0.61    | 3.72          | 1.7         | Α       | 1416                   | 2124                             |
| B - A180 E  | 0.29    | 2.87          | 0.4         | А       | 460                    | 690                              |
| C - A1173 S | 0.16    | 2.64          | 0.2         | А       | 238                    | 356                              |
| D - A180 W  | 0.21    | 2.60          | 0.4         | А       | 429                    | 644                              |

# Main Results for each time segment

## 15:45 - 16:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1162                        | 290                           | 203                             | 2875                 | 0.404 | 1159                   | 472                              | 0.0                     | 0.7                   | 2.310     | А                                   |
| B - A180 E  | 377                         | 94                            | 641                             | 2197                 | 0.172 | 376                    | 720                              | 0.0                     | 0.2                   | 2.116     | А                                   |
| C - A1173 S | 195                         | 49                            | 596                             | 1963                 | 0.099 | 195                    | 421                              | 0.0                     | 0.1                   | 2.160     | Α                                   |
| D - A180 W  | 352                         | 88                            | 324                             | 2637                 | 0.134 | 351                    | 467                              | 0.0                     | 0.2                   | 2.219     | А                                   |

#### 16:00 - 16:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1387                        | 347                           | 243                             | 2829                 | 0.490 | 1386                   | 565                              | 0.7                     | 1.1                   | 2.749     | Α                                   |
| B - A180 E  | 450                         | 113                           | 767                             | 2070                 | 0.218 | 450                    | 861                              | 0.2                     | 0.3                   | 2.380     | А                                   |
| C - A1173 S | 233                         | 58                            | 713                             | 1865                 | 0.125 | 233                    | 504                              | 0.1                     | 0.2                   | 2.340     | Α                                   |
| D - A180 W  | 421                         | 105                           | 387                             | 2566                 | 0.164 | 420                    | 559                              | 0.2                     | 0.3                   | 2.364     | Α                                   |



## 16:15 - 16:30

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1699                        | 425                           | 297                             | 2767                 | 0.614 | 1696                   | 692                              | 1.1                     | 1.7                   | 3.700     | Α                                   |
| B - A180 E  | 552                         | 138                           | 939                             | 1895                 | 0.291 | 551                    | 1054                             | 0.3                     | 0.4                   | 2.867     | Α                                   |
| C - A1173 S | 285                         | 71                            | 873                             | 1731                 | 0.165 | 285                    | 617                              | 0.2                     | 0.2                   | 2.641     | Α                                   |
| D - A180 W  | 515                         | 129                           | 474                             | 2468                 | 0.209 | 515                    | 684                              | 0.3                     | 0.4                   | 2.597     | А                                   |

#### 16:30 - 16:45

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1699                        | 425                           | 297                             | 2766                 | 0.614 | 1699                   | 693                              | 1.7                     | 1.7                   | 3.718     | Α                                   |
| B - A180 E  | 552                         | 138                           | 940                             | 1894                 | 0.291 | 552                    | 1056                             | 0.4                     | 0.4                   | 2.872     | А                                   |
| C - A1173 S | 285                         | 71                            | 874                             | 1730                 | 0.165 | 285                    | 618                              | 0.2                     | 0.2                   | 2.643     | Α                                   |
| D - A180 W  | 515                         | 129                           | 475                             | 2468                 | 0.209 | 515                    | 685                              | 0.4                     | 0.4                   | 2.597     | Α                                   |

## 16:45 - 17:00

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1387                        | 347                           | 243                             | 2829                 | 0.490 | 1390                   | 566                              | 1.7                     | 1.1                   | 2.766     | Α                                   |
| B - A180 E  | 450                         | 113                           | 769                             | 2068                 | 0.218 | 451                    | 864                              | 0.4                     | 0.3                   | 2.387     | Α                                   |
| C - A1173 S | 233                         | 58                            | 715                             | 1864                 | 0.125 | 233                    | 505                              | 0.2                     | 0.2                   | 2.343     | А                                   |
| D - A180 W  | 421                         | 105                           | 388                             | 2565                 | 0.164 | 421                    | 560                              | 0.4                     | 0.3                   | 2.366     | А                                   |

#### 17:00 - 17:15

| Arm         | Total<br>Demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay (s) | Unsignalised<br>level of<br>service |
|-------------|-----------------------------|-------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|-----------|-------------------------------------|
| A - A1173 N | 1162                        | 290                           | 203                             | 2874                 | 0.404 | 1163                   | 474                              | 1.1                     | 0.8                   | 2.324     | Α                                   |
| B - A180 E  | 377                         | 94                            | 644                             | 2195                 | 0.172 | 377                    | 723                              | 0.3                     | 0.2                   | 2.123     | Α                                   |
| C - A1173 S | 195                         | 49                            | 598                             | 1962                 | 0.099 | 195                    | 423                              | 0.2                     | 0.1                   | 2.164     | Α                                   |
| D - A180 W  | 352                         | 88                            | 325                             | 2636                 | 0.134 | 353                    | 469                              | 0.3                     | 0.2                   | 2.221     | Α                                   |

# Annex TN2 I

A160/ A180 Roundabout (Brocklesby Interchange)



# **Junctions 10**

#### **ARCADY 10 - Roundabout Module**

Version: 10.0.4.1693
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Filename: A160-A180 RevD.j10

Path: P:\23000's\23325\Junction Assessment Report generation date: 11/08/2022 12:08:38

- »2021 Base, AM
- »2021 Base, PM
- »2025 Base, AM
- »2025 Base, PM
- »2025 Base + Committed, AM
- »2025 Base + Committed, PM
- »2025 Base + Committed + Development, AM
- »2025 Base + Committed + Development, PM
- »2032 Base, AM
- »2032 Base, PM
- »2032 Base + Committed, AM
- »2032 Base + Committed, PM
- »2032 Base + Committed + Development, AM
- »2032 Base + Committed + Development, PM



# Summary of junction performance

|            |         | AM        |       |           | PM        |      |
|------------|---------|-----------|-------|-----------|-----------|------|
|            | Q (PCU) | Delay (s) | RFC   | Q (PCU)   | Delay (s) | RFC  |
|            |         |           | 2021  | Base      |           |      |
| A - A160   | 0.4     | 1.70      | 0.25  | 0.7       | 2.22      | 0.37 |
| B - A180 E | 0.8     | 6.22      | 0.45  | 0.2       | 4.41      | 0.15 |
| C - A180 W | 0.0     | 1.84      | 0.00  | 0.0       | 0.00      | 0.00 |
|            |         |           | 2025  | Base      |           |      |
| A - A160   | 0.5     | 2.48      | 0.25  | 0.7       | 2.26      | 0.38 |
| B - A180 E | 0.9     | 6.56      | 0.47  | 0.2       | 4.53      | 0.16 |
| C - A180 W | 0.0     | 1.85      | 0.00  | 0.0       | 0.00      | 0.00 |
|            |         | 2025 B    | ase + | - Commi   | tted      |      |
| A - A160   | 0.6     | 2.63      | 0.28  | 1.0       | 2.61      | 0.45 |
| B - A180 E | 0.9     | 6.06      | 0.48  | 0.2       | 5.02      | 0.18 |
| C - A180 W | 0.0     | 1.90      | 0.00  | 0.0       | 0.00      | 0.00 |
|            | 2025 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - A160   | 0.6     | 2.67      | 0.29  | 1.0       | 2.71      | 0.46 |
| B - A180 E | 1.1     | 6.59      | 0.51  | 0.3       | 5.65      | 0.22 |
| C - A180 W | 0.0     | 1.94      | 0.00  | 0.0       | 0.00      | 0.00 |
|            |         |           | 2032  | Base      |           |      |
| A - A160   | 0.6     | 2.60      | 0.27  | 0.8       | 2.33      | 0.39 |
| B - A180 E | 0.8     | 5.71      | 0.45  | 0.2       | 4.73      | 0.17 |
| C - A180 W | 0.0     | 1.88      | 0.00  | 0.0       | 0.00      | 0.00 |
|            |         | 2032 E    | ase 4 | - Commi   | tted      |      |
| A - A160   | 0.6     | 2.68      | 0.30  | 1.0       | 2.70      | 0.46 |
| B - A180 E | 1.0     | 6.58      | 0.51  | 0.3       | 5.25      | 0.19 |
| C - A180 W | 0.0     | 1.93      | 0.00  | 0.0       | 0.00      | 0.00 |
|            | 2032 E  | Base + C  | ommi  | itted + D | evelopm   | ent  |
| A - A160   | 0.7     | 2.73      | 0.30  | 1.1       | 2.82      | 0.48 |
| B - A180 E | 1.2     | 7.16      | 0.54  | 0.4       | 5.92      | 0.24 |
| C - A180 W | 0.0     | 1.96      | 0.00  | 0.0       | 0.00      | 0.00 |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.

# File summary

## File Description

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/02/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\Arcady |
| Description |            |
|             |            |

# Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |



# **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

# **Demand Set Summary**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D1  | 2021 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D2  | 2021 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D3  | 2025 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D4  | 2025 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D5  | 2025 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D6  | 2025 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D7  | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D8  | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D9  | 2032 Base                           | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D10 | 2032 Base                           | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D11 | 2032 Base + Committed               | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D12 | 2032 Base + Committed               | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

# **Analysis Set Details**

| ١ | ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|---|----|-------------------|---------------------------------|-------------------------------------|
|   | A1 | ✓                 | 100.000                         | 100.000                             |



# **2021 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 2.80               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.80              | Α           |

# **Arms**

#### **Arms**

| Arm | Name   | Description | No give-way line |
|-----|--------|-------------|------------------|
| Α   | A160   |             |                  |
| В   | A180 E |             |                  |
| С   | A180 W |             |                  |

#### **Roundabout Geometry**

| Arm        | V (m) | E (m) | l' (m) | R (m) | D (m) | PHI (deg) | Entry only | Exit only |
|------------|-------|-------|--------|-------|-------|-----------|------------|-----------|
| A - A160   | 7.30  | 9.00  | 5.0    | 37.0  | 102.0 | 36.0      |            |           |
| B - A180 E | 3.65  | 4.50  | 5.0    | 25.0  | 102.0 | 44.0      |            |           |
| C - A180 W | 3.65  | 8.20  | 30.0   | 25.0  | 102.0 | 30.0      |            |           |

## **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 901                       | ✓                            | 38.00                        |
| B - A180 E | 1493                      | ✓                            | 142.00                       |
| C - A180 W | 492                       | ✓                            | 170.00                       |

## **Bypass**

| Arm        | Arm has bypass | Bypass Util (%) |  |  |  |
|------------|----------------|-----------------|--|--|--|
| A - A160   |                |                 |  |  |  |
| B - A180 E |                |                 |  |  |  |
| C - A180 W | ✓              | 100             |  |  |  |

# Slope / Intercept / Capacity

#### Roundabout Slope and Intercept used in model

| Arm Final slop |       | Final intercept (PCU/hr) |  |  |  |
|----------------|-------|--------------------------|--|--|--|
| A - A160       | 0.997 | 3042                     |  |  |  |
| B - A180 E     | 0.587 | 1436                     |  |  |  |
| C - A180 W     | 0.977 | 2442                     |  |  |  |

The slope and intercept shown above include any corrections and adjustments.



# **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2021 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm        | Linked arm | Profile type | Use O-D data | Use O-D data Av. Demand (PCU/hr) |         |
|------------|------------|--------------|--------------|----------------------------------|---------|
| A - A160   |            | ONE HOUR     | ✓            | 678                              | 100.000 |
| B - A180 E |            | ONE HOUR     | ✓            | 447                              | 100.000 |
| C - A180 W |            | ONE HOUR     | ✓            | 818                              | 100.000 |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      | То         |          |            |            |  |
|------|------------|----------|------------|------------|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |
| _    | A - A160   | 0        | 140        | 538        |  |
| From | B - A180 E | 447      | 0          | 0          |  |
|      | C - A180 W | 817      | 0          | 1          |  |

# **Vehicle Mix**

## HV %s

|      | То         |          |            |            |  |
|------|------------|----------|------------|------------|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |
| _    | A - A160   | 0        | 14         | 7          |  |
| From | B - A180 E | 3        | 0          | 0          |  |
|      | C - A180 W | 29       | 0          | 0          |  |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.25    | 1.70          | 0.4         | А       | 622                    | 933                              |
| B - A180 E | 0.45    | 6.22          | 0.8         | A       | 410                    | 615                              |
| C - A180 W | 0.00    | 1.84          | 0.0         | А       | 751                    | 1                                |

# Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 510                         | 510                            | 128                           | 0                            | 615                             | 0.75                            | 3042                 | 0.168 | 510                    | 335                              | 0.0                     | 0.2                   | 1.540        | Α                                   |
| B - A180 E | 337                         | 337                            | 84                            | 0                            | 0                               | 405                             | 1199                 | 0.281 | 335                    | 105                              | 0.0                     | 0.4                   | 4.286        | Α                                   |
| C - A180 W | 616                         | 0.75                           | 0.19                          | 615                          | 0                               | 335                             | 2115                 | 0.000 | 0.75                   | 405                              | 0.0                     | 0.0                   | 1.702        | Α                                   |



#### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 610                         | 610                            | 152                           | 0                            | 734                             | 0.90                            | 3042                 | 0.200 | 609                    | 401                              | 0.2                     | 0.3                   | 1.603        | Α                                   |
| B - A180 E | 402                         | 402                            | 100                           | 0                            | 0                               | 484                             | 1152                 | 0.349 | 401                    | 126                              | 0.4                     | 0.5                   | 4.934        | А                                   |
| C - A180 W | 735                         | 0.90                           | 0.22                          | 734                          | 0                               | 401                             | 2050                 | 0.000 | 0.90                   | 484                              | 0.0                     | 0.0                   | 1.755        | А                                   |

# 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 746                         | 746                            | 187                           | 0                            | 900                             | 1                               | 3041                 | 0.245 | 746                    | 491                              | 0.3                     | 0.4                   | 1.699        | Α                                   |
| B - A180 E | 492                         | 492                            | 123                           | 0                            | 0                               | 593                             | 1088                 | 0.452 | 491                    | 154                              | 0.5                     | 0.8                   | 6.195        | А                                   |
| C - A180 W | 901                         | 1                              | 0.28                          | 900                          | 0                               | 491                             | 1962                 | 0.001 | 1                      | 593                              | 0.0                     | 0.0                   | 1.834        | А                                   |

#### 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 746                         | 746                            | 187                           | 0                            | 900                             | 1                               | 3041                 | 0.245 | 746                    | 492                              | 0.4                     | 0.4                   | 1.699        | Α                                   |
| B - A180 E | 492                         | 492                            | 123                           | 0                            | 0                               | 593                             | 1088                 | 0.452 | 492                    | 154                              | 0.8                     | 0.8                   | 6.221        | А                                   |
| C - A180 W | 901                         | 1                              | 0.28                          | 900                          | 0                               | 492                             | 1961                 | 0.001 | 1                      | 593                              | 0.0                     | 0.0                   | 1.835        | А                                   |

#### 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I RFC | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 610                         | 610                            | 152                           | 0                            | 734                             | 0.90                            | 3042                 | 0.200 | 610                    | 403                              | 0.4                     | 0.3                   | 1.603        | А                                   |
| B - A180 E | 402                         | 402                            | 100                           | 0                            | 0                               | 485                             | 1152                 | 0.349 | 403                    | 126                              | 0.8                     | 0.6                   | 4.961        | А                                   |
| C - A180 W | 735                         | 0.90                           | 0.22                          | 734                          | 0                               | 403                             | 2048                 | 0.000 | 0.90                   | 485                              | 0.0                     | 0.0                   | 1.757        | А                                   |

# 08:00 - 08:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 510                         | 510                            | 128                           | 0                            | 615                             | 0.75                            | 3042                 | 0.168 | 511                    | 337                              | 0.3                     | 0.2                   | 1.543        | Α                                   |
| B - A180 E | 337                         | 337                            | 84                            | 0                            | 0                               | 406                             | 1198                 | 0.281 | 337                    | 105                              | 0.6                     | 0.4                   | 4.311        | А                                   |
| C - A180 W | 616                         | 0.75                           | 0.19                          | 615                          | 0                               | 337                             | 2113                 | 0.000 | 0.75                   | 406                              | 0.0                     | 0.0                   | 1.706        | А                                   |



# 2021 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 1.76               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.76              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 360                       | ✓                            | 38.00                        |
| B - A180 E | 958                       | ✓                            | 142.00                       |
| C - A180 W | 156                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

## Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2021 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 1053                | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 142                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 488                 | 100.000            |



## Demand (PCU/hr)

|      |            |          | То         |            |  |  |
|------|------------|----------|------------|------------|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |
| F    | A - A160   | 0        | 346        | 707        |  |  |
| From | B - A180 E | 140      | 2          | 0          |  |  |
|      | C - A180 W | 488      | 0          | 0          |  |  |

# **Vehicle Mix**

## HV %s

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| _    | A - A160   | 0        | 3          | 37         |
| From | B - A180 E | 9        | 0          | 0          |
|      | C - A180 W | 70       | 0          | 0          |

# Results

## Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.37    | 2.22          | 0.7         | Α       | 966                    | 1449                             |
| B - A180 E | 0.15    | 4.41          | 0.2         | А       | 130                    | 195                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 448                    | 0                                |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 793                         | 793                            | 198                           | 0                            | 367                             | 1                               | 3166                 | 0.250 | 791                    | 105                              | 0.0                     | 0.4                   | 1.873        | Α                                   |
| B - A180 E | 107                         | 107                            | 27                            | 0                            | 0                               | 531                             | 1208                 | 0.088 | 106                    | 261                              | 0.0                     | 0.1                   | 3.558        | А                                   |
| C - A180 W | 367                         | 0                              | 0                             | 367                          | 0                               | 106                             | 2409                 | 0.000 | 0                      | 531                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | demand |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|--------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 947                         | 947                            | 237                           | 0      | 439 | 2                               | 3166                 | 0.299 | 946                    | 126                              | 0.4                     | 0.5                   | 2.004        | Α                                   |
| B - A180 E | 128                         | 128                            | 32                            | 0      | 0   | 635                             | 1139                 | 0.112 | 128                    | 313                              | 0.1                     | 0.1                   | 3.874        | Α                                   |
| C - A180 W | 439                         | 0                              | 0                             | 439    | 0   | 128                             | 2387                 | 0.000 | 0                      | 635                              | 0.0                     | 0.0                   | 0.000        | А                                   |

# 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I KFG. | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|--------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1159                        | 1159                           | 290                           | 0                            | 537                             | 2                               | 3165                 | 0.366  | 1159                   | 154                              | 0.5                     | 0.7                   | 2.217        | Α                                   |
| B - A180 E | 156                         | 156                            | 39                            | 0                            | 0                               | 778                             | 1044                 | 0.150  | 156                    | 383                              | 0.1                     | 0.2                   | 4.411        | А                                   |
| C - A180 W | 537                         | 0                              | 0                             | 537                          | 0                               | 156                             | 2357                 | 0.000  | 0                      | 778                              | 0.0                     | 0.0                   | 0.000        | А                                   |



## 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1159                        | 1159                           | 290                           | 0                            | 537                             | 2                               | 3165                 | 0.366 | 1159                   | 154                              | 0.7                     | 0.7                   | 2.217        | Α                                   |
| B - A180 E | 156                         | 156                            | 39                            | 0                            | 0                               | 778                             | 1044                 | 0.150 | 156                    | 383                              | 0.2                     | 0.2                   | 4.414        | А                                   |
| C - A180 W | 537                         | 0                              | 0                             | 537                          | 0                               | 156                             | 2357                 | 0.000 | 0                      | 778                              | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 947                         | 947                            | 237                           | 0                            | 439                             | 2                               | 3166                 | 0.299 | 947                    | 126                              | 0.7                     | 0.5                   | 2.007        | Α                                   |
| B - A180 E | 128                         | 128                            | 32                            | 0                            | 0                               | 636                             | 1138                 | 0.112 | 128                    | 313                              | 0.2                     | 0.1                   | 3.880        | А                                   |
| C - A180 W | 439                         | 0                              | 0                             | 439                          | 0                               | 128                             | 2387                 | 0.000 | 0                      | 636                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 793                         | 793                            | 198                           | 0                            | 367                             | 2                               | 3166                 | 0.250 | 793                    | 106                              | 0.5                     | 0.4                   | 1.874        | Α                                   |
| B - A180 E | 107                         | 107                            | 27                            | 0                            | 0                               | 533                             | 1207                 | 0.089 | 107                    | 262                              | 0.1                     | 0.1                   | 3.562        | А                                   |
| C - A180 W | 367                         | 0                              | 0                             | 367                          | 0                               | 107                             | 2408                 | 0.000 | 0                      | 533                              | 0.0                     | 0.0                   | 0.000        | А                                   |



# **2025 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| Ī | 1        | untitled | Large Roundabout |                       | A, B, C   | 3.15               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.15              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 927                       | ✓                            | 38.00                        |
| B - A180 E | 1537                      | ✓                            | 142.00                       |
| C - A180 W | 506                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 698                 | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 460                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 842                 | 100.000            |



## Demand (PCU/hr)

|      |            |          | То         |            |  |  |
|------|------------|----------|------------|------------|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |
| F    | A - A160   | 0        | 144        | 554        |  |  |
| From | B - A180 E | 460      | 0          | 0          |  |  |
|      | C - A180 W | 841      | 0          | 1          |  |  |

# **Vehicle Mix**

## HV %s

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| _    | A - A160   | 0        | 14         | 73         |
| From | B - A180 E | 3        | 0          | 0          |
|      | C - A180 W | 29       | 0          | 0          |

# Results

## Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.25    | 2.48          | 0.5         | Α       | 640                    | 961                              |
| B - A180 E | 0.47    | 6.56          | 0.9         | А       | 422                    | 633                              |
| C - A180 W | 0.00    | 1.85          | 0.0         | A       | 773                    | 1                                |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 525                         | 525                            | 131                           | 0                            | 633 | 0.75                            | 3036                 | 0.173 | 524                    | 345                              | 0.0                     | 0.3                   | 2.239        | Α                                   |
| B - A180 E | 346                         | 346                            | 87                            | 0                            | 0   | 417                             | 1184                 | 0.292 | 345                    | 108                              | 0.0                     | 0.4                   | 4.408        | Α                                   |
| C - A180 W | 634                         | 0.75                           | 0.19                          | 633                          | 0   | 345                             | 2103                 | 0.000 | 0.75                   | 417                              | 0.0                     | 0.0                   | 1.711        | А                                   |

#### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I RFC | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 627                         | 627                            | 157                           | 0                            | 756                             | 0.90                            | 3035                 | 0.207 | 627                    | 413                              | 0.3                     | 0.4                   | 2.336        | Α                                   |
| B - A180 E | 414                         | 414                            | 103                           | 0                            | 0                               | 499                             | 1137                 | 0.364 | 413                    | 129                              | 0.4                     | 0.6                   | 5.119        | А                                   |
| C - A180 W | 757                         | 0.90                           | 0.22                          | 756                          | 0                               | 413                             | 2036                 | 0.000 | 0.90                   | 499                              | 0.0                     | 0.0                   | 1.767        | А                                   |

# 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Arrivals | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFG   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|----------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 769                         | 769                            | 192      | 0                            | 926                             | 1                               | 3035                 | 0.253 | 768                    | 505                              | 0.4                     | 0.5                   | 2.482        | Α                                   |
| B - A180 E | 506                         | 506                            | 127      | 0                            | 0                               | 611                             | 1072                 | 0.473 | 505                    | 158                              | 0.6                     | 0.9                   | 6.532        | Α                                   |
| C - A180 W | 927                         | 1                              | 0.28     | 926                          | 0                               | 505                             | 1947                 | 0.001 | 1                      | 611                              | 0.0                     | 0.0                   | 1.849        | А                                   |



## 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 769                         | 769                            | 192                           | 0                            | 926                             | 1                               | 3035                 | 0.253 | 769                    | 506                              | 0.5                     | 0.5                   | 2.482        | Α                                   |
| B - A180 E | 506                         | 506                            | 127                           | 0                            | 0                               | 611                             | 1071                 | 0.473 | 506                    | 159                              | 0.9                     | 0.9                   | 6.563        | А                                   |
| C - A180 W | 927                         | 1                              | 0.28                          | 926                          | 0                               | 506                             | 1945                 | 0.001 | 1                      | 611                              | 0.0                     | 0.0                   | 1.850        | Α                                   |

## 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 627                         | 627                            | 157                           | 0                            | 756                             | 0.90                            | 3035                 | 0.207 | 628                    | 415                              | 0.5                     | 0.4                   | 2.339        | А                                   |
| B - A180 E | 414                         | 414                            | 103                           | 0                            | 0                               | 499                             | 1136                 | 0.364 | 415                    | 130                              | 0.9                     | 0.6                   | 5.150        | А                                   |
| C - A180 W | 757                         | 0.90                           | 0.22                          | 756                          | 0                               | 415                             | 2035                 | 0.000 | 0.90                   | 499                              | 0.0                     | 0.0                   | 1.769        | А                                   |

#### 08:00 - 08:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 525                         | 525                            | 131                           | 0                            | 633                             | 0.75                            | 3036                 | 0.173 | 526                    | 347                              | 0.4                     | 0.3                   | 2.243        | А                                   |
| B - A180 E | 346                         | 346                            | 87                            | 0                            | 0                               | 418                             | 1183                 | 0.293 | 347                    | 108                              | 0.6                     | 0.4                   | 4.438        | А                                   |
| C - A180 W | 634                         | 0.75                           | 0.19                          | 633                          | 0                               | 347                             | 2101                 | 0.000 | 0.75                   | 418                              | 0.0                     | 0.0                   | 1.716        | А                                   |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 1.80               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.80              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

## **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 371                       | ✓                            | 38.00                        |
| B - A180 E | 986                       | ✓                            | 142.00                       |
| C - A180 W | 161                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

## Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Scenario name Time Period name |          | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|--------------------------------|----------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM                             | ONE HOUR | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|---------------------------|---|---------------------|--------------------|
| A - A160   |            | ONE HOUR                  | ✓ | 1084                | 100.000            |
| B - A180 E |            | ONE HOUR                  | ✓ | 146                 | 100.000            |
| C - A180 W |            | ONE HOUR                  | ✓ | 502                 | 100.000            |



## Demand (PCU/hr)

|      |            |          | То         |            |  |  |
|------|------------|----------|------------|------------|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |
| F    | A - A160   | 0        | 356        | 728        |  |  |
| From | B - A180 E | 144      | 2          | 0          |  |  |
|      | C - A180 W | 502      | 0          | 0          |  |  |

# Vehicle Mix

## HV %s

|      |            |          | То         |    |  |  |
|------|------------|----------|------------|----|--|--|
|      |            | A - A160 | C - A180 W |    |  |  |
| F    | A - A160   | 0        | 3          | 37 |  |  |
| From | B - A180 E | 9        | 0          | 0  |  |  |
|      | C - A180 W | 70       | 0          | 0  |  |  |

# Results

## Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.38    | 2.26          | 0.7         | A       | 995                    | 1492                             |
| B - A180 E | 0.16    | 4.53          | 0.2         | A       | 134                    | 201                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 461                    | 0                                |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 816                         | 816                            | 204                           | 0                            | 378                             | 1                               | 3164                 | 0.258 | 814                    | 108                              | 0.0                     | 0.4                   | 1.894        | Α                                   |
| B - A180 E | 110                         | 110                            | 27                            | 0                            | 0                               | 547                             | 1193                 | 0.092 | 109                    | 269                              | 0.0                     | 0.1                   | 3.614        | Α                                   |
| C - A180 W | 378                         | 0                              | 0                             | 378                          | 0                               | 109                             | 2405                 | 0.000 | 0                      | 547                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | demand |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|--------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 974                         | 974                            | 244                           | 0      | 451 | 2                               | 3163                 | 0.308 | 974                    | 129                              | 0.4                     | 0.5                   | 2.032        | Α                                   |
| B - A180 E | 131                         | 131                            | 33                            | 0      | 0   | 654                             | 1123                 | 0.117 | 131                    | 322                              | 0.1                     | 0.1                   | 3.953        | Α                                   |
| C - A180 W | 451                         | 0                              | 0                             | 451    | 0   | 131                             | 2382                 | 0.000 | 0                      | 654                              | 0.0                     | 0.0                   | 0.000        | А                                   |

# 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1194                        | 1194                           | 298                           | 0                            | 553                             | 2                               | 3163                 | 0.377 | 1193                   | 158                              | 0.5                     | 0.7                   | 2.257        | Α                                   |
| B - A180 E | 161                         | 161                            | 40                            | 0                            | 0                               | 801                             | 1026                 | 0.157 | 161                    | 394                              | 0.1                     | 0.2                   | 4.528        | Α                                   |
| C - A180 W | 553                         | 0                              | 0                             | 553                          | 0                               | 161                             | 2352                 | 0.000 | 0                      | 801                              | 0.0                     | 0.0                   | 0.000        | А                                   |



## 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1194                        | 1194                           | 298                           | 0                            | 553                             | 2                               | 3163                 | 0.377 | 1194                   | 159                              | 0.7                     | 0.7                   | 2.258        | Α                                   |
| B - A180 E | 161                         | 161                            | 40                            | 0                            | 0                               | 802                             | 1025                 | 0.157 | 161                    | 394                              | 0.2                     | 0.2                   | 4.532        | А                                   |
| C - A180 W | 553                         | 0                              | 0                             | 553                          | 0                               | 161                             | 2352                 | 0.000 | 0                      | 802                              | 0.0                     | 0.0                   | 0.000        | А                                   |

## 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 974                         | 974                            | 244                           | 0                            | 451                             | 2                               | 3163                 | 0.308 | 975                    | 130                              | 0.7                     | 0.6                   | 2.035        | Α                                   |
| B - A180 E | 131                         | 131                            | 33                            | 0                            | 0                               | 655                             | 1122                 | 0.117 | 131                    | 322                              | 0.2                     | 0.1                   | 3.958        | А                                   |
| C - A180 W | 451                         | 0                              | 0                             | 451                          | 0                               | 131                             | 2382                 | 0.000 | 0                      | 655                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 816                         | 816                            | 204                           | 0                            | 378                             | 2                               | 3164                 | 0.258 | 817                    | 109                              | 0.6                     | 0.4                   | 1.895        | А                                   |
| B - A180 E | 110                         | 110                            | 27                            | 0                            | 0                               | 548                             | 1192                 | 0.092 | 110                    | 270                              | 0.1                     | 0.1                   | 3.620        | А                                   |
| C - A180 W | 378                         | 0                              | 0                             | 378                          | 0                               | 110                             | 2404                 | 0.000 | 0                      | 548                              | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2025 Base + Committed, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 3.05               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.05              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1372                      | ✓                            | 38.00                        |
| B - A180 E | 669                       | ✓                            | 142.00                       |
| C - A180 W | 554                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

## Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 Base + Committed | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm Linked arm |  | Profile type Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|----------------|--|---------------------------|---|---------------------|--------------------|--|
| A - A160       |  | ONE HOUR                  | ✓ | 754                 | 100.000            |  |
| B - A180 E     |  | ONE HOUR                  | ✓ | 503                 | 100.000            |  |
| C - A180 W     |  | ONE HOUR                  | ✓ | 1036                | 100.000            |  |



## Demand (PCU/hr)

|      | То         |          |            |            |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |
| F    | A - A160   | 0        | 152        | 602        |  |  |  |  |  |
| From | B - A180 E | 503      | 0          | 0          |  |  |  |  |  |
|      | C - A180 W | 1035     | 0          | 1          |  |  |  |  |  |

# **Vehicle Mix**

## HV %s

|      | То         |          |            |            |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |
|      | A - A160   | 0        | 14         | 68         |  |  |  |  |  |
| From | B - A180 E | 2        | 0          | 0          |  |  |  |  |  |
|      | C - A180 W | 24       | 0          | 0          |  |  |  |  |  |

# Results

## Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.28    | 2.63          | 0.6         | A       | 692                    | 1038                             |
| B - A180 E | 0.48    | 6.06          | 0.9         | A       | 462                    | 692                              |
| C - A180 W | 0.00    | 1.90          | 0.0         | A       | 951                    | 1                                |

## Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 568                         | 568                            | 142                           | 0                            | 779 | 0.75                            | 2932                 | 0.194 | 566                    | 377                              | 0.0                     | 0.4                   | 2.332        | Α                                   |
| B - A180 E | 379                         | 379                            | 95                            | 0                            | 0   | 453                             | 1308                 | 0.289 | 377                    | 114                              | 0.0                     | 0.4                   | 3.936        | Α                                   |
| C - A180 W | 780                         | 0.75                           | 0.19                          | 779                          | 0   | 377                             | 2064                 | 0.000 | 0.75                   | 453                              | 0.0                     | 0.0                   | 1.744        | А                                   |

#### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | demand |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|--------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 678                         | 678                            | 169                           | 0      | 930 | 0.90                            | 2932                 | 0.231 | 677                    | 452                              | 0.4                     | 0.5                   | 2.448        | Α                                   |
| B - A180 E | 452                         | 452                            | 113                           | 0      | 0   | 542                             | 1245                 | 0.363 | 452                    | 137                              | 0.4                     | 0.6                   | 4.621        | Α                                   |
| C - A180 W | 931                         | 0.90                           | 0.22                          | 930    | 0   | 452                             | 1992                 | 0.000 | 0.90                   | 542                              | 0.0                     | 0.0                   | 1.807        | А                                   |

# 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC.  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 830                         | 830                            | 208                           | 0                            | 1140                            | 1                               | 2932                 | 0.283 | 830                    | 552                              | 0.5                     | 0.6                   | 2.625        | Α                                   |
| B - A180 E | 554                         | 554                            | 138                           | 0                            | 0                               | 663                             | 1160                 | 0.478 | 552                    | 167                              | 0.6                     | 0.9                   | 6.033        | Α                                   |
| C - A180 W | 1141                        | 1                              | 0.28                          | 1140                         | 0                               | 552                             | 1895                 | 0.001 | 1                      | 663                              | 0.0                     | 0.0                   | 1.900        | А                                   |



## 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I REC | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 830                         | 830                            | 208                           | 0                            | 1140                            | 1                               | 2932                 | 0.283 | 830                    | 554                              | 0.6                     | 0.6                   | 2.625        | Α                                   |
| B - A180 E | 554                         | 554                            | 138                           | 0                            | 0                               | 664                             | 1159                 | 0.478 | 554                    | 167                              | 0.9                     | 0.9                   | 6.062        | А                                   |
| C - A180 W | 1141                        | 1                              | 0.28                          | 1140                         | 0                               | 554                             | 1893                 | 0.001 | 1                      | 664                              | 0.0                     | 0.0                   | 1.901        | Α                                   |

## 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 678                         | 678                            | 169                           | 0                            | 930                             | 0.90                            | 2932                 | 0.231 | 678                    | 454                              | 0.6                     | 0.5                   | 2.451        | Α                                   |
| B - A180 E | 452                         | 452                            | 113                           | 0                            | 0                               | 543                             | 1245                 | 0.363 | 454                    | 137                              | 0.9                     | 0.6                   | 4.649        | А                                   |
| C - A180 W | 931                         | 0.90                           | 0.22                          | 930                          | 0                               | 454                             | 1990                 | 0.000 | 0.90                   | 543                              | 0.0                     | 0.0                   | 1.811        | А                                   |

#### 08:00 - 08:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 568                         | 568                            | 142                           | 0                            | 779 | 0.75                            | 2932                 | 0.194 | 568                    | 379                              | 0.5                     | 0.4                   | 2.336        | Α                                   |
| B - A180 E | 379                         | 379                            | 95                            | 0                            | 0   | 454                             | 1307                 | 0.290 | 379                    | 115                              | 0.6                     | 0.4                   | 3.960        | Α                                   |
| C - A180 W | 780                         | 0.75                           | 0.19                          | 779                          | 0   | 379                             | 2062                 | 0.000 | 0.75                   | 454                              | 0.0                     | 0.0                   | 1.748        | Α                                   |



# 2025 Base + Committed, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| I | Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| I | 1        | untitled | Large Roundabout |                       | A, B, C   | 2.07               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |  |
|--------------|----------------|-------------------|-------------|--|--|
| Left         | Normal/unknown | 2.07              | Α           |  |  |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 995                       | ✓                            | 38.00                        |
| B - A180 E | 926                       | ✓                            | 142.00                       |
| C - A180 W | 168                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

## Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name         | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|-----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 Base + Committed | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 1222                | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 153                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 536                 | 100.000            |



## Demand (PCU/hr)

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 381        | 841        |
| From | B - A180 E | 151      | 2          | 0          |
|      | C - A180 W | 536      | 0          | 0          |

# **Vehicle Mix**

## HV %s

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
|      | A - A160   | 0        | 3          | 32         |
| From | B - A180 E | 9        | 0          | 0          |
|      | C - A180 W | 65       | 11         | 0          |

# Results

## Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.45    | 2.61          | 1.0         | A       | 1121                   | 1682                             |
| B - A180 E | 0.18    | 5.02          | 0.2         | A       | 140                    | 211                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 492                    | 0                                |

## Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 920                         | 920                            | 230                           | 0                            | 404                             | 1                               | 3019                 | 0.305 | 918                    | 113                              | 0.0                     | 0.5                   | 2.077        | Α                                   |
| B - A180 E | 115                         | 115                            | 29                            | 0                            | 0                               | 632                             | 1146                 | 0.101 | 115                    | 288                              | 0.0                     | 0.1                   | 3.798        | А                                   |
| C - A180 W | 404                         | 0                              | 0                             | 404                          | 0                               | 115                             | 2398                 | 0.000 | 0                      | 632                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1099                        | 1099                           | 275                           | 0                            | 482                             | 2                               | 3019                 | 0.364 | 1098                   | 136                              | 0.5                     | 0.7                   | 2.274        | Α                                   |
| B - A180 E | 138                         | 138                            | 34                            | 0                            | 0                               | 756                             | 1063                 | 0.129 | 137                    | 344                              | 0.1                     | 0.2                   | 4.234        | А                                   |
| C - A180 W | 482                         | 0                              | 0                             | 482                          | 0                               | 137                             | 2374                 | 0.000 | 0                      | 756                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

# 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1345                        | 1345                           | 336                           | 0                            | 590                             | 2                               | 3018                 | 0.446 | 1344                   | 166                              | 0.7                     | 1.0                   | 2.608        | Α                                   |
| B - A180 E | 168                         | 168                            | 42                            | 0                            | 0                               | 925                             | 950                  | 0.177 | 168                    | 421                              | 0.2                     | 0.2                   | 5.013        | А                                   |
| C - A180 W | 590                         | 0                              | 0                             | 590                          | 0                               | 168                             | 2342                 | 0.000 | 0                      | 925                              | 0.0                     | 0.0                   | 0.000        | А                                   |



## 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | 1 RF(: | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|--------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1345                        | 1345                           | 336                           | 0                            | 590                             | 2                               | 3018                 | 0.446  | 1345                   | 166                              | 1.0                     | 1.0                   | 2.610        | Α                                   |
| B - A180 E | 168                         | 168                            | 42                            | 0                            | 0                               | 926                             | 949                  | 0.177  | 168                    | 422                              | 0.2                     | 0.2                   | 5.019        | А                                   |
| C - A180 W | 590                         | 0                              | 0                             | 590                          | 0                               | 168                             | 2342                 | 0.000  | 0                      | 926                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1099                        | 1099                           | 275                           | 0                            | 482                             | 2                               | 3019                 | 0.364 | 1100                   | 136                              | 1.0                     | 0.7                   | 2.277        | А                                   |
| B - A180 E | 138                         | 138                            | 34                            | 0                            | 0                               | 757                             | 1062                 | 0.129 | 138                    | 345                              | 0.2                     | 0.2                   | 4.240        | А                                   |
| C - A180 W | 482                         | 0                              | 0                             | 482                          | 0                               | 138                             | 2374                 | 0.000 | 0                      | 757                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

#### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 920                         | 920                            | 230                           | 0                            | 404                             | 2                               | 3019                 | 0.305 | 921                    | 114                              | 0.7                     | 0.5                   | 2.082        | Α                                   |
| B - A180 E | 115                         | 115                            | 29                            | 0                            | 0                               | 634                             | 1145                 | 0.101 | 115                    | 289                              | 0.2                     | 0.1                   | 3.810        | Α                                   |
| C - A180 W | 404                         | 0                              | 0                             | 404                          | 0                               | 115                             | 2397                 | 0.000 | 0                      | 634                              | 0.0                     | 0.0                   | 0.000        | Α                                   |



# 2025 Base + Committed + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 3.24               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.24              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1470                      | ✓                            | 38.00                        |
| B - A180 E | 668                       | ✓                            | 142.00                       |
| C - A180 W | 586                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D7 | 2025 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 771                 | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 532                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 1036                | 100.000            |



# Demand (PCU/hr)

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 169        | 602        |
| From | B - A180 E | 532      | 0          | 0          |
|      | C - A180 W | 1035     | 0          | 1          |

# **Vehicle Mix**

# HV %s

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 16         | 68         |
| From | B - A180 E | 5        | 0          | 0          |
|      | C - A180 W | 24       | 0          | 0          |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.29    | 2.67          | 0.6         | A       | 707                    | 1061                             |
| B - A180 E | 0.51    | 6.59          | 1.1         | A       | 488                    | 732                              |
| C - A180 W | 0.00    | 1.94          | 0.0         | A       | 951                    | 1                                |

# Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 580                         | 580                            | 145                           | 0                            | 779 | 0.75                            | 2910                 | 0.199 | 579                    | 399                              | 0.0                     | 0.4                   | 2.361        | Α                                   |
| B - A180 E | 401                         | 401                            | 100                           | 0                            | 0   | 453                             | 1308                 | 0.306 | 399                    | 127                              | 0.0                     | 0.5                   | 4.146        | Α                                   |
| C - A180 W | 780                         | 0.75                           | 0.19                          | 779                          | 0   | 399                             | 2038                 | 0.000 | 0.75                   | 453                              | 0.0                     | 0.0                   | 1.766        | Α                                   |

#### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Arrivals | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|----------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 693                         | 693                            | 173      | 0                            | 930                             | 0.90                            | 2910                 | 0.238 | 693                    | 478                              | 0.4                     | 0.5                   | 2.484        | Α                                   |
| B - A180 E | 478                         | 478                            | 120      | 0                            | 0                               | 542                             | 1246                 | 0.384 | 478                    | 152                              | 0.5                     | 0.6                   | 4.915        | А                                   |
| C - A180 W | 931                         | 0.90                           | 0.22     | 930                          | 0                               | 478                             | 1962                 | 0.000 | 0.90                   | 542                              | 0.0                     | 0.0                   | 1.834        | Α                                   |

# 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 849                         | 849                            | 212                           | 0                            | 1140                            | 1                               | 2909                 | 0.292 | 848                    | 584                              | 0.5                     | 0.6                   | 2.671        | А                                   |
| B - A180 E | 586                         | 586                            | 146                           | 0                            | 0                               | 663                             | 1160                 | 0.505 | 584                    | 186                              | 0.6                     | 1.1                   | 6.546        | А                                   |
| C - A180 W | 1141                        | 1                              | 0.28                          | 1140                         | 0                               | 584                             | 1860                 | 0.001 | 1                      | 663                              | 0.0                     | 0.0                   | 1.936        | А                                   |



## 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 849                         | 849                            | 212                           | 0                            | 1140                            | 1                               | 2909                 | 0.292 | 849                    | 586                              | 0.6                     | 0.6                   | 2.671        | Α                                   |
| B - A180 E | 586                         | 586                            | 146                           | 0                            | 0                               | 664                             | 1160                 | 0.505 | 586                    | 186                              | 1.1                     | 1.1                   | 6.586        | А                                   |
| C - A180 W | 1141                        | 1                              | 0.28                          | 1140                         | 0                               | 586                             | 1859                 | 0.001 | 1                      | 664                              | 0.0                     | 0.0                   | 1.937        | А                                   |

## 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 693                         | 693                            | 173                           | 0                            | 930                             | 0.90                            | 2910                 | 0.238 | 694                    | 480                              | 0.6                     | 0.5                   | 2.485        | Α                                   |
| B - A180 E | 478                         | 478                            | 120                           | 0                            | 0                               | 543                             | 1245                 | 0.384 | 480                    | 152                              | 1.1                     | 0.7                   | 4.949        | А                                   |
| C - A180 W | 931                         | 0.90                           | 0.22                          | 930                          | 0                               | 480                             | 1960                 | 0.000 | 0.90                   | 543                              | 0.0                     | 0.0                   | 1.836        | А                                   |

#### 08:00 - 08:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 580                         | 580                            | 145                           | 0                            | 779                             | 0.75                            | 2910                 | 0.199 | 581                    | 401                              | 0.5                     | 0.4                   | 2.366        | Α                                   |
| B - A180 E | 401                         | 401                            | 100                           | 0                            | 0                               | 454                             | 1307                 | 0.306 | 401                    | 127                              | 0.7                     | 0.5                   | 4.175        | А                                   |
| C - A180 W | 780                         | 0.75                           | 0.19                          | 779                          | 0                               | 401                             | 2035                 | 0.000 | 0.75                   | 454                              | 0.0                     | 0.0                   | 1.771        | А                                   |



# 2025 Base + Committed + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 2.26               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.26              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

#### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1132                      | ✓                            | 38.00                        |
| B - A180 E | 926                       | ✓                            | 142.00                       |
| C - A180 W | 211                       | ✓                            | 170.00                       |

#### **Bypass**

[same as above]

## Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D8 | 2025 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

|            |            | • ,                       |   |                     |                    |
|------------|------------|---------------------------|---|---------------------|--------------------|
| Arm        | Linked arm | Linked arm   Profile type |   | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - A160   |            | ONE HOUR                  | ✓ | 1245                | 100.000            |
| B - A180 E |            | ONE HOUR                  | ✓ | 192                 | 100.000            |
| C - A180 W |            | ONE HOUR                  | ✓ | 536                 | 100.000            |



# Demand (PCU/hr)

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 404        | 841        |
| From | B - A180 E | 190      | 2          | 0          |
|      | C - A180 W | 536      | 0          | 0          |

# Vehicle Mix

## HV %s

|      |            |          | То         |            |  |  |
|------|------------|----------|------------|------------|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |
| F    | A - A160   | 0        | 5          | 32         |  |  |
| From | B - A180 E | 16       | 0          | 0          |  |  |
|      | C - A180 W | 65       | 0          | 0          |  |  |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.46    | 2.71          | 1.0         | Α       | 1142                   | 1714                             |
| B - A180 E | 0.22    | 5.65          | 0.3         | A       | 176                    | 264                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 492                    | 0                                |

# Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC.  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 937                         | 937                            | 234                           | 0                            | 404                             | 1                               | 2987                 | 0.314 | 935                    | 142                              | 0.0                     | 0.6                   | 2.135        | Α                                   |
| B - A180 E | 145                         | 145                            | 36                            | 0                            | 0                               | 632                             | 1146                 | 0.126 | 144                    | 305                              | 0.0                     | 0.2                   | 4.158        | Α                                   |
| C - A180 W | 404                         | 0                              | 0                             | 404                          | 0                               | 144                             | 2359                 | 0.000 | 0                      | 632                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

## 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1119                        | 1119                           | 280                           | 0                            | 482                             | 2                               | 2987                 | 0.375 | 1119                   | 171                              | 0.6                     | 0.7                   | 2.347        | Α                                   |
| B - A180 E | 173                         | 173                            | 43                            | 0                            | 0                               | 756                             | 1063                 | 0.162 | 172                    | 365                              | 0.2                     | 0.2                   | 4.679        | А                                   |
| C - A180 W | 482                         | 0                              | 0                             | 482                          | 0                               | 172                             | 2329                 | 0.000 | 0                      | 756                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

# 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) |     | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|-----|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1371                        | 1371                           | 343                           | 0                            | 590                             | 2   | 2987                 | 0.459 | 1370                   | 209                              | 0.7                     | 1.0                   | 2.711        | Α                                   |
| B - A180 E | 211                         | 211                            | 53                            | 0                            | 0                               | 925 | 950                  | 0.223 | 211                    | 447                              | 0.2                     | 0.3                   | 5.641        | Α                                   |
| C - A180 W | 590                         | 0                              | 0                             | 590                          | 0                               | 211 | 2290                 | 0.000 | 0                      | 925                              | 0.0                     | 0.0                   | 0.000        | А                                   |



## 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1371                        | 1371                           | 343                           | 0                            | 590                             | 2                               | 2987                 | 0.459 | 1371                   | 209                              | 1.0                     | 1.0                   | 2.713        | Α                                   |
| B - A180 E | 211                         | 211                            | 53                            | 0                            | 0                               | 926                             | 949                  | 0.223 | 211                    | 447                              | 0.3                     | 0.3                   | 5.649        | А                                   |
| C - A180 W | 590                         | 0                              | 0                             | 590                          | 0                               | 211                             | 2289                 | 0.000 | 0                      | 926                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1119                        | 1119                           | 280                           | 0                            | 482                             | 2                               | 2987                 | 0.375 | 1120                   | 171                              | 1.0                     | 0.7                   | 2.350        | Α                                   |
| B - A180 E | 173                         | 173                            | 43                            | 0                            | 0                               | 757                             | 1062                 | 0.162 | 173                    | 365                              | 0.3                     | 0.2                   | 4.692        | А                                   |
| C - A180 W | 482                         | 0                              | 0                             | 482                          | 0                               | 173                             | 2329                 | 0.000 | 0                      | 757                              | 0.0                     | 0.0                   | 0.000        | А                                   |

#### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 937                         | 937                            | 234                           | 0                            | 404                             | 2                               | 2987                 | 0.314 | 938                    | 143                              | 0.7                     | 0.6                   | 2.142        | Α                                   |
| B - A180 E | 145                         | 145                            | 36                            | 0                            | 0                               | 634                             | 1145                 | 0.126 | 145                    | 306                              | 0.2                     | 0.2                   | 4.170        | Α                                   |
| C - A180 W | 404                         | 0                              | 0                             | 404                          | 0                               | 145                             | 2358                 | 0.000 | 0                      | 634                              | 0.0                     | 0.0                   | 0.000        | Α                                   |



# **2032 Base, AM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 3.01               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.01              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1209                      | ✓                            | 38.00                        |
| B - A180 E | 644                       | ✓                            | 142.00                       |
| C - A180 W | 531                       | ✓                            | 170.00                       |

### **Bypass**

[same as above]

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 731                 | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 482                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 881                 | 100.000            |



### Demand (PCU/hr)

|      |            |          | То         |            |  |  |
|------|------------|----------|------------|------------|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |
| F    | A - A160   | 0        | 151        | 580        |  |  |
| From | B - A180 E | 482      | 0          | 0          |  |  |
|      | C - A180 W | 880      | 0          | 1          |  |  |

# **Vehicle Mix**

### HV %s

|      |            | То       |            |            |  |  |  |  |  |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |  |  |  |  |  |
|      | A - A160   | 0        | 14         | 73         |  |  |  |  |  |  |  |  |  |  |
| From | B - A180 E | 3        | 0          | 0          |  |  |  |  |  |  |  |  |  |  |
|      | C - A180 W | 29       | 0          | 0          |  |  |  |  |  |  |  |  |  |  |

# Results

### Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.27    | 2.60          | 0.6         | А       | 671                    | 1006                             |
| B - A180 E | 0.45    | 5.71          | 0.8         | А       | 442                    | 663                              |
| C - A180 W | 0.00    | 1.88          | 0.0         | А       | 808                    | 1                                |

### Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 550                         | 550                            | 138                           | 0                            | 663 | 0.75                            | 2970                 | 0.185 | 549                    | 361                              | 0.0                     | 0.4                   | 2.322        | Α                                   |
| B - A180 E | 363                         | 363                            | 91                            | 0                            | 0   | 436                             | 1324                 | 0.274 | 361                    | 113                              | 0.0                     | 0.4                   | 3.845        | Α                                   |
| C - A180 W | 663                         | 0.75                           | 0.19                          | 663                          | 0   | 361                             | 2083                 | 0.000 | 0.75                   | 436                              | 0.0                     | 0.0                   | 1.728        | А                                   |

### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 657                         | 657                            | 164                           | 0                            | 791                             | 0.90                            | 2970                 | 0.221 | 657                    | 433                              | 0.4                     | 0.4                   | 2.432        | Α                                   |
| B - A180 E | 433                         | 433                            | 108                           | 0                            | 0                               | 522                             | 1263                 | 0.343 | 433                    | 136                              | 0.4                     | 0.5                   | 4.461        | А                                   |
| C - A180 W | 792                         | 0.90                           | 0.22                          | 791                          | 0                               | 433                             | 2014                 | 0.000 | 0.90                   | 522                              | 0.0                     | 0.0                   | 1.787        | Α                                   |

### 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 805                         | 805                            | 201                           | 0                            | 969                             | 1                               | 2970                 | 0.271 | 804                    | 529                              | 0.4                     | 0.6                   | 2.598        | Α                                   |
| B - A180 E | 531                         | 531                            | 133                           | 0                            | 0                               | 639                             | 1180                 | 0.450 | 529                    | 166                              | 0.5                     | 0.8                   | 5.687        | Α                                   |
| C - A180 W | 970                         | 1                              | 0.28                          | 969                          | 0                               | 529                             | 1920                 | 0.001 | 1                      | 639                              | 0.0                     | 0.0                   | 1.875        | А                                   |



### 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 805                         | 805                            | 201                           | 0                            | 969                             | 1                               | 2970                 | 0.271 | 805                    | 531                              | 0.6                     | 0.6                   | 2.598        | Α                                   |
| B - A180 E | 531                         | 531                            | 133                           | 0                            | 0                               | 640                             | 1180                 | 0.450 | 531                    | 166                              | 0.8                     | 0.8                   | 5.710        | А                                   |
| C - A180 W | 970                         | 1                              | 0.28                          | 969                          | 0                               | 531                             | 1919                 | 0.001 | 1                      | 640                              | 0.0                     | 0.0                   | 1.876        | А                                   |

### 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 657                         | 657                            | 164                           | 0                            | 791                             | 0.90                            | 2970                 | 0.221 | 658                    | 434                              | 0.6                     | 0.4                   | 2.435        | Α                                   |
| B - A180 E | 433                         | 433                            | 108                           | 0                            | 0                               | 523                             | 1263                 | 0.343 | 434                    | 136                              | 0.8                     | 0.5                   | 4.484        | А                                   |
| C - A180 W | 792                         | 0.90                           | 0.22                          | 791                          | 0                               | 434                             | 2012                 | 0.000 | 0.90                   | 523                              | 0.0                     | 0.0                   | 1.792        | А                                   |

### 08:00 - 08:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 550                         | 550                            | 138                           | 0                            | 663                             | 0.75                            | 2970                 | 0.185 | 551                    | 363                              | 0.4                     | 0.4                   | 2.325        | Α                                   |
| B - A180 E | 363                         | 363                            | 91                            | 0                            | 0                               | 438                             | 1323                 | 0.274 | 363                    | 114                              | 0.5                     | 0.4                   | 3.867        | Α                                   |
| C - A180 W | 663                         | 0.75                           | 0.19                          | 663                          | 0                               | 363                             | 2081                 | 0.000 | 0.75                   | 438                              | 0.0                     | 0.0                   | 1.732        | А                                   |



# 2032 Base, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 1.85               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.85              | Α           |

# **Arms**

#### **Arms**

[same as above]

### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 388                       | ✓                            | 38.00                        |
| B - A180 E | 1029                      | ✓                            | 142.00                       |
| C - A180 W | 168                       | ✓                            | 170.00                       |

### **Bypass**

[same as above]

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

|   | ID  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|-----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| [ | 010 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 1132                | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 153                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 525                 | 100.000            |



### Demand (PCU/hr)

|      | То         |          |            |            |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |
| F    | A - A160   | 0        | 372        | 760        |  |  |  |  |  |
| From | B - A180 E | 151      | 2          | 0          |  |  |  |  |  |
|      | C - A180 W | 525      | 0          | 0          |  |  |  |  |  |

# **Vehicle Mix**

### HV %s

|      | То         |          |            |            |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |
|      | A - A160   | 0        | 3          | 37         |  |  |  |  |  |
| From | B - A180 E | 9        | 0          | 0          |  |  |  |  |  |
|      | C - A180 W | 70       | 0          | 0          |  |  |  |  |  |

# Results

### Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.39    | 2.33          | 0.8         | A       | 1039                   | 1558                             |
| B - A180 E | 0.17    | 4.73          | 0.2         | A       | 140                    | 211                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 482                    | 0                                |

### Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 852                         | 852                            | 213                           | 0                            | 395                             | 1                               | 3160                 | 0.270 | 850                    | 113                              | 0.0                     | 0.5                   | 1.924        | Α                                   |
| B - A180 E | 115                         | 115                            | 29                            | 0                            | 0                               | 571                             | 1171                 | 0.098 | 115                    | 281                              | 0.0                     | 0.1                   | 3.708        | A                                   |
| C - A180 W | 395                         | 0                              | 0                             | 395                          | 0                               | 115                             | 2398                 | 0.000 | 0                      | 571                              | 0.0                     | 0.0                   | 0.000        | А                                   |

### 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1018                        | 1018                           | 254                           | 0                            | 472                             | 2                               | 3160                 | 0.322 | 1017                   | 136                              | 0.5                     | 0.6                   | 2.077        | Α                                   |
| B - A180 E | 138                         | 138                            | 34                            | 0                            | 0                               | 683                             | 1098                 | 0.125 | 137                    | 336                              | 0.1                     | 0.2                   | 4.081        | А                                   |
| C - A180 W | 472                         | 0                              | 0                             | 472                          | 0                               | 137                             | 2374                 | 0.000 | 0                      | 683                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFG:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1246                        | 1246                           | 312                           | 0                            | 578                             | 2                               | 3159                 | 0.395 | 1245                   | 166                              | 0.6                     | 8.0                   | 2.323        | Α                                   |
| B - A180 E | 168                         | 168                            | 42                            | 0                            | 0                               | 836                             | 998                  | 0.169 | 168                    | 411                              | 0.2                     | 0.2                   | 4.724        | Α                                   |
| C - A180 W | 578                         | 0                              | 0                             | 578                          | 0                               | 168                             | 2342                 | 0.000 | 0                      | 836                              | 0.0                     | 0.0                   | 0.000        | Α                                   |



### 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Arrivals | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I REC | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|----------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1246                        | 1246                           | 312      | 0                            | 578                             | 2                               | 3159                 | 0.395 | 1246                   | 166                              | 0.8                     | 0.8                   | 2.325        | Α                                   |
| B - A180 E | 168                         | 168                            | 42       | 0                            | 0                               | 837                             | 997                  | 0.169 | 168                    | 412                              | 0.2                     | 0.2                   | 4.728        | А                                   |
| C - A180 W | 578                         | 0                              | 0        | 578                          | 0                               | 168                             | 2342                 | 0.000 | 0                      | 837                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1018                        | 1018                           | 254                           | 0                            | 472                             | 2                               | 3160                 | 0.322 | 1019                   | 136                              | 0.8                     | 0.6                   | 2.080        | Α                                   |
| B - A180 E | 138                         | 138                            | 34                            | 0                            | 0                               | 684                             | 1097                 | 0.125 | 138                    | 337                              | 0.2                     | 0.2                   | 4.086        | А                                   |
| C - A180 W | 472                         | 0                              | 0                             | 472                          | 0                               | 138                             | 2374                 | 0.000 | 0                      | 684                              | 0.0                     | 0.0                   | 0.000        | А                                   |

### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 852                         | 852                            | 213                           | 0                            | 395                             | 2                               | 3160                 | 0.270 | 853                    | 114                              | 0.6                     | 0.5                   | 1.930        | Α                                   |
| B - A180 E | 115                         | 115                            | 29                            | 0                            | 0                               | 573                             | 1170                 | 0.098 | 115                    | 282                              | 0.2                     | 0.1                   | 3.716        | А                                   |
| C - A180 W | 395                         | 0                              | 0                             | 395                          | 0                               | 115                             | 2397                 | 0.000 | 0                      | 573                              | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2032 Base + Committed, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 3.20               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.20              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1415                      | ✓                            | 38.00                        |
| B - A180 E | 697                       | ✓                            | 142.00                       |
| C - A180 W | 578                       | ✓                            | 170.00                       |

### **Bypass**

[same as above]

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D11 | 2032 Base + Committed | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 786                 | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 525                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 1075                | 100.000            |



# Demand (PCU/hr)

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 159        | 627        |
| From | B - A180 E | 525      | 0          | 0          |
|      | C - A180 W | 1074     | 0          | 1          |

# Vehicle Mix

# HV %s

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 14         | 68         |
| From | B - A180 E | 2        | 0          | 0          |
|      | C - A180 W | 24       | 0          | 0          |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.30    | 2.68          | 0.6         | А       | 721                    | 1082                             |
| B - A180 E | 0.51    | 6.58          | 1.0         | А       | 482                    | 723                              |
| C - A180 W | 0.00    | 1.93          | 0.0         | A       | 986                    | 1                                |

# Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 592                         | 592                            | 148                           | 0                            | 809 | 0.75                            | 2923                 | 0.202 | 590                    | 393                              | 0.0                     | 0.4                   | 2.365        | Α                                   |
| B - A180 E | 395                         | 395                            | 99                            | 0                            | 0   | 472                             | 1290                 | 0.306 | 393                    | 119                              | 0.0                     | 0.4                   | 4.085        | Α                                   |
| C - A180 W | 809                         | 0.75                           | 0.19                          | 809                          | 0   | 393                             | 2044                 | 0.000 | 0.75                   | 472                              | 0.0                     | 0.0                   | 1.760        | A                                   |

### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Arrivals | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|----------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 707                         | 707                            | 177      | 0                            | 966                             | 0.90                            | 2922                 | 0.242 | 706                    | 471                              | 0.4                     | 0.5                   | 2.490        | А                                   |
| B - A180 E | 472                         | 472                            | 118      | 0                            | 0                               | 564                             | 1225                 | 0.385 | 471                    | 143                              | 0.4                     | 0.6                   | 4.863        | А                                   |
| C - A180 W | 966                         | 0.90                           | 0.22     | 966                          | 0                               | 471                             | 1970                 | 0.000 | 0.90                   | 564                              | 0.0                     | 0.0                   | 1.827        | Α                                   |

### 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 865                         | 865                            | 216                           | 0                            | 1182                            | 1                               | 2922                 | 0.296 | 865                    | 576                              | 0.5                     | 0.6                   | 2.682        | А                                   |
| B - A180 E | 578                         | 578                            | 145                           | 0                            | 0                               | 691                             | 1137                 | 0.509 | 576                    | 175                              | 0.6                     | 1.0                   | 6.536        | А                                   |
| C - A180 W | 1184                        | 1                              | 0.28                          | 1182                         | 0                               | 576                             | 1869                 | 0.001 | 1                      | 691                              | 0.0                     | 0.0                   | 1.927        | А                                   |



### 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I REC | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 865                         | 865                            | 216                           | 0                            | 1182                            | 1                               | 2922                 | 0.296 | 865                    | 578                              | 0.6                     | 0.6                   | 2.682        | Α                                   |
| B - A180 E | 578                         | 578                            | 145                           | 0                            | 0                               | 691                             | 1136                 | 0.509 | 578                    | 175                              | 1.0                     | 1.0                   | 6.576        | А                                   |
| C - A180 W | 1184                        | 1                              | 0.28                          | 1182                         | 0                               | 578                             | 1867                 | 0.001 | 1                      | 691                              | 0.0                     | 0.0                   | 1.929        | Α                                   |

### 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 707                         | 707                            | 177                           | 0                            | 966                             | 0.90                            | 2922                 | 0.242 | 707                    | 474                              | 0.6                     | 0.5                   | 2.493        | Α                                   |
| B - A180 E | 472                         | 472                            | 118                           | 0                            | 0                               | 565                             | 1225                 | 0.385 | 474                    | 143                              | 1.0                     | 0.6                   | 4.897        | А                                   |
| C - A180 W | 966                         | 0.90                           | 0.22                          | 966                          | 0                               | 474                             | 1967                 | 0.000 | 0.90                   | 565                              | 0.0                     | 0.0                   | 1.832        | А                                   |

### 08:00 - 08:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 592                         | 592                            | 148                           | 0                            | 809 | 0.75                            | 2923                 | 0.202 | 592                    | 396                              | 0.5                     | 0.4                   | 2.370        | Α                                   |
| B - A180 E | 395                         | 395                            | 99                            | 0                            | 0   | 473                             | 1289                 | 0.307 | 396                    | 120                              | 0.6                     | 0.5                   | 4.113        | Α                                   |
| C - A180 W | 809                         | 0.75                           | 0.19                          | 809                          | 0   | 396                             | 2042                 | 0.000 | 0.75                   | 473                              | 0.0                     | 0.0                   | 1.765        | Α                                   |



# 2032 Base + Committed, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 2.15               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.15              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1021                      | ✓                            | 38.00                        |
| B - A180 E | 961                       | ✓                            | 142.00                       |
| C - A180 W | 176                       | ✓                            | 170.00                       |

### **Bypass**

[same as above]

# Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name         | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-----------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D12 | 2032 Base + Committed | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | ✓                    |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

|            |            | ,            |              |                     |                    |
|------------|------------|--------------|--------------|---------------------|--------------------|
| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
| A - A160   |            | ONE HOUR     | ✓            | 1270                | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 160                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 559                 | 100.000            |



# Demand (PCU/hr)

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 397        | 873        |
| From | B - A180 E | 158      | 2          | 0          |
|      | C - A180 W | 559      | 0          | 0          |

# Vehicle Mix

### HV %s

|      |            |          | То         |            |
|------|------------|----------|------------|------------|
|      |            | A - A160 | B - A180 E | C - A180 W |
| F    | A - A160   | 0        | 3          | 32         |
| From | B - A180 E | 9        | 0          | 0          |
|      | C - A180 W | 65       | 0          | 0          |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.46    | 2.70          | 1.0         | А       | 1165                   | 1748                             |
| B - A180 E | 0.19    | 5.25          | 0.3         | A       | 147                    | 220                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 513                    | 0                                |

# Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC.  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 956                         | 956                            | 239                           | 0                            | 421                             | 1                               | 3013                 | 0.317 | 954                    | 118                              | 0.0                     | 0.6                   | 2.119        | Α                                   |
| B - A180 E | 120                         | 120                            | 30                            | 0                            | 0                               | 656                             | 1125                 | 0.107 | 120                    | 300                              | 0.0                     | 0.1                   | 3.898        | Α                                   |
| C - A180 W | 421                         | 0                              | 0                             | 421                          | 0                               | 120                             | 2391                 | 0.000 | 0                      | 656                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1142                        | 1142                           | 285                           | 0                            | 503                             | 2                               | 3013                 | 0.379 | 1141                   | 142                              | 0.6                     | 0.7                   | 2.333        | Α                                   |
| B - A180 E | 144                         | 144                            | 36                            | 0                            | 0                               | 784                             | 1040                 | 0.138 | 144                    | 358                              | 0.1                     | 0.2                   | 4.373        | Α                                   |
| C - A180 W | 503                         | 0                              | 0                             | 503                          | 0                               | 144                             | 2366                 | 0.000 | 0                      | 784                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1398                        | 1398                           | 350                           | 0                            | 615                             | 2                               | 3012                 | 0.464 | 1397                   | 174                              | 0.7                     | 1.0                   | 2.703        | Α                                   |
| B - A180 E | 176                         | 176                            | 44                            | 0                            | 0                               | 960                             | 923                  | 0.191 | 176                    | 439                              | 0.2                     | 0.3                   | 5.243        | А                                   |
| C - A180 W | 615                         | 0                              | 0                             | 615                          | 0                               | 176                             | 2333                 | 0.000 | 0                      | 960                              | 0.0                     | 0.0                   | 0.000        | Α                                   |



### 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | 1 RF(: | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|--------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1398                        | 1398                           | 350                           | 0                            | 615                             | 2                               | 3012                 | 0.464  | 1398                   | 174                              | 1.0                     | 1.0                   | 2.705        | Α                                   |
| B - A180 E | 176                         | 176                            | 44                            | 0                            | 0                               | 961                             | 922                  | 0.191  | 176                    | 439                              | 0.3                     | 0.3                   | 5.251        | А                                   |
| C - A180 W | 615                         | 0                              | 0                             | 615                          | 0                               | 176                             | 2332                 | 0.000  | 0                      | 961                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1142                        | 1142                           | 285                           | 0                            | 503                             | 2                               | 3013                 | 0.379 | 1143                   | 142                              | 1.0                     | 0.7                   | 2.338        | Α                                   |
| B - A180 E | 144                         | 144                            | 36                            | 0                            | 0                               | 786                             | 1039                 | 0.138 | 144                    | 359                              | 0.3                     | 0.2                   | 4.384        | А                                   |
| C - A180 W | 503                         | 0                              | 0                             | 503                          | 0                               | 144                             | 2366                 | 0.000 | 0                      | 786                              | 0.0                     | 0.0                   | 0.000        | А                                   |

### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 956                         | 956                            | 239                           | 0                            | 421                             | 2                               | 3013                 | 0.317 | 957                    | 119                              | 0.7                     | 0.6                   | 2.126        | А                                   |
| B - A180 E | 120                         | 120                            | 30                            | 0                            | 0                               | 658                             | 1124                 | 0.107 | 121                    | 301                              | 0.2                     | 0.1                   | 3.908        | А                                   |
| C - A180 W | 421                         | 0                              | 0                             | 421                          | 0                               | 121                             | 2390                 | 0.000 | 0                      | 658                              | 0.0                     | 0.0                   | 0.000        | А                                   |



# 2032 Base + Committed + Development, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| I | Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|---|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| ſ | 1        | untitled | Large Roundabout |                       | A, B, C   | 3.40               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 3.40              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1513                      | ✓                            | 38.00                        |
| B - A180 E | 695                       | ✓                            | 142.00                       |
| C - A180 W | 609                       | ✓                            | 170.00                       |

### **Bypass**

[same as above]

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D13 | 2032 Base + Committed + Development | AM               | ONE HOUR             | 06:45                 | 08:15                  | 15                        | <b>✓</b>             |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 802                 | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 553                 | 100.000            |
| C - A180 W |            | ONE HOUR     | ✓            | 1075                | 100.000            |



# Demand (PCU/hr)

|      |            |          | То                  |     |  |  |
|------|------------|----------|---------------------|-----|--|--|
|      |            | A - A160 | A - A160 B - A180 E |     |  |  |
| F    | A - A160   | 0        | 175                 | 627 |  |  |
| From | B - A180 E | 553      | 0                   | 0   |  |  |
|      | C - A180 W | 1074     | 0                   | 1   |  |  |

# **Vehicle Mix**

# HV %s

|      |            |          | То         |            |  |  |
|------|------------|----------|------------|------------|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |
| F    | A - A160   | 0        | 16         | 68         |  |  |
| From | B - A180 E | 5        | 0          | 0          |  |  |
|      | C - A180 W | 24       | 0          | 0          |  |  |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.30    | 2.73          | 0.7         | А       | 736                    | 1104                             |
| B - A180 E | 0.54    | 7.16          | 1.2         | А       | 507                    | 761                              |
| C - A180 W | 0.00    | 1.96          | 0.0         | A       | 986                    | 1                                |

# Main Results for each time segment

#### 06:45 - 07:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) |     | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|-----|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 604                         | 604                            | 151                           | 0                            | 809 | 0.75                            | 2900                 | 0.208 | 602                    | 414                              | 0.0                     | 0.4                   | 2.397        | Α                                   |
| B - A180 E | 416                         | 416                            | 104                           | 0                            | 0   | 472                             | 1291                 | 0.323 | 414                    | 131                              | 0.0                     | 0.5                   | 4.304        | Α                                   |
| C - A180 W | 809                         | 0.75                           | 0.19                          | 809                          | 0   | 414                             | 2019                 | 0.000 | 0.75                   | 472                              | 0.0                     | 0.0                   | 1.782        | Α                                   |

### 07:00 - 07:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Arrivals | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|----------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 721                         | 721                            | 180      | 0                            | 966                             | 0.90                            | 2900                 | 0.249 | 721                    | 496                              | 0.4                     | 0.5                   | 2.528        | Α                                   |
| B - A180 E | 497                         | 497                            | 124      | 0                            | 0                               | 564                             | 1226                 | 0.406 | 496                    | 157                              | 0.5                     | 0.7                   | 5.175        | А                                   |
| C - A180 W | 966                         | 0.90                           | 0.22     | 966                          | 0                               | 496                             | 1941                 | 0.000 | 0.90                   | 564                              | 0.0                     | 0.0                   | 1.854        | Α                                   |

### 07:15 - 07:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 883                         | 883                            | 221                           | 0                            | 1182                            | 1                               | 2899                 | 0.305 | 882                    | 607                              | 0.5                     | 0.7                   | 2.731        | А                                   |
| B - A180 E | 609                         | 609                            | 152                           | 0                            | 0                               | 691                             | 1137                 | 0.536 | 607                    | 193                              | 0.7                     | 1.2                   | 7.107        | А                                   |
| C - A180 W | 1184                        | 1                              | 0.28                          | 1182                         | 0                               | 607                             | 1836                 | 0.001 | 1                      | 691                              | 0.0                     | 0.0                   | 1.962        | А                                   |



### 07:30 - 07:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | I RFC | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 883                         | 883                            | 221                           | 0                            | 1182                            | 1                               | 2899                 | 0.305 | 883                    | 609                              | 0.7                     | 0.7                   | 2.731        | Α                                   |
| B - A180 E | 609                         | 609                            | 152                           | 0                            | 0                               | 691                             | 1137                 | 0.536 | 609                    | 193                              | 1.2                     | 1.2                   | 7.162        | А                                   |
| C - A180 W | 1184                        | 1                              | 0.28                          | 1182                         | 0                               | 609                             | 1834                 | 0.001 | 1                      | 691                              | 0.0                     | 0.0                   | 1.963        | Α                                   |

### 07:45 - 08:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 721                         | 721                            | 180                           | 0                            | 966                             | 0.90                            | 2900                 | 0.249 | 722                    | 499                              | 0.7                     | 0.5                   | 2.529        | Α                                   |
| B - A180 E | 497                         | 497                            | 124                           | 0                            | 0                               | 565                             | 1225                 | 0.406 | 499                    | 157                              | 1.2                     | 0.7                   | 5.219        | А                                   |
| C - A180 W | 966                         | 0.90                           | 0.22                          | 966                          | 0                               | 499                             | 1939                 | 0.000 | 0.90                   | 565                              | 0.0                     | 0.0                   | 1.856        | Α                                   |

| <       |      |                             |                                |                               |                              |                                 |                                 |                      |       |                        |                                  |                         |                       |              | >                                   |
|---------|------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| Arr     |      | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
| A - A16 | 60   | 604                         | 604                            | 151                           | 0                            | 809                             | 0.75                            | 2900                 | 0.208 | 604                    | 417                              | 0.5                     | 0.4                   | 2.399        | Α                                   |
| B - A18 | 80 E | 416                         | 416                            | 104                           | 0                            | 0                               | 473                             | 1290                 | 0.323 | 417                    | 132                              | 0.7                     | 0.5                   | 4.338        | Α                                   |
| C - A1  | 80 W | 809                         | 0.75                           | 0.19                          | 809                          | 0                               | 417                             | 2017                 | 0.000 | 0.75                   | 473                              | 0.0                     | 0.0                   | 1.784        | Α                                   |



# 2032 Base + Committed + Development, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type    | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|------------------|-----------------------|-----------|--------------------|--------------|
| 1        | untitled | Large Roundabout |                       | A, B, C   | 2.35               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 2.35              | Α           |

# **Arms**

#### **Arms**

[same as above]

#### **Roundabout Geometry**

[same as above]

### **Large Roundabout Data**

| Arm        | Circulating flow (PCU/hr) | Has entry-to-exit separation | Entry-to-exit separation (m) |
|------------|---------------------------|------------------------------|------------------------------|
| A - A160   | 1157                      | ✓                            | 38.00                        |
| B - A180 E | 961                       | ✓                            | 142.00                       |
| C - A180 W | 218                       | ✓                            | 170.00                       |

### **Bypass**

[same as above]

### Slope / Intercept / Capacity

[same as above]

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name                       | Time Period name | Traffic profile type | Start time<br>(HH:mm) | Finish time<br>(HH:mm) | Time segment length (min) | Run<br>automatically |
|-----|-------------------------------------|------------------|----------------------|-----------------------|------------------------|---------------------------|----------------------|
| D14 | 2032 Base + Committed + Development | PM               | ONE HOUR             | 15:45                 | 17:15                  | 15                        | <b>✓</b>             |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

| Arm        | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------|------------|--------------|--------------|---------------------|--------------------|
| A - A160   |            | ONE HOUR     | ✓            | 1293                | 100.000            |
| B - A180 E |            | ONE HOUR     | ✓            | 198                 | 100.000            |
| C - A180 W |            | ONE HOUR     | <b>√</b>     | 559                 | 100.000            |



# Demand (PCU/hr)

|      | То         |          |            |            |  |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |  |
| F    | A - A160   | 0        | 420        | 873        |  |  |  |  |  |  |
| From | B - A180 E | 196      | 2          | 0          |  |  |  |  |  |  |
|      | C - A180 W | 559      | 0          | 0          |  |  |  |  |  |  |

# Vehicle Mix

### HV %s

|      | То         |          |            |            |  |  |  |  |  |  |
|------|------------|----------|------------|------------|--|--|--|--|--|--|
|      |            | A - A160 | B - A180 E | C - A180 W |  |  |  |  |  |  |
| F    | A - A160   | 0        | 5          | 32         |  |  |  |  |  |  |
| From | B - A180 E | 16       | 0          | 0          |  |  |  |  |  |  |
|      | C - A180 W | 65       | 0          | 0          |  |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Arm        | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|------------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| A - A160   | 0.48    | 2.82          | 1.1         | А       | 1186                   | 1780                             |
| B - A180 E | 0.24    | 5.92          | 0.4         | А       | 182                    | 273                              |
| C - A180 W | 0.00    | 0.00          | 0.0         | A       | 513                    | 0                                |

# Main Results for each time segment

#### 15:45 - 16:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC.  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 973                         | 973                            | 243                           | 0                            | 421                             | 1                               | 2982                 | 0.326 | 971                    | 147                              | 0.0                     | 0.6                   | 2.180        | Α                                   |
| B - A180 E | 149                         | 149                            | 37                            | 0                            | 0                               | 656                             | 1125                 | 0.133 | 148                    | 317                              | 0.0                     | 0.2                   | 4.266        | Α                                   |
| C - A180 W | 421                         | 0                              | 0                             | 421                          | 0                               | 148                             | 2353                 | 0.000 | 0                      | 656                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:00 - 16:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1162                        | 1162                           | 291                           | 0                            | 503                             | 2                               | 2981                 | 0.390 | 1162                   | 176                              | 0.6                     | 0.8                   | 2.408        | Α                                   |
| B - A180 E | 178                         | 178                            | 44                            | 0                            | 0                               | 784                             | 1040                 | 0.171 | 178                    | 379                              | 0.2                     | 0.2                   | 4.836        | А                                   |
| C - A180 W | 503                         | 0                              | 0                             | 503                          | 0                               | 178                             | 2323                 | 0.000 | 0                      | 784                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:15 - 16:30

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1424                        | 1424                           | 356                           | 0                            | 615                             | 2                               | 2981                 | 0.478 | 1422                   | 215                              | 0.8                     | 1.1                   | 2.811        | Α                                   |
| B - A180 E | 218                         | 218                            | 55                            | 0                            | 0                               | 960                             | 923                  | 0.236 | 218                    | 464                              | 0.2                     | 0.4                   | 5.906        | А                                   |
| C - A180 W | 615                         | 0                              | 0                             | 615                          | 0                               | 218                             | 2282                 | 0.000 | 0                      | 960                              | 0.0                     | 0.0                   | 0.000        | Α                                   |



### 16:30 - 16:45

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) | RF(:  | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1424                        | 1424                           | 356                           | 0                            | 615                             | 2                               | 2981                 | 0.478 | 1424                   | 216                              | 1.1                     | 1.1                   | 2.815        | Α                                   |
| B - A180 E | 218                         | 218                            | 55                            | 0                            | 0                               | 961                             | 922                  | 0.236 | 218                    | 465                              | 0.4                     | 0.4                   | 5.918        | А                                   |
| C - A180 W | 615                         | 0                              | 0                             | 615                          | 0                               | 218                             | 2281                 | 0.000 | 0                      | 961                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 16:45 - 17:00

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 1162                        | 1162                           | 291                           | 0                            | 503                             | 2                               | 2981                 | 0.390 | 1164                   | 177                              | 1.1                     | 8.0                   | 2.416        | Α                                   |
| B - A180 E | 178                         | 178                            | 44                            | 0                            | 0                               | 786                             | 1039                 | 0.171 | 178                    | 380                              | 0.4                     | 0.2                   | 4.848        | А                                   |
| C - A180 W | 503                         | 0                              | 0                             | 503                          | 0                               | 178                             | 2322                 | 0.000 | 0                      | 786                              | 0.0                     | 0.0                   | 0.000        | Α                                   |

### 17:00 - 17:15

| Arm        | Total<br>Demand<br>(PCU/hr) | Junction<br>demand<br>(PCU/hr) | Junction<br>Arrivals<br>(PCU) | Bypass<br>demand<br>(PCU/hr) | Bypass<br>exit flow<br>(PCU/hr) | Circulating<br>flow<br>(PCU/hr) | Capacity<br>(PCU/hr) |       | Throughput<br>(PCU/hr) | Throughput<br>(exit)<br>(PCU/hr) | Start<br>queue<br>(PCU) | End<br>queue<br>(PCU) | Delay<br>(s) | Unsignalised<br>level of<br>service |
|------------|-----------------------------|--------------------------------|-------------------------------|------------------------------|---------------------------------|---------------------------------|----------------------|-------|------------------------|----------------------------------|-------------------------|-----------------------|--------------|-------------------------------------|
| A - A160   | 973                         | 973                            | 243                           | 0                            | 421                             | 2                               | 2982                 | 0.326 | 974                    | 148                              | 0.8                     | 0.6                   | 2.187        | Α                                   |
| B - A180 E | 149                         | 149                            | 37                            | 0                            | 0                               | 658                             | 1124                 | 0.133 | 149                    | 318                              | 0.2                     | 0.2                   | 4.281        | А                                   |
| C - A180 W | 421                         | 0                              | 0                             | 421                          | 0                               | 149                             | 2352                 | 0.000 | 0                      | 658                              | 0.0                     | 0.0                   | 0.000        | Α                                   |



# **Annex L**

Technical Note 5 – Slip Road Assessments (Annex L)



### 1.0 Introduction

- 1.1 This Technical Note has been produced by DTA to summarise the results of the merge diverge assessments carried out as part of the Transport Assessment.
- Merge / diverge assessments on the A180/ A1173 Interchange and the A160/ A180 Interchange (Brocklesby Interchange) have been undertaken in accordance with the guidance within Design Manual for Roads and Bridges (DMRB) CD122 'Geometric design of grade separated junctions'. This considers the configuration of the slip road merge and diverge arrangements for a given combination of mainline and slip road flows against a number of different standard layouts.
- 1.3 For context, the development flows for the slip roads are provided at Figure 5 and Figure 7 of the TA. The numbers have been recreated in **Table 1** below. The mainline flows are at point within the junction downstream of the diverge and upstream of the merge. To put these flows into context the practical capacity of a single lane of an all-purpose road is taken (in CD122) as 1600 vehicles per hour and the equivalent single lane on a connector road as 1350 vehicles per hour.

Technical Note 5 – Slip Road Assessments (Annex L)



**Table 1** - Slip Road Development Flows (vehicles)

| Junction | Direction of Movement |      | sting<br>25) | Veh | ght<br>ricle<br>ments |    | GV<br>ments | To<br>Move |    |
|----------|-----------------------|------|--------------|-----|-----------------------|----|-------------|------------|----|
|          |                       | AM   | PM           | AM  | PM                    | AM | PM          | AM         | PM |
|          | Eastbound<br>Mainline | 1085 | 1092         | 0   | 0                     | 0  | 0           | 0          | 0  |
|          | Westbound<br>Mainline | 1201 | 1069         | 0   | 0                     | 0  | 0           | 0          | 0  |
| A1173/   | Eastbound<br>Diverge  | 780  | 251          | 9   | 9                     | 63 | 86          | 72         | 95 |
| A180     | Eastbound<br>Merge    | 369  | 1209         | 3   | 3                     | 0  | 0           | 3          | 3  |
|          | Westbound<br>Diverge  | 1179 | 442          | 3   | 3                     | 0  | 0           | 3          | 3  |
|          | Westbound<br>Merge    | 228  | 762          | 9   | 9                     | 35 | 50          | 44         | 59 |
|          | Eastbound<br>Mainline | 1726 | 1799         | 9   | 9                     | 63 | 86          | 72         | 95 |
|          | Westbound<br>Mainline | 962  | 1688         | 9   | 9                     | 35 | 50          | 44         | 59 |
| A160/    | Eastbound<br>Diverge  | 1145 | 791          | 2   | 2                     | 12 | 16          | 14         | 18 |
| A180     | Eastbound<br>Merge    | 150  | 371          | 0   | 0                     | 0  | 0           | 0          | 0  |
|          | Westbound<br>Diverge  | 782  | 425          | 0   | 0                     | 0  | 0           | 0          | 0  |
|          | Westbound<br>Merge    | 584  | 777          | 2   | 2                     | 6  | 9           | 8          | 11 |

- 1.4 As can be seen above, the total number of vehicles in any one direction of movement are low. The only links were flows exceed 30 movements per hour are the A1173/ A180 west facing slips and the A180 mainline under the A160/ A180 interchange.
- 1.5 At present, all the slip roads at both junctions are Layout A with two lanes up and downstream on the mainline. The A180/ A1173 Stallingborough Interchange has two lanes on the connector road. The eastbound merge and westbound diverge on the A160/ A180 Interchange (Brocklesby Interchange) have one lane connector roads with the eastbound diverge and westbound merge having two lane connector roads.

Technical Note 5 – Slip Road Assessments (Annex L)



- 1.6 The Department for Transport (DfT) Circular 02/2013 states that "Where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought. [...] The overall forecast demand should be compared to the ability of the existing network to accommodate traffic over a period up to ten years after the date of registration of planning application." For this reason, the A180/A1173 Interchange and the A160/A180 Interchange (Brocklesby Interchange) slip roads have been assessed for the 2025 opening year and 2032 future year. The scenarios tested are 'Base + Committed' and 'Base + Committed + Development' in the AM (07:00-08:00) and PM (16:00-17:00) peak periods.
- 1.7 All the merge/ diverge plots for the A180/ A1173 Stallingborough Interchange are attached in **Annex TN5 A** with the plots for the A160/ A180 Brocklesby Interchange attached in **Annex TN5 B**.

# 2.0 A180 / A1173 Stallingborough Interchange

Diverge Slip Roads

- 2.1 To calculate the lane requirements at the diverges the demand flows summarised in Table 1 have been divided by the practical lane capacities (para. 1.3). The larger ratio of demand to capacity from the two peak periods has been rounded up to the nearest whole number to give the worst lane requirement and this is compared to the existing provision. These are summarised in Table 2.
- 2.2 All scenarios for both the eastbound and westbound diverges require 1 lane downstream, 2 lanes upstream and 1 lane on the slip road. In practice two lanes are carried through the junction, i.e., there are two downstream lanes also.

Technical Note 5 – Slip Road Assessments (Annex L)



- 2.3 All the demand flows fall into the bottom left quadrant of the CD122 graph. At this level of traffic, the no specific layout required given the very low levels of demand.
- 2.4 This demand would therefore allow for a lane drop as the downstream demand is well within the capacity of a single lane. In practice, two lanes are carried all the way through the junction in both directions and there are no benefits from dropping a lane.
- 2.5 Both diverges are Layout A arrangements i.e., a direct taper. This is appropriate for the forecast level of mainline and diverging demand. In both cases the development related demand is not a material consideration.

Merge Slip Roads

- 2.6 The merges similarly indicate that there is inherently more capacity within the current layout than the demand necessarily warrants. As such the summary of demand scenarios in **Table 3** shows that the upstream mainline demand could be accommodated within a single lane but that with existing and proposed slip road demands there is a case for the second mainline lane downstream. This would require a lane gain if there were only a single upstream lane but there are currently two lanes upstream and downstream of the junction in both directions. There are no benefits from adding a further lane.
- 2.7 Both merges are Layout A arrangements i.e., a direct taper without auxiliary lane. This is appropriate for the forecast level of mainline and merging demand. In both cases the development related demand is not a material consideration.

Technical Note 5 – Slip Road Assessments (Annex L)

 Table 2 - Diverges for the A180 / A1173 (Stallingborough Interchange)

|                 |                   |         |      | Eas  | tbound |     |      |      |         |      | Wes  | stbound |     |      |      |
|-----------------|-------------------|---------|------|------|--------|-----|------|------|---------|------|------|---------|-----|------|------|
|                 |                   | Current | Comm | Base | eline  | Dev | Des  | sign | Current | Comm | Base | eline   | Dev | Des  | sign |
|                 |                   | Lanes   | Dev  | 2025 | 2032   | שׁ  | 2025 | 2032 | Lanes   | Dev  | 2025 | 2025    | שׁ  | 2025 | 2032 |
| A180            | AM (vph)          |         | 470  | 1865 | 1943   | 72  | 1937 | 2015 |         | 453  | 2380 | 2489    | 3   | 2383 | 2492 |
| upstream        | PM (vph)          |         | 85   | 1343 | 1414   | 95  | 1438 | 1509 |         | 65   | 1511 | 1592    | 3   | 1514 | 1980 |
| mainline<br>[A] | Lanes<br>Required | 2       |      | 2    | 2      |     | 2    | 2    | 2       |      | 2    | 2       |     | 2    | 2    |
| A180            | AM (vph)          |         | 0    | 1085 | 1146   | 0   | 1085 | 1146 |         | 0    | 1201 | 1269    | 0   | 1201 | 1269 |
| downstream      | PM (vph)          |         | 0    | 1092 | 1154   | 0   | 1092 | 1154 |         | 0    | 1069 | 1129    | 0   | 1069 | 1129 |
| mainline<br>[B] | Lanes<br>Required | 2       |      | 1    | 1      |     | 1    | 1    | 2       |      | 1    | 1       |     | 1    | 1    |
|                 | AM (vph)          |         | 470  | 780  | 797    | 72  | 852  | 924  |         | 453  | 1179 | 1220    | 3   | 1182 | 1223 |
| Slip Roads      | PM (vph)          |         | 85   | 251  | 260    | 95  | 346  | 355  |         | 65   | 442  | 463     | 3   | 445  | 466  |
| [C]             | Lanes<br>Required | 2       |      | 1    | 1      |     | 1    | 1    | 2       |      | 1    | 1       |     | 1    | 1    |

Technical Note 5 – Slip Road Assessments (Annex L)

**Table 3** - Merges for the A180 / A1173 (Stallingborough Interchange)

|                 |                   |         |      | Eas  | tbound |     |      |      |         |      | Wes  | tbound |     |      |      |
|-----------------|-------------------|---------|------|------|--------|-----|------|------|---------|------|------|--------|-----|------|------|
|                 |                   | Current | Comm | Base | eline  | Dev | De   | sign | Current | Comm | Base | eline  | Dev | Des  | sign |
|                 |                   | Lanes   | Dev  | 2025 | 2032   | ששט | 2025 | 2032 | Lanes   | Dev  | 2025 | 2025   | Dev | 2025 | 2032 |
| A180            | AM (vph)          |         | 0    | 1085 | 1146   | 0   | 1085 | 1146 |         | 0    | 1201 | 1269   | 0   | 1201 | 1269 |
| upstream        | PM (vph)          |         | 0    | 1092 | 1154   | 0   | 1092 | 1154 |         | 0    | 1069 | 1129   | 0   | 1069 | 1129 |
| mainline<br>[A] | Lanes<br>Required | 2       |      | 1    | 1      |     | 1    | 1    | 2       |      | 1    | 1      |     | 1    | 1    |
| A180            | AM (vph)          |         | 73   | 1454 | 1532   | 3   | 1457 | 1460 |         | 62   | 1429 | 1506   | 44  | 1473 | 1550 |
| downstream      | PM (vph)          |         | 457  | 2301 | 2405   | 3   | 2304 | 2307 |         | 465  | 1831 | 1908   | 59  | 1890 | 1967 |
| mainline<br>[B] | Lanes<br>Required | 2       |      | 2    | 2      |     | 2    | 2    | 2       |      | 2    | 2      |     | 2    | 2    |
|                 | AM (vph)          |         | 73   | 369  | 386    | 3   | 372  | 389  |         | 62   | 228  | 237    | 44  | 272  | 281  |
| Slip Roads      | PM (vph)          |         | 457  | 1209 | 1251   | 3   | 1212 | 1254 |         | 465  | 762  | 779    | 59  | 821  | 838  |
| [C]             | Lanes<br>Required | 2       |      | 1    | 1      |     | 1    | 2    | 2       |      | 1    | 1      |     | 1    | 1    |

Technical Note 5 – Slip Road Assessments (Annex L)



# 3.0 A160 / A180 Brocklesby Interchange

Diverge Slip Roads

- 3.1 As summarised in **Table 4**, all scenarios for both the eastbound and westbound diverges require 2 lanes downstream, 2 lanes upstream and 1 lane on the slip road.
- 3.2 Both diverges are Layout A arrangements i.e., a direct taper. This is appropriate for the forecast level of mainline and diverging demand. In both cases the development related demand is not a material consideration.

Merge Slip Roads

- 3.3 The merges indicate that there is inherently more capacity within the current layout than the demand necessarily warrants. A summary of demand scenarios is set out in **Table 5**.
- 3.4 Both merges are Layout A arrangements i.e., a direct taper without auxiliary lane. This is appropriate for the forecast level of mainline and merging demand. In both cases the development related demand is not a material consideration.

Technical Note 5 – Slip Road Assessments (Annex L)

**Table 4** - Diverges for the A160/ A180 Interchange (Brocklesby Interchange)

|                 |                   |         |      | East | bound |     |      |      |         |      | We   | estbound | d    |      |      |
|-----------------|-------------------|---------|------|------|-------|-----|------|------|---------|------|------|----------|------|------|------|
|                 |                   | Current | Comm | Base | eline | Dev | De   | sign | Current | Comm | Base | eline    | Dev  | Des  | sign |
|                 |                   | Lanes   | Dev  | 2025 | 2032  | Dev | 2025 | 2032 | Lanes   | Dev  | 2025 | 2025     | שט   | 2025 | 2032 |
| A180            | AM (vph)          |         | 741  | 2871 | 3005  | 86  | 2957 | 3091 |         | 389  | 844  | 1774     | 1018 | 826  | 1818 |
| upstream        | PM (vph)          |         | 356  | 1771 | 1857  | 113 | 1884 | 1970 |         | 739  | 2113 | 2196     | 59   | 2172 | 2255 |
| mainline<br>[A] | Lanes<br>Required | 2       |      | 2    | 2     |     | 2    | 2    | 2       |      | 2    | 2        |      | 2    | 2    |
| A180            | AM (vph)          |         | 470  | 1726 | 1805  | 72  | 1798 | 1877 |         | 85   | 62   | 962      | 1018 | 44   | 1006 |
| downstream      | PM (vph)          |         | 85   | 980  | 1034  | 95  | 1075 | 1129 |         | 465  | 1688 | 1762     | 59   | 1747 | 1821 |
| mainline<br>[B] | Lanes<br>Required | 2       |      | 2    | 2     |     | 2    | 2    | 2       |      | 2    | 2        |      | 2    | 2    |
|                 | AM (vph)          |         | 271  | 1145 | 1200  | 14  | 1159 | 1214 |         | 304  | 782  | 812      | 0    | 782  | 812  |
| Slip Roads      | PM (vph)          |         | 271  | 791  | 823   | 18  | 809  | 841  |         | 274  | 425  | 434      | 0    | 425  | 434  |
| [C]             | Lanes<br>Required | 2       |      | 1    | 1     |     | 1    | 1    | 2       |      | 1    | 1        |      | 1    | 1    |

Technical Note 5 – Slip Road Assessments (Annex L)

**Table 5** - Merges for the A160/ A180 Interchange (Brocklesby Interchange)

|                 |                   |         |      | Eas  | tbound |     |      |      |         |      | Wes  | tbound |     |      |      |
|-----------------|-------------------|---------|------|------|--------|-----|------|------|---------|------|------|--------|-----|------|------|
|                 |                   | Current | Comm | Base | eline  | Dev | De   | sign | Current | Comm | Base | eline  | Dev | De   | sign |
|                 |                   | Lanes   | Dev  | 2025 | 2032   | ששט | 2025 | 2032 | Lanes   | Dev  | 2025 | 2025   | שׁם | 2025 | 2032 |
| A180            | AM (vph)          |         | 470  | 1726 | 1805   | 72  | 1798 | 1877 |         | 62   | 962  | 1018   | 44  | 1006 | 1062 |
| upstream        | PM (vph)          |         | 85   | 980  | 1034   | 95  | 1075 | 1129 |         | 465  | 1688 | 1762   | 59  | 1747 | 1821 |
| mainline<br>[A] | Lanes<br>Required | 2       |      | 2    | 2      |     | 2    | 2    | 2       |      | 2    | 2      |     | 2    | 2    |
| A180            | AM (vph)          |         | 470  | 1876 | 1964   | 72  | 1948 | 2036 |         | 70   | 1546 | 1638   | 52  | 1598 | 1690 |
| downstream      | PM (vph)          |         | 85   | 1351 | 1428   | 95  | 1446 | 1523 |         | 487  | 2465 | 2584   | 70  | 2535 | 2654 |
| mainline<br>[B] | Lanes<br>Required | 2       |      | 2    | 2      |     | 2    | 2    | 2       |      | 2    | 2      |     | 2    | 2    |
|                 | AM (vph)          |         | 0    | 150  | 159    | 0   | 150  | 159  |         | 8    | 584  | 620    | 8   | 592  | 628  |
| Slip Roads      | PM (vph)          |         | 0    | 371  | 394    | 0   | 371  | 394  |         | 22   | 777  | 822    | 11  | 788  | 833  |
| [C]             | Lanes<br>Required | 2       |      | 1    | 1      |     | 1    | 1    | 2       |      | 1    | 1      |     | 1    | 1    |

Technical Note 5 – Slip Road Assessments (Annex L)

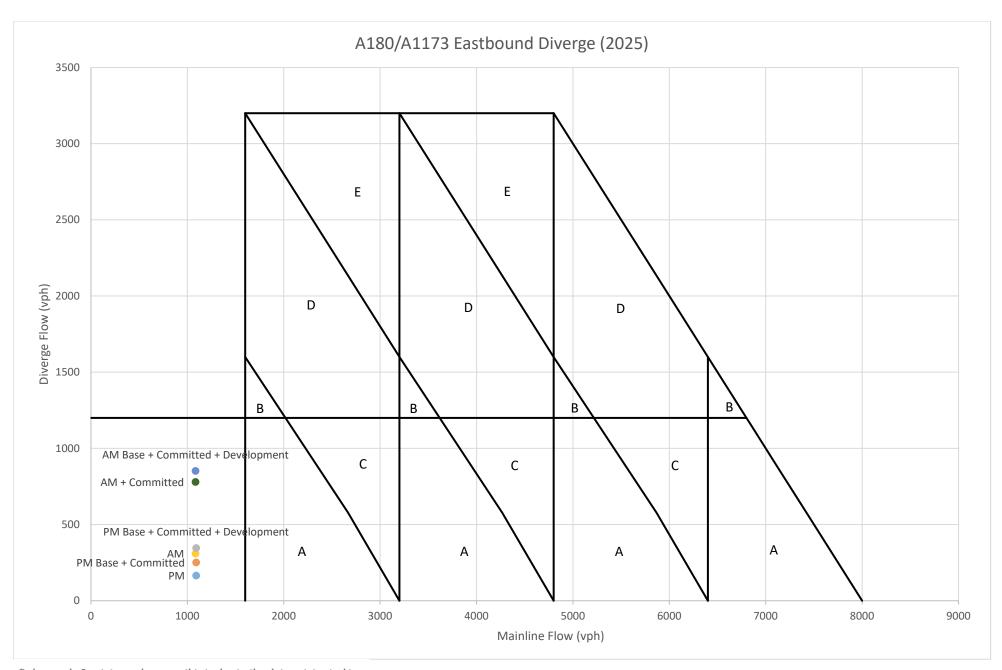


# 4.0 Conclusions

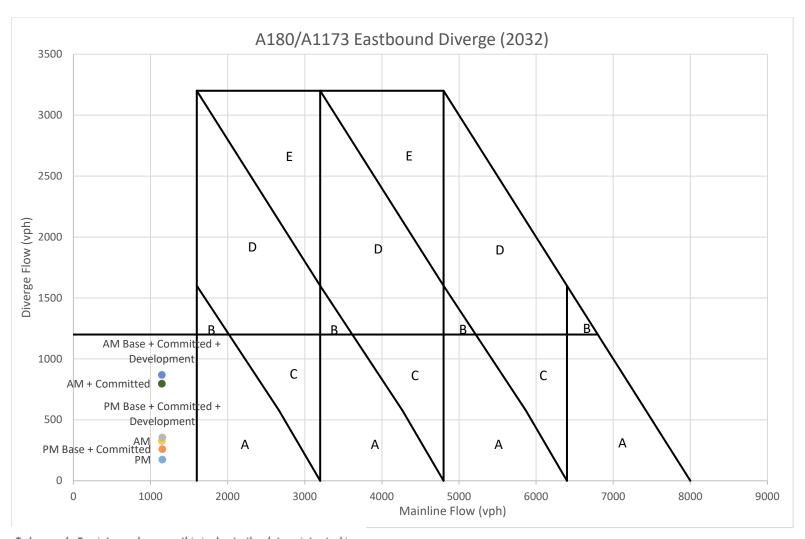
4.1 Therefore, it can be concluded that the current merge and diverge layouts are appropriate (or over provision) for the existing and forecast level of demand. The demand from the development is not material in the context of the overall follows and no alterations are required at the A180/ A1173 Interchange or the A160/ A180 Interchange (Brocklesby Interchange) because of the proposals.

# **Annex TN5 A**

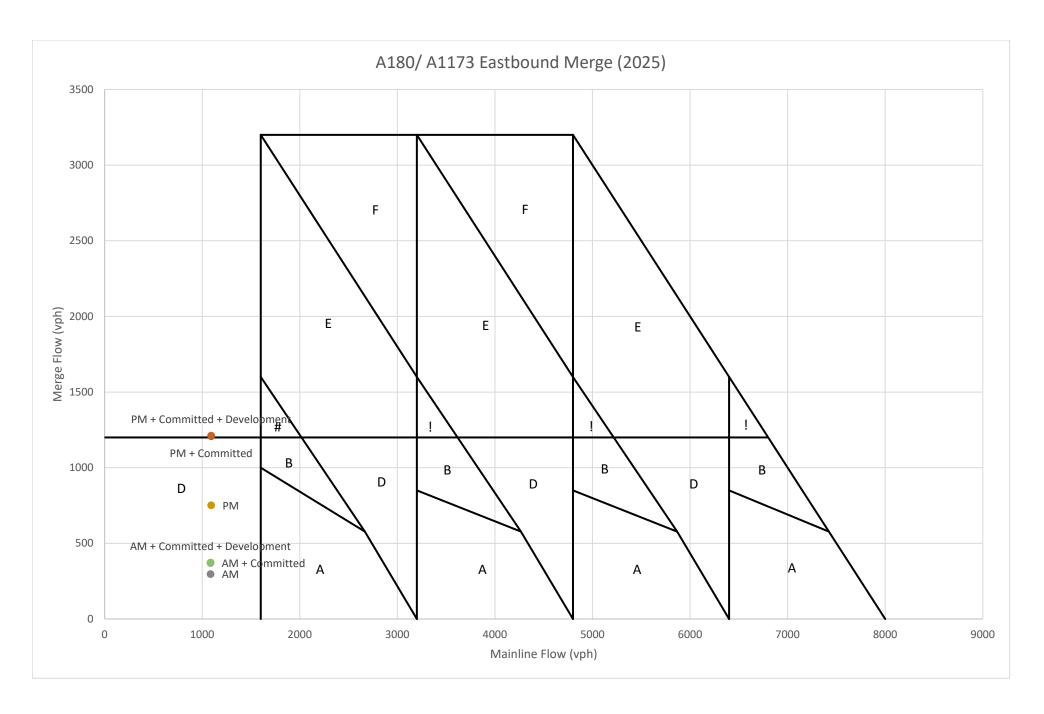
A180/ A1173 Slip Roads Assessment

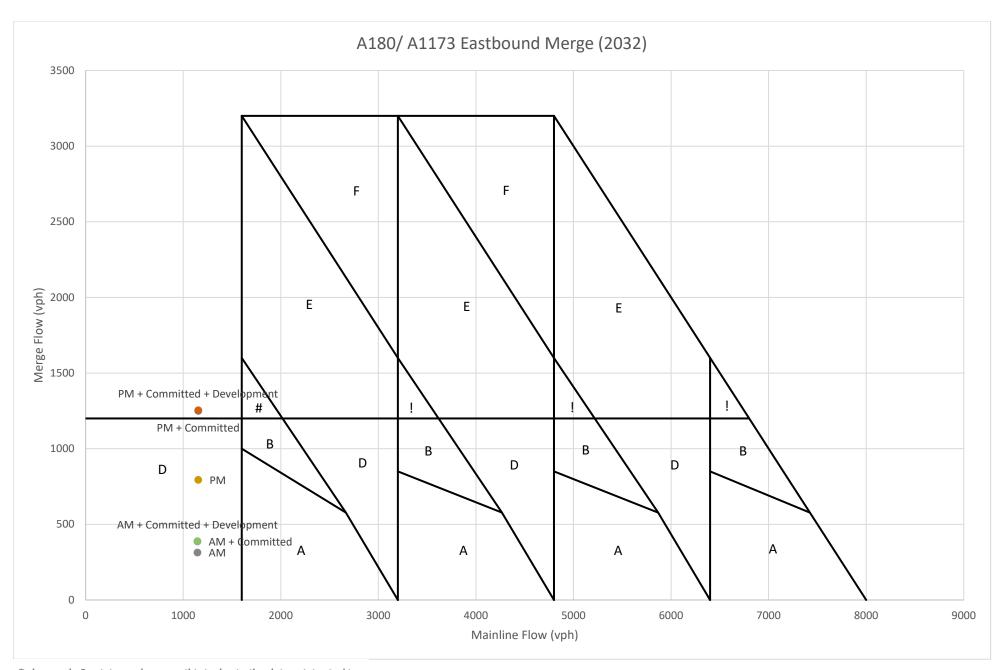


<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

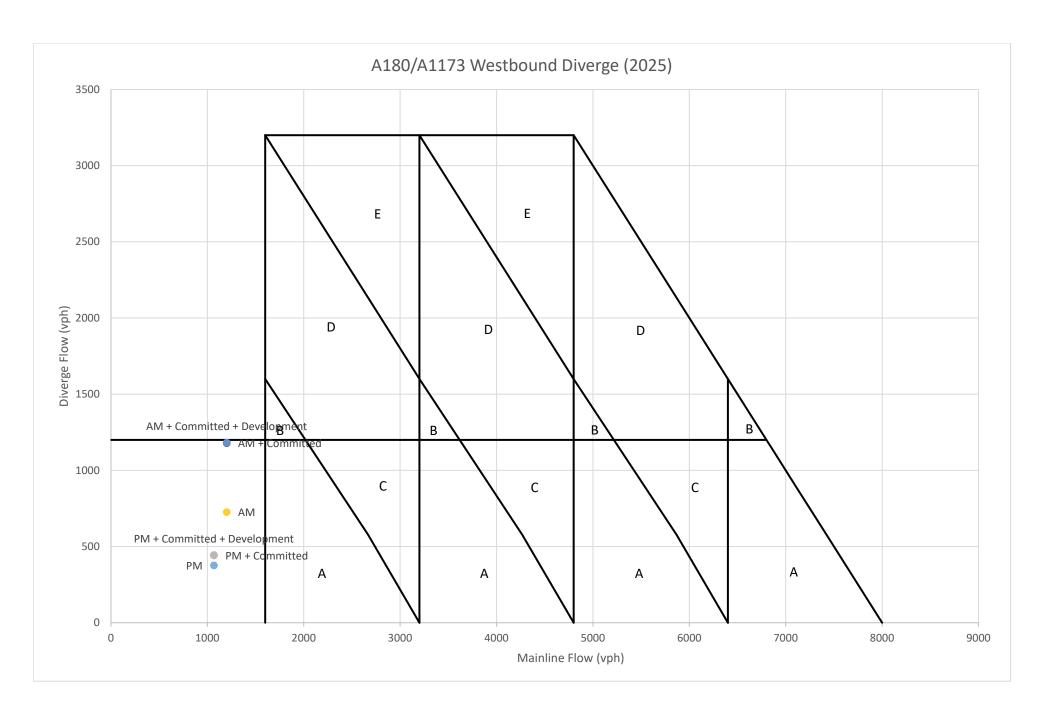


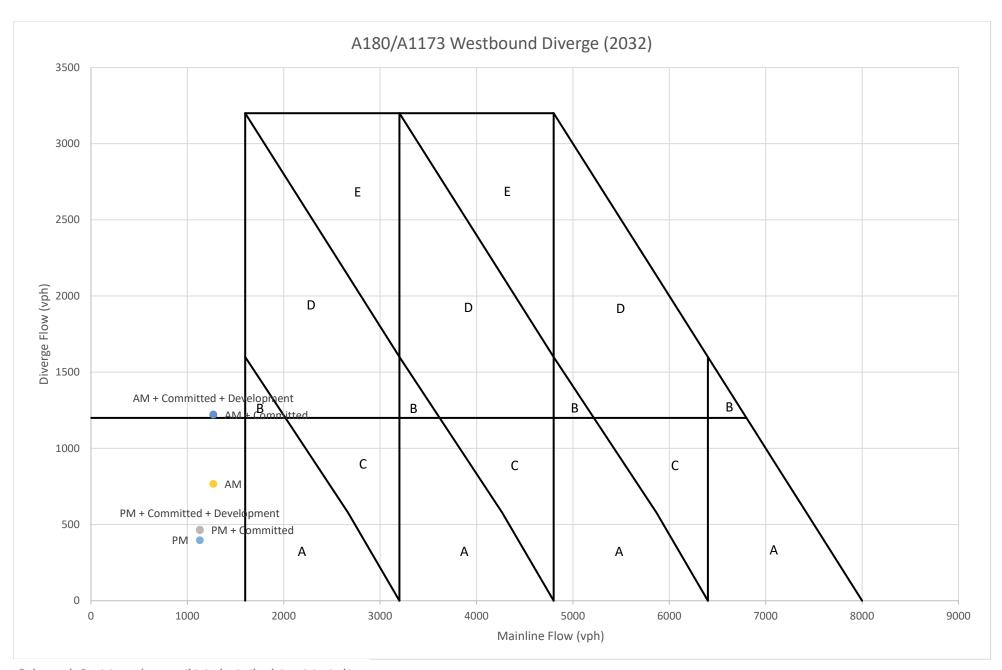
\*where only 2 points can be seen, this is due to the data points stacking



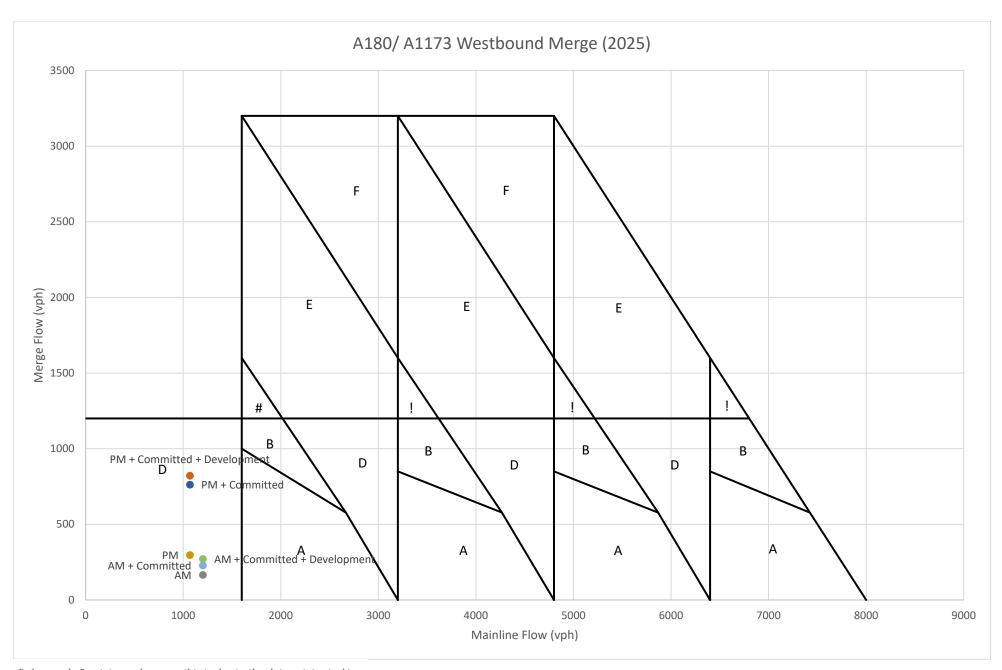


<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

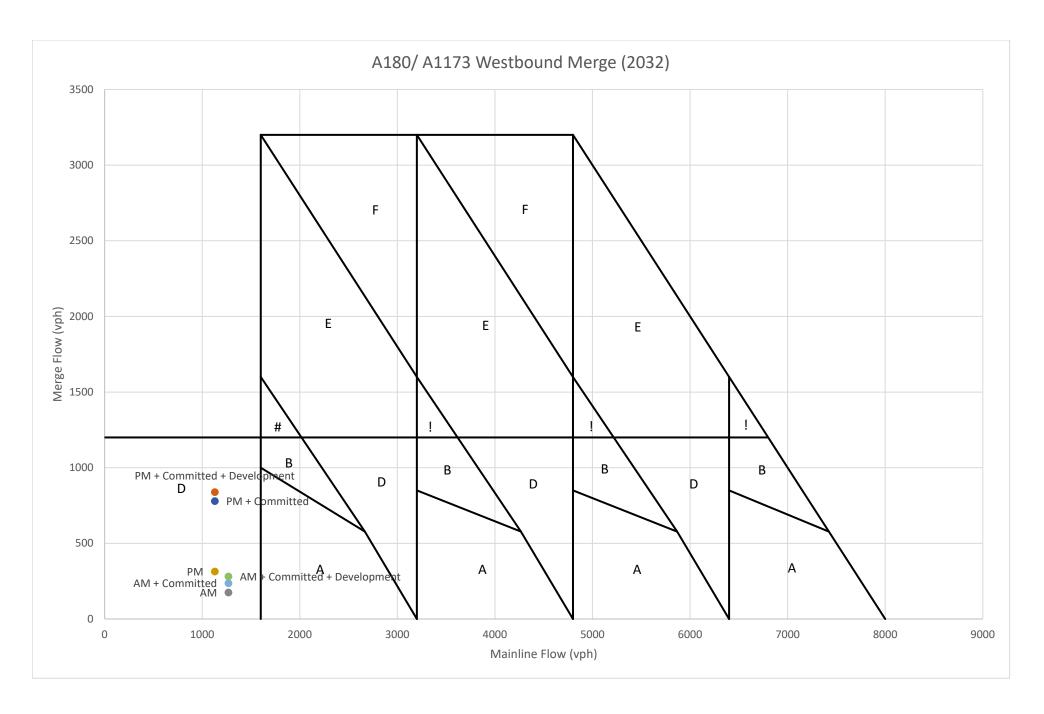




<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

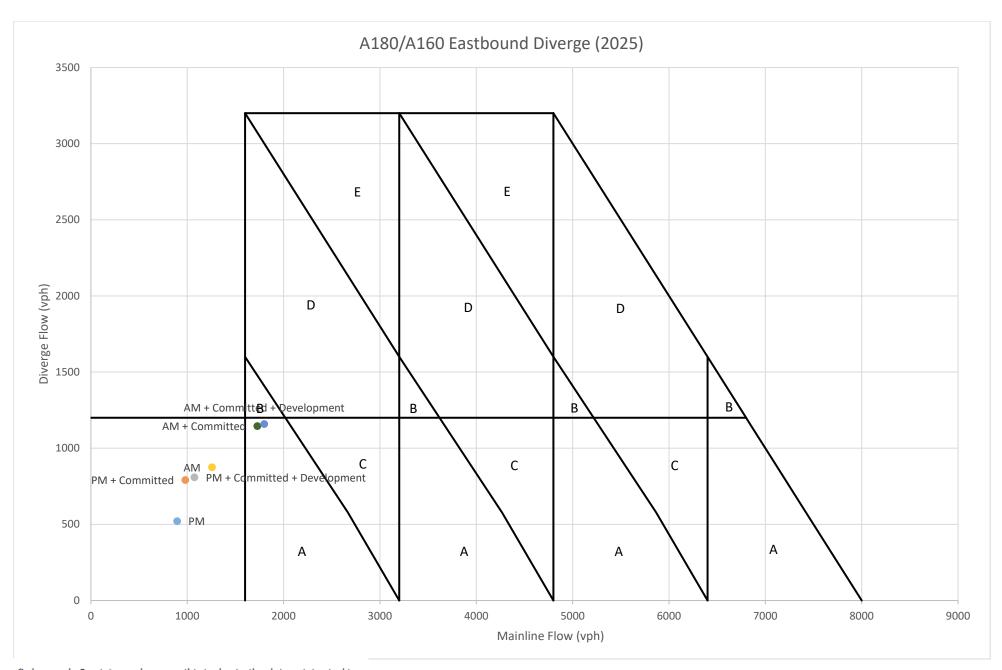


<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

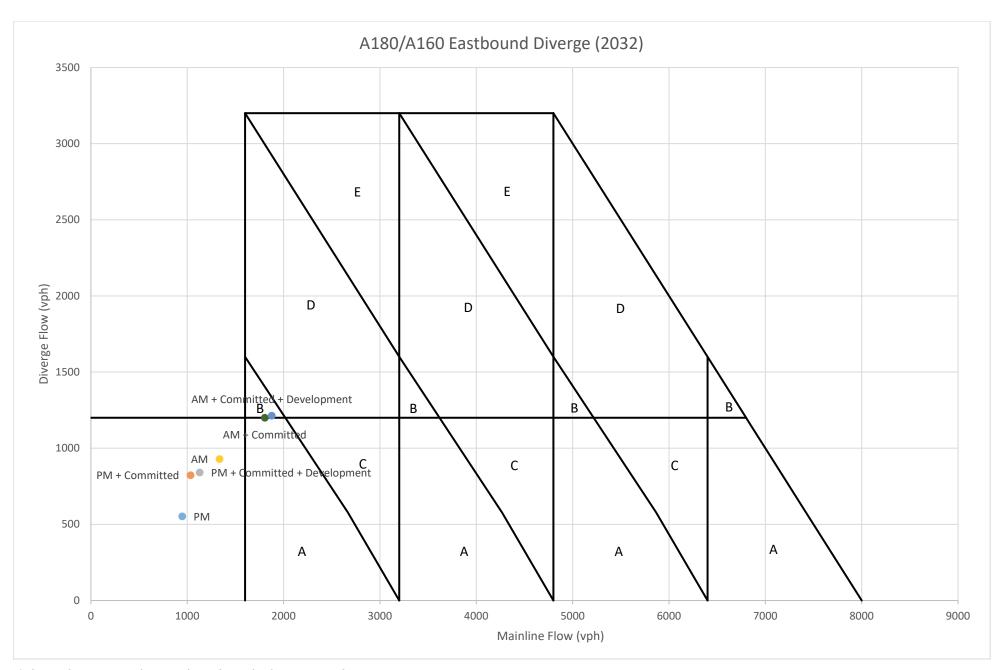


## **Annex TN5 B**

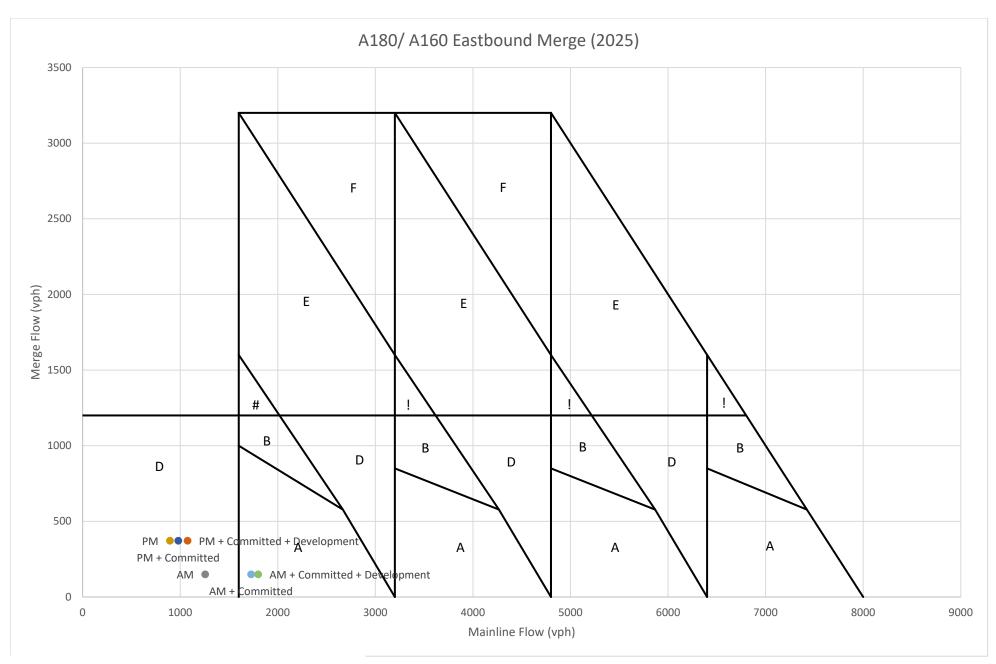
A160/ A180 Slip Roads Assessment



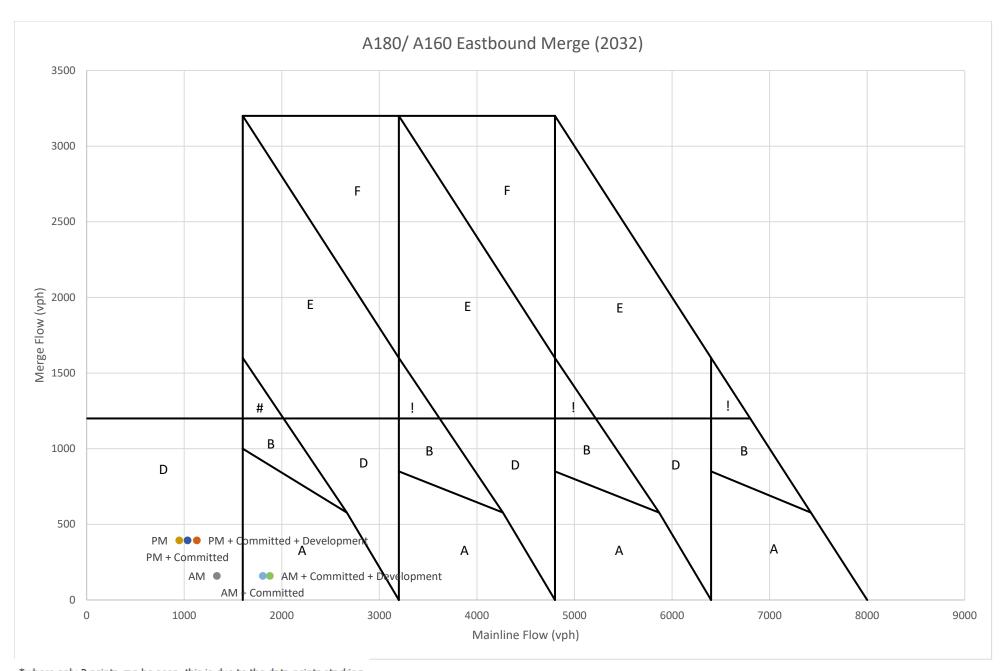
<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking



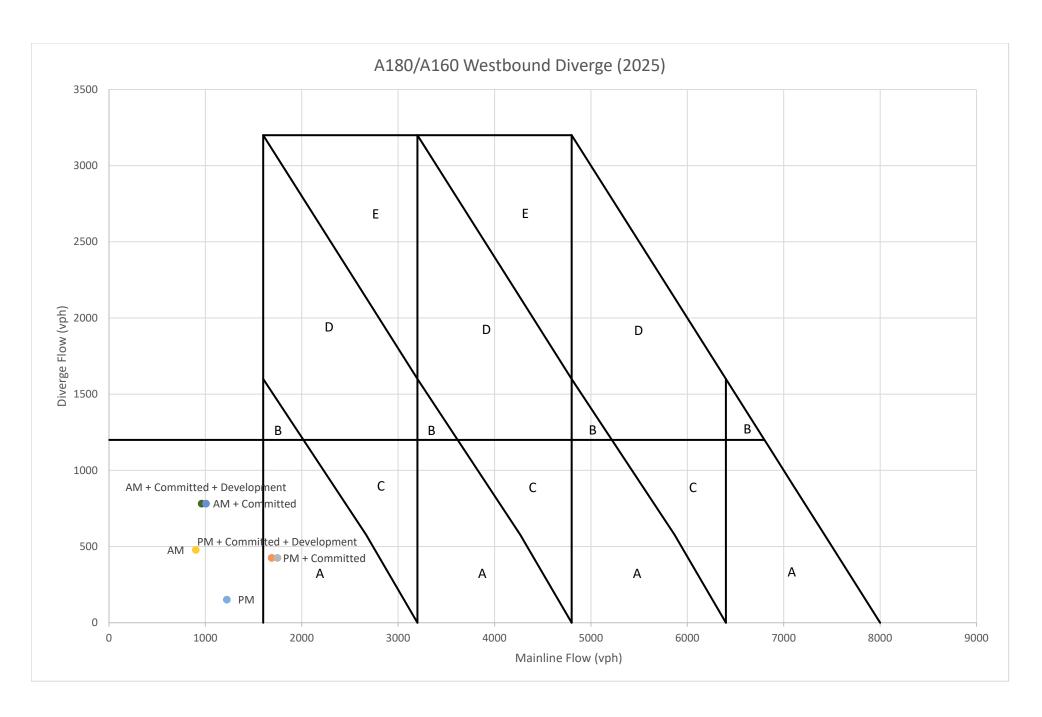
<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

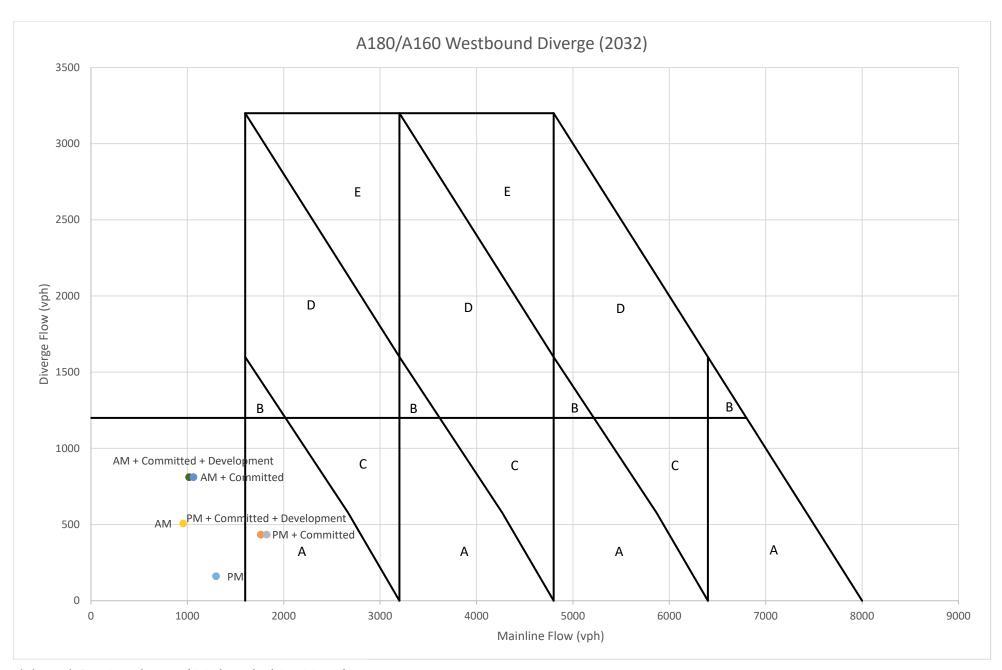


<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

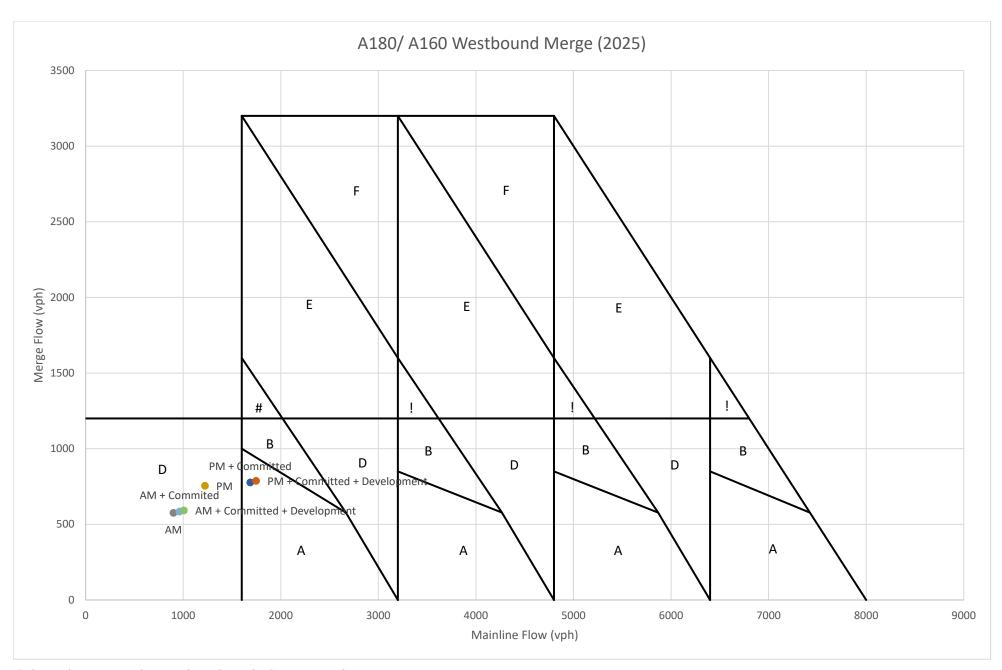


<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

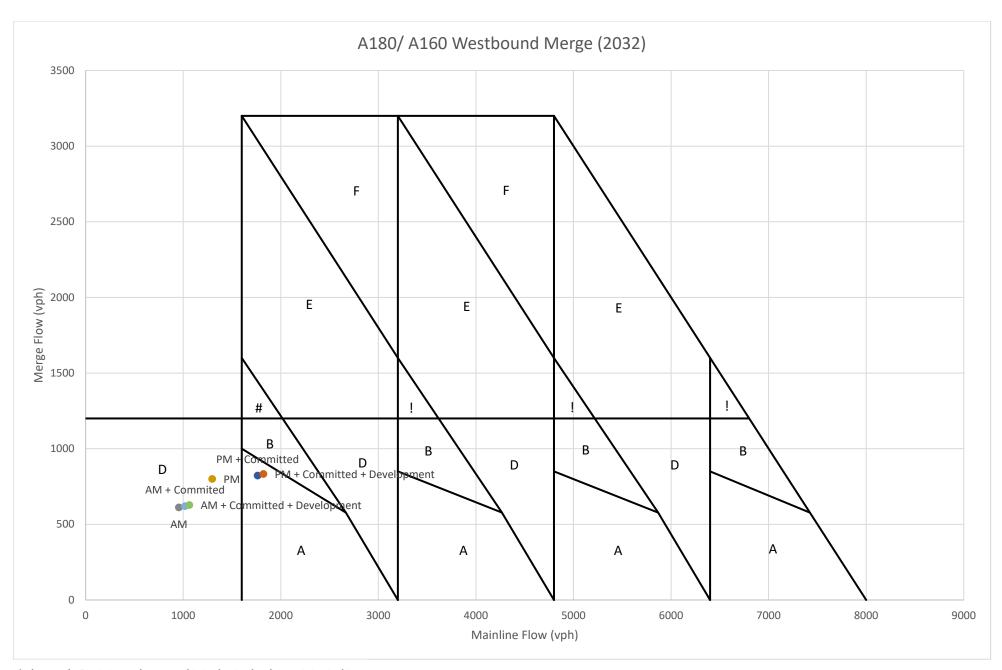




<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking



<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking



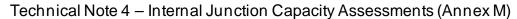
<sup>\*</sup>where only 2 points can be seen, this is due to the data points stacking

## Annex M

Technical Note 4 – Internal Junction Capacity Assessments (Annex M)



- 1.1 This Technical Note has been produced by DTA to summarise the results of the Internal Junction Capacity Assessments carried out for the Transport Assessment.
- 1.2 The details of the internal junction improvements can be found in Schedule 1 of the DCO application and are shown in Annex A of the TA.
- 1.3 Turning counts were undertaken on Wednesday 20<sup>th</sup> April 2022 at the following internal junctions:
  - Robinson Road/Crescent Access Road Junction
  - East Riverside/ East Dock Road
  - Robinson Road/East Dock Road
  - Robinson Road/Gresley Way
  - Robinson Road/East Riverside
  - Robinson Road/IOT Access Road
- 1.4 A plan of the internal road names can be seen attached at **Annex TN4 A**.
- 1.5 The development traffic is derived as is described in Section 5 of the Transport Assessment. The same assumptions about the distribution have also been used in this assessment (85% of traffic using East Gate and 15% using West Gate).
- 1.6 Assumptions have been made about traffic which will be diverted following the closure of the section of East Riverside to the East of the East Riverside/ East Dock Road junction. These are as follows:
  - All East Riverside East to East Dock Road movements will be diverted to the Robinson Road/East Riverside junction;
  - All East Riverside East to East Riverside West movements will be diverted





through all the junctions listed above to make the East Dock Road to East Riverside West movement;

- All East Dock Road to East Riverside East movements will be diverted to make the East Dock Road to Robinson Road S movement and then move straight through the other junctions to exit the Port; and
- All East Riverside West to East Riverside East movements will be diverted down East Dock Road and then move straight through the other junctions to exit the Port.
- 1.7 The assessments have taken into account growth (TN 1) and operation of the individual junctions has been tested using the industry standard modelling tool of TRL Junctions. The junctions have been assessed for the opening year of 2025 and future year of 2032. The junctions have been assessed as they are at present as the change in geometry at relevant junctions will increase the capacity of the junction.
- 1.8 The junction model considers the performance of priority junctions and roundabouts in isolation from other junctions within the network. The arrival pattern is normally profiled using the ODTAB to replicate unconstrained demand although in practice where the individual junctions are within an urban network external constraints may make this unrealistic.
- 1.9 There are three key performance metrics which are outputs from the modelling. These are the forecast queue length (in vehicles), the average delay (in seconds) and the ratio of flow to capacity (RFC). Convention is that the modelled period is sub-divided into 15-minute time segments and the highest (worst) results during the modelled period are reported.
- 1.10 A junction is considered to be operating at capacity when the Ratio of Flow to Capacity (RFC) is 1. However, generally once the RFC is above 0.85 the junction operational results become less stable due to an exponential relationship within the modelling formula inherent in the modelling software.

Technical Note 4 – Internal Junction Capacity Assessments (Annex M)



Therefore, if an RFC above 0.85 is forecast closer scrutiny and consideration is required.

#### Robinson Road/ Crescent Access Road Priority Junction

1.11 The Robinson Road/ Crescent Access Road Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in **Table 1** below with the full output attached in **Annex TN4 B**.

Table 1 - Robinson Road/Crescent Access Road Junction Assessment Summary

|                         |            | AM        |            |             | PM          |       |  |
|-------------------------|------------|-----------|------------|-------------|-------------|-------|--|
|                         | Q (PCU)    | Delay (s) | RFC        | Q (PCU)     | Delay (s)   | RFC   |  |
| 2021 Base               |            |           |            |             |             |       |  |
| Stream B-AC             | 0.0        | 9.17      | 0.01       | 0.1         | 8.22        | 0.03  |  |
| Stream C-AB             | 0.1        | 10.68     | 0.02       | 0.1         | 7.60        | 0.04  |  |
|                         |            | 20        | 025 Base   |             |             |       |  |
| Stream B-AC             | 0.0        | 9.21      | 0.01       | 0.1         | 8.25        | 0.04  |  |
| Stream C-AB             | 0.1        | 10.69     | 0.02       | 0.1         | 7.55        | 0.04  |  |
| 2025 Base + Development |            |           |            |             |             |       |  |
| Stream B-AC             | 0.2        | 11.23     | 0.08       | 0.3         | 11.02       | 0.14  |  |
| Stream C-AB             | 0.1        | 11.11     | 0.05       | 0.2         | 7.78        | 80.0  |  |
|                         |            | 20        | 032 Base   |             |             |       |  |
| Stream B-AC             | 0.0        | 9.27      | 0.02       | 0.1         | 8.28        | 0.04  |  |
| Stream C-AB             | 0.1        | 10.73     | 0.02       | 0.1         | 7.47        | 0.05  |  |
| 2032 Base + Development |            |           |            |             |             |       |  |
| Stream B-AC             | 0.2        | 11.34     | 0.08       | 0.3         | 11.05       | 0.14  |  |
| Stream C-AB             | 0.1        | 11.13     | 0.05       | 0.2         | 7.70        | 0.08  |  |
| NB: A – Robin           | son Road E | ;B-Cresce | ent Access | Road; C – F | Robinson Ro | oad N |  |

1.12 As can be seen above, the maximum RFC of 0.14 is reached during the 2032 Base + Development in the PM peak period for traffic movements from Crescent Access Road to Robinson Road. This indicates that the development traffic will not have a severe impact on the Robinson Road/ Crescent Access Road Priority Junction.

Technical Note 4 – Internal Junction Capacity Assessments (Annex M)



#### East Riverside/ East Dock Road

1.13 The East Riverside/ East Dock Road Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in Table 2 below with the full output attached in Annex TN4 C.

 Table 2 - Robinson Road/ Crescent Access Road Junction Assessment Summary

|                         |              | AM          |             |            | PM        |      |  |
|-------------------------|--------------|-------------|-------------|------------|-----------|------|--|
|                         | Q (PCU)      | Delay (s)   | RFC         | Q (PCU)    | Delay (s) | RFC  |  |
| 2021 Base               |              |             |             |            |           |      |  |
| Stream B-C              | 0.0          | 0.00        | 0.00        | 0.0        | 9.11      | 0.01 |  |
| Stream B-A              | 0.0          | 0.00        | 0.00        | 0.0        | 10.10     | 0.00 |  |
| Stream C-AB             | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
|                         |              | 20          | 025 Base    |            |           |      |  |
| Stream B-C              | 0.0          | 0.00        | 0.00        | 0.0        | 9.11      | 0.01 |  |
| Stream B-A              | 0.0          | 0.00        | 0.00        | 0.0        | 10.10     | 0.00 |  |
| Stream C-AB             | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
| 2025 Base + Development |              |             |             |            |           |      |  |
| Stream B-C              | 0.0          | 9.90        | 0.01        | 0.0        | 9.83      | 0.01 |  |
| Stream B-A              | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
| Stream C-AB             | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
|                         |              | 20          | 032 Base    |            |           |      |  |
| Stream B-C              | 0.0          | 0.00        | 0.00        | 0.0        | 9.11      | 0.01 |  |
| Stream B-A              | 0.0          | 0.00        | 0.00        | 0.0        | 10.10     | 0.00 |  |
| Stream C-AB             | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
| 2032 Base + Development |              |             |             |            |           |      |  |
| Stream B-C              | 0.0          | 9.92        | 0.02        | 0.0        | 9.85      | 0.01 |  |
| Stream B-A              | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
| Stream C-AB             | 0.0          | 0.00        | 0.00        | 0.0        | 0.00      | 0.00 |  |
| NB: A - East R          | Riverside E; | B – East Do | ock Road; C | – East Riv | erside N  |      |  |

1.14 As can be seen above, the maximum RFC of 0.02 is reached during the 2032 Base + Development in the AM peak period for traffic movements from East Dock Road to East Riverside N. This indicates that the development traffic will not have a severe impact on the East Riverside/ East Dock Road Priority Junction.



### Robinson Road/ East Dock Road Priority Junction

1.15 The Robinson Road/East Dock Road Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in **Table 3** below with the full output attached in **Annex TN4 D**.

**Table 3** - Robinson Road/East Dock Road Junction Assessment Summary

|                         |            | AM          |           |            | PM        |      |  |
|-------------------------|------------|-------------|-----------|------------|-----------|------|--|
|                         | Q (PCU)    | Delay (s)   | RFC       | Q (PCU)    | Delay (s) | RFC  |  |
| 2021 Base               |            |             |           |            |           |      |  |
| Stream B-C              | 0.0        | 8.95        | 0.02      | 0.1        | 9.14      | 0.03 |  |
| Stream B-A              | 0.0        | 10.35       | 0.02      | 0.0        | 13.08     | 0.02 |  |
| Stream C-AB             | 0.0        | 6.45        | 0.02      | 0.0        | 10.81     | 0.02 |  |
|                         |            | 20          | 025 Base  |            |           |      |  |
| Stream B-C              | 0.0        | 8.96        | 0.02      | 0.1        | 9.18      | 0.03 |  |
| Stream B-A              | 0.0        | 10.39       | 0.02      | 0.0        | 13.17     | 0.02 |  |
| Stream C-AB             | 0.0        | 6.42        | 0.02      | 0.0        | 10.81     | 0.02 |  |
| 2025 Base + Development |            |             |           |            |           |      |  |
| Stream B-C              | 0.0        | 8.49        | 0.03      | 0.1        | 9.50      | 0.04 |  |
| Stream B-A              | 0.0        | 10.61       | 0.02      | 0.0        | 13.45     | 0.02 |  |
| Stream C-AB             | 0.1        | 7.03        | 0.03      | 0.1        | 10.84     | 0.03 |  |
|                         |            | 20          | 032 Base  |            |           |      |  |
| Stream B-C              | 0.0        | 9.00        | 0.02      | 0.1        | 9.27      | 0.04 |  |
| Stream B-A              | 0.0        | 10.46       | 0.02      | 0.0        | 13.30     | 0.02 |  |
| Stream C-AB             | 0.0        | 6.36        | 0.02      | 0.0        | 10.82     | 0.02 |  |
| 2032 Base + Development |            |             |           |            |           |      |  |
| Stream B-C              | 0.0        | 8.53        | 0.03      | 0.1        | 9.60      | 0.04 |  |
| Stream B-A              | 0.0        | 10.66       | 0.02      | 0.0        | 13.59     | 0.02 |  |
| Stream C-AB             | 0.1        | 6.97        | 0.04      | 0.1        | 10.60     | 0.03 |  |
| NB: A – Robin           | son Road N | ;B – East D | ock Road; | C - Robins | on Road S |      |  |

1.16 As can be seen above, the maximum RFC of 0.04 is reached during the 2032 Base + Development in the AM peak period for traffic movements from Robinson Road S to Robinson Road N and East Dock Road and in the PM peak period for traffic movements from East Dock Road to Robinson Road S. This indicates that the development traffic will not have a severe impact on the Robinson Road/East Dock Road Priority Junction.

Technical Note 4 – Internal Junction Capacity Assessments (Annex M)



#### Robinson Road/ East Riverside Priority Junction

1.17 The Robinson Road/ East Riverside Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in Table 4 below with the full output attached in Annex TN4 E.

**Table 4** - Robinson Road/East Riverside Junction Assessment Summary

|                         |            | AM           |              |           | PM        |      |  |
|-------------------------|------------|--------------|--------------|-----------|-----------|------|--|
|                         | Q (PCU)    | Delay (s)    | RFC          | Q (PCU)   | Delay (s) | RFC  |  |
| 2021 Base               |            |              |              |           |           |      |  |
| Stream B-C              | 0.0        | 5.32         | 0.01         | 0.0       | 5.31      | 0.04 |  |
| Stream B-A              | 0.0        | 9.37         | 0.03         | 0.0       | 12.16     | 0.01 |  |
| Stream C-AB             | 0.1        | 5.38         | 0.05         | 0.0       | 10.47     | 0.01 |  |
|                         |            | 20           | 025 Base     |           |           |      |  |
| Stream B-C              | 0.0        | 5.33         | 0.01         | 0.0       | 5.34      | 0.04 |  |
| Stream B-A              | 0.0        | 9.41         | 0.03         | 0.0       | 12.22     | 0.01 |  |
| Stream C-AB             | 0.1        | 5.45         | 0.05         | 0.0       | 10.49     | 0.01 |  |
| 2025 Base + Development |            |              |              |           |           |      |  |
| Stream B-C              | 0.0        | 5.66         | 0.01         | 0.0       | 5.09      | 0.04 |  |
| Stream B-A              | 0.0        | 9.78         | 0.03         | 0.0       | 13.01     | 0.01 |  |
| Stream C-AB             | 0.1        | 5.42         | 0.06         | 0.0       | 9.83      | 0.01 |  |
|                         |            | 20           | 032 Base     |           |           |      |  |
| Stream B-C              | 0.0        | 9.77         | 0.02         | 0.1       | 5.38      | 0.05 |  |
| Stream B-A              | 0.0        | 0.00         | 0.00         | 0.0       | 12.31     | 0.01 |  |
| Stream C-AB             | 0.1        | 10.55        | 0.02         | 0.0       | 10.49     | 0.01 |  |
| 2032 Base + Development |            |              |              |           |           |      |  |
| Stream B-C              | 0.0        | 5.66         | 0.01         | 0.0       | 5.13      | 0.04 |  |
| Stream B-A              | 0.1        | 9.88         | 0.03         | 0.0       | 13.12     | 0.01 |  |
| Stream C-AB             | 0.1        | 5.38         | 0.06         | 0.0       | 9.84      | 0.01 |  |
| NB: A – Robin           | son Road W | /;B – East F | Riverside; C | - Robinso | n Road E  |      |  |

1.18 As can be seen above, the maximum RFC of 0.06 is reached during the 2032 Base + Development in the AM peak period for traffic movements from Robinson Road E to Robinson Road W and East Riverside. This indicates that the development traffic will not have a severe impact on the Robinson Road/ East Riverside Priority Junction.

Technical Note 4 – Internal Junction Capacity Assessments (Annex M)



#### Robinson Road/ Gresley Way Priority Junction

1.19 The Robinson Road/ Gresley Way Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in Table 5 below with the full output attached in Annex TN4 F.

**Table 5** - Robinson Road/Gresley Way Junction Assessment Summary

|                         |            | AM          |            |            | PM        |      |  |
|-------------------------|------------|-------------|------------|------------|-----------|------|--|
|                         | Q (PCU)    | Delay (s)   | RFC        | Q (PCU)    | Delay (s) | RFC  |  |
| 2021 Base               |            |             |            |            |           |      |  |
| Stream B-C              | 0.0        | 9.28        | 0.01       | 0.0        | 10.48     | 0.02 |  |
| Stream B-A              | 0.0        | 12.14       | 0.02       | 0.1        | 9.08      | 0.04 |  |
| Stream C-AB             | 0.0        | 6.34        | 0.01       | 0.0        | 7.29      | 0.01 |  |
|                         |            | 20          | 025 Base   |            |           |      |  |
| Stream B-C              | 0.0        | 9.31        | 0.01       | 0.0        | 10.55     | 0.02 |  |
| Stream B-A              | 0.0        | 12.21       | 0.02       | 0.1        | 9.10      | 0.04 |  |
| Stream C-AB             | 0.0        | 6.36        | 0.01       | 0.0        | 7.24      | 0.01 |  |
| 2025 Base + Development |            |             |            |            |           |      |  |
| Stream B-C              | 0.0        | 9.38        | 0.01       | 0.2        | 8.75      | 0.09 |  |
| Stream B-A              | 0.0        | 12.38       | 0.02       | 0.1        | 11.19     | 0.05 |  |
| Stream C-AB             | 0.0        | 6.36        | 0.01       | 0.0        | 7.21      | 0.01 |  |
|                         |            | 20          | 032 Base   |            |           |      |  |
| Stream B-C              | 0.0        | 9.47        | 0.01       | 0.0        | 9.47      | 0.01 |  |
| Stream B-A              | 0.0        | 12.24       | 0.02       | 0.0        | 12.24     | 0.02 |  |
| Stream C-AB             | 0.0        | 6.38        | 0.01       | 0.0        | 6.38      | 0.01 |  |
| 2032 Base + Development |            |             |            |            |           |      |  |
| Stream B-C              | 0.0        | 9.54        | 0.01       | 0.2        | 8.82      | 0.10 |  |
| Stream B-A              | 0.0        | 12.41       | 0.02       | 0.1        | 11.30     | 0.05 |  |
| Stream C-AB             | 0.0        | 6.39        | 0.01       | 0.0        | 7.13      | 0.01 |  |
| NB: A – Robin           | son Road S | ;B – Gresle | y Way; C – | Robinson I | Road N    |      |  |

1.20 As can be seen above, the maximum RFC of 0.10 is reached during the 2032 Base + Development in the PM peak period for traffic movements from Gresley Way to Robinson Road N. This indicates that the development traffic will not have a severe impact on the Robinson Road/Gresley Way Priority Junction.



### Robinson Road/IOT Access Road Priority Junction

1.21 The Robinson Road/ IOT Access Road Priority Junction has been assessed using the PICADY module of Junctions 10. A summary of the results can be seen in **Table 6** below with the full output attached in **Annex TN4 G**.

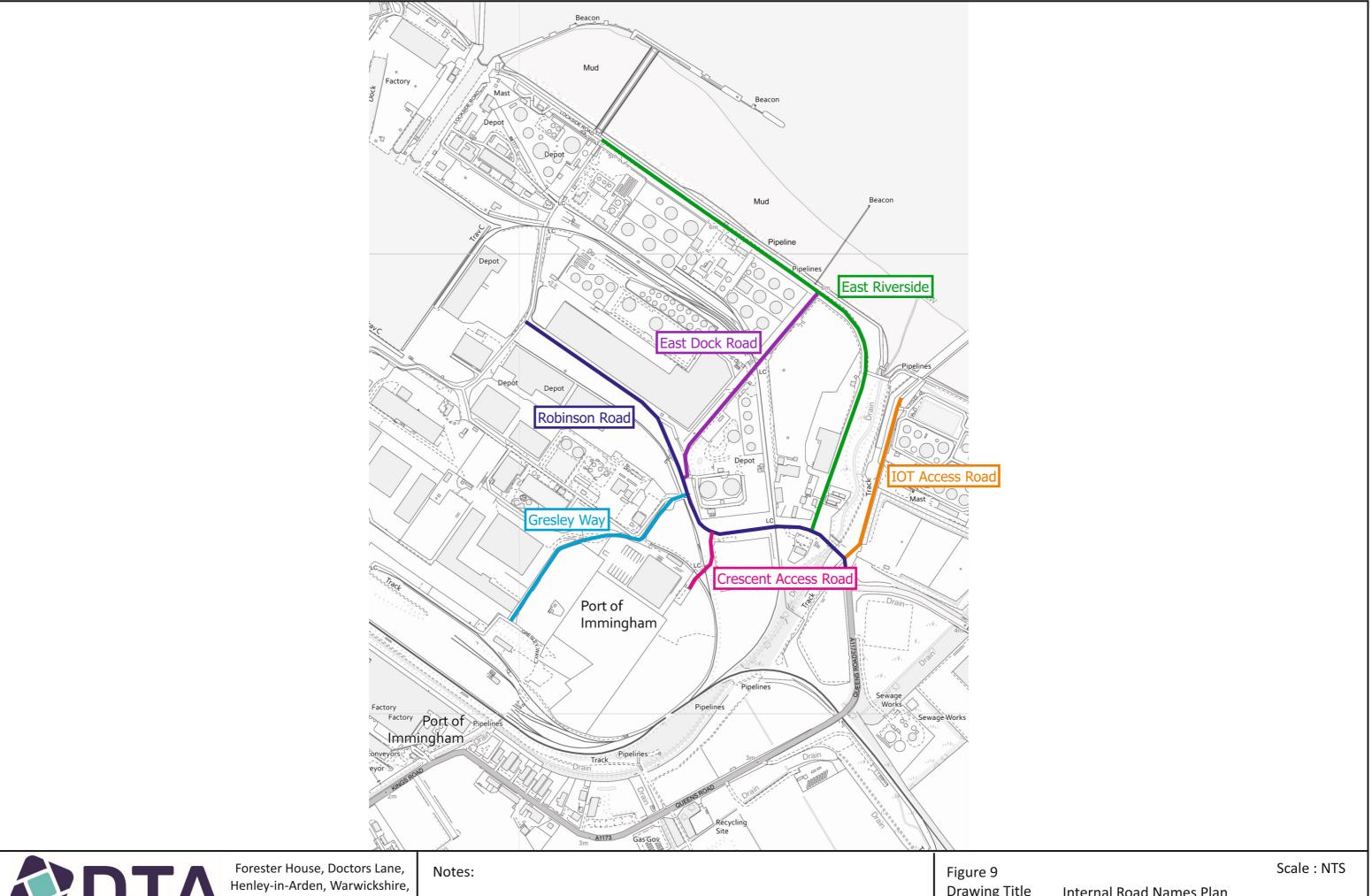
 Table 6 - Robinson Road/IOT Access Road Junction Assessment Summary

|                         |            | AM          |            |              | PM         |      |  |
|-------------------------|------------|-------------|------------|--------------|------------|------|--|
|                         | Q (PCU)    | Delay (s)   | RFC        | Q (PCU)      | Delay (s)  | RFC  |  |
| 2021 Base               |            |             |            |              |            |      |  |
| Stream B-C              | 0.0        | 6.47        | 0.01       | 0.1          | 5.17       | 0.07 |  |
| Stream B-A              | 0.0        | 14.49       | 0.00       | 0.0          | 7.41       | 0.00 |  |
| Stream C-AB             | 0.3        | 5.47        | 0.13       | 0.0          | 6.83       | 0.02 |  |
|                         |            | 20          | 025 Base   |              |            |      |  |
| Stream B-C              | 0.0        | 6.47        | 0.01       | 0.1          | 5.20       | 0.08 |  |
| Stream B-A              | 0.0        | 14.55       | 0.00       | 0.0          | 7.44       | 0.00 |  |
| Stream C-AB             | 0.3        | 5.47        | 0.13       | 0.0          | 6.85       | 0.02 |  |
| 2025 Base + Development |            |             |            |              |            |      |  |
| Stream B-C              | 0.0        | 6.56        | 0.01       | 0.1          | 5.32       | 0.08 |  |
| Stream B-A              | 0.0        | 15.13       | 0.00       | 0.0          | 7.85       | 0.00 |  |
| Stream C-AB             | 0.3        | 5.54        | 0.014      | 0.0          | 6.70       | 0.02 |  |
|                         |            | 20          | 032 Base   |              |            |      |  |
| Stream B-C              | 0.0        | 6.48        | 0.01       | 0.1          | 5.25       | 0.08 |  |
| Stream B-A              | 0.0        | 14.65       | 0.00       | 0.0          | 7.50       | 0.00 |  |
| Stream C-AB             | 0.3        | 5.45        | 0.14       | 0.0          | 6.88       | 0.02 |  |
| 2032 Base + Development |            |             |            |              |            |      |  |
| Stream B-C              | 0.0        | 6.57        | 0.01       | 0.1          | 5.37       | 0.08 |  |
| Stream B-A              | 0.0        | 15.24       | 0.00       | 0.0          | 7.91       | 0.00 |  |
| Stream C-AB             | 0.4        | 5.52        | 0.15       | 0.0          | 6.73       | 0.03 |  |
| NB: A – Robin           | son Road N | ; B – IOT A | ccess Road | l; C – Robin | son Road S | }    |  |

1.22 As can be seen above, the maximum RFC of 0.15 is reached during the 2032 Base + Development in the AM peak period for traffic movements from the Robinson Road S to Robinson N and IOT Access Road. This indicates that the development traffic will not have a severe impact on the Robinson Road/ IOT Access Road Priority Junction.

## Annex TN4 A

Internal Road Names Plan





B95 5AW

Tel: +44(0) 1564 793598 Fax: +44(0) 1564 793983

**Drawing Title** 

Internal Road Names Plan

Job Title Project Sugar, Port of Immingham Client ABP

NORTH

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#### **Annex TN4 B**

Robinson Road/ Crescent Access Road Priority Junction Assessment



## **Junctions 10**

#### **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693

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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Robinson Road-Crescent Access Road.j10

Path: P:\23000's\23325\Junction Assessment\Internal Junctions

**Report generation date:** 08/08/2022 16:12:02

»2022 Base, AM

»2022 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 + Development, AM

»2025 + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 + Development, AM

»2032 + Development, PM

#### Summary of junction performance

|             |                    | AM                 |      |         | PM        |      |
|-------------|--------------------|--------------------|------|---------|-----------|------|
|             | Q (PCU)            | Delay (s)          | RFC  | Q (PCU) | Delay (s) | RFC  |
|             |                    |                    | 2022 | Base    |           |      |
| Stream B-AC | 0.0                | 9.17               | 0.01 | 0.1     | 8.22      | 0.03 |
| Stream C-AB | 0.1                | 10.68              | 0.02 | 0.1     | 7.60      | 0.04 |
|             |                    |                    | 2025 | Base    |           |      |
| Stream B-AC | 0.0                | 9.21               | 0.01 | 0.1     | 8.25      | 0.04 |
| Stream C-AB | 0.1                | 10.69              | 0.02 | 0.1     | 7.55      | 0.04 |
|             |                    | 2025 + Development |      |         |           |      |
| Stream B-AC | 0.2                | 11.23              | 0.08 | 0.3     | 11.02     | 0.14 |
| Stream C-AB | 0.1                | 11.11              | 0.05 | 0.2     | 7.78      | 0.08 |
|             |                    |                    | 2032 | Base    |           |      |
| Stream B-AC | 0.0                | 9.27               | 0.02 | 0.1     | 8.28      | 0.04 |
| Stream C-AB | 0.1                | 10.73              | 0.02 | 0.1     | 7.47      | 0.05 |
|             | 2032 + Development |                    |      |         |           |      |
| Stream B-AC | 0.2                | 11.34              | 0.08 | 0.3     | 11.05     | 0.14 |
| Stream C-AB | 0.1                | 11.13              | 0.05 | 0.2     | 7.70      | 0.08 |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



#### File summary

#### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/05/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |

#### Units

|   | Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|---|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| Γ | m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

#### **Analysis Options**

| Vehicle<br>length<br>(m) | (Calculate () | Calculate<br>detailed<br>queueing<br>delay | Show lane queues in feet / metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of<br>iterations for<br>roundabouts |
|--------------------------|---------------|--|-----------------------------------|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |               |  |                                   |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500  |

#### **Demand Set Summary**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1  | 2022 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D2  | 2022 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D3  | 2025 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D4  | 2025 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D5  | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D6  | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D7  | 2032 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D8  | 2032 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D9  | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | <b>√</b>          |
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

#### **Analysis Set Details**

| ID        | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |
|-----------|-------------------|---------------------------------|-------------------------------------|
| <b>A1</b> | ✓                 | 100.000                         | 100.000                             |



# **2022** Base, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ſ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.59               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.59              | Α           |

#### **Arms**

#### **Arms**

| Arm | Name                 | Description | Arm type |
|-----|----------------------|-------------|----------|
| Α   | Robinson Road E      |             | Major    |
| В   | Crescent Access Road |             | Minor    |
| С   | Robinson Road N      |             | Major    |

#### **Major Arm Geometry**

| Arm             | Width of carriageway (m) | Has kerbed central reserve | Has right+turn<br>storage | Visibility for right turn<br>(m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|--------------------------|----------------------------|---------------------------|----------------------------------|---------|-------------------------|
| Robinson Road N | 8.95                     |                            |                           | 230.4                            | ✓       | 0.00                    |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

#### **Minor Arm Geometry**

| Arm                  | Minor arm type | Lane width (m) | Visibility to left (m) | Visibility to right (m) |
|----------------------|----------------|----------------|------------------------|-------------------------|
| Crescent Access Road | One lane       | 5.00           | 250                    | 194                     |

#### Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |  |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|--|
| B-A    | 799                   | 0.128               | 0.324               | 0.204               | 0.464               |  |
| B-C    | 895                   | 0.118               | 0.299               | -                   | -                   |  |
| С-В    | 707                   | 0.239               | 0.239               | -                   | -                   |  |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2022 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |



| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 303                 | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 10                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 81                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 1                    | 302             |  |  |  |  |  |
| From | Crescent Access Road | 0               | 0                    | 10              |  |  |  |  |  |
|      | Robinson Road N      | 69              | 12                   | 0               |  |  |  |  |  |

## **Vehicle Mix**

#### HV %s

|      | То                   |                 |                      |                 |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |
| F    | Robinson Road E      | 0               | 0                    | 21              |  |  |  |  |
| From | Crescent Access Road | 0               | 0                    | 100             |  |  |  |  |
|      | Robinson Road N      | 71              | 100                  | 0               |  |  |  |  |

## Results

#### **Results Summary for whole modelled period**

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.01    | 9.17          | 0.0         | А       | 9                      | 14                               |
| C-AB   | 0.02    | 10.68         | 0.1         | В       | 12                     | 18                               |
| C-A    |         |               |             |         | 62                     | 93                               |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 277                    | 416                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 8                        | 2                          | 827                  | 0.009 | 7                      | 0.0                  | 0.0                | 8.781     | А                             |
| C-AB   | 10                       | 2                          | 686                  | 0.014 | 10                     | 0.0                  | 0.0                | 10.509    | В                             |
| C-A    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 227                      | 57                         |                      |       | 227                    |                      |                    |           |                               |



#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 9                        | 2                          | 814                  | 0.011 | 9                      | 0.0                  | 0.0                | 8.940     | А                             |
| C-AB   | 12                       | 3                          | 682                  | 0.017 | 12                     | 0.0                  | 0.0                | 10.588    | В                             |
| C-A    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 271                      | 68                         |                      |       | 271                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 11                       | 3                          | 796                  | 0.014 | 11                     | 0.0                  | 0.0                | 9.171     | А                             |
| C-AB   | 15                       | 4                          | 677                  | 0.022 | 15                     | 0.0                  | 0.1                | 10.683    | В                             |
| C-A    | 74                       | 19                         |                      |       | 74                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 333                      | 83                         |                      |       | 333                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 11                       | 3                          | 796                  | 0.014 | 11                     | 0.0                  | 0.0                | 9.171     | А                             |
| C-AB   | 15                       | 4                          | 677                  | 0.022 | 15                     | 0.1                  | 0.1                | 10.668    | В                             |
| C-A    | 74                       | 19                         |                      |       | 74                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 333                      | 83                         |                      |       | 333                    |                      |                    |           |                               |

#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 9                        | 2                          | 814                  | 0.011 | 9                      | 0.0                  | 0.0                | 8.941     | А                             |
| C-AB   | 12                       | 3                          | 682                  | 0.017 | 12                     | 0.1                  | 0.0                | 10.557    | В                             |
| C-A    | 61                       | 15                         |                      |       | 61                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 271                      | 68                         |                      |       | 271                    |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 8                        | 2                          | 827                  | 0.009 | 8                      | 0.0                  | 0.0                | 8.783     | А                             |
| C-AB   | 10                       | 2                          | 686                  | 0.014 | 10                     | 0.0                  | 0.0                | 10.498    | В                             |
| C-A    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 227                      | 57                         |                      |       | 227                    |                      |                    |           |                               |



# **2022 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.12               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.12              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2022 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 56                  | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 26                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 319                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                      | То              |                      |                 |  |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |  |
| F    | Robinson Road E      | 0               | 0                    | 56              |  |  |  |  |  |  |
| From | Crescent Access Road | 4               | 0                    | 22              |  |  |  |  |  |  |
|      | Robinson Road N      | 298             | 21                   | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

#### HV %s

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 0                    | 55              |  |  |  |  |  |
| From | Crescent Access Road | 50              | 0                    | 95              |  |  |  |  |  |
|      | Robinson Road N      | 24              | 100                  | 0               |  |  |  |  |  |



# Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.03    | 8.22          | 0.1         | А       | 24                     | 36                               |
| C-AB   | 0.04    | 7.60          | 0.1         | A       | 29                     | 43                               |
| C-A    |         |               |             |         | 264                    | 396                              |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 51                     | 77                               |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 20                       | 5                          | 856                  | 0.023 | 19                     | 0.0                  | 0.0                | 8.020     | A                             |
| C-AB   | 22                       | 5                          | 835                  | 0.026 | 21                     | 0.0                  | 0.1                | 7.598     | А                             |
| C-A    | 219                      | 55                         |                      |       | 219                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 42                       | 11                         |                      |       | 42                     |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 23                       | 6                          | 851                  | 0.027 | 23                     | 0.0                  | 0.1                | 8.107     | А                             |
| C-AB   | 27                       | 7                          | 860                  | 0.032 | 27                     | 0.1                  | 0.1                | 7.332     | A                             |
| C-A    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 50                       | 13                         |                      |       | 50                     |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 29                       | 7                          | 844                  | 0.034 | 29                     | 0.1                  | 0.1                | 8.225     | A                             |
| C-AB   | 37                       | 9                          | 895                  | 0.041 | 37                     | 0.1                  | 0.1                | 6.929     | А                             |
| C-A    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 62                       | 15                         |                      |       | 62                     |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 29                       | 7                          | 844                  | 0.034 | 29                     | 0.1                  | 0.1                | 8.225     | Α                             |
| C-AB   | 37                       | 9                          | 895                  | 0.041 | 37                     | 0.1                  | 0.1                | 6.847     | A                             |
| C-A    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 62                       | 15                         |                      |       | 62                     |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 23                       | 6                          | 851                  | 0.027 | 23                     | 0.1                  | 0.1                | 8.108     | Α                             |
| C-AB   | 28                       | 7                          | 860                  | 0.032 | 28                     | 0.1                  | 0.1                | 7.136     | Α                             |
| C-A    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 50                       | 13                         |                      |       | 50                     |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 20                       | 5                          | 856                  | 0.023 | 20                     | 0.1                  | 0.0                | 8.027     | А                             |
| C-AB   | 22                       | 5                          | 835                  | 0.026 | 22                     | 0.1                  | 0.1                | 7.499     | A                             |
| C-A    | 218                      | 55                         |                      |       | 218                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 42                       | 11                         |                      |       | 42                     |                      |                    |           |                               |



# 2025 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Jı | unction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|---------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1       | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.58               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.58              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ſ | D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 312                 | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 10                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 83                  | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                      | 7               | Го                   |                 |
|------|----------------------|-----------------|----------------------|-----------------|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |
| F    | Robinson Road E      | 0               | 1                    | 311             |
| From | Crescent Access Road | 0               | 0                    | 10              |
|      | Robinson Road N      | 71              | 12                   | 0               |

## **Vehicle Mix**

#### HV %s

|      | То                   |                 |                      |                 |  |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |  |
|      | Robinson Road E      | 0               | 0                    | 21              |  |  |  |  |  |  |
| From | Crescent Access Road | 0               | 0                    | 100             |  |  |  |  |  |  |
|      | Robinson Road N      | 71              | 100                  | 0               |  |  |  |  |  |  |



# Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.01    | 9.21          | 0.0         | А       | 9                      | 14                               |
| C-AB   | 0.02    | 10.69         | 0.1         | В       | 12                     | 18                               |
| C-A    |         |               |             |         | 64                     | 96                               |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 285                    | 428                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 8                        | 2                          | 825                  | 0.009 | 7                      | 0.0                  | 0.0                | 8.802     | A                             |
| C-AB   | 10                       | 2                          | 685                  | 0.014 | 10                     | 0.0                  | 0.0                | 10.515    | В                             |
| C-A    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 234                      | 59                         |                      |       | 234                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 9                        | 2                          | 812                  | 0.011 | 9                      | 0.0                  | 0.0                | 8.967     | A                             |
| C-AB   | 12                       | 3                          | 682                  | 0.017 | 12                     | 0.0                  | 0.0                | 10.596    | В                             |
| C-A    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 280                      | 70                         |                      |       | 280                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 11                       | 3                          | 793                  | 0.014 | 11                     | 0.0                  | 0.0                | 9.206     | А                             |
| C-AB   | 15                       | 4                          | 676                  | 0.022 | 15                     | 0.0                  | 0.1                | 10.692    | В                             |
| C-A    | 76                       | 19                         |                      |       | 76                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 342                      | 86                         |                      |       | 342                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 11                       | 3                          | 793                  | 0.014 | 11                     | 0.0                  | 0.0                | 9.206     | A                             |
| C-AB   | 15                       | 4                          | 676                  | 0.022 | 15                     | 0.1                  | 0.1                | 10.677    | В                             |
| C-A    | 76                       | 19                         |                      |       | 76                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 342                      | 86                         |                      |       | 342                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 9                        | 2                          | 812                  | 0.011 | 9                      | 0.0                  | 0.0                | 8.968     | А                             |
| C-AB   | 12                       | 3                          | 682                  | 0.017 | 12                     | 0.1                  | 0.0                | 10.563    | В                             |
| C-A    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 280                      | 70                         |                      |       | 280                    |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 8                        | 2                          | 825                  | 0.009 | 8                      | 0.0                  | 0.0                | 8.804     | А                             |
| C-AB   | 10                       | 2                          | 685                  | 0.014 | 10                     | 0.0                  | 0.0                | 10.503    | В                             |
| C-A    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 234                      | 59                         |                      |       | 234                    |                      |                    |           |                               |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Γ. | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.14               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.14              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 58                  | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 27                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 329                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                      | То              |                      |                 |  |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |  |
| F    | Robinson Road E      | 0               | 0                    | 58              |  |  |  |  |  |  |
| From | Crescent Access Road | 4               | 0                    | 23              |  |  |  |  |  |  |
|      | Robinson Road N      | 307             | 22                   | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

#### HV %s

|      | То                   |                               |     |                 |  |  |  |  |  |
|------|----------------------|-------------------------------|-----|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E Crescent Acce |     | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0                             | 0   | 55              |  |  |  |  |  |
| From | Crescent Access Road | 50                            | 0   | 95              |  |  |  |  |  |
|      | Robinson Road N      | 24                            | 100 | 0               |  |  |  |  |  |



# Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.04    | 8.25          | 0.1         | А       | 25                     | 37                               |
| C-AB   | 0.04    | 7.55          | 0.1         | A       | 30                     | 45                               |
| C-A    |         |               |             |         | 272                    | 407                              |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 53                     | 80                               |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 20                       | 5                          | 856                  | 0.024 | 20                     | 0.0                  | 0.0                | 8.040     | A                             |
| C-AB   | 23                       | 6                          | 839                  | 0.027 | 23                     | 0.0                  | 0.1                | 7.547     | A                             |
| C-A    | 225                      | 56                         |                      |       | 225                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 24                       | 6                          | 851                  | 0.029 | 24                     | 0.0                  | 0.1                | 8.128     | А                             |
| C-AB   | 29                       | 7                          | 864                  | 0.034 | 29                     | 0.1                  | 0.1                | 7.278     | A                             |
| C-A    | 267                      | 67                         |                      |       | 267                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 52                       | 13                         |                      |       | 52                     |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 30                       | 7                          | 844                  | 0.035 | 30                     | 0.1                  | 0.1                | 8.250     | А                             |
| C-AB   | 39                       | 10                         | 900                  | 0.043 | 39                     | 0.1                  | 0.1                | 6.873     | А                             |
| C-A    | 323                      | 81                         |                      |       | 323                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 64                       | 16                         |                      |       | 64                     |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 30                       | 7                          | 844                  | 0.035 | 30                     | 0.1                  | 0.1                | 8.250     | A                             |
| C-AB   | 39                       | 10                         | 900                  | 0.043 | 39                     | 0.1                  | 0.1                | 6.788     | A                             |
| C-A    | 323                      | 81                         |                      |       | 323                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 64                       | 16                         |                      |       | 64                     |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 24                       | 6                          | 851                  | 0.029 | 24                     | 0.1                  | 0.1                | 8.129     | А                             |
| C-AB   | 29                       | 7                          | 864                  | 0.034 | 29                     | 0.1                  | 0.1                | 7.081     | A                             |
| C-A    | 267                      | 67                         |                      |       | 267                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 52                       | 13                         |                      |       | 52                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 20                       | 5                          | 856                  | 0.024 | 20                     | 0.1                  | 0.0                | 8.044     | A                             |
| C-AB   | 23                       | 6                          | 839                  | 0.027 | 23                     | 0.1                  | 0.1                | 7.443     | А                             |
| C-A    | 225                      | 56                         |                      |       | 225                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |



# 2025 + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.58               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.58              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 391                 | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 48                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 98                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                   |                 |                      |                 |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |
|      | Robinson Road E      | 0               | 72                   | 319             |  |  |  |  |
| From | Crescent Access Road | 41              | 0                    | 7               |  |  |  |  |
|      | Robinson Road N      | 73              | 25                   | 0               |  |  |  |  |

# **Vehicle Mix**

| ,    |                      |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      | То                   |                 |                      |                 |  |  |  |  |  |
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 93                   | 23              |  |  |  |  |  |
| From | Crescent Access Road | 90              | 0                    | 90              |  |  |  |  |  |
|      | Robinson Road N      | 69              | 97                   | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.08    | 11.23         | 0.2         | В       | 44                     | 66                               |
| C-AB   | 0.05    | 11.11         | 0.1         | В       | 26                     | 38                               |
| C-A    |         |               |             |         | 64                     | 96                               |
| A-B    |         |               |             |         | 66                     | 99                               |
| A-C    |         |               |             |         | 293                    | 439                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 36                       | 9                          | 710                  | 0.051 | 36                     | 0.0                  | 0.1                | 10.142    | В                             |
| C-AB   | 20                       | 5                          | 673                  | 0.030 | 20                     | 0.0                  | 0.1                | 10.723    | В                             |
| C-A    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-B    | 54                       | 14                         |                      |       | 54                     |                      |                    |           |                               |
| A-C    | 240                      | 60                         |                      |       | 240                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 43                       | 11                         | 690                  | 0.063 | 43                     | 0.1                  | 0.1                | 10.577    | В                             |
| C-AB   | 25                       | 6                          | 666                  | 0.037 | 25                     | 0.1                  | 0.1                | 10.892    | В                             |
| C-A    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-B    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-C    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 53                       | 13                         | 662                  | 0.080 | 53                     | 0.1                  | 0.2                | 11.220    | В                             |
| C-AB   | 31                       | 8                          | 658                  | 0.048 | 31                     | 0.1                  | 0.1                | 11.111    | В                             |
| C-A    | 76                       | 19                         |                      |       | 76                     |                      |                    |           |                               |
| A-B    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-C    | 351                      | 88                         |                      |       | 351                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 53                       | 13                         | 662                  | 0.080 | 53                     | 0.2                  | 0.2                | 11.225    | В                             |
| C-AB   | 31                       | 8                          | 658                  | 0.048 | 31                     | 0.1                  | 0.1                | 11.094    | В                             |
| C-A    | 76                       | 19                         |                      |       | 76                     |                      |                    |           |                               |
| A-B    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-C    | 351                      | 88                         |                      |       | 351                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 43                       | 11                         | 690                  | 0.063 | 43                     | 0.2                  | 0.1                | 10.585    | В                             |
| C-AB   | 25                       | 6                          | 666                  | 0.037 | 25                     | 0.1                  | 0.1                | 10.859    | В                             |
| C-A    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-B    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-C    | 287                      | 72                         |                      |       | 287                    |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 36                       | 9                          | 709                  | 0.051 | 36                     | 0.1                  | 0.1                | 10.162    | В                             |
| C-AB   | 21                       | 5                          | 673                  | 0.031 | 21                     | 0.1                  | 0.1                | 10.714    | В                             |
| C-A    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |
| A-B    | 54                       | 14                         |                      |       | 54                     |                      |                    |           |                               |
| A-C    | 240                      | 60                         |                      |       | 240                    |                      |                    |           |                               |



# 2025 + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 2.48               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.48              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 157                 | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 94                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 349                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 95                   | 62              |  |  |  |  |  |
| From | Crescent Access Road | 61              | 0                    | 33              |  |  |  |  |  |
|      | Robinson Road N      | 311             | 38                   | 0               |  |  |  |  |  |

# **Vehicle Mix**

| ,    |                      |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      | То                   |                 |                      |                 |  |  |  |  |  |
| From |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 96                   | 58              |  |  |  |  |  |
|      | Crescent Access Road | 90              | 0                    | 95              |  |  |  |  |  |
|      | Robinson Road N      | 25              | 98                   | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.14    | 11.02         | 0.3         | В       | 86                     | 129                              |
| C-AB   | 0.08    | 7.78          | 0.2         | А       | 53                     | 80                               |
| C-A    |         |               |             |         | 267                    | 400                              |
| A-B    |         |               |             |         | 87                     | 131                              |
| A-C    |         |               |             |         | 57                     | 85                               |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 71                       | 18                         | 762                  | 0.093 | 70                     | 0.0                  | 0.2                | 9.957     | A                             |
| C-AB   | 40                       | 10                         | 825                  | 0.048 | 39                     | 0.0                  | 0.1                | 7.782     | А                             |
| C-A    | 223                      | 56                         |                      |       | 223                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 47                       | 12                         |                      |       | 47                     |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 85                       | 21                         | 749                  | 0.113 | 84                     | 0.2                  | 0.2                | 10.384    | В                             |
| C-AB   | 51                       | 13                         | 849                  | 0.060 | 51                     | 0.1                  | 0.2                | 7.572     | A                             |
| C-A    | 263                      | 66                         |                      |       | 263                    |                      |                    |           |                               |
| A-B    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-C    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 103                      | 26                         | 730                  | 0.142 | 103                    | 0.2                  | 0.3                | 11.010    | В                             |
| C-AB   | 69                       | 17                         | 882                  | 0.078 | 68                     | 0.2                  | 0.2                | 7.230     | Α                             |
| C-A    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-B    | 105                      | 26                         |                      |       | 105                    |                      |                    |           |                               |
| A-C    | 68                       | 17                         |                      |       | 68                     |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 103                      | 26                         | 730                  | 0.142 | 103                    | 0.3                  | 0.3                | 11.020    | В                             |
| C-AB   | 69                       | 17                         | 882                  | 0.078 | 69                     | 0.2                  | 0.2                | 7.140     | A                             |
| C-A    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |
| A-B    | 105                      | 26                         |                      |       | 105                    |                      |                    |           |                               |
| A-C    | 68                       | 17                         |                      |       | 68                     |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 85                       | 21                         | 749                  | 0.113 | 85                     | 0.3                  | 0.2                | 10.400    | В                             |
| C-AB   | 51                       | 13                         | 849                  | 0.060 | 51                     | 0.2                  | 0.2                | 7.364     | Α                             |
| C-A    | 263                      | 66                         |                      |       | 263                    |                      |                    |           |                               |
| A-B    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-C    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 71                       | 18                         | 762                  | 0.093 | 71                     | 0.2                  | 0.2                | 9.989     | А                             |
| C-AB   | 40                       | 10                         | 825                  | 0.049 | 40                     | 0.2                  | 0.1                | 7.678     | А                             |
| C-A    | 223                      | 56                         |                      |       | 223                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 47                       | 12                         |                      |       | 47                     |                      |                    |           |                               |



# **2032 Base, AM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.61               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.61              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| ſ | D7 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 326                 | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 11                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 87                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                      | То              |                      |                 |  |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |  |
|      | Robinson Road E      | 0               | 1                    | 325             |  |  |  |  |  |  |
| From | Crescent Access Road | 0               | 0                    | 11              |  |  |  |  |  |  |
|      | Robinson Road N      | 74              | 13                   | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

| ,    |                      |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      | То                   |                 |                      |                 |  |  |  |  |  |
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 0                    | 21              |  |  |  |  |  |
| From | Crescent Access Road | 0               | 0                    | 100             |  |  |  |  |  |
|      | Robinson Road N      | 71              | 100                  | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.02    | 9.27          | 0.0         | Α       | 10                     | 15                               |
| C-AB   | 0.02    | 10.73         | 0.1         | В       | 13                     | 20                               |
| C-A    |         |               |             |         | 67                     | 100                              |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 298                    | 447                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 8                        | 2                          | 822                  | 0.010 | 8                      | 0.0                  | 0.0                | 8.843     | A                             |
| C-AB   | 11                       | 3                          | 684                  | 0.016 | 11                     | 0.0                  | 0.0                | 10.538    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 10                       | 2                          | 808                  | 0.012 | 10                     | 0.0                  | 0.0                | 9.020     | A                             |
| C-AB   | 13                       | 3                          | 680                  | 0.019 | 13                     | 0.0                  | 0.0                | 10.624    | В                             |
| C-A    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 12                       | 3                          | 788                  | 0.015 | 12                     | 0.0                  | 0.0                | 9.274     | А                             |
| C-AB   | 16                       | 4                          | 675                  | 0.024 | 16                     | 0.0                  | 0.1                | 10.727    | В                             |
| C-A    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 358                      | 89                         |                      |       | 358                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 12                       | 3                          | 788                  | 0.015 | 12                     | 0.0                  | 0.0                | 9.274     | Α                             |
| C-AB   | 16                       | 4                          | 675                  | 0.024 | 16                     | 0.1                  | 0.1                | 10.709    | В                             |
| C-A    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 358                      | 89                         |                      |       | 358                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 10                       | 2                          | 808                  | 0.012 | 10                     | 0.0                  | 0.0                | 9.022     | Α                             |
| C-AB   | 13                       | 3                          | 680                  | 0.019 | 13                     | 0.1                  | 0.0                | 10.590    | В                             |
| C-A    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 8                        | 2                          | 822                  | 0.010 | 8                      | 0.0                  | 0.0                | 8.845     | А                             |
| C-AB   | 11                       | 3                          | 684                  | 0.016 | 11                     | 0.0                  | 0.0                | 10.523    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |



# **2032 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.15               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.15              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D8 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 60                  | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 28                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 343                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
| F    | Robinson Road E      | 0               | 0                    | 60              |  |  |  |  |  |
| From | Crescent Access Road | 4               | 0                    | 24              |  |  |  |  |  |
|      | Robinson Road N      | 320             | 23                   | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
| F    | Robinson Road E      | 0               | 0                    | 55              |  |  |  |  |  |
| From | Crescent Access Road | 50              | 0                    | 95              |  |  |  |  |  |
|      | Robinson Road N      | 24              | 100                  | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.04    | 8.28          | 0.1         | Α       | 26                     | 39                               |
| C-AB   | 0.05    | 7.47          | 0.1         | А       | 32                     | 48                               |
| C-A    |         |               |             |         | 282                    | 424                              |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 55                     | 83                               |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 21                       | 5                          | 856                  | 0.025 | 21                     | 0.0                  | 0.0                | 8.060     | A                             |
| C-AB   | 24                       | 6                          | 844                  | 0.029 | 24                     | 0.0                  | 0.1                | 7.469     | А                             |
| C-A    | 234                      | 58                         |                      |       | 234                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 25                       | 6                          | 851                  | 0.030 | 25                     | 0.0                  | 0.1                | 8.151     | A                             |
| C-AB   | 31                       | 8                          | 871                  | 0.036 | 31                     | 0.1                  | 0.1                | 7.196     | A                             |
| C-A    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 54                       | 13                         |                      |       | 54                     |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 31                       | 8                          | 844                  | 0.037 | 31                     | 0.1                  | 0.1                | 8.277     | Α                             |
| C-AB   | 42                       | 10                         | 909                  | 0.046 | 41                     | 0.1                  | 0.1                | 6.787     | Α                             |
| C-A    | 336                      | 84                         |                      |       | 336                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 66                       | 17                         |                      |       | 66                     |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 31                       | 8                          | 844                  | 0.037 | 31                     | 0.1                  | 0.1                | 8.277     | A                             |
| C-AB   | 42                       | 10                         | 909                  | 0.046 | 42                     | 0.1                  | 0.1                | 6.702     | A                             |
| C-A    | 336                      | 84                         |                      |       | 336                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 66                       | 17                         |                      |       | 66                     |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 25                       | 6                          | 851                  | 0.030 | 25                     | 0.1                  | 0.1                | 8.152     | Α                             |
| C-AB   | 31                       | 8                          | 871                  | 0.036 | 31                     | 0.1                  | 0.1                | 6.997     | Α                             |
| C-A    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 54                       | 13                         |                      |       | 54                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 21                       | 5                          | 856                  | 0.025 | 21                     | 0.1                  | 0.0                | 8.065     | A                             |
| C-AB   | 24                       | 6                          | 844                  | 0.029 | 24                     | 0.1                  | 0.1                | 7.367     | А                             |
| C-A    | 234                      | 58                         |                      |       | 234                    |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |



# 2032 + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junc | tion | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|------|------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1    | 1    | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.54               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.54              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type Use O-D da |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|----------------------|------------|-------------------------|---|---------------------|--------------------|--|
| Robinson Road E      |            | ONE HOUR                | ✓ | 406                 | 100.000            |  |
| Crescent Access Road |            | ONE HOUR                | ✓ | 48                  | 100.000            |  |
| Robinson Road N      |            | ONE HOUR                | ✓ | 101                 | 100.000            |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                      | То              |                      |                 |  |  |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |  |  |
|      | Robinson Road E      | 0               | 72                   | 334             |  |  |  |  |  |  |  |
| From | Crescent Access Road | 41              | 0                    | 7               |  |  |  |  |  |  |  |
|      | Robinson Road N      | 76              | 25                   | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                      | То              |                      |                 |  |  |  |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |  |  |  |
|      | Robinson Road E      | 0               | 93                   | 23              |  |  |  |  |  |  |  |  |
| From | Crescent Access Road | 90              | 0                    | 90              |  |  |  |  |  |  |  |  |
|      | Robinson Road N      | 69              | 97                   | 0               |  |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.08    | 11.34         | 0.2         | В       | 44                     | 66                               |
| C-AB   | 0.05    | 11.13         | 0.1         | В       | 26                     | 39                               |
| C-A    |         |               |             |         | 67                     | 100                              |
| A-B    |         |               |             |         | 66                     | 99                               |
| A-C    |         |               |             |         | 306                    | 460                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 36                       | 9                          | 706                  | 0.051 | 36                     | 0.0                  | 0.1                | 10.205    | В                             |
| C-AB   | 21                       | 5                          | 671                  | 0.031 | 20                     | 0.0                  | 0.1                | 10.738    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 54                       | 14                         |                      |       | 54                     |                      |                    |           |                               |
| A-C    | 251                      | 63                         |                      |       | 251                    |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 43                       | 11                         | 685                  | 0.063 | 43                     | 0.1                  | 0.1                | 10.657    | В                             |
| C-AB   | 25                       | 6                          | 665                  | 0.038 | 25                     | 0.1                  | 0.1                | 10.910    | В                             |
| C-A    | 66                       | 16                         |                      |       | 66                     |                      |                    |           |                               |
| A-B    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-C    | 300                      | 75                         |                      |       | 300                    |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 53                       | 13                         | 656                  | 0.081 | 53                     | 0.1                  | 0.2                | 11.331    | В                             |
| C-AB   | 32                       | 8                          | 656                  | 0.048 | 31                     | 0.1                  | 0.1                | 11.134    | В                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-C    | 368                      | 92                         |                      |       | 368                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 53                       | 13                         | 656                  | 0.081 | 53                     | 0.2                  | 0.2                | 11.336    | В                             |
| C-AB   | 32                       | 8                          | 656                  | 0.048 | 32                     | 0.1                  | 0.1                | 11.118    | В                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-C    | 368                      | 92                         |                      |       | 368                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 43                       | 11                         | 685                  | 0.063 | 43                     | 0.2                  | 0.1                | 10.667    | В                             |
| C-AB   | 25                       | 6                          | 665                  | 0.038 | 25                     | 0.1                  | 0.1                | 10.876    | В                             |
| C-A    | 66                       | 16                         |                      |       | 66                     |                      |                    |           |                               |
| A-B    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-C    | 300                      | 75                         |                      |       | 300                    |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 36                       | 9                          | 705                  | 0.051 | 36                     | 0.1                  | 0.1                | 10.224    | В                             |
| C-AB   | 21                       | 5                          | 671                  | 0.031 | 21                     | 0.1                  | 0.1                | 10.730    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 54                       | 14                         |                      |       | 54                     |                      |                    |           |                               |
| A-C    | 251                      | 63                         |                      |       | 251                    |                      |                    |           |                               |



# 2032 + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 2.45               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 2.45              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm                  | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|----------------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road E      |            | ONE HOUR     | ✓            | 160                 | 100.000            |
| Crescent Access Road |            | ONE HOUR     | ✓            | 95                  | 100.000            |
| Robinson Road N      |            | ONE HOUR     | ✓            | 364                 | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
|      | Robinson Road E      | 0               | 95                   | 65              |  |  |  |  |  |
| From | Crescent Access Road | 61              | 0                    | 34              |  |  |  |  |  |
|      | Robinson Road N      | 325             | 39                   | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То                   |                 |                      |                 |  |  |  |  |  |
|------|----------------------|-----------------|----------------------|-----------------|--|--|--|--|--|
|      |                      | Robinson Road E | Crescent Access Road | Robinson Road N |  |  |  |  |  |
| _    | Robinson Road E      | 0               | 96                   | 58              |  |  |  |  |  |
| From | Crescent Access Road | 89              | 0                    | 95              |  |  |  |  |  |
|      | Robinson Road N      | 25              | 98                   | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| B-AC   | 0.14    | 11.05         | 0.3         | В       | 87                     | 131                              |
| C-AB   | 0.08    | 7.70          | 0.2         | A       | 56                     | 84                               |
| C-A    |         |               |             |         | 278                    | 417                              |
| A-B    |         |               |             |         | 87                     | 131                              |
| A-C    |         |               |             |         | 60                     | 89                               |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 72                       | 18                         | 761                  | 0.094 | 71                     | 0.0                  | 0.2                | 9.958     | A                             |
| C-AB   | 42                       | 10                         | 831                  | 0.050 | 41                     | 0.0                  | 0.1                | 7.698     | A                             |
| C-A    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 85                       | 21                         | 747                  | 0.114 | 85                     | 0.2                  | 0.2                | 10.396    | В                             |
| C-AB   | 53                       | 13                         | 856                  | 0.062 | 53                     | 0.1                  | 0.2                | 7.480     | A                             |
| C-A    | 274                      | 68                         |                      |       | 274                    |                      |                    |           |                               |
| A-B    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-C    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 105                      | 26                         | 727                  | 0.144 | 104                    | 0.2                  | 0.3                | 11.040    | В                             |
| C-AB   | 72                       | 18                         | 891                  | 0.081 | 72                     | 0.2                  | 0.2                | 7.139     | А                             |
| C-A    | 329                      | 82                         |                      |       | 329                    |                      |                    |           |                               |
| A-B    | 105                      | 26                         |                      |       | 105                    |                      |                    |           |                               |
| A-C    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 105                      | 26                         | 727                  | 0.144 | 105                    | 0.3                  | 0.3                | 11.050    | В                             |
| C-AB   | 72                       | 18                         | 891                  | 0.081 | 72                     | 0.2                  | 0.2                | 7.049     | A                             |
| C-A    | 329                      | 82                         |                      |       | 329                    |                      |                    |           |                               |
| A-B    | 105                      | 26                         |                      |       | 105                    |                      |                    |           |                               |
| A-C    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 85                       | 21                         | 747                  | 0.114 | 86                     | 0.3                  | 0.2                | 10.414    | В                             |
| C-AB   | 54                       | 13                         | 856                  | 0.063 | 54                     | 0.2                  | 0.2                | 7.273     | А                             |
| C-A    | 274                      | 68                         |                      |       | 274                    |                      |                    |           |                               |
| A-B    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-C    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-AC   | 72                       | 18                         | 761                  | 0.094 | 72                     | 0.2                  | 0.2                | 9.990     | A                             |
| C-AB   | 42                       | 10                         | 831                  | 0.050 | 42                     | 0.2                  | 0.1                | 7.595     | А                             |
| C-A    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |
| A-B    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-C    | 49                       | 12                         |                      |       | 49                     |                      |                    |           |                               |

### **Annex TN4 C**

East Riverside/ East Dock Road Priority Junction Assessment



# **Junctions 10**

#### **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693

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Filename: East Riverside-East Dock Road.j10

Path: P:\23000's\23325\Junction Assessment\Internal Junctions

**Report generation date:** 08/08/2022 16:08:59

»2022 Base, AM

»2022 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 + Development, AM

»2025 + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 + Development, AM

»2032 + Development, PM

#### Summary of junction performance

|             |                    | AM        |      |         | PM        |      |
|-------------|--------------------|-----------|------|---------|-----------|------|
|             | Q (PCU)            | Delay (s) | RFC  | Q (PCU) | Delay (s) | RFC  |
|             |                    |           | 2022 | Base    |           |      |
| Stream B-C  | 0.0                | 0.00      | 0.00 | 0.0     | 9.11      | 0.01 |
| Stream B-A  | 0.0                | 0.00      | 0.00 | 0.0     | 10.10     | 0.00 |
| Stream C-AB | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |
|             |                    | 2025 Base |      |         |           |      |
| Stream B-C  | 0.0                | 0.00      | 0.00 | 0.0     | 9.11      | 0.01 |
| Stream B-A  | 0.0                | 0.00      | 0.00 | 0.0     | 10.10     | 0.00 |
| Stream C-AB | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |
|             |                    | 2025      | + De | velopme | nt        |      |
| Stream B-C  | 0.0                | 9.90      | 0.01 | 0.0     | 9.83      | 0.01 |
| Stream B-A  | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |
| Stream C-AB | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |
|             |                    |           | 2032 | Base    |           |      |
| Stream B-C  | 0.0                | 0.00      | 0.00 | 0.0     | 9.11      | 0.01 |
| Stream B-A  | 0.0                | 0.00      | 0.00 | 0.0     | 10.10     | 0.00 |
| Stream C-AB | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |
|             | 2032 + Development |           |      |         |           |      |
| Stream B-C  | 0.0                | 9.92      | 0.02 | 0.0     | 9.85      | 0.01 |
| Stream B-A  | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |
| Stream C-AB | 0.0                | 0.00      | 0.00 | 0.0     | 0.00      | 0.00 |

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



### File summary

### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/05/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |
|             |            |

### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

### **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

### **Demand Set Summary**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1  | 2022 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D2  | 2022 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D3  | 2025 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D4  | 2025 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D5  | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D6  | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D7  | 2032 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D8  | 2032 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D9  | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | <b>√</b>          |
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

### **Analysis Set Details**

| ID        | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |  |
|-----------|-------------------|---------------------------------|-------------------------------------|--|--|
| <b>A1</b> | ✓                 | 100.000                         | 100.000                             |  |  |



# **2022** Base, AM

#### **Data Errors and Warnings**

| Severity | Area            | Item | Description   |
|----------|-----------------|------|---|
| Warning  | Minor arm flare |      | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width |      | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.00               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.00              | Α           |

# Arms

#### **Arms**

| Arm | Name             | Description | Arm type |
|-----|------------------|-------------|----------|
| Α   | East Riverside E |             | Major    |
| В   | East Dock Road   |             | Minor    |
| С   | East Riverside W |             | Major    |

#### **Major Arm Geometry**

|     | Arm            | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|-----|----------------|--------------------------|----------------------------|------------------------|-------------------------------|---------|----------------------|
| Eas | st Riverside W | 5.87                     |                            |                        | 130.7                         | ✓       | 0.00                 |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

#### **Minor Arm Geometry**

| Arm            | Minor arm<br>type   | Width at give-way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to<br>left (m) | Visibility to right (m) |
|----------------|---------------------|-----------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|---------------------------|-------------------------|
| East Dock Road | One lane plus flare | 10.00                 | 3.91               | 2.83                | 2.69                | 2.68                | ✓                     | 1.00                  | 250                       | 71                      |

### Slope / Intercept / Capacity

### **Priority Intersection Slopes and Intercepts**

| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|
| B-A    | 622                   | 0.114               | 0.288               | 0.181               | 0.411               |
| B-C    | 802                   | 0.124               | 0.313               | -                   | -                   |
| С-В    | 650                   | 0.253               | 0.253               | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



# **Traffic Demand**

### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2022 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 8                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      |                  | То               |                |                  |  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |  |
| F    | East Riverside E | 0                | 1              | 7                |  |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 2                |  |  |  |  |  |  |  |
|      | East Riverside W | 2                | 1              | 0                |  |  |  |  |  |  |  |

# **Vehicle Mix**

#### HV %s

|      |                  | То               |                |                  |  |  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |  |  |
|      | East Riverside E | 0                | 100            | 86               |  |  |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 100              |  |  |  |  |  |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |  |  |  |  |  |

# Results

### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| В-С    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| B-A    | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 6                      | 10                               |



# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 801                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 5                        | 1                          |                      |       | 5                      |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 6                        | 2                          |                      |       | 6                      |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 619                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 647                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 8                        | 2                          |                      |       | 8                      |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| B-A    | 0                        | 0                          | 619                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 647                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 8                        | 2                          |                      |       | 8                      |                      |                    |           |                               |

#### 07:45 - 08:00

| • • • • • |                          |                            |                      |       |                        |                      |                    |           |                               |  |
|-----------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| Stream    | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
| в-с       | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |  |
| B-A       | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |  |
| C-AB      | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |  |
| C-A       | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |  |
| A-B       | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |  |
| A-C       | 6                        | 2                          |                      |       | 6                      |                      |                    |           |                               |  |



#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 801                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 5                        | 1                          |                      |       | 5                      |                      |                    |           |                               |



# **2022 Base, PM**

#### **Data Errors and Warnings**

| Severity | Area Item       |  | Description   |
|----------|-----------------|--|---|
| Warning  | Minor arm flare |  | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width |  | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.53               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 9.53              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2022 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |                  |                |                  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |
| F    | East Riverside E | 0                | 0              | 4                |  |  |  |
| From | East Dock Road   | 3                | 0              | 4                |  |  |  |
|      | East Riverside W | 1                | 2              | 0                |  |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |
| F    | East Riverside E | 0                | 0              | 100              |  |  |  |
| From | East Dock Road   | 100              | 0              | 75               |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.11          | 0.0         | A       | 4                      | 6                                |
| B-A    | 0.00    | 10.10         | 0.0         | В       | 3                      | 4                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 3                        | 0.75                       | 696                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.085     | A                             |
| B-A    | 2                        | 0.56                       | 716                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.089    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 0.90                       | 696                  | 0.005 | 4                      | 0.0                  | 0.0                | 9.094     | A                             |
| B-A    | 3                        | 0.67                       | 716                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.096    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 1                          | 696                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.107     | A                             |
| B-A    | 3                        | 0.83                       | 716                  | 0.005 | 3                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 4                        | 1                          | 696                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.107     | А                             |
| B-A    | 3                        | 0.83                       | 716                  | 0.005 | 3                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 0.90                       | 696                  | 0.005 | 4                      | 0.0                  | 0.0                | 9.096     | A                             |
| B-A    | 3                        | 0.67                       | 716                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.098    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 3                        | 0.75                       | 696                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.087     | Α                             |
| B-A    | 2                        | 0.56                       | 716                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.091    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

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# **2025** Base, AM

#### **Data Errors and Warnings**

| Severity | Area            | Item                                     | Description   |
|----------|-----------------|--|---|
| Warning  | Minor arm flare | East Dock Road -<br>Minor arm geometry   | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width | East Riverside W -<br>Major arm geometry | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.00               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.00              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 8                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 2                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То               |                |                  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |
| F    | East Riverside E | 0                | 1              | 7                |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 2                |  |  |  |  |  |  |
|      | East Riverside W | 2                | 1              | 0                |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То                              |     |                  |  |  |  |  |  |  |  |
|------|------------------|---------------------------------|-----|------------------|--|--|--|--|--|--|--|
|      |                  | East Riverside E East Dock Road |     | East Riverside W |  |  |  |  |  |  |  |
| F    | East Riverside E | 0                               | 100 | 86               |  |  |  |  |  |  |  |
| From | East Dock Road   | 0                               | 0   | 100              |  |  |  |  |  |  |  |
|      | East Riverside W | 0                               | 0   | 0                |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| B-A    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 6                      | 10                               |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 801                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 5                        | 1                          |                      |       | 5                      |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |  |  |  |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |  |  |  |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |  |  |  |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |  |  |  |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |  |  |  |
| A-C    | 6                        | 2                          |                      |       | 6                      |                      |                    |           |                               |  |  |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| B-A    | 0                        | 0                          | 619                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 647                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 8                        | 2                          |                      |       | 8                      |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 619                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-AB   | 0                        | 0                          | 647                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 8                        | 2                          |                      |       | 8                      |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 6                        | 2                          |                      |       | 6                      |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 801                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 5                        | 1                          |                      |       | 5                      |                      |                    |           |                               |



# 2025 Base, PM

#### **Data Errors and Warnings**

| Severity | Area            | Item                                     | Description   |
|----------|-----------------|--|---|
| Warning  | Minor arm flare | East Dock Road -<br>Minor arm geometry   | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width | East Riverside W -<br>Major arm geometry | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ı | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.53               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 9.53              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| I | D  | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| С | 04 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То               |                |                  |  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |  |
| F    | East Riverside E | 0                | 0              | 4                |  |  |  |  |  |  |  |
| From | East Dock Road   | 3                | 0              | 4                |  |  |  |  |  |  |  |
|      | East Riverside W | 1                | 2              | 0                |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |
|      | East Riverside E | 0                | 0              | 100              |  |  |  |  |  |
| From | East Dock Road   | 100              | 0              | 75               |  |  |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.11          | 0.0         | A       | 4                      | 6                                |
| B-A    | 0.00    | 10.10         | 0.0         | В       | 3                      | 4                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 3                        | 0.75                       | 696                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.085     | А                             |
| B-A    | 2                        | 0.56                       | 716                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.089    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 0.90                       | 696                  | 0.005 | 4                      | 0.0                  | 0.0                | 9.094     | A                             |
| B-A    | 3                        | 0.67                       | 716                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.096    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 4                        | 1                          | 696                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.107     | A                             |
| B-A    | 3                        | 0.83                       | 716                  | 0.005 | 3                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 4                        | 1                          | 696                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.107     | A                             |
| B-A    | 3                        | 0.83                       | 716                  | 0.005 | 3                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 0.90                       | 696                  | 0.005 | 4                      | 0.0                  | 0.0                | 9.096     | A                             |
| B-A    | 3                        | 0.67                       | 716                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.098    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 3                        | 0.75                       | 696                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.087     | Α                             |
| B-A    | 2                        | 0.56                       | 716                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.091    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



# 2025 + Development, AM

#### **Data Errors and Warnings**

| Severity | Area  | Item | Description   |
|----------|---|------|---|
| Warning  | Warning Minor arm flare East Dock Road - Minor arm geometry |      | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width   |      | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ĺ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.90               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 9.90              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| П | Scenario name        | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D | 5 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 0                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 9                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# Origin-Destination Data

#### Demand (PCU/hr)

|      | То               |                  |                |                  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |
| F    | East Riverside E | 0                | 0              | 0                |  |  |
| From | East Dock Road   | 0                | 0              | 9                |  |  |
|      | East Riverside W | 0                | 3              | 0                |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |
|      | East Riverside E | 0                | 0              | 0                |  |  |  |
| From | East Dock Road   | 0                | 0              | 89               |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.90          | 0.0         | A       | 8                      | 12                               |
| B-A    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 697                  | 0.010 | 7                      | 0.0                  | 0.0                | 9.856     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 697                  | 0.012 | 8                      | 0.0                  | 0.0                | 9.877     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 10                       | 2                          | 697                  | 0.014 | 10                     | 0.0                  | 0.0                | 9.903     | А                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 10                       | 2                          | 697                  | 0.014 | 10                     | 0.0                  | 0.0                | 9.903     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 697                  | 0.012 | 8                      | 0.0                  | 0.0                | 9.879     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 697                  | 0.010 | 7                      | 0.0                  | 0.0                | 9.858     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



# 2025 + Development, PM

#### **Data Errors and Warnings**

| Severity | Warning Minor arm flare East Dock Road - Minor arm geometry  Warning Major arm width East Riverside W - |  | Description   |  |  |  |
|----------|---|--|---|--|--|--|
| Warning  |   |  | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |  |  |  |
| Warning  |   |  | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |  |  |  |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.83               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 9.83 | А           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 0                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 8                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То               |                |                  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |
| F    | East Riverside E | 0                | 0              | 0                |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 8                |  |  |  |  |  |  |
|      | East Riverside W | 0                | 3              | 0                |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |
|      | East Riverside E | 0                | 0              | 0                |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 88               |  |  |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.83          | 0.0         | A       | 7                      | 11                               |
| B-A    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

# Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 6                        | 2                          | 697                  | 0.009 | 6                      | 0.0                  | 0.0                | 9.795     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 697                  | 0.010 | 7                      | 0.0                  | 0.0                | 9.812     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 9                        | 2                          | 697                  | 0.013 | 9                      | 0.0                  | 0.0                | 9.835     | А                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 9                        | 2                          | 697                  | 0.013 | 9                      | 0.0                  | 0.0                | 9.835     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 697                  | 0.010 | 7                      | 0.0                  | 0.0                | 9.812     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 6                        | 2                          | 697                  | 0.009 | 6                      | 0.0                  | 0.0                | 9.795     | Α                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



# **2032** Base, AM

#### **Data Errors and Warnings**

| Severity | Area            | Item | Description   |
|----------|-----------------|------|---|
| Warning  | Minor arm flare |      | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width |      | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.00               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.00              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D7 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type   Use O-D data |   | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|------------------|------------|-----------------------------|---|---------------------|--------------------|--|
| East Riverside E |            | ONE HOUR                    | ✓ | 9                   | 100.000            |  |
| East Dock Road   |            | ONE HOUR                    | ✓ | 2                   | 100.000            |  |
| East Riverside W |            | ONE HOUR                    | ✓ | 3                   | 100.000            |  |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                  | То               |                |                  |  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |  |
| F    | East Riverside E | 0                | 1              | 8                |  |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 2                |  |  |  |  |  |  |  |
|      | East Riverside W | 2                | 1              | 0                |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                  | То               |                |                  |  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |  |
|      | East Riverside E | 0                | 100            | 86               |  |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 100              |  |  |  |  |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| B-A    | 0.00    | 0.00          | 0.0         | А       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 7                      | 11                               |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 6                        | 2                          |                      |       | 6                      |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 7                        | 2                          |                      |       | 7                      |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| B-A    | 0                        | 0                          | 619                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 647                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 619                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 647                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 7                        | 2                          |                      |       | 7                      |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 0                        | 0                          | 800                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| B-A    | 0                        | 0                          | 620                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 648                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 6                        | 2                          |                      |       | 6                      |                      |                    |           |                               |



# **2032 Base, PM**

#### **Data Errors and Warnings**

| Severity | Area Item       |  | Description   |
|----------|-----------------|--|---|
| Warning  | Minor arm flare |  | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width |  | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.53               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 9.53              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D8 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 4                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То               |                  |                |                  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |
| F    | East Riverside E | 0                | 0              | 4                |  |  |  |  |
| From | East Dock Road   | 3                | 0              | 4                |  |  |  |  |
|      | East Riverside W | 1                | 2              | 0                |  |  |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |
|      | East Riverside E | 0                | 0              | 100              |  |  |  |  |  |  |
| From | East Dock Road   | 100              | 0              | 75               |  |  |  |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.11          | 0.0         | A       | 4                      | 6                                |
| B-A    | 0.00    | 10.10         | 0.0         | В       | 3                      | 4                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

# Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 3                        | 0.75                       | 696                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.085     | A                             |
| B-A    | 2                        | 0.56                       | 716                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.089    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 0.90                       | 696                  | 0.005 | 4                      | 0.0                  | 0.0                | 9.094     | A                             |
| B-A    | 3                        | 0.67                       | 716                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.096    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 4                        | 1                          | 696                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.107     | A                             |
| B-A    | 3                        | 0.83                       | 716                  | 0.005 | 3                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 1                          | 696                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.107     | A                             |
| B-A    | 3                        | 0.83                       | 716                  | 0.005 | 3                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 4                        | 0.90                       | 696                  | 0.005 | 4                      | 0.0                  | 0.0                | 9.096     | A                             |
| B-A    | 3                        | 0.67                       | 716                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.098    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 3                        | 0.75                       | 696                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.087     | Α                             |
| B-A    | 2                        | 0.56                       | 716                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.091    | В                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



# 2032 + Development, AM

#### **Data Errors and Warnings**

| Severity | ty Area Item    |  | Description   |
|----------|-----------------|--|---|
| Warning  | Minor arm flare |  | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed. |
| Warning  | Major arm width |  | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.        |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.92               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 9.92              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 0                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 10                  | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# Origin-Destination Data

#### Demand (PCU/hr)

|      | То               |                  |                |                  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |
| F    | East Riverside E | 0                | 0              | 0                |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 10               |  |  |  |  |
|      | East Riverside W | 0                | 3              | 0                |  |  |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |
|      | East Riverside E | 0                | 0              | 0                |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 89               |  |  |  |  |
|      | East Riverside W | 0                | 0              | 0                |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.02    | 9.92          | 0.0         | A       | 9                      | 14                               |
| B-A    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 697                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.867     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 9                        | 2                          | 697                  | 0.013 | 9                      | 0.0                  | 0.0                | 9.890     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 11                       | 3                          | 697                  | 0.016 | 11                     | 0.0                  | 0.0                | 9.919     | А                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 11                       | 3                          | 697                  | 0.016 | 11                     | 0.0                  | 0.0                | 9.919     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 9                        | 2                          | 697                  | 0.013 | 9                      | 0.0                  | 0.0                | 9.892     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 697                  | 0.011 | 8                      | 0.0                  | 0.0                | 9.869     | Α                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



# 2032 + Development, PM

#### **Data Errors and Warnings**

| Severity                    | everity Area Item   |  | Description  |  |  |  |
|-----------------------------|---|--|--|--|--|--|
| I Warning I Minor arm flare |   | East Dock Road -<br>Minor arm geometry | Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length not allowed. |  |  |  |
| Warning                     | Warning Major arm width East Riverside W - Major arm geometry |  | For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.     |  |  |  |

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 9.85               | Α            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |
|-----------------------|----------------|-------------------|-------------|
| Left                  | Normal/unknown | 9.85              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm              | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|------------------|------------|--------------|--------------|---------------------|--------------------|
| East Riverside E |            | ONE HOUR     | ✓            | 0                   | 100.000            |
| East Dock Road   |            | ONE HOUR     | ✓            | 9                   | 100.000            |
| East Riverside W |            | ONE HOUR     | ✓            | 3                   | 100.000            |

# Origin-Destination Data

#### Demand (PCU/hr)

|      | То               |                  |                |                  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |
|      | East Riverside E | 0                | 0              | 0                |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 9                |  |  |  |  |
|      | East Riverside W | 0                | 3              | 0                |  |  |  |  |

# **Vehicle Mix**

|      | То               |                  |                |                  |  |  |  |  |  |  |
|------|------------------|------------------|----------------|------------------|--|--|--|--|--|--|
|      |                  | East Riverside E | East Dock Road | East Riverside W |  |  |  |  |  |  |
| _    | East Riverside E | 0                | 0              | 0                |  |  |  |  |  |  |
| From | East Dock Road   | 0                | 0              | 88               |  |  |  |  |  |  |
| •    | East Riverside W | 0                | 0              | 0                |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.85          | 0.0         | A       | 8                      | 12                               |
| B-A    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-AB   | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-A    |         |               |             |         | 0                      | 0                                |
| A-B    |         |               |             |         | 0                      | 0                                |
| A-C    |         |               |             |         | 0                      | 0                                |

# Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 697                  | 0.010 | 7                      | 0.0                  | 0.0                | 9.804     | А                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 697                  | 0.012 | 8                      | 0.0                  | 0.0                | 9.824     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 10                       | 2                          | 697                  | 0.014 | 10                     | 0.0                  | 0.0                | 9.850     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 10                       | 2                          | 697                  | 0.014 | 10                     | 0.0                  | 0.0                | 9.850     | А                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 697                  | 0.012 | 8                      | 0.0                  | 0.0                | 9.825     | A                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 697                  | 0.010 | 7                      | 0.0                  | 0.0                | 9.806     | Α                             |
| B-A    | 0                        | 0                          | 716                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 0                        | 0                          | 650                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-A    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-B    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |
| A-C    | 0                        | 0                          |                      |       | 0                      |                      |                    |           |                               |

# **Annex TN4 D**

Robinson Road/ East Dock Road Priority Junction Assessment



# **Junctions 10**

# **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693

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Filename: Robinson Road-East Dock Road.j10

Path: P:\23000's\23325\Junction Assessment\Internal Junctions

**Report generation date:** 08/08/2022 16:16:06

»2022 Base, AM

»2022 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 + Development, AM

»2025 + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 + Development, AM

»2032 + Development, PM

#### Summary of junction performance

|             |                    | AM        |      |         | PM        |      |
|-------------|--------------------|-----------|------|---------|-----------|------|
|             | Q (PCU)            | Delay (s) | RFC  | Q (PCU) | Delay (s) | RFC  |
|             |                    |           | 2022 | Base    |           |      |
| Stream B-C  | 0.0                | 8.95      | 0.02 | 0.1     | 9.14      | 0.03 |
| Stream B-A  | 0.0                | 10.35     | 0.02 | 0.0     | 13.08     | 0.02 |
| Stream C-AB | 0.0                | 6.45      | 0.02 | 0.0     | 10.81     | 0.02 |
|             |                    |           | 2025 | Base    |           |      |
| Stream B-C  | 0.0                | 8.96      | 0.02 | 0.1     | 9.18      | 0.03 |
| Stream B-A  | 0.0                | 10.39     | 0.02 | 0.0     | 13.17     | 0.02 |
| Stream C-AB | 0.0                | 6.42      | 0.02 | 0.0     | 10.81     | 0.02 |
|             |                    | 2025      | + De | velopme | nt        |      |
| Stream B-C  | 0.0                | 8.49      | 0.03 | 0.1     | 9.50      | 0.04 |
| Stream B-A  | 0.0                | 10.61     | 0.02 | 0.0     | 13.45     | 0.02 |
| Stream C-AB | 0.1                | 7.03      | 0.03 | 0.1     | 10.84     | 0.03 |
|             |                    |           | 2032 | Base    |           |      |
| Stream B-C  | 0.0                | 9.00      | 0.02 | 0.1     | 9.27      | 0.04 |
| Stream B-A  | 0.0                | 10.46     | 0.02 | 0.0     | 13.30     | 0.02 |
| Stream C-AB | 0.0                | 6.36      | 0.02 | 0.0     | 10.82     | 0.02 |
|             | 2032 + Development |           |      |         |           |      |
| Stream B-C  | 0.0                | 8.53      | 0.03 | 0.1     | 9.60      | 0.04 |
| Stream B-A  | 0.0                | 10.66     | 0.02 | 0.0     | 13.59     | 0.02 |
| Stream C-AB | 0.1                | 6.97      | 0.04 | 0.1     | 10.60     | 0.03 |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



# File summary

# File Description

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/05/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |
|             |            |

# Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

# **Analysis Options**

| Vehicle<br>length<br>(m) | (Calculate () | Calculate<br>detailed<br>queueing<br>delay | Show lane queues in feet / metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|---------------|--|-----------------------------------|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |               |  |                                   |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

# **Demand Set Summary**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1  | 2022 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D2  | 2022 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D3  | 2025 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D4  | 2025 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D5  | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D6  | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D7  | 2032 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D8  | 2032 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D9  | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | <b>√</b>          |
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

# **Analysis Set Details**

| ID        | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |  |
|-----------|-------------------|---------------------------------|-------------------------------------|--|--|
| <b>A1</b> | ✓                 | 100.000                         | 100.000                             |  |  |



# **2022** Base, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.85               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.85              | Α           |

# **Arms**

#### **Arms**

| Arm | Name            | Description | Arm type |  |  |
|-----|-----------------|-------------|----------|--|--|
| Α   | Robinson Road N |             | Major    |  |  |
| В   | East Dock Road  |             | Minor    |  |  |
| С   | Robinson Road S |             | Major    |  |  |

#### **Major Arm Geometry**

| Arm             | Width of carriageway<br>(m) | Has kerbed central reserve | Has right-turn<br>storage | Visibility for right turn<br>(m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|-----------------------------|----------------------------|---------------------------|----------------------------------|---------|-------------------------|
| Robinson Road S | 8.51                        |                            |                           | 169.2                            | ✓       | 0.00                    |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

## **Minor Arm Geometry**

| Arm            | Minor arm type      | Width at give-way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to left (m) | Visibility to right (m) |
|----------------|---------------------|-----------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------------|
| East Dock Road | One lane plus flare | 10.00                 | 10.00              | 5.22                | 3.79                | 3.74                | <b>✓</b>              | 2.00                  | 132                    | 186                     |

# Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| •      |                       |                     |                     | •                   |                     |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|
| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
| B-A    | 679                   | 0.110               | 0.278               | 0.175               | 0.397               |
| B-C    | 845                   | 0.116               | 0.292               | -                   | -                   |
| С-В    | 672                   | 0.232               | 0.232               | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



# **Traffic Demand**

# **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2022 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

# **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 63                  | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 26                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 292                 | 100.000            |

# **Origin-Destination Data**

# Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
| F    | Robinson Road N | 0               | 4              | 59              |  |  |  |  |  |
| From | East Dock Road  | 10              | 0              | 16              |  |  |  |  |  |
|      | Robinson Road S | 284             | 8              | 0               |  |  |  |  |  |

# **Vehicle Mix**

## HV %s

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 100            | 64              |  |  |  |  |  |  |
| From | East Dock Road  | 70              | 0              | 100             |  |  |  |  |  |  |
|      | Robinson Road S | 22              | 50             | 0               |  |  |  |  |  |  |

# Results

# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| В-С    | 0.02    | 8.95          | 0.0         | А       | 15                     | 22                               |
| B-A    | 0.02    | 10.35         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.02    | 6.45          | 0.0         | А       | 11                     | 16                               |
| C-A    |         |               |             |         | 257                    | 386                              |
| A-B    |         |               |             |         | 4                      | 6                                |
| A-C    |         |               |             |         | 54                     | 81                               |



# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 12                       | 3                          | 829                  | 0.015 | 12                     | 0.0                  | 0.0                | 8.807     | A                             |
| B-A    | 8                        | 2                          | 627                  | 0.012 | 7                      | 0.0                  | 0.0                | 9.883     | A                             |
| C-AB   | 8                        | 2                          | 796                  | 0.010 | 8                      | 0.0                  | 0.0                | 6.454     | A                             |
| C-A    | 212                      | 53                         |                      |       | 212                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 14                       | 4                          | 826                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.868     | Α                             |
| B-A    | 9                        | 2                          | 616                  | 0.015 | 9                      | 0.0                  | 0.0                | 10.074    | В                             |
| C-AB   | 10                       | 3                          | 821                  | 0.013 | 10                     | 0.0                  | 0.0                | 6.244     | А                             |
| C-A    | 252                      | 63                         |                      |       | 252                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 18                       | 4                          | 822                  | 0.021 | 18                     | 0.0                  | 0.0                | 8.952     | A                             |
| B-A    | 11                       | 3                          | 602                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.349    | В                             |
| C-AB   | 14                       | 3                          | 855                  | 0.016 | 14                     | 0.0                  | 0.0                | 5.953     | A                             |
| C-A    | 308                      | 77                         |                      |       | 308                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |

### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 18                       | 4                          | 822                  | 0.021 | 18                     | 0.0                  | 0.0                | 8.952     | Α                             |
| B-A    | 11                       | 3                          | 602                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.349    | В                             |
| C-AB   | 14                       | 3                          | 855                  | 0.016 | 14                     | 0.0                  | 0.0                | 5.925     | А                             |
| C-A    | 308                      | 77                         |                      |       | 308                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |

#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 14                       | 4                          | 826                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.869     | Α                             |
| B-A    | 9                        | 2                          | 616                  | 0.015 | 9                      | 0.0                  | 0.0                | 10.075    | В                             |
| C-AB   | 10                       | 3                          | 821                  | 0.013 | 10                     | 0.0                  | 0.0                | 6.178     | А                             |
| C-A    | 252                      | 63                         |                      |       | 252                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |



#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 12                       | 3                          | 829                  | 0.015 | 12                     | 0.0                  | 0.0                | 8.810     | А                             |
| B-A    | 8                        | 2                          | 627                  | 0.012 | 8                      | 0.0                  | 0.0                | 9.885     | А                             |
| C-AB   | 8                        | 2                          | 796                  | 0.010 | 8                      | 0.0                  | 0.0                | 6.418     | А                             |
| C-A    | 212                      | 53                         |                      |       | 212                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |



# **2022 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.02               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.02              | Α           |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2022 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-----------------|------------|--------------|--------------|---------------------|--------------------|--|
| Robinson Road N |            | ONE HOUR     | ✓            | 301                 | 100.000            |  |
| East Dock Road  |            | ONE HOUR     | ✓            | 31                  | 100.000            |  |
| Robinson Road S |            | ONE HOUR     | ✓            | 88                  | 100.000            |  |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | To                             | ) |                 |  |
|------|-----------------|--------------------------------|---|-----------------|--|
|      |                 | Robinson Road N East Dock Road |   | Robinson Road S |  |
|      | Robinson Road N | 0                              | 5 | 296             |  |
| From | East Dock Road  | 9                              | 0 | 22              |  |
|      | Robinson Road S | 79                             | 9 | 0               |  |

# **Vehicle Mix**

|      |                 | То              |                |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 60             | 22              |  |  |  |  |  |  |  |
| From | East Dock Road  | 100             | 0              | 86              |  |  |  |  |  |  |  |
|      | Robinson Road S | 53              | 100            | 0               |  |  |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.03    | 9.14          | 0.1         | А       | 20                     | 30                               |
| B-A    | 0.02    | 13.08         | 0.0         | В       | 8                      | 12                               |
| C-AB   | 0.02    | 10.81         | 0.0         | В       | 9                      | 14                               |
| C-A    |         |               |             |         | 71                     | 107                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 272                    | 407                              |

# Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 17                       | 4                          | 789                  | 0.021 | 16                     | 0.0                  | 0.0                | 8.669     | Α                             |
| B-A    | 7                        | 2                          | 595                  | 0.011 | 7                      | 0.0                  | 0.0                | 12.245    | В                             |
| C-AB   | 7                        | 2                          | 658                  | 0.011 | 7                      | 0.0                  | 0.0                | 10.759    | В                             |
| C-A    | 59                       | 15                         |                      |       | 59                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 223                      | 56                         |                      |       | 223                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|--|
| в-с    | 20                       | 5                          | 775                  | 0.026 | 20                     | 0.0                  | 0.0                | 8.865     | Α                             |  |  |  |  |
| B-A    | 8                        | 2                          | 580                  | 0.014 | 8                      | 0.0                  | 0.0                | 12.584    | В                             |  |  |  |  |
| C-AB   | 9                        | 2                          | 656                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.792    | В                             |  |  |  |  |
| C-A    | 70                       | 18                         |                      |       | 70                     |                      |                    |           |                               |  |  |  |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |  |  |  |
| A-C    | 266                      | 67                         |                      |       | 266                    |                      |                    |           |                               |  |  |  |  |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 24                       | 6                          | 757                  | 0.032 | 24                     | 0.0                  | 0.1                | 9.143     | А                             |
| B-A    | 10                       | 2                          | 560                  | 0.018 | 10                     | 0.0                  | 0.0                | 13.081    | В                             |
| C-AB   | 11                       | 3                          | 653                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.808    | В                             |
| C-A    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 326                      | 81                         |                      |       | 326                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 24                       | 6                          | 757                  | 0.032 | 24                     | 0.1                  | 0.1                | 9.143     | A                             |
| B-A    | 10                       | 2                          | 560                  | 0.018 | 10                     | 0.0                  | 0.0                | 13.081    | В                             |
| C-AB   | 11                       | 3                          | 653                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.772    | В                             |
| C-A    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 326                      | 81                         |                      |       | 326                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 20                       | 5                          | 775                  | 0.026 | 20                     | 0.1                  | 0.0                | 8.866     | А                             |
| B-A    | 8                        | 2                          | 580                  | 0.014 | 8                      | 0.0                  | 0.0                | 12.587    | В                             |
| C-AB   | 9                        | 2                          | 656                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.722    | В                             |
| C-A    | 70                       | 18                         |                      |       | 70                     |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 266                      | 67                         |                      |       | 266                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 17                       | 4                          | 788                  | 0.021 | 17                     | 0.0                  | 0.0                | 8.675     | А                             |
| B-A    | 7                        | 2                          | 595                  | 0.011 | 7                      | 0.0                  | 0.0                | 12.247    | В                             |
| C-AB   | 7                        | 2                          | 658                  | 0.011 | 7                      | 0.0                  | 0.0                | 10.726    | В                             |
| C-A    | 59                       | 15                         |                      |       | 59                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 223                      | 56                         |                      |       | 223                    |                      |                    |           |                               |



# 2025 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.83               | Α            |

#### **Junction Network**

|      |                | Network delay (s) | Network LOS |  |
|------|----------------|-------------------|-------------|--|
| Left | Normal/unknown | 0.83              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| I | D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-----------------|------------|--------------|--------------|---------------------|--------------------|--|
| Robinson Road N |            | ONE HOUR     | ✓            | 65                  | 100.000            |  |
| East Dock Road  |            | ONE HOUR     | ✓            | 26                  | 100.000            |  |
| Robinson Road S |            | ONE HOUR     | ✓            | 300                 | 100.000            |  |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 4              | 61              |  |  |  |  |  |
| From | East Dock Road  | 10              | 0              | 16              |  |  |  |  |  |
|      | Robinson Road S | 292             | 8              | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То              |                              |     |                   |  |  |  |  |
|------|-----------------|------------------------------|-----|-------------------|--|--|--|--|
|      |                 | Robinson Road N East Dock Ro |     | d Robinson Road S |  |  |  |  |
|      | Robinson Road N | 0                            | 100 | 64                |  |  |  |  |
| From | East Dock Road  | 70                           | 0   | 100               |  |  |  |  |
|      | Robinson Road S | 22                           | 50  | 0                 |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.02    | 8.96          | 0.0         | А       | 15                     | 22                               |
| B-A    | 0.02    | 10.39         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.02    | 6.42          | 0.0         | А       | 11                     | 16                               |
| C-A    |         |               |             |         | 264                    | 396                              |
| A-B    |         |               |             |         | 4                      | 6                                |
| A-C    |         |               |             |         | 56                     | 84                               |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 12                       | 3                          | 829                  | 0.015 | 12                     | 0.0                  | 0.0                | 8.811     | A                             |
| B-A    | 8                        | 2                          | 625                  | 0.012 | 7                      | 0.0                  | 0.0                | 9.907     | A                             |
| C-AB   | 8                        | 2                          | 800                  | 0.010 | 8                      | 0.0                  | 0.0                | 6.417     | A                             |
| C-A    | 218                      | 54                         |                      |       | 218                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 14                       | 4                          | 826                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.874     | А                             |
| B-A    | 9                        | 2                          | 615                  | 0.015 | 9                      | 0.0                  | 0.0                | 10.104    | В                             |
| C-AB   | 11                       | 3                          | 825                  | 0.013 | 11                     | 0.0                  | 0.0                | 6.203     | A                             |
| C-A    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 18                       | 4                          | 821                  | 0.021 | 18                     | 0.0                  | 0.0                | 8.959     | A                             |
| B-A    | 11                       | 3                          | 600                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.386    | В                             |
| C-AB   | 14                       | 4                          | 860                  | 0.016 | 14                     | 0.0                  | 0.0                | 5.908     | A                             |
| C-A    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 18                       | 4                          | 821                  | 0.021 | 18                     | 0.0                  | 0.0                | 8.959     | A                             |
| B-A    | 11                       | 3                          | 600                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.386    | В                             |
| C-AB   | 14                       | 4                          | 860                  | 0.016 | 14                     | 0.0                  | 0.0                | 5.878     | A                             |
| C-A    | 316                      | 79                         |                      |       | 316                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 14                       | 4                          | 826                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.877     | Α                             |
| B-A    | 9                        | 2                          | 615                  | 0.015 | 9                      | 0.0                  | 0.0                | 10.106    | В                             |
| C-AB   | 11                       | 3                          | 825                  | 0.013 | 11                     | 0.0                  | 0.0                | 6.137     | Α                             |
| C-A    | 259                      | 65                         |                      |       | 259                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 12                       | 3                          | 829                  | 0.015 | 12                     | 0.0                  | 0.0                | 8.816     | А                             |
| B-A    | 8                        | 2                          | 625                  | 0.012 | 8                      | 0.0                  | 0.0                | 9.909     | А                             |
| C-AB   | 8                        | 2                          | 800                  | 0.010 | 8                      | 0.0                  | 0.0                | 6.381     | A                             |
| C-A    | 218                      | 54                         |                      |       | 218                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.02               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.02              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 310                 | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 32                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 90                  | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 5              | 305             |  |  |  |  |  |
| From | East Dock Road  | 9               | 0              | 23              |  |  |  |  |  |
|      | Robinson Road S | 81              | 9              | 0               |  |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
| F    | Robinson Road N | 0               | 60             | 22              |  |  |  |  |  |
| From | East Dock Road  | 100             | 0              | 86              |  |  |  |  |  |
|      | Robinson Road S | 53              | 100            | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.03    | 9.18          | 0.1         | А       | 21                     | 32                               |
| B-A    | 0.02    | 13.17         | 0.0         | В       | 8                      | 12                               |
| C-AB   | 0.02    | 10.81         | 0.0         | В       | 9                      | 14                               |
| C-A    |         |               |             |         | 73                     | 110                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 280                    | 420                              |

# Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 17                       | 4                          | 788                  | 0.022 | 17                     | 0.0                  | 0.0                | 8.688     | Α                             |
| B-A    | 7                        | 2                          | 592                  | 0.011 | 7                      | 0.0                  | 0.0                | 12.307    | В                             |
| C-AB   | 7                        | 2                          | 658                  | 0.011 | 7                      | 0.0                  | 0.0                | 10.761    | В                             |
| C-A    | 60                       | 15                         |                      |       | 60                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 230                      | 57                         |                      |       | 230                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 21                       | 5                          | 774                  | 0.027 | 21                     | 0.0                  | 0.1                | 8.891     | А                             |  |  |
| B-A    | 8                        | 2                          | 577                  | 0.014 | 8                      | 0.0                  | 0.0                | 12.658    | В                             |  |  |
| C-AB   | 9                        | 2                          | 656                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.794    | В                             |  |  |
| C-A    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |  |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |  |
| A-C    | 274                      | 69                         |                      |       | 274                    |                      |                    |           |                               |  |  |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 25                       | 6                          | 755                  | 0.034 | 25                     | 0.1                  | 0.1                | 9.180     | A                             |
| B-A    | 10                       | 2                          | 556                  | 0.018 | 10                     | 0.0                  | 0.0                | 13.175    | В                             |
| C-AB   | 11                       | 3                          | 653                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.810    | В                             |
| C-A    | 88                       | 22                         |                      |       | 88                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 336                      | 84                         |                      |       | 336                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 25                       | 6                          | 755                  | 0.034 | 25                     | 0.1                  | 0.1                | 9.181     | А                             |
| B-A    | 10                       | 2                          | 556                  | 0.018 | 10                     | 0.0                  | 0.0                | 13.175    | В                             |
| C-AB   | 11                       | 3                          | 653                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.775    | В                             |
| C-A    | 88                       | 22                         |                      |       | 88                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 336                      | 84                         |                      |       | 336                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 21                       | 5                          | 774                  | 0.027 | 21                     | 0.1                  | 0.1                | 8.893     | A                             |
| B-A    | 8                        | 2                          | 577                  | 0.014 | 8                      | 0.0                  | 0.0                | 12.662    | В                             |
| C-AB   | 9                        | 2                          | 656                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.720    | В                             |
| C-A    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 274                      | 69                         |                      |       | 274                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 17                       | 4                          | 787                  | 0.022 | 17                     | 0.1                  | 0.0                | 8.696     | А                             |
| B-A    | 7                        | 2                          | 592                  | 0.011 | 7                      | 0.0                  | 0.0                | 12.312    | В                             |
| C-AB   | 7                        | 2                          | 658                  | 0.011 | 8                      | 0.0                  | 0.0                | 10.726    | В                             |
| C-A    | 60                       | 15                         |                      |       | 60                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 230                      | 57                         |                      |       | 230                    |                      |                    |           |                               |



# 2025 + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.04               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.04              | Α           |  |

# **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over turn   Vehicle mix varies over entry |                | PCU Factor for a HV (PCU) |  |
|------------------------------|--|----------------|---------------------------|--|
| ✓                            | ✓  | HV Percentages | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 77                  | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 29                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 316                 | 100.000            |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | To              |                |                 |  |
|------|-----------------|-----------------|----------------|-----------------|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |
|      | Robinson Road N | 0               | 4              | 73              |  |
| From | East Dock Road  | 10              | 0              | 19              |  |
|      | Robinson Road S | 300             | 16             | 0               |  |

# **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 100            | 69              |  |  |  |  |  |
| From | East Dock Road  | 70              | 0              | 89              |  |  |  |  |  |
|      | Robinson Road S | 24              | 69             | 0               |  |  |  |  |  |



# Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.03    | 8.49          | 0.0         | А       | 17                     | 26                               |
| B-A    | 0.02    | 10.61         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.03    | 7.03          | 0.1         | A       | 22                     | 33                               |
| C-A    |         |               |             |         | 268                    | 402                              |
| A-B    |         |               |             |         | 4                      | 6                                |
| A-C    |         |               |             |         | 67                     | 100                              |

# Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 14                       | 4                          | 831                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.326     | А                             |
| B-A    | 8                        | 2                          | 615                  | 0.012 | 7                      | 0.0                  | 0.0                | 10.067    | В                             |
| C-AB   | 17                       | 4                          | 802                  | 0.021 | 17                     | 0.0                  | 0.0                | 7.031     | А                             |
| C-A    | 221                      | 55                         |                      |       | 221                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 17                       | 4                          | 827                  | 0.021 | 17                     | 0.0                  | 0.0                | 8.395     | A                             |
| B-A    | 9                        | 2                          | 604                  | 0.015 | 9                      | 0.0                  | 0.0                | 10.290    | В                             |
| C-AB   | 21                       | 5                          | 827                  | 0.026 | 21                     | 0.0                  | 0.0                | 6.791     | A                             |
| C-A    | 263                      | 66                         |                      |       | 263                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 66                       | 16                         |                      |       | 66                     |                      |                    |           |                               |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 21                       | 5                          | 822                  | 0.025 | 21                     | 0.0                  | 0.0                | 8.490     | A                             |
| B-A    | 11                       | 3                          | 588                  | 0.019 | 11                     | 0.0                  | 0.0                | 10.611    | В                             |
| C-AB   | 29                       | 7                          | 863                  | 0.033 | 29                     | 0.0                  | 0.1                | 6.450     | A                             |
| C-A    | 319                      | 80                         |                      |       | 319                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 21                       | 5                          | 822                  | 0.025 | 21                     | 0.0                  | 0.0                | 8.491     | A                             |
| B-A    | 11                       | 3                          | 588                  | 0.019 | 11                     | 0.0                  | 0.0                | 10.611    | В                             |
| C-AB   | 29                       | 7                          | 863                  | 0.033 | 29                     | 0.1                  | 0.1                | 6.401     | A                             |
| C-A    | 319                      | 80                         |                      |       | 319                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 17                       | 4                          | 827                  | 0.021 | 17                     | 0.0                  | 0.0                | 8.398     | А                             |
| B-A    | 9                        | 2                          | 604                  | 0.015 | 9                      | 0.0                  | 0.0                | 10.291    | В                             |
| C-AB   | 21                       | 5                          | 827                  | 0.026 | 21                     | 0.1                  | 0.0                | 6.676     | Α                             |
| C-A    | 263                      | 66                         |                      |       | 263                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 66                       | 16                         |                      |       | 66                     |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 14                       | 4                          | 831                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.329     | А                             |
| B-A    | 8                        | 2                          | 615                  | 0.012 | 8                      | 0.0                  | 0.0                | 10.072    | В                             |
| C-AB   | 17                       | 4                          | 802                  | 0.021 | 17                     | 0.0                  | 0.0                | 6.968     | A                             |
| C-A    | 221                      | 55                         |                      |       | 221                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |



# 2025 + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.16               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.16              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 326                 | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 36                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 104                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 5              | 321             |  |  |  |  |  |  |
| From | East Dock Road  | 9               | 0              | 27              |  |  |  |  |  |  |
|      | Robinson Road S | 91              | 13             | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | To              |                 |                 |    |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|----|--|--|--|--|--|
|      |                 | Robinson Road N | Robinson Road S |    |  |  |  |  |  |
|      | Robinson Road N | 0               | 60              | 26 |  |  |  |  |  |
| From | East Dock Road  | 100             | 0               | 85 |  |  |  |  |  |
|      | Robinson Road S | 57              | 100             | 0  |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 9.50          | 0.1         | А       | 25                     | 37                               |
| B-A    | 0.02    | 13.45         | 0.0         | В       | 8                      | 12                               |
| C-AB   | 0.03    | 10.84         | 0.1         | В       | 14                     | 21                               |
| C-A    |         |               |             |         | 82                     | 123                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 295                    | 442                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 20                       | 5                          | 764                  | 0.027 | 20                     | 0.0                  | 0.1                | 8.950     | А                             |
| B-A    | 7                        | 2                          | 583                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.493    | В                             |
| C-AB   | 11                       | 3                          | 660                  | 0.017 | 11                     | 0.0                  | 0.0                | 10.778    | В                             |
| C-A    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 242                      | 60                         |                      |       | 242                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 24                       | 6                          | 750                  | 0.032 | 24                     | 0.0                  | 0.1                | 9.177     | Α                             |  |  |
| B-A    | 8                        | 2                          | 567                  | 0.014 | 8                      | 0.0                  | 0.0                | 12.880    | В                             |  |  |
| C-AB   | 13                       | 3                          | 658                  | 0.020 | 13                     | 0.0                  | 0.0                | 10.820    | В                             |  |  |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |  |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |  |
| A-C    | 289                      | 72                         |                      |       | 289                    |                      |                    |           |                               |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 30                       | 7                          | 730                  | 0.041 | 30                     | 0.1                  | 0.1                | 9.505     | A                             |
| B-A    | 10                       | 2                          | 545                  | 0.018 | 10                     | 0.0                  | 0.0                | 13.451    | В                             |
| C-AB   | 17                       | 4                          | 656                  | 0.026 | 17                     | 0.0                  | 0.1                | 10.844    | В                             |
| C-A    | 98                       | 24                         |                      |       | 98                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 353                      | 88                         |                      |       | 353                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 30                       | 7                          | 730                  | 0.041 | 30                     | 0.1                  | 0.1                | 9.505     | A                             |
| B-A    | 10                       | 2                          | 545                  | 0.018 | 10                     | 0.0                  | 0.0                | 13.451    | В                             |
| C-AB   | 17                       | 4                          | 656                  | 0.026 | 17                     | 0.1                  | 0.1                | 10.808    | В                             |
| C-A    | 98                       | 24                         |                      |       | 98                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 353                      | 88                         |                      |       | 353                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 24                       | 6                          | 750                  | 0.032 | 24                     | 0.1                  | 0.1                | 9.179     | Α                             |
| B-A    | 8                        | 2                          | 567                  | 0.014 | 8                      | 0.0                  | 0.0                | 12.883    | В                             |
| C-AB   | 13                       | 3                          | 658                  | 0.020 | 13                     | 0.1                  | 0.0                | 10.748    | В                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 289                      | 72                         |                      |       | 289                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 20                       | 5                          | 764                  | 0.027 | 20                     | 0.1                  | 0.1                | 8.956     | А                             |
| B-A    | 7                        | 2                          | 583                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.496    | В                             |
| C-AB   | 11                       | 3                          | 660                  | 0.017 | 11                     | 0.0                  | 0.0                | 10.749    | В                             |
| C-A    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 242                      | 60                         |                      |       | 242                    |                      |                    |           |                               |



# 2032 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| П  | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.87               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.87              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| I | D7 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 68                  | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 28                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 315                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 4              | 64              |  |  |  |  |  |  |
| From | East Dock Road  | 11              | 0              | 17              |  |  |  |  |  |  |
|      | Robinson Road S | 306             | 9              | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 100            | 64              |  |  |  |  |  |
| From | East Dock Road  | 70              | 0              | 100             |  |  |  |  |  |
|      | Robinson Road S | 22              | 50             | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.02    | 9.00          | 0.0         | А       | 16                     | 23                               |
| B-A    | 0.02    | 10.46         | 0.0         | В       | 10                     | 15                               |
| C-AB   | 0.02    | 6.36          | 0.0         | А       | 13                     | 19                               |
| C-A    |         |               |             |         | 276                    | 415                              |
| A-B    |         |               |             |         | 4                      | 6                                |
| A-C    |         |               |             |         | 59                     | 88                               |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 13                       | 3                          | 827                  | 0.015 | 13                     | 0.0                  | 0.0                | 8.841     | А                             |
| B-A    | 8                        | 2                          | 623                  | 0.013 | 8                      | 0.0                  | 0.0                | 9.950     | A                             |
| C-AB   | 9                        | 2                          | 806                  | 0.012 | 9                      | 0.0                  | 0.0                | 6.361     | A                             |
| C-A    | 228                      | 57                         |                      |       | 228                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 15                       | 4                          | 824                  | 0.019 | 15                     | 0.0                  | 0.0                | 8.907     | А                             |
| B-A    | 10                       | 2                          | 612                  | 0.016 | 10                     | 0.0                  | 0.0                | 10.161    | В                             |
| C-AB   | 12                       | 3                          | 832                  | 0.015 | 12                     | 0.0                  | 0.0                | 6.143     | A                             |
| C-A    | 271                      | 68                         |                      |       | 271                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 58                       | 14                         |                      |       | 58                     |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 19                       | 5                          | 819                  | 0.023 | 19                     | 0.0                  | 0.0                | 8.998     | A                             |
| B-A    | 12                       | 3                          | 597                  | 0.020 | 12                     | 0.0                  | 0.0                | 10.464    | В                             |
| C-AB   | 16                       | 4                          | 869                  | 0.019 | 16                     | 0.0                  | 0.0                | 5.843     | A                             |
| C-A    | 331                      | 83                         |                      |       | 331                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 70                       | 18                         |                      |       | 70                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 19                       | 5                          | 819                  | 0.023 | 19                     | 0.0                  | 0.0                | 8.999     | Α                             |
| B-A    | 12                       | 3                          | 597                  | 0.020 | 12                     | 0.0                  | 0.0                | 10.464    | В                             |
| C-AB   | 16                       | 4                          | 869                  | 0.019 | 16                     | 0.0                  | 0.0                | 5.812     | A                             |
| C-A    | 331                      | 83                         |                      |       | 331                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 70                       | 18                         |                      |       | 70                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 15                       | 4                          | 823                  | 0.019 | 15                     | 0.0                  | 0.0                | 8.909     | А                             |
| B-A    | 10                       | 2                          | 612                  | 0.016 | 10                     | 0.0                  | 0.0                | 10.162    | В                             |
| C-AB   | 12                       | 3                          | 832                  | 0.015 | 12                     | 0.0                  | 0.0                | 6.076     | Α                             |
| C-A    | 271                      | 68                         |                      |       | 271                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 58                       | 14                         |                      |       | 58                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 13                       | 3                          | 827                  | 0.015 | 13                     | 0.0                  | 0.0                | 8.844     | А                             |
| B-A    | 8                        | 2                          | 623                  | 0.013 | 8                      | 0.0                  | 0.0                | 9.955     | А                             |
| C-AB   | 10                       | 2                          | 806                  | 0.012 | 10                     | 0.0                  | 0.0                | 6.325     | A                             |
| C-A    | 228                      | 57                         |                      |       | 228                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |



# **2032 Base, PM**

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Jı | unction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|---------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1       | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.06               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.06              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D8 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 323                 | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 34                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 95                  | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 5              | 318             |  |  |  |  |  |  |
| From | East Dock Road  | 10              | 0              | 24              |  |  |  |  |  |  |
|      | Robinson Road S | 85              | 10             | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |
|      | Robinson Road N | 0               | 60             | 22              |  |  |  |  |
| From | East Dock Road  | 100             | 0              | 86              |  |  |  |  |
|      | Robinson Road S | 53              | 100            | 0               |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 9.27          | 0.1         | А       | 22                     | 33                               |
| B-A    | 0.02    | 13.30         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.02    | 10.82         | 0.0         | В       | 10                     | 16                               |
| C-A    |         |               |             |         | 77                     | 115                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 292                    | 438                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 18                       | 5                          | 783                  | 0.023 | 18                     | 0.0                  | 0.0                | 8.750     | А                             |
| B-A    | 8                        | 2                          | 589                  | 0.013 | 7                      | 0.0                  | 0.0                | 12.371    | В                             |
| C-AB   | 8                        | 2                          | 658                  | 0.013 | 8                      | 0.0                  | 0.0                | 10.764    | В                             |
| C-A    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 239                      | 60                         |                      |       | 239                    |                      |                    |           |                               |

#### 16:00 - 16:15

|        | •••                      |                            |                      |       |                        |                      |                    |           |                               |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
| В-С    | 22                       | 5                          | 768                  | 0.028 | 22                     | 0.0                  | 0.1                | 8.964     | Α                             |  |
| B-A    | 9                        | 2                          | 574                  | 0.016 | 9                      | 0.0                  | 0.0                | 12.745    | В                             |  |
| C-AB   | 10                       | 3                          | 655                  | 0.016 | 10                     | 0.0                  | 0.0                | 10.800    | В                             |  |
| C-A    | 75                       | 19                         |                      |       | 75                     |                      |                    |           |                               |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |
| A-C    | 286                      | 71                         |                      |       | 286                    |                      |                    |           |                               |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 26                       | 7                          | 749                  | 0.035 | 26                     | 0.1                  | 0.1                | 9.272     | А                             |
| B-A    | 11                       | 3                          | 552                  | 0.020 | 11                     | 0.0                  | 0.0                | 13.298    | В                             |
| C-AB   | 13                       | 3                          | 652                  | 0.020 | 13                     | 0.0                  | 0.0                | 10.817    | В                             |
| C-A    | 92                       | 23                         |                      |       | 92                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 350                      | 88                         |                      |       | 350                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 26                       | 7                          | 749                  | 0.035 | 26                     | 0.1                  | 0.1                | 9.272     | A                             |
| B-A    | 11                       | 3                          | 552                  | 0.020 | 11                     | 0.0                  | 0.0                | 13.298    | В                             |
| C-AB   | 13                       | 3                          | 652                  | 0.020 | 13                     | 0.0                  | 0.0                | 10.778    | В                             |
| C-A    | 92                       | 23                         |                      |       | 92                     |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 350                      | 88                         |                      |       | 350                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 22                       | 5                          | 768                  | 0.028 | 22                     | 0.1                  | 0.1                | 8.967     | A                             |
| B-A    | 9                        | 2                          | 574                  | 0.016 | 9                      | 0.0                  | 0.0                | 12.746    | В                             |
| C-AB   | 10                       | 3                          | 655                  | 0.016 | 10                     | 0.0                  | 0.0                | 10.721    | В                             |
| C-A    | 75                       | 19                         |                      |       | 75                     |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 286                      | 71                         |                      |       | 286                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 18                       | 5                          | 783                  | 0.023 | 18                     | 0.1                  | 0.0                | 8.756     | А                             |
| B-A    | 8                        | 2                          | 589                  | 0.013 | 8                      | 0.0                  | 0.0                | 12.376    | В                             |
| C-AB   | 8                        | 2                          | 658                  | 0.013 | 8                      | 0.0                  | 0.0                | 10.730    | В                             |
| C-A    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 239                      | 60                         |                      |       | 239                    |                      |                    |           |                               |



# 2032 + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.05               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.05              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 80                  | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 30                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 330                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 4              | 76              |  |  |  |  |  |  |
| From | East Dock Road  | 11              | 0              | 19              |  |  |  |  |  |  |
|      | Robinson Road S | 313             | 17             | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | To              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 100            | 69              |  |  |  |  |  |
| From | East Dock Road  | 70              | 0              | 89              |  |  |  |  |  |
|      | Robinson Road S | 24              | 69             | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.03    | 8.53          | 0.0         | А       | 17                     | 26                               |
| B-A    | 0.02    | 10.66         | 0.0         | В       | 10                     | 15                               |
| C-AB   | 0.04    | 6.97          | 0.1         | А       | 24                     | 36                               |
| C-A    |         |               |             |         | 279                    | 418                              |
| A-B    |         |               |             |         | 4                      | 6                                |
| A-C    |         |               |             |         | 70                     | 105                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 14                       | 4                          | 828                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.364     | Α                             |
| B-A    | 8                        | 2                          | 615                  | 0.013 | 8                      | 0.0                  | 0.0                | 10.088    | В                             |
| C-AB   | 18                       | 5                          | 807                  | 0.022 | 18                     | 0.0                  | 0.0                | 6.968     | Α                             |
| C-A    | 230                      | 58                         |                      |       | 230                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 57                       | 14                         |                      |       | 57                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 17                       | 4                          | 824                  | 0.021 | 17                     | 0.0                  | 0.0                | 8.435     | Α                             |
| B-A    | 10                       | 2                          | 603                  | 0.016 | 10                     | 0.0                  | 0.0                | 10.323    | В                             |
| C-AB   | 23                       | 6                          | 834                  | 0.028 | 23                     | 0.0                  | 0.1                | 6.724     | А                             |
| C-A    | 274                      | 68                         |                      |       | 274                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 68                       | 17                         |                      |       | 68                     |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 21                       | 5                          | 818                  | 0.026 | 21                     | 0.0                  | 0.0                | 8.534     | A                             |
| B-A    | 12                       | 3                          | 586                  | 0.021 | 12                     | 0.0                  | 0.0                | 10.665    | В                             |
| C-AB   | 31                       | 8                          | 871                  | 0.036 | 31                     | 0.1                  | 0.1                | 6.378     | A                             |
| C-A    | 332                      | 83                         |                      |       | 332                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 84                       | 21                         |                      |       | 84                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 21                       | 5                          | 818                  | 0.026 | 21                     | 0.0                  | 0.0                | 8.534     | A                             |
| B-A    | 12                       | 3                          | 586                  | 0.021 | 12                     | 0.0                  | 0.0                | 10.665    | В                             |
| C-AB   | 31                       | 8                          | 871                  | 0.036 | 31                     | 0.1                  | 0.1                | 6.327     | A                             |
| C-A    | 332                      | 83                         |                      |       | 332                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 84                       | 21                         |                      |       | 84                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 17                       | 4                          | 824                  | 0.021 | 17                     | 0.0                  | 0.0                | 8.438     | А                             |
| B-A    | 10                       | 2                          | 603                  | 0.016 | 10                     | 0.0                  | 0.0                | 10.325    | В                             |
| C-AB   | 23                       | 6                          | 834                  | 0.028 | 23                     | 0.1                  | 0.1                | 6.605     | Α                             |
| C-A    | 274                      | 68                         |                      |       | 274                    |                      |                    |           |                               |
| A-B    | 4                        | 0.90                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 68                       | 17                         |                      |       | 68                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 14                       | 4                          | 827                  | 0.017 | 14                     | 0.0                  | 0.0                | 8.369     | А                             |
| B-A    | 8                        | 2                          | 615                  | 0.013 | 8                      | 0.0                  | 0.0                | 10.091    | В                             |
| C-AB   | 18                       | 5                          | 808                  | 0.022 | 18                     | 0.1                  | 0.0                | 6.907     | A                             |
| C-A    | 230                      | 58                         |                      |       | 230                    |                      |                    |           |                               |
| A-B    | 3                        | 0.75                       |                      |       | 3                      |                      |                    |           |                               |
| A-C    | 57                       | 14                         |                      |       | 57                     |                      |                    |           |                               |



# 2032 + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.18               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.18              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 340                 | 100.000            |
| East Dock Road  |            | ONE HOUR     | ✓            | 38                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 109                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 5              | 335             |  |  |  |  |  |
| From | East Dock Road  | 10              | 0              | 28              |  |  |  |  |  |
|      | Robinson Road S | 95              | 14             | 0               |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | East Dock Road | Robinson Road S |  |  |  |  |  |
| F    | Robinson Road N | 0               | 60             | 26              |  |  |  |  |  |
| From | East Dock Road  | 100             | 0              | 85              |  |  |  |  |  |
|      | Robinson Road S | 37              | 100            | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 9.60          | 0.1         | А       | 26                     | 39                               |
| B-A    | 0.02    | 13.59         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.03    | 10.60         | 0.1         | В       | 15                     | 22                               |
| C-A    |         |               |             |         | 85                     | 128                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 307                    | 461                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 21                       | 5                          | 760                  | 0.028 | 21                     | 0.0                  | 0.1                | 9.010     | Α                             |
| B-A    | 8                        | 2                          | 580                  | 0.013 | 7                      | 0.0                  | 0.0                | 12.563    | В                             |
| C-AB   | 12                       | 3                          | 660                  | 0.018 | 12                     | 0.0                  | 0.0                | 10.580    | В                             |
| C-A    | 70                       | 18                         |                      |       | 70                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           | ·                             |
| A-C    | 252                      | 63                         |                      |       | 252                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| в-с    | 25                       | 6                          | 745                  | 0.034 | 25                     | 0.1                  | 0.1                | 9.250     | Α                             |  |
| B-A    | 9                        | 2                          | 564                  | 0.016 | 9                      | 0.0                  | 0.0                | 12.975    | В                             |  |
| C-AB   | 14                       | 4                          | 658                  | 0.022 | 14                     | 0.0                  | 0.1                | 10.600    | В                             |  |
| C-A    | 84                       | 21                         |                      |       | 84                     |                      |                    |           |                               |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |
| A-C    | 301                      | 75                         |                      |       | 301                    |                      |                    |           |                               |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 31                       | 8                          | 725                  | 0.043 | 31                     | 0.1                  | 0.1                | 9.596     | A                             |
| B-A    | 11                       | 3                          | 541                  | 0.020 | 11                     | 0.0                  | 0.0                | 13.587    | В                             |
| C-AB   | 18                       | 5                          | 656                  | 0.028 | 18                     | 0.1                  | 0.1                | 10.578    | В                             |
| C-A    | 102                      | 25                         |                      |       | 102                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 369                      | 92                         |                      |       | 369                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 31                       | 8                          | 725                  | 0.043 | 31                     | 0.1                  | 0.1                | 9.599     | А                             |
| B-A    | 11                       | 3                          | 541                  | 0.020 | 11                     | 0.0                  | 0.0                | 13.587    | В                             |
| C-AB   | 18                       | 5                          | 656                  | 0.028 | 18                     | 0.1                  | 0.1                | 10.518    | В                             |
| C-A    | 102                      | 25                         |                      |       | 102                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 369                      | 92                         |                      |       | 369                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 25                       | 6                          | 745                  | 0.034 | 25                     | 0.1                  | 0.1                | 9.253     | Α                             |
| B-A    | 9                        | 2                          | 564                  | 0.016 | 9                      | 0.0                  | 0.0                | 12.976    | В                             |
| C-AB   | 14                       | 4                          | 658                  | 0.022 | 15                     | 0.1                  | 0.1                | 10.477    | В                             |
| C-A    | 83                       | 21                         |                      |       | 83                     |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 301                      | 75                         |                      |       | 301                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 21                       | 5                          | 760                  | 0.028 | 21                     | 0.1                  | 0.1                | 9.018     | А                             |
| B-A    | 8                        | 2                          | 580                  | 0.013 | 8                      | 0.0                  | 0.0                | 12.569    | В                             |
| C-AB   | 12                       | 3                          | 660                  | 0.018 | 12                     | 0.1                  | 0.0                | 10.522    | В                             |
| C-A    | 70                       | 18                         |                      |       | 70                     |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 252                      | 63                         |                      |       | 252                    |                      |                    |           |                               |

## **Annex TN4 E**

Robinson Road/ East Riverside Priority Junction Assessment



## **Junctions 10**

## **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693
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Filename: Robinson Road-East Riverside.j10

Path: P:\23000's\23325\Junction Assessment\Internal Junctions

**Report generation date:** 08/08/2022 16:20:39

»2022 Base, AM

»2022 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 + Development, AM

»2025 + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 + Development, AM

»2032 + Development, PM

#### Summary of junction performance

|             |                    | AM                 |      |         | PM        |      |  |
|-------------|--------------------|--------------------|------|---------|-----------|------|--|
|             | Q (PCU)            | Delay (s)          | RFC  | Q (PCU) | Delay (s) | RFC  |  |
|             |                    |                    | 2022 | Base    |           |      |  |
| Stream B-C  | 0.0                | 5.32               | 0.01 | 0.0     | 5.31      | 0.04 |  |
| Stream B-A  | 0.0                | 9.37               | 0.03 | 0.0     | 12.16     | 0.01 |  |
| Stream C-AB | 0.1                | 5.38               | 0.05 | 0.0     | 10.47     | 0.01 |  |
|             |                    | 2025 Base          |      |         |           |      |  |
| Stream B-C  | 0.0                | 5.33               | 0.01 | 0.0     | 5.34      | 0.04 |  |
| Stream B-A  | 0.0                | 9.41               | 0.03 | 0.0     | 12.22     | 0.01 |  |
| Stream C-AB | 0.1                | 5.45               | 0.05 | 0.0     | 10.49     | 0.01 |  |
|             |                    | 2025 + Development |      |         |           |      |  |
| Stream B-C  | 0.0                | 5.66               | 0.01 | 0.0     | 5.09      | 0.04 |  |
| Stream B-A  | 0.0                | 9.78               | 0.03 | 0.0     | 13.01     | 0.01 |  |
| Stream C-AB | 0.1                | 5.42               | 0.06 | 0.0     | 9.83      | 0.01 |  |
|             |                    |                    | 2032 | Base    |           |      |  |
| Stream B-C  | 0.0                | 9.77               | 0.02 | 0.1     | 5.38      | 0.05 |  |
| Stream B-A  | 0.0                | 0.00               | 0.00 | 0.0     | 12.31     | 0.01 |  |
| Stream C-AB | 0.1                | 10.55              | 0.02 | 0.0     | 10.49     | 0.01 |  |
|             | 2032 + Development |                    |      |         |           |      |  |
| Stream B-C  | 0.0                | 5.66               | 0.01 | 0.0     | 5.13      | 0.04 |  |
| Stream B-A  | 0.1                | 9.88               | 0.03 | 0.0     | 13.12     | 0.01 |  |
| Stream C-AB | 0.1                | 5.38               | 0.06 | 0.0     | 9.84      | 0.01 |  |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



## File summary

#### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/05/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |

#### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

#### **Analysis Options**

| Vehicle<br>length<br>(m) | Calculate Q<br>Percentiles | Calculate<br>detailed<br>queueing<br>delay | Show lane<br>queues in<br>feet /<br>metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|----------------------------|--|--|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |                            |  |  |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

## **Demand Set Summary**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1  | 2022 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D2  | 2022 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D3  | 2025 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D4  | 2025 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D5  | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D6  | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D7  | 2032 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D8  | 2032 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D9  | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | <b>√</b>          |
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

## **Analysis Set Details**

| ID        | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |  |
|-----------|-------------------|---------------------------------|-------------------------------------|--|--|
| <b>A1</b> | ✓                 | 100.000                         | 100.000                             |  |  |



# **2022** Base, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.02               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.02              | Α           |

#### **Arms**

#### **Arms**

| Arm | Name            | Description | Arm type |
|-----|-----------------|-------------|----------|
| Α   | Robinson Road W |             | Major    |
| В   | East Riverside  |             | Minor    |
| С   | Robinson Road E |             | Major    |

#### **Major Arm Geometry**

| Arm             | Width of carriageway (m) | Has kerbed central reserve | Has right-turn<br>storage | Visibility for right turn<br>(m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|--------------------------|----------------------------|---------------------------|----------------------------------|---------|-------------------------|
| Robinson Road E | 9.29                     |                            |                           | 250.0                            | ✓       | 0.00                    |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

#### **Minor Arm Geometry**

| Arm            | Minor arm<br>type      | Width at give-way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to left (m) | Visibility to right (m) |
|----------------|------------------------|-----------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------------|
| East Riverside | One lane<br>plus flare | 10.00                 | 6.19               | 3.52                | 3.23                | 3.04                | <b>√</b>              | 1.00                  | 96                     | 242                     |

## Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|
| B-A    | 676                   | 0.105               | 0.265               | 0.166               | 0.378               |
| B-C    | 835                   | 0.111               | 0.280               | -                   | -                   |
| С-В    | 719                   | 0.239               | 0.239               | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2022 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 69                  | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 27                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 316                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |
| F    | Robinson Road W | 0               | 12             | 57              |  |  |  |  |  |  |
| From | East Riverside  | 16              | 0              | 11              |  |  |  |  |  |  |
|      | Robinson Road E | 289             | 27             | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

#### HV %s

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |
|      | Robinson Road W | 0               | 58             | 74              |  |  |  |  |  |  |
| From | East Riverside  | 50              | 0              | 18              |  |  |  |  |  |  |
|      | Robinson Road E | 19              | 22             | 0               |  |  |  |  |  |  |

## Results

#### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| В-С    | 0.01    | 5.32          | 0.0         | А       | 10                     | 15                               |
| B-A    | 0.03    | 9.37          | 0.0         | А       | 15                     | 22                               |
| C-AB   | 0.05    | 5.38          | 0.1         | A       | 36                     | 54                               |
| C-A    |         |               |             |         | 254                    | 381                              |
| A-B    |         |               |             |         | 11                     | 17                               |
| A-C    |         |               |             |         | 52                     | 78                               |



## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 818                  | 0.010 | 8                      | 0.0                  | 0.0                | 5.243     | A                             |
| B-A    | 12                       | 3                          | 620                  | 0.019 | 12                     | 0.0                  | 0.0                | 8.882     | Α                             |
| C-AB   | 27                       | 7                          | 839                  | 0.033 | 27                     | 0.0                  | 0.1                | 5.377     | A                             |
| C-A    | 210                      | 53                         |                      |       | 210                    |                      |                    |           |                               |
| A-B    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 10                       | 2                          | 815                  | 0.012 | 10                     | 0.0                  | 0.0                | 5.277     | A                             |
| B-A    | 14                       | 4                          | 609                  | 0.024 | 14                     | 0.0                  | 0.0                | 9.081     | Α                             |
| C-AB   | 35                       | 9                          | 862                  | 0.040 | 35                     | 0.1                  | 0.1                | 5.270     | A                             |
| C-A    | 249                      | 62                         |                      |       | 249                    |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                               |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 12                       | 3                          | 810                  | 0.015 | 12                     | 0.0                  | 0.0                | 5.322     | A                             |
| B-A    | 18                       | 4                          | 594                  | 0.030 | 18                     | 0.0                  | 0.0                | 9.370     | A                             |
| C-AB   | 46                       | 12                         | 895                  | 0.052 | 46                     | 0.1                  | 0.1                | 5.133     | A                             |
| C-A    | 302                      | 75                         |                      |       | 302                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 12                       | 3                          | 810                  | 0.015 | 12                     | 0.0                  | 0.0                | 5.323     | Α                             |
| B-A    | 18                       | 4                          | 594                  | 0.030 | 18                     | 0.0                  | 0.0                | 9.370     | Α                             |
| C-AB   | 46                       | 12                         | 895                  | 0.052 | 46                     | 0.1                  | 0.1                | 5.129     | A                             |
| C-A    | 302                      | 75                         |                      |       | 302                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 63                       | 16                         |                      |       | 63                     |                      |                    |           |                               |

#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised<br>level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|----------------------------------|
| В-С    | 10                       | 2                          | 815                  | 0.012 | 10                     | 0.0                  | 0.0                | 5.280     | Α                                |
| B-A    | 14                       | 4                          | 609                  | 0.024 | 14                     | 0.0                  | 0.0                | 9.082     | Α                                |
| C-AB   | 35                       | 9                          | 862                  | 0.040 | 35                     | 0.1                  | 0.1                | 5.267     | А                                |
| C-A    | 249                      | 62                         |                      |       | 249                    |                      |                    |           |                                  |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                                  |
| A-C    | 51                       | 13                         |                      |       | 51                     |                      |                    |           |                                  |



#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 818                  | 0.010 | 8                      | 0.0                  | 0.0                | 5.245     | А                             |
| B-A    | 12                       | 3                          | 620                  | 0.019 | 12                     | 0.0                  | 0.0                | 8.885     | A                             |
| C-AB   | 28                       | 7                          | 839                  | 0.033 | 28                     | 0.1                  | 0.1                | 5.379     | А                             |
| C-A    | 210                      | 53                         |                      |       | 210                    |                      |                    |           |                               |
| A-B    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |
| A-C    | 43                       | 11                         |                      |       | 43                     |                      |                    |           |                               |



# 2022 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.67               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.67              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D2 | 2022 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 301                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 35                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 53                  | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |
|------|-----------------|-----------------|----------------|-----------------|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |
|      | Robinson Road W | 0               | 15             | 286             |  |
| From | East Riverside  | 6               | 0              | 29              |  |
|      | Robinson Road E | 50              | 3              | 0               |  |

## **Vehicle Mix**

|      |                 | То              |                |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |  |
|      | Robinson Road W | 0               | 60             | 23              |  |  |  |  |  |  |  |
| From | East Riverside  | 83              | 0              | 7               |  |  |  |  |  |  |  |
|      | Robinson Road E | 52              | 100            | 0               |  |  |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 5.31          | 0.0         | А       | 27                     | 40                               |
| B-A    | 0.01    | 12.16         | 0.0         | В       | 6                      | 8                                |
| C-AB   | 0.01    | 10.47         | 0.0         | В       | 3                      | 4                                |
| C-A    |         |               |             |         | 46                     | 69                               |
| A-B    |         |               |             |         | 14                     | 21                               |
| A-C    |         |               |             |         | 262                    | 394                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 22                       | 5                          | 787                  | 0.028 | 22                     | 0.0                  | 0.0                | 5.036     | A                             |
| B-A    | 5                        | 1                          | 577                  | 0.008 | 4                      | 0.0                  | 0.0                | 11.511    | В                             |
| C-AB   | 2                        | 0.60                       | 688                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.316    | В                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 215                      | 54                         |                      |       | 215                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|--|
| в-с    | 26                       | 7                          | 774                  | 0.034 | 26                     | 0.0                  | 0.0                | 5.148     | Α                             |  |  |  |  |
| B-A    | 5                        | 1                          | 565                  | 0.010 | 5                      | 0.0                  | 0.0                | 11.778    | В                             |  |  |  |  |
| C-AB   | 3                        | 0.72                       | 683                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.389    | В                             |  |  |  |  |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |  |  |  |  |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |  |  |  |  |
| A-C    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |  |  |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 32                       | 8                          | 757                  | 0.042 | 32                     | 0.0                  | 0.0                | 5.312     | А                             |
| B-A    | 7                        | 2                          | 548                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.165    | В                             |
| C-AB   | 4                        | 0.90                       | 675                  | 0.005 | 4                      | 0.0                  | 0.0                | 10.472    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 17                       | 4                          |                      |       | 17                     |                      |                    |           |                               |
| A-C    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 32                       | 8                          | 757                  | 0.042 | 32                     | 0.0                  | 0.0                | 5.312     | А                             |
| B-A    | 7                        | 2                          | 548                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.165    | В                             |
| C-AB   | 4                        | 0.90                       | 675                  | 0.005 | 4                      | 0.0                  | 0.0                | 10.449    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 17                       | 4                          |                      |       | 17                     |                      |                    |           |                               |
| A-C    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 26                       | 7                          | 774                  | 0.034 | 26                     | 0.0                  | 0.0                | 5.151     | Α                             |
| B-A    | 5                        | 1                          | 565                  | 0.010 | 5                      | 0.0                  | 0.0                | 11.779    | В                             |
| C-AB   | 3                        | 0.72                       | 683                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.343    | В                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 22                       | 5                          | 787                  | 0.028 | 22                     | 0.0                  | 0.0                | 5.038     | А                             |
| B-A    | 5                        | 1                          | 577                  | 0.008 | 5                      | 0.0                  | 0.0                | 11.514    | В                             |
| C-AB   | 2                        | 0.60                       | 688                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.296    | В                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 215                      | 54                         |                      |       | 215                    |                      |                    |           |                               |



# 2025 Base, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.03               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.03              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 71                  | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 27                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 326                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
|      | Robinson Road W | 0               | 12             | 59              |  |  |  |  |  |
| From | East Riverside  | 16              | 0              | 11              |  |  |  |  |  |
|      | Robinson Road E | 298             | 28             | 0               |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
|      | Robinson Road W | 0               | 58             | 74              |  |  |  |  |  |
| From | East Riverside  | 50              | 0              | 18              |  |  |  |  |  |
|      | Robinson Road E | 19              | 25             | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 5.33          | 0.0         | А       | 10                     | 15                               |
| B-A    | 0.03    | 9.41          | 0.0         | А       | 15                     | 22                               |
| C-AB   | 0.05    | 5.45          | 0.1         | А       | 38                     | 57                               |
| C-A    |         |               |             |         | 261                    | 392                              |
| A-B    |         |               |             |         | 11                     | 17                               |
| A-C    |         |               |             |         | 54                     | 81                               |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 818                  | 0.010 | 8                      | 0.0                  | 0.0                | 5.245     | А                             |
| B-A    | 12                       | 3                          | 618                  | 0.019 | 12                     | 0.0                  | 0.0                | 8.909     | A                             |
| C-AB   | 29                       | 7                          | 842                  | 0.034 | 29                     | 0.0                  | 0.1                | 5.454     | A                             |
| C-A    | 217                      | 54                         |                      |       | 217                    |                      |                    |           |                               |
| A-B    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |
| A-C    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 10                       | 2                          | 814                  | 0.012 | 10                     | 0.0                  | 0.0                | 5.280     | Α                             |  |  |
| B-A    | 14                       | 4                          | 607                  | 0.024 | 14                     | 0.0                  | 0.0                | 9.114     | А                             |  |  |
| C-AB   | 37                       | 9                          | 867                  | 0.042 | 36                     | 0.1                  | 0.1                | 5.343     | Α                             |  |  |
| C-A    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |  |  |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |  |  |
| A-C    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |  |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 12                       | 3                          | 809                  | 0.015 | 12                     | 0.0                  | 0.0                | 5.327     | A                             |
| B-A    | 18                       | 4                          | 591                  | 0.030 | 18                     | 0.0                  | 0.0                | 9.413     | Α                             |
| C-AB   | 49                       | 12                         | 901                  | 0.054 | 48                     | 0.1                  | 0.1                | 5.192     | A                             |
| C-A    | 310                      | 78                         |                      |       | 310                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 12                       | 3                          | 809                  | 0.015 | 12                     | 0.0                  | 0.0                | 5.327     | A                             |
| B-A    | 18                       | 4                          | 591                  | 0.030 | 18                     | 0.0                  | 0.0                | 9.414     | А                             |
| C-AB   | 49                       | 12                         | 901                  | 0.054 | 49                     | 0.1                  | 0.1                | 5.186     | A                             |
| C-A    | 310                      | 78                         |                      |       | 310                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 10                       | 2                          | 814                  | 0.012 | 10                     | 0.0                  | 0.0                | 5.281     | Α                             |
| B-A    | 14                       | 4                          | 607                  | 0.024 | 14                     | 0.0                  | 0.0                | 9.116     | А                             |
| C-AB   | 37                       | 9                          | 867                  | 0.042 | 37                     | 0.1                  | 0.1                | 5.331     | Α                             |
| C-A    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 53                       | 13                         |                      |       | 53                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 818                  | 0.010 | 8                      | 0.0                  | 0.0                | 5.248     | А                             |
| B-A    | 12                       | 3                          | 618                  | 0.019 | 12                     | 0.0                  | 0.0                | 8.912     | A                             |
| C-AB   | 29                       | 7                          | 842                  | 0.034 | 29                     | 0.1                  | 0.1                | 5.453     | A                             |
| C-A    | 217                      | 54                         |                      |       | 217                    |                      |                    |           |                               |
| A-B    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |
| A-C    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |



# 2025 Base, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.67               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.67              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 309                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 36                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 54                  | 100.000            |

# **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |
|      | Robinson Road W | 0               | 15             | 294             |  |  |  |  |  |  |
| From | East Riverside  | 6               | 0              | 30              |  |  |  |  |  |  |
|      | Robinson Road E | 51              | 3              | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
|      | Robinson Road W | 0               | 60             | 23              |  |  |  |  |  |
| From | East Riverside  | 83              | 0              | 7               |  |  |  |  |  |
|      | Robinson Road E | 52              | 100            | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 5.34          | 0.0         | А       | 28                     | 41                               |
| B-A    | 0.01    | 12.22         | 0.0         | В       | 6                      | 8                                |
| C-AB   | 0.01    | 10.49         | 0.0         | В       | 3                      | 4                                |
| C-A    |         |               |             |         | 47                     | 70                               |
| A-B    |         |               |             |         | 14                     | 21                               |
| A-C    |         |               |             |         | 270                    | 405                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 23                       | 6                          | 785                  | 0.029 | 22                     | 0.0                  | 0.0                | 5.052     | А                             |
| B-A    | 5                        | 1                          | 575                  | 0.008 | 4                      | 0.0                  | 0.0                | 11.544    | В                             |
| C-AB   | 2                        | 0.60                       | 687                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.327    | В                             |
| C-A    | 38                       | 10                         |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 221                      | 55                         |                      |       | 221                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 27                       | 7                          | 772                  | 0.035 | 27                     | 0.0                  | 0.0                | 5.169     | Α                             |  |  |
| B-A    | 5                        | 1                          | 563                  | 0.010 | 5                      | 0.0                  | 0.0                | 11.819    | В                             |  |  |
| C-AB   | 3                        | 0.72                       | 682                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.401    | В                             |  |  |
| C-A    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |  |  |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |  |  |
| A-C    | 264                      | 66                         |                      |       | 264                    |                      |                    |           |                               |  |  |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 33                       | 8                          | 754                  | 0.044 | 33                     | 0.0                  | 0.0                | 5.339     | А                             |
| B-A    | 7                        | 2                          | 546                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.218    | В                             |
| C-AB   | 4                        | 0.90                       | 674                  | 0.005 | 4                      | 0.0                  | 0.0                | 10.487    | В                             |
| C-A    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-B    | 17                       | 4                          |                      |       | 17                     |                      |                    |           |                               |
| A-C    | 324                      | 81                         |                      |       | 324                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 33                       | 8                          | 754                  | 0.044 | 33                     | 0.0                  | 0.0                | 5.339     | A                             |
| B-A    | 7                        | 2                          | 546                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.218    | В                             |
| C-AB   | 4                        | 0.90                       | 674                  | 0.005 | 4                      | 0.0                  | 0.0                | 10.464    | В                             |
| C-A    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |
| A-B    | 17                       | 4                          |                      |       | 17                     |                      |                    |           |                               |
| A-C    | 324                      | 81                         |                      |       | 324                    |                      |                    |           |                               |



#### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 27                       | 7                          | 772                  | 0.035 | 27                     | 0.0                  | 0.0                | 5.171     | Α                             |
| B-A    | 5                        | 1                          | 563                  | 0.010 | 5                      | 0.0                  | 0.0                | 11.820    | В                             |
| C-AB   | 3                        | 0.72                       | 682                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.356    | В                             |
| C-A    | 46                       | 11                         |                      |       | 46                     |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 264                      | 66                         |                      |       | 264                    |                      |                    |           |                               |

#### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 23                       | 6                          | 785                  | 0.029 | 23                     | 0.0                  | 0.0                | 5.053     | А                             |
| B-A    | 5                        | 1                          | 575                  | 0.008 | 5                      | 0.0                  | 0.0                | 11.547    | В                             |
| C-AB   | 2                        | 0.60                       | 687                  | 0.003 | 2                      | 0.0                  | 0.0                | 10.306    | В                             |
| C-A    | 38                       | 10                         |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 221                      | 55                         |                      |       | 221                    |                      |                    |           |                               |



# 2025 + Development, AM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.85               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.85              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 111                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 25                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 397                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |
|      | Robinson Road W | 0               | 12             | 99              |  |  |  |  |  |  |
| From | East Riverside  | 16              | 0              | 9               |  |  |  |  |  |  |
|      | Robinson Road E | 369             | 28             | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |
|      | Robinson Road W | 0               | 58             | 80              |  |  |  |  |
| From | East Riverside  | 50              | 0              | 22              |  |  |  |  |
|      | Robinson Road E | 34              | 22             | 0               |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 5.66          | 0.0         | А       | 8                      | 12                               |
| B-A    | 0.03    | 9.78          | 0.0         | А       | 15                     | 22                               |
| C-AB   | 0.06    | 5.42          | 0.1         | А       | 42                     | 63                               |
| C-A    |         |               |             |         | 322                    | 484                              |
| A-B    |         |               |             |         | 11                     | 17                               |
| A-C    |         |               |             |         | 91                     | 136                              |

#### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 798                  | 0.008 | 7                      | 0.0                  | 0.0                | 5.547     | A                             |
| B-A    | 12                       | 3                          | 605                  | 0.020 | 12                     | 0.0                  | 0.0                | 9.109     | A                             |
| C-AB   | 31                       | 8                          | 869                  | 0.036 | 31                     | 0.0                  | 0.1                | 5.394     | A                             |
| C-A    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-B    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |
| A-C    | 75                       | 19                         |                      |       | 75                     |                      |                    |           |                               |

#### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 8                        | 2                          | 793                  | 0.010 | 8                      | 0.0                  | 0.0                | 5.593     | Α                             |  |
| B-A    | 14                       | 4                          | 590                  | 0.024 | 14                     | 0.0                  | 0.0                | 9.382     | А                             |  |
| C-AB   | 40                       | 10                         | 899                  | 0.045 | 40                     | 0.1                  | 0.1                | 5.281     | Α                             |  |
| C-A    | 317                      | 79                         |                      |       | 317                    |                      |                    |           |                               |  |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |  |
| A-C    | 89                       | 22                         |                      |       | 89                     |                      |                    |           |                               |  |

#### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 10                       | 2                          | 786                  | 0.013 | 10                     | 0.0                  | 0.0                | 5.657     | А                             |
| B-A    | 18                       | 4                          | 570                  | 0.031 | 18                     | 0.0                  | 0.0                | 9.781     | А                             |
| C-AB   | 54                       | 14                         | 940                  | 0.058 | 54                     | 0.1                  | 0.1                | 5.146     | А                             |
| C-A    | 383                      | 96                         |                      |       | 383                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 109                      | 27                         |                      |       | 109                    |                      |                    |           |                               |

#### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 10                       | 2                          | 786                  | 0.013 | 10                     | 0.0                  | 0.0                | 5.658     | A                             |
| B-A    | 18                       | 4                          | 570                  | 0.031 | 18                     | 0.0                  | 0.0                | 9.781     | A                             |
| C-AB   | 54                       | 14                         | 940                  | 0.058 | 54                     | 0.1                  | 0.1                | 5.161     | A                             |
| C-A    | 383                      | 96                         |                      |       | 383                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 109                      | 27                         |                      |       | 109                    |                      |                    |           |                               |



#### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 793                  | 0.010 | 8                      | 0.0                  | 0.0                | 5.594     | А                             |
| B-A    | 14                       | 4                          | 590                  | 0.024 | 14                     | 0.0                  | 0.0                | 9.386     | А                             |
| C-AB   | 40                       | 10                         | 899                  | 0.045 | 40                     | 0.1                  | 0.1                | 5.312     | Α                             |
| C-A    | 317                      | 79                         |                      |       | 317                    |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 89                       | 22                         |                      |       | 89                     |                      |                    |           |                               |

#### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 798                  | 0.008 | 7                      | 0.0                  | 0.0                | 5.549     | А                             |
| B-A    | 12                       | 3                          | 605                  | 0.020 | 12                     | 0.0                  | 0.0                | 9.115     | А                             |
| C-AB   | 31                       | 8                          | 869                  | 0.036 | 31                     | 0.1                  | 0.1                | 5.416     | A                             |
| C-A    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-B    | 9                        | 2                          |                      |       | 9                      |                      |                    |           |                               |
| A-C    | 75                       | 19                         |                      |       | 75                     |                      |                    |           |                               |



# 2025 + Development, PM

#### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.45               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |
|--------------|-----------------------|------|-------------|
| Left         | Normal/unknown        | 0.45 | Α           |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| I | D6 | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

#### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 369                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 32                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 149                 | 100.000            |

## **Origin-Destination Data**

#### Demand (PCU/hr)

|      |                 | То              |                |                 |
|------|-----------------|-----------------|----------------|-----------------|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |
|      | Robinson Road W | 0               | 15             | 354             |
| From | East Riverside  | 6               | 0              | 26              |
|      | Robinson Road E | 146             | 3              | 0               |

## **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
|      | Robinson Road W | 0               | 60             | 35              |  |  |  |  |  |
| From | East Riverside  | 83              | 0              | 0               |  |  |  |  |  |
|      | Robinson Road E | 80              | 100            | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 5.09          | 0.0         | А       | 24                     | 36                               |
| B-A    | 0.01    | 13.01         | 0.0         | В       | 6                      | 8                                |
| C-AB   | 0.01    | 9.83          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 133                    | 200                              |
| A-B    |         |               |             |         | 14                     | 21                               |
| A-C    |         |               |             |         | 325                    | 487                              |

#### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 20                       | 5                          | 772                  | 0.025 | 19                     | 0.0                  | 0.0                | 4.784     | A                             |
| B-A    | 5                        | 1                          | 553                  | 0.008 | 4                      | 0.0                  | 0.0                | 12.018    | В                             |
| C-AB   | 3                        | 0.67                       | 723                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.835     | A                             |
| C-A    | 110                      | 27                         |                      |       | 110                    |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 267                      | 67                         |                      |       | 267                    |                      |                    |           |                               |

#### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 23                       | 6                          | 757                  | 0.031 | 23                     | 0.0                  | 0.0                | 4.908     | Α                             |
| B-A    | 5                        | 1                          | 536                  | 0.010 | 5                      | 0.0                  | 0.0                | 12.418    | В                             |
| C-AB   | 3                        | 0.82                       | 724                  | 0.005 | 3                      | 0.0                  | 0.0                | 9.803     | A                             |
| C-A    | 131                      | 33                         |                      |       | 131                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 318                      | 80                         |                      |       | 318                    |                      |                    |           |                               |

#### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 29                       | 7                          | 735                  | 0.039 | 29                     | 0.0                  | 0.0                | 5.092     | A                             |
| B-A    | 7                        | 2                          | 513                  | 0.013 | 7                      | 0.0                  | 0.0                | 13.013    | В                             |
| C-AB   | 4                        | 1                          | 727                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.739     | А                             |
| C-A    | 160                      | 40                         |                      |       | 160                    |                      |                    |           |                               |
| A-B    | 17                       | 4                          |                      |       | 17                     |                      |                    |           |                               |
| A-C    | 390                      | 97                         |                      |       | 390                    |                      |                    |           |                               |

#### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 29                       | 7                          | 735                  | 0.039 | 29                     | 0.0                  | 0.0                | 5.092     | А                             |
| B-A    | 7                        | 2                          | 513                  | 0.013 | 7                      | 0.0                  | 0.0                | 13.013    | В                             |
| C-AB   | 4                        | 1                          | 727                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.722     | А                             |
| C-A    | 160                      | 40                         |                      |       | 160                    |                      |                    |           |                               |
| A-B    | 17                       | 4                          |                      |       | 17                     |                      |                    |           |                               |
| A-C    | 390                      | 97                         |                      |       | 390                    |                      |                    |           |                               |



### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 23                       | 6                          | 757                  | 0.031 | 23                     | 0.0                  | 0.0                | 4.911     | Α                             |
| B-A    | 5                        | 1                          | 536                  | 0.010 | 5                      | 0.0                  | 0.0                | 12.422    | В                             |
| C-AB   | 3                        | 0.83                       | 724                  | 0.005 | 3                      | 0.0                  | 0.0                | 9.764     | А                             |
| C-A    | 131                      | 33                         |                      |       | 131                    |                      |                    |           |                               |
| A-B    | 13                       | 3                          |                      |       | 13                     |                      |                    |           |                               |
| A-C    | 318                      | 80                         |                      |       | 318                    |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 20                       | 5                          | 772                  | 0.025 | 20                     | 0.0                  | 0.0                | 4.786     | А                             |
| B-A    | 5                        | 1                          | 553                  | 0.008 | 5                      | 0.0                  | 0.0                | 12.021    | В                             |
| C-AB   | 3                        | 0.67                       | 723                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.818     | А                             |
| C-A    | 110                      | 27                         |                      |       | 110                    |                      |                    |           |                               |
| A-B    | 11                       | 3                          |                      |       | 11                     |                      |                    |           |                               |
| A-C    | 267                      | 67                         |                      |       | 267                    |                      |                    |           |                               |



# 2032 Base, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ſ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.61               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.61              | Α           |  |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D7 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 326                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 11                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 87                  | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
|      | Robinson Road W | 0               | 1              | 325             |  |  |  |  |  |
| From | East Riverside  | 0               | 0              | 11              |  |  |  |  |  |
|      | Robinson Road E | 74              | 13             | 0               |  |  |  |  |  |

# **Vehicle Mix**

| ,    |                 |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      | То              |                 |                |                 |  |  |  |  |  |
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
| F    | Robinson Road W | 0               | 0              | 21              |  |  |  |  |  |
| From | East Riverside  | 0               | 0              | 100             |  |  |  |  |  |
|      | Robinson Road E | 71              | 100            | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.02    | 9.77          | 0.0         | A       | 10                     | 15                               |
| B-A    | 0.00    | 0.00          | 0.0         | A       | 0                      | 0                                |
| C-AB   | 0.02    | 10.55         | 0.1         | В       | 13                     | 20                               |
| C-A    |         |               |             |         | 67                     | 100                              |
| A-B    |         |               |             |         | 0.92                   | 1                                |
| A-C    |         |               |             |         | 298                    | 447                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 781                  | 0.011 | 8                      | 0.0                  | 0.0                | 9.315     | А                             |
| B-A    | 0                        | 0                          | 565                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 11                       | 3                          | 695                  | 0.015 | 11                     | 0.0                  | 0.0                | 10.370    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |

### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 10                       | 2                          | 767                  | 0.013 | 10                     | 0.0                  | 0.0                | 9.503     | Α                             |  |  |
| B-A    | 0                        | 0                          | 551                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |  |  |
| C-AB   | 13                       | 3                          | 691                  | 0.019 | 13                     | 0.0                  | 0.0                | 10.454    | В                             |  |  |
| C-A    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |  |  |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |  |  |
| A-C    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |  |  |

### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 12                       | 3                          | 749                  | 0.016 | 12                     | 0.0                  | 0.0                | 9.773     | А                             |
| B-A    | 0                        | 0                          | 531                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 16                       | 4                          | 686                  | 0.024 | 16                     | 0.0                  | 0.1                | 10.555    | В                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 358                      | 89                         |                      |       | 358                    |                      |                    |           |                               |

### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 12                       | 3                          | 749                  | 0.016 | 12                     | 0.0                  | 0.0                | 9.773     | A                             |
| B-A    | 0                        | 0                          | 531                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | A                             |
| C-AB   | 16                       | 4                          | 686                  | 0.024 | 16                     | 0.1                  | 0.1                | 10.539    | В                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 1                        | 0.28                       |                      |       | 1                      |                      |                    |           |                               |
| A-C    | 358                      | 89                         |                      |       | 358                    |                      |                    |           |                               |



### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 10                       | 2                          | 767                  | 0.013 | 10                     | 0.0                  | 0.0                | 9.506     | Α                             |
| B-A    | 0                        | 0                          | 551                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | Α                             |
| C-AB   | 13                       | 3                          | 691                  | 0.019 | 13                     | 0.1                  | 0.0                | 10.419    | В                             |
| C-A    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |
| A-B    | 0.90                     | 0.22                       |                      |       | 0.90                   |                      |                    |           |                               |
| A-C    | 292                      | 73                         |                      |       | 292                    |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 781                  | 0.011 | 8                      | 0.0                  | 0.0                | 9.317     | А                             |
| B-A    | 0                        | 0                          | 565                  | 0.000 | 0                      | 0.0                  | 0.0                | 0.000     | А                             |
| C-AB   | 11                       | 3                          | 695                  | 0.015 | 11                     | 0.0                  | 0.0                | 10.356    | В                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 0.75                     | 0.19                       |                      |       | 0.75                   |                      |                    |           |                               |
| A-C    | 245                      | 61                         |                      |       | 245                    |                      |                    |           |                               |



# **2032 Base, PM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.66               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.66              | Α           |  |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D8 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 323                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 37                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 57                  | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |
|      | Robinson Road W | 0               | 16             | 307             |  |  |  |  |  |  |
| From | East Riverside  | 6               | 0              | 31              |  |  |  |  |  |  |
|      | Robinson Road E | 54              | 3              | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |
|      | Robinson Road W | 0               | 60             | 23              |  |  |  |  |
| From | East Riverside  | 83              | 0              | 7               |  |  |  |  |
|      | Robinson Road E | 52              | 100            | 0               |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.05    | 5.38          | 0.1         | А       | 28                     | 43                               |
| B-A    | 0.01    | 12.31         | 0.0         | В       | 6                      | 8                                |
| C-AB   | 0.01    | 10.49         | 0.0         | В       | 3                      | 4                                |
| C-A    |         |               |             |         | 49                     | 74                               |
| A-B    |         |               |             |         | 15                     | 22                               |
| A-C    |         |               |             |         | 282                    | 423                              |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 23                       | 6                          | 782                  | 0.030 | 23                     | 0.0                  | 0.0                | 5.076     | А                             |
| B-A    | 5                        | 1                          | 572                  | 0.008 | 4                      | 0.0                  | 0.0                | 11.602    | В                             |
| C-AB   | 2                        | 0.60                       | 686                  | 0.004 | 2                      | 0.0                  | 0.0                | 10.331    | В                             |
| C-A    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |
| A-B    | 12                       | 3                          |                      |       | 12                     |                      |                    |           |                               |
| A-C    | 231                      | 58                         |                      |       | 231                    |                      |                    |           |                               |

### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| в-с    | 28                       | 7                          | 769                  | 0.036 | 28                     | 0.0                  | 0.0                | 5.199     | Α                             |  |
| B-A    | 5                        | 1                          | 559                  | 0.010 | 5                      | 0.0                  | 0.0                | 11.892    | В                             |  |
| C-AB   | 3                        | 0.73                       | 680                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.408    | В                             |  |
| C-A    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |  |
| A-B    | 14                       | 4                          |                      |       | 14                     |                      |                    |           |                               |  |
| A-C    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |  |

### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 34                       | 9                          | 750                  | 0.046 | 34                     | 0.0                  | 0.1                | 5.378     | A                             |
| B-A    | 7                        | 2                          | 542                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.314    | В                             |
| C-AB   | 4                        | 0.91                       | 672                  | 0.005 | 4                      | 0.0                  | 0.0                | 10.495    | В                             |
| C-A    | 59                       | 15                         |                      |       | 59                     |                      |                    |           |                               |
| A-B    | 18                       | 4                          |                      |       | 18                     |                      |                    |           |                               |
| A-C    | 338                      | 85                         |                      |       | 338                    |                      |                    |           |                               |

### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 34                       | 9                          | 750                  | 0.046 | 34                     | 0.1                  | 0.1                | 5.378     | Α                             |
| B-A    | 7                        | 2                          | 542                  | 0.012 | 7                      | 0.0                  | 0.0                | 12.315    | В                             |
| C-AB   | 4                        | 0.91                       | 672                  | 0.005 | 4                      | 0.0                  | 0.0                | 10.470    | В                             |
| C-A    | 59                       | 15                         |                      |       | 59                     |                      |                    |           |                               |
| A-B    | 18                       | 4                          |                      |       | 18                     |                      |                    |           |                               |
| A-C    | 338                      | 85                         |                      |       | 338                    |                      |                    |           |                               |



### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 28                       | 7                          | 769                  | 0.036 | 28                     | 0.1                  | 0.0                | 5.199     | А                             |
| B-A    | 5                        | 1                          | 559                  | 0.010 | 5                      | 0.0                  | 0.0                | 11.896    | В                             |
| C-AB   | 3                        | 0.73                       | 680                  | 0.004 | 3                      | 0.0                  | 0.0                | 10.358    | В                             |
| C-A    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |
| A-B    | 14                       | 4                          |                      |       | 14                     |                      |                    |           |                               |
| A-C    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 23                       | 6                          | 782                  | 0.030 | 23                     | 0.0                  | 0.0                | 5.077     | А                             |
| B-A    | 5                        | 1                          | 572                  | 0.008 | 5                      | 0.0                  | 0.0                | 11.608    | В                             |
| C-AB   | 2                        | 0.60                       | 686                  | 0.004 | 2                      | 0.0                  | 0.0                | 10.310    | В                             |
| C-A    | 41                       | 10                         |                      |       | 41                     |                      |                    |           |                               |
| A-B    | 12                       | 3                          |                      |       | 12                     |                      |                    |           |                               |
| A-C    | 231                      | 58                         |                      |       | 231                    |                      |                    |           |                               |



# 2032 + Development, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ. | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.87               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.87              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 115                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 27                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 412                 | 100.000            |

## **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То              |                |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |  |
|      | Robinson Road W | 0               | 13             | 102             |  |  |  |  |  |  |
| From | East Riverside  | 17              | 0              | 10              |  |  |  |  |  |  |
|      | Robinson Road E | 383             | 29             | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                 | То              |                |                 |  |
|------|-----------------|-----------------|----------------|-----------------|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |
|      | Robinson Road W | 0               | 58             | 80              |  |
| From | East Riverside  | 50              | 0              | 22              |  |
|      | Robinson Road E | 33              | 22             | 0               |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 5.66          | 0.0         | А       | 9                      | 14                               |
| B-A    | 0.03    | 9.88          | 0.1         | А       | 16                     | 23                               |
| C-AB   | 0.06    | 5.38          | 0.1         | А       | 44                     | 66                               |
| C-A    |         |               |             |         | 334                    | 501                              |
| A-B    |         |               |             |         | 12                     | 18                               |
| A-C    |         |               |             |         | 94                     | 140                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 800                  | 0.009 | 7                      | 0.0                  | 0.0                | 5.542     | A                             |
| B-A    | 13                       | 3                          | 601                  | 0.021 | 13                     | 0.0                  | 0.0                | 9.175     | A                             |
| C-AB   | 33                       | 8                          | 875                  | 0.037 | 32                     | 0.0                  | 0.1                | 5.359     | A                             |
| C-A    | 278                      | 69                         |                      |       | 278                    |                      |                    |           |                               |
| A-B    | 10                       | 2                          |                      |       | 10                     |                      |                    |           |                               |
| A-C    | 77                       | 19                         |                      |       | 77                     |                      |                    |           |                               |

### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 9                        | 2                          | 794                  | 0.011 | 9                      | 0.0                  | 0.0                | 5.591     | Α                             |
| B-A    | 15                       | 4                          | 586                  | 0.026 | 15                     | 0.0                  | 0.0                | 9.462     | А                             |
| C-AB   | 42                       | 11                         | 906                  | 0.047 | 42                     | 0.1                  | 0.1                | 5.243     | А                             |
| C-A    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-B    | 12                       | 3                          |                      |       | 12                     |                      |                    |           |                               |
| A-C    | 92                       | 23                         |                      |       | 92                     |                      |                    |           |                               |

### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 11                       | 3                          | 787                  | 0.014 | 11                     | 0.0                  | 0.0                | 5.659     | A                             |
| B-A    | 19                       | 5                          | 565                  | 0.033 | 19                     | 0.0                  | 0.1                | 9.884     | A                             |
| C-AB   | 58                       | 14                         | 949                  | 0.061 | 57                     | 0.1                  | 0.1                | 5.103     | A                             |
| C-A    | 396                      | 99                         |                      |       | 396                    |                      |                    |           |                               |
| A-B    | 14                       | 4                          |                      |       | 14                     |                      |                    |           |                               |
| A-C    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |

### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 11                       | 3                          | 787                  | 0.014 | 11                     | 0.0                  | 0.0                | 5.659     | А                             |
| B-A    | 19                       | 5                          | 565                  | 0.033 | 19                     | 0.1                  | 0.1                | 9.885     | Α                             |
| C-AB   | 58                       | 14                         | 949                  | 0.061 | 58                     | 0.1                  | 0.1                | 5.117     | A                             |
| C-A    | 396                      | 99                         |                      |       | 396                    |                      |                    |           |                               |
| A-B    | 14                       | 4                          |                      |       | 14                     |                      |                    |           |                               |
| A-C    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |



### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 9                        | 2                          | 794                  | 0.011 | 9                      | 0.0                  | 0.0                | 5.592     | Α                             |
| B-A    | 15                       | 4                          | 586                  | 0.026 | 15                     | 0.1                  | 0.0                | 9.466     | A                             |
| C-AB   | 42                       | 11                         | 906                  | 0.047 | 42                     | 0.1                  | 0.1                | 5.274     | A                             |
| C-A    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-B    | 12                       | 3                          |                      |       | 12                     |                      |                    |           |                               |
| A-C    | 92                       | 23                         |                      |       | 92                     |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 800                  | 0.009 | 8                      | 0.0                  | 0.0                | 5.544     | А                             |
| B-A    | 13                       | 3                          | 601                  | 0.021 | 13                     | 0.0                  | 0.0                | 9.180     | A                             |
| C-AB   | 33                       | 8                          | 875                  | 0.037 | 33                     | 0.1                  | 0.1                | 5.378     | A                             |
| C-A    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |
| A-B    | 10                       | 2                          |                      |       | 10                     |                      |                    |           |                               |
| A-C    | 77                       | 19                         |                      |       | 77                     |                      |                    |           |                               |



# 2032 + Development, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.45               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.45              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road W |            | ONE HOUR     | ✓            | 383                 | 100.000            |
| East Riverside  |            | ONE HOUR     | ✓            | 33                  | 100.000            |
| Robinson Road E |            | ONE HOUR     | ✓            | 152                 | 100.000            |

## **Origin-Destination Data**

### Demand (PCU/hr)

|      | То              |                 |                |                 |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |
|      | Robinson Road W | 0               | 16             | 367             |  |  |  |  |
| From | East Riverside  | 6               | 0              | 27              |  |  |  |  |
|      | Robinson Road E | 149             | 3              | 0               |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |                |                 |  |  |  |  |  |
|------|-----------------|-----------------|----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road W | East Riverside | Robinson Road E |  |  |  |  |  |
|      | Robinson Road W | 0               | 60             | 34              |  |  |  |  |  |
| From | East Riverside  | 83              | 0              | 0               |  |  |  |  |  |
|      | Robinson Road E | 80              | 100            | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.04    | 5.13          | 0.0         | А       | 25                     | 37                               |
| B-A    | 0.01    | 13.12         | 0.0         | В       | 6                      | 8                                |
| C-AB   | 0.01    | 9.84          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 136                    | 204                              |
| A-B    |         |               |             |         | 15                     | 22                               |
| A-C    |         |               |             |         | 337                    | 505                              |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 20                       | 5                          | 769                  | 0.026 | 20                     | 0.0                  | 0.0                | 4.807     | А                             |
| B-A    | 5                        | 1                          | 550                  | 0.008 | 4                      | 0.0                  | 0.0                | 12.082    | В                             |
| C-AB   | 3                        | 0.67                       | 722                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.844     | А                             |
| C-A    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |
| A-B    | 12                       | 3                          |                      |       | 12                     |                      |                    |           |                               |
| A-C    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |

### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 24                       | 6                          | 753                  | 0.032 | 24                     | 0.0                  | 0.0                | 4.937     | Α                             |
| B-A    | 5                        | 1                          | 532                  | 0.010 | 5                      | 0.0                  | 0.0                | 12.499    | В                             |
| C-AB   | 3                        | 0.83                       | 723                  | 0.005 | 3                      | 0.0                  | 0.0                | 9.813     | А                             |
| C-A    | 133                      | 33                         |                      |       | 133                    |                      |                    |           |                               |
| A-B    | 14                       | 4                          |                      |       | 14                     |                      |                    |           |                               |
| A-C    | 330                      | 82                         |                      |       | 330                    |                      |                    |           |                               |

### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 30                       | 7                          | 731                  | 0.041 | 30                     | 0.0                  | 0.0                | 5.130     | А                             |
| B-A    | 7                        | 2                          | 509                  | 0.013 | 7                      | 0.0                  | 0.0                | 13.122    | В                             |
| C-AB   | 4                        | 1                          | 726                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.750     | A                             |
| C-A    | 163                      | 41                         |                      |       | 163                    |                      |                    |           |                               |
| A-B    | 18                       | 4                          |                      |       | 18                     |                      |                    |           |                               |
| A-C    | 404                      | 101                        |                      |       | 404                    |                      |                    |           |                               |

### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 30                       | 7                          | 731                  | 0.041 | 30                     | 0.0                  | 0.0                | 5.130     | A                             |
| B-A    | 7                        | 2                          | 509                  | 0.013 | 7                      | 0.0                  | 0.0                | 13.122    | В                             |
| C-AB   | 4                        | 1                          | 726                  | 0.006 | 4                      | 0.0                  | 0.0                | 9.733     | A                             |
| C-A    | 163                      | 41                         |                      |       | 163                    |                      |                    |           |                               |
| A-B    | 18                       | 4                          |                      |       | 18                     |                      |                    |           |                               |
| A-C    | 404                      | 101                        |                      |       | 404                    |                      |                    |           |                               |



### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 24                       | 6                          | 753                  | 0.032 | 24                     | 0.0                  | 0.0                | 4.938     | А                             |
| B-A    | 5                        | 1                          | 532                  | 0.010 | 5                      | 0.0                  | 0.0                | 12.502    | В                             |
| C-AB   | 3                        | 0.83                       | 723                  | 0.005 | 3                      | 0.0                  | 0.0                | 9.773     | Α                             |
| C-A    | 133                      | 33                         |                      |       | 133                    |                      |                    |           |                               |
| A-B    | 14                       | 4                          |                      |       | 14                     |                      |                    |           |                               |
| A-C    | 330                      | 82                         |                      |       | 330                    |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 20                       | 5                          | 769                  | 0.026 | 20                     | 0.0                  | 0.0                | 4.809     | A                             |
| B-A    | 5                        | 1                          | 550                  | 0.008 | 5                      | 0.0                  | 0.0                | 12.085    | В                             |
| C-AB   | 3                        | 0.67                       | 722                  | 0.004 | 3                      | 0.0                  | 0.0                | 9.824     | A                             |
| C-A    | 112                      | 28                         |                      |       | 112                    |                      |                    |           |                               |
| A-B    | 12                       | 3                          |                      |       | 12                     |                      |                    |           |                               |
| A-C    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |

## Annex TN4 F

Robinson Road/ Gresley Way Priority Junction Assessment



## **Junctions 10**

### **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693
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Filename: Robinson Road-Gresley Way.j10

Path: P:\23000's\23325\Junction Assessment\Internal Junctions

Report generation date: 08/08/2022 16:31:08

»2022 Base, AM

»2022 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 + Development, AM

»2025 + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 + Development, AM

»2032 + Development, PM

### Summary of junction performance

|             |         | AM                 |      |         | PM        |      |  |
|-------------|---------|--------------------|------|---------|-----------|------|--|
|             | Q (PCU) | Delay (s)          | RFC  | Q (PCU) | Delay (s) | RFC  |  |
|             |         |                    | 2022 | Base    |           |      |  |
| Stream B-C  | 0.0     | 9.28               | 0.01 | 0.0     | 10.48     | 0.02 |  |
| Stream B-A  | 0.0     | 12.14              | 0.02 | 0.1     | 9.08      | 0.04 |  |
| Stream C-AB | 0.0     | 6.34               | 0.01 | 0.0     | 7.29      | 0.01 |  |
|             |         | 2025 Base          |      |         |           |      |  |
| Stream B-C  | 0.0     | 9.31               | 0.01 | 0.0     | 10.55     | 0.02 |  |
| Stream B-A  | 0.0     | 12.21              | 0.02 | 0.1     | 9.10      | 0.04 |  |
| Stream C-AB | 0.0     | 6.36               | 0.01 | 0.0     | 7.24      | 0.01 |  |
|             |         | 2025               | + De | velopme | nt        |      |  |
| Stream B-C  | 0.0     | 9.38               | 0.01 | 0.2     | 8.75      | 0.09 |  |
| Stream B-A  | 0.0     | 12.38              | 0.02 | 0.1     | 11.19     | 0.05 |  |
| Stream C-AB | 0.0     | 6.36               | 0.01 | 0.0     | 7.21      | 0.01 |  |
|             |         |                    | 2032 | Base    |           |      |  |
| Stream B-C  | 0.0     | 9.47               | 0.01 | 0.0     | 9.47      | 0.01 |  |
| Stream B-A  | 0.0     | 12.24              | 0.02 | 0.0     | 12.24     | 0.02 |  |
| Stream C-AB | 0.0     | 6.38               | 0.01 | 0.0     | 6.38      | 0.01 |  |
|             |         | 2032 + Development |      |         |           |      |  |
| Stream B-C  | 0.0     | 9.54               | 0.01 | 0.2     | 8.82      | 0.10 |  |
| Stream B-A  | 0.0     | 12.41              | 0.02 | 0.1     | 11.30     | 0.05 |  |
| Stream C-AB | 0.0     | 6.39               | 0.01 | 0.0     | 7.13      | 0.01 |  |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



### File summary

### **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/05/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |

### Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|-----------------|-------------------|---------------------|
| m              | kph         | PCU                 | PCU                   | perHour    | s               | -Min              | perMin              |

### **Analysis Options**

| Vehicle<br>length<br>(m) | (Calculate () | Calculate<br>detailed<br>queueing<br>delay | Show lane queues in feet / metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|---------------|--|-----------------------------------|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |               |  |                                   |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

### **Demand Set Summary**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1  | 2022 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D2  | 2022 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D3  | 2025 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D4  | 2025 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D5  | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D6  | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D7  | 2032 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D8  | 2032 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D9  | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | <b>√</b>          |
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

### **Analysis Set Details**

| ID | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |  |
|----|-------------------|---------------------------------|-------------------------------------|--|--|
| A1 | ✓                 | 100.000                         | 100.000                             |  |  |



# **2022** Base, AM

### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.49               | А            |

#### **Junction Network**

| Driving side Lighting |                | Network delay (s) | Network LOS |
|-----------------------|----------------|-------------------|-------------|
| Left                  | Normal/unknown | 0.49              | Α           |

### **Arms**

#### **Arms**

| Arm | Name            | Description | Arm type |
|-----|-----------------|-------------|----------|
| Α   | Robinson Road S |             | Major    |
| В   | Gresley Way     |             | Minor    |
| С   | Robinson Road N |             | Major    |

### **Major Arm Geometry**

| Arm             | Width of carriageway (m) | Has kerbed central reserve | Has right+turn<br>storage | Visibility for right turn<br>(m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|--------------------------|----------------------------|---------------------------|----------------------------------|---------|-------------------------|
| Robinson Road N | 8.26                     |                            |                           | 88.6                             | ✓       | 0.00                    |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

### **Minor Arm Geometry**

|             |                        | <u> </u>                  |                    |                     |                     |                     |                       |                       |                        |                         |
|-------------|------------------------|---------------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------------|
| Arm         | Minor arm<br>type      | Width at give-<br>way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to left (m) | Visibility to right (m) |
| Gresley Way | One lane<br>plus flare | 10.00                     | 5.99               | 5.29                | 5.28                | 5.27                | <b>√</b>              | 3.00                  | 214                    | 108                     |

### Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| •      |                       |                     |                     |                     |                     |
|--------|-----------------------|---------------------|---------------------|---------------------|---------------------|
| Stream | Intercept<br>(PCU/hr) | Slope<br>for<br>A-B | Slope<br>for<br>A-C | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
| B-A    | 649                   | 0.108               | 0.273               | 0.172               | 0.390               |
| B-C    | 667                   | 0.091               | 0.230               | -                   | -                   |
| С-В    | 625                   | 0.218               | 0.218               | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



# **Traffic Demand**

### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1 | 2022 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 312                 | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 16                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 75                  | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То              |             |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |
| F    | Robinson Road S | 0               | 26          | 286             |  |  |  |  |  |  |
| From | Gresley Way     | 10              | 0           | 6               |  |  |  |  |  |  |
|      | Robinson Road N | 72              | 3           | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

### HV %s

|      |                 | То              |             |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |
|      | Robinson Road S | 0               | 38          | 22              |  |  |  |  |  |  |
| From | Gresley Way     | 80              | 0           | 50              |  |  |  |  |  |  |
|      | Robinson Road N | 75              | 0           | 0               |  |  |  |  |  |  |

# Results

### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| В-С    | 0.01    | 9.28          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.02    | 12.14         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.01    | 6.34          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 66                     | 99                               |
| A-B    |         |               |             |         | 24                     | 36                               |
| A-C    |         |               |             |         | 262                    | 394                              |



### Main Results for each time segment

### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 614                  | 0.007 | 4                      | 0.0                  | 0.0                | 8.866     | А                             |
| B-A    | 8                        | 2                          | 578                  | 0.013 | 7                      | 0.0                  | 0.0                | 11.365    | В                             |
| C-AB   | 2                        | 0.62                       | 611                  | 0.004 | 2                      | 0.0                  | 0.0                | 6.150     | A                             |
| C-A    | 54                       | 13                         |                      |       | 54                     |                      |                    |           |                               |
| A-B    | 20                       | 5                          |                      |       | 20                     |                      |                    |           |                               |
| A-C    | 215                      | 54                         |                      |       | 215                    |                      |                    |           |                               |

### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 603                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.035     | Α                             |
| B-A    | 9                        | 2                          | 564                  | 0.016 | 9                      | 0.0                  | 0.0                | 11.677    | В                             |
| C-AB   | 3                        | 0.75                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.208     | A                             |
| C-A    | 64                       | 16                         |                      |       | 64                     |                      |                    |           |                               |
| A-B    | 23                       | 6                          |                      |       | 23                     |                      |                    |           |                               |
| A-C    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |

### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 589                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.276     | A                             |
| B-A    | 11                       | 3                          | 545                  | 0.020 | 11                     | 0.0                  | 0.0                | 12.139    | В                             |
| C-AB   | 4                        | 0.95                       | 605                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.311     | A                             |
| C-A    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-B    | 29                       | 7                          |                      |       | 29                     |                      |                    |           |                               |
| A-C    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |

### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 589                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.277     | Α                             |
| B-A    | 11                       | 3                          | 545                  | 0.020 | 11                     | 0.0                  | 0.0                | 12.138    | В                             |
| C-AB   | 4                        | 0.95                       | 605                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.342     | A                             |
| C-A    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |
| A-B    | 29                       | 7                          |                      |       | 29                     |                      |                    |           |                               |
| A-C    | 315                      | 79                         |                      |       | 315                    |                      |                    |           |                               |

### 07:45 - 08:00

|        | 110 00.00                |                            |                      |       |                        |                      |                    |           |                               |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
| в-с    | 5                        | 1                          | 603                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.038     | А                             |  |
| B-A    | 9                        | 2                          | 564                  | 0.016 | 9                      | 0.0                  | 0.0                | 11.679    | В                             |  |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.273     | А                             |  |
| C-A    | 64                       | 16                         |                      |       | 64                     |                      |                    |           |                               |  |
| A-B    | 23                       | 6                          |                      |       | 23                     |                      |                    |           |                               |  |
| A-C    | 257                      | 64                         |                      |       | 257                    |                      |                    |           |                               |  |



### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 613                  | 0.007 | 5                      | 0.0                  | 0.0                | 8.871     | А                             |
| B-A    | 8                        | 2                          | 578                  | 0.013 | 8                      | 0.0                  | 0.0                | 11.366    | В                             |
| C-AB   | 2                        | 0.62                       | 611                  | 0.004 | 2                      | 0.0                  | 0.0                | 6.182     | А                             |
| C-A    | 54                       | 13                         |                      |       | 54                     |                      |                    |           |                               |
| A-B    | 20                       | 5                          |                      |       | 20                     |                      |                    |           |                               |
| A-C    | 215                      | 54                         |                      |       | 215                    |                      |                    |           |                               |



# 2022 Base, PM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.78               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.78              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name   Time Period name   Traffic profile type |    | Traffic profile type | Start time (HH:mm) | Start time (HH:mm)   Finish time (HH:mm)   1 |    | Run automatically |
|---|----|---|----|----------------------|--------------------|--|----|-------------------|
| Ī | D2 | 2022 Base   | PM | ONE HOUR             | 15:45              | 17:15  | 15 | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 80                  | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 30                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 303                 | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То                          |   |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------------------|---|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road S Gresley Way |   | Robinson Road N |  |  |  |  |  |  |  |
|      | Robinson Road S | 0                           | 5 | 75              |  |  |  |  |  |  |  |
| From | Gresley Way     | 20                          | 0 | 10              |  |  |  |  |  |  |  |
|      | Robinson Road N | 300                         | 3 | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      |                 | То              |             |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |  |
|      | Robinson Road S | 0               | 80          | 65              |  |  |  |  |  |  |  |
| From | Gresley Way     | 40              | 0           | 80              |  |  |  |  |  |  |  |
|      | Robinson Road N | 29              | 67          | 0               |  |  |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.02    | 10.48         | 0.0         | В       | 9                      | 14                               |
| B-A    | 0.04    | 9.08          | 0.1         | А       | 18                     | 28                               |
| C-AB   | 0.01    | 7.29          | 0.0         | А       | 4                      | 6                                |
| C-A    |         |               |             |         | 274                    | 411                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 69                     | 103                              |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 637                  | 0.012 | 7                      | 0.0                  | 0.0                | 10.289    | В                             |
| B-A    | 15                       | 4                          | 603                  | 0.025 | 15                     | 0.0                  | 0.0                | 8.565     | A                             |
| C-AB   | 3                        | 0.80                       | 761                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.293     | A                             |
| C-A    | 225                      | 56                         |                      |       | 225                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |

### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|
| B-C    | 9                        | 2                          | 634                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.370    | В                             |  |  |  |
| B-A    | 18                       | 4                          | 592                  | 0.030 | 18                     | 0.0                  | 0.0                | 8.777     | А                             |  |  |  |
| C-AB   | 4                        | 1                          | 788                  | 0.005 | 4                      | 0.0                  | 0.0                | 7.002     | А                             |  |  |  |
| C-A    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |  |  |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |  |  |
| A-C    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |  |  |  |

### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 11                       | 3                          | 629                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.483    | В                             |
| B-A    | 22                       | 6                          | 577                  | 0.038 | 22                     | 0.0                  | 0.1                | 9.080     | A                             |
| C-AB   | 6                        | 1                          | 825                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.601     | A                             |
| C-A    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 83                       | 21                         |                      |       | 83                     |                      |                    |           |                               |

### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 11                       | 3                          | 629                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.484    | В                             |
| B-A    | 22                       | 6                          | 577                  | 0.038 | 22                     | 0.1                  | 0.1                | 9.080     | Α                             |
| C-AB   | 6                        | 1                          | 825                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.560     | А                             |
| C-A    | 328                      | 82                         |                      |       | 328                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 83                       | 21                         |                      |       | 83                     |                      |                    |           |                               |



### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 9                        | 2                          | 634                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.373    | В                             |
| B-A    | 18                       | 4                          | 592                  | 0.030 | 18                     | 0.1                  | 0.0                | 8.780     | А                             |
| C-AB   | 4                        | 1                          | 788                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.904     | Α                             |
| C-A    | 268                      | 67                         |                      |       | 268                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 637                  | 0.012 | 8                      | 0.0                  | 0.0                | 10.292    | В                             |
| B-A    | 15                       | 4                          | 603                  | 0.025 | 15                     | 0.0                  | 0.0                | 8.571     | А                             |
| C-AB   | 3                        | 0.81                       | 761                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.239     | A                             |
| C-A    | 225                      | 56                         |                      |       | 225                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 56                       | 14                         |                      |       | 56                     |                      |                    |           |                               |



# **2025 Base, AM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

| Γ. | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.48               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 0.48 | Α           |  |

### **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| I | D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 322                 | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 16                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 77                  | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То              |             |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |  |
|      | Robinson Road S | 0               | 27          | 295             |  |  |  |  |  |  |  |
| From | Gresley Way     | 10              | 0           | 6               |  |  |  |  |  |  |  |
|      | Robinson Road N | 74              | 3           | 0               |  |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |             |                 |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |
|      | Robinson Road S | 0               | 38          | 22              |  |  |  |  |  |
| From | Gresley Way     | 80              | 0           | 50              |  |  |  |  |  |
|      | Robinson Road N | 75              | 0           | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.31          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.02    | 12.21         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.01    | 6.36          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 68                     | 101                              |
| A-B    |         |               |             |         | 25                     | 37                               |
| A-C    |         |               |             |         | 271                    | 406                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 612                  | 0.007 | 4                      | 0.0                  | 0.0                | 8.889     | A                             |
| B-A    | 8                        | 2                          | 575                  | 0.013 | 7                      | 0.0                  | 0.0                | 11.408    | В                             |
| C-AB   | 2                        | 0.62                       | 610                  | 0.004 | 2                      | 0.0                  | 0.0                | 6.163     | A                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 20                       | 5                          |                      |       | 20                     |                      |                    |           |                               |
| A-C    | 222                      | 56                         |                      |       | 222                    |                      |                    |           |                               |

### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 601                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.064     | A                             |
| B-A    | 9                        | 2                          | 561                  | 0.016 | 9                      | 0.0                  | 0.0                | 11.733    | В                             |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.223     | A                             |
| C-A    | 66                       | 17                         |                      |       | 66                     |                      |                    |           |                               |
| A-B    | 24                       | 6                          |                      |       | 24                     |                      |                    |           |                               |
| A-C    | 265                      | 66                         |                      |       | 265                    |                      |                    |           |                               |

### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 586                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.314     | А                             |
| B-A    | 11                       | 3                          | 542                  | 0.020 | 11                     | 0.0                  | 0.0                | 12.212    | В                             |
| C-AB   | 4                        | 0.96                       | 604                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.329     | А                             |
| C-A    | 81                       | 20                         |                      |       | 81                     |                      |                    |           |                               |
| A-B    | 30                       | 7                          |                      |       | 30                     |                      |                    |           |                               |
| A-C    | 325                      | 81                         |                      |       | 325                    |                      |                    |           |                               |

### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 586                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.315     | A                             |
| B-A    | 11                       | 3                          | 542                  | 0.020 | 11                     | 0.0                  | 0.0                | 12.211    | В                             |
| C-AB   | 4                        | 0.96                       | 604                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.364     | A                             |
| C-A    | 81                       | 20                         |                      |       | 81                     |                      |                    |           |                               |
| A-B    | 30                       | 7                          |                      |       | 30                     |                      |                    |           |                               |
| A-C    | 325                      | 81                         |                      |       | 325                    |                      |                    |           |                               |



### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 601                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.068     | Α                             |
| B-A    | 9                        | 2                          | 561                  | 0.016 | 9                      | 0.0                  | 0.0                | 11.732    | В                             |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.290     | А                             |
| C-A    | 66                       | 17                         |                      |       | 66                     |                      |                    |           |                               |
| A-B    | 24                       | 6                          |                      |       | 24                     |                      |                    |           |                               |
| A-C    | 265                      | 66                         |                      |       | 265                    |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 612                  | 0.007 | 5                      | 0.0                  | 0.0                | 8.893     | А                             |
| B-A    | 8                        | 2                          | 576                  | 0.013 | 8                      | 0.0                  | 0.0                | 11.410    | В                             |
| C-AB   | 2                        | 0.62                       | 610                  | 0.004 | 2                      | 0.0                  | 0.0                | 6.195     | A                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 20                       | 5                          |                      |       | 20                     |                      |                    |           |                               |
| A-C    | 222                      | 56                         |                      |       | 222                    |                      |                    |           |                               |



# **2025 Base, PM**

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.78               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.78              | Α           |  |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm Linked a    |  | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|--|--------------|--------------|---------------------|--------------------|
| Robinson Road S |  | ONE HOUR     | ✓            | 82                  | 100.000            |
| Gresley Way     |  | ONE HOUR     | ✓            | 31                  | 100.000            |
| Robinson Road N |  | ONE HOUR     | ✓            | 312                 | 100.000            |

# **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То              |             |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|
| _    |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |
|      | Robinson Road S | 0               | 5           | 77              |  |  |  |  |  |  |
| From | Gresley Way     | 21              | 0           | 10              |  |  |  |  |  |  |
|      | Robinson Road N | 309             | 3           | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |             |                 |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|
| _    |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |
|      | Robinson Road S | 0               | 80          | 65              |  |  |  |  |  |
| From | Gresley Way     | 40              | 0           | 80              |  |  |  |  |  |
|      | Robinson Road N | 29              | 67          | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.02    | 10.55         | 0.0         | В       | 9                      | 14                               |
| B-A    | 0.04    | 9.10          | 0.1         | А       | 19                     | 29                               |
| C-AB   | 0.01    | 7.24          | 0.0         | А       | 4                      | 7                                |
| C-A    |         |               |             |         | 282                    | 423                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 71                     | 106                              |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 8                        | 2                          | 633                  | 0.012 | 7                      | 0.0                  | 0.0                | 10.350    | В                             |
| B-A    | 16                       | 4                          | 604                  | 0.026 | 16                     | 0.0                  | 0.0                | 8.561     | A                             |
| C-AB   | 3                        | 0.81                       | 765                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.239     | A                             |
| C-A    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 58                       | 14                         |                      |       | 58                     |                      |                    |           |                               |

### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 9                        | 2                          | 630                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.433    | В                             |
| B-A    | 19                       | 5                          | 593                  | 0.032 | 19                     | 0.0                  | 0.0                | 8.781     | A                             |
| C-AB   | 4                        | 1                          | 793                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.944     | A                             |
| C-A    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 69                       | 17                         |                      |       | 69                     |                      |                    |           |                               |

### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 11                       | 3                          | 625                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.550    | В                             |
| B-A    | 23                       | 6                          | 577                  | 0.040 | 23                     | 0.0                  | 0.1                | 9.096     | A                             |
| C-AB   | 6                        | 1                          | 831                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.537     | А                             |
| C-A    | 338                      | 84                         |                      |       | 338                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |

### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 11                       | 3                          | 625                  | 0.018 | 11                     | 0.0                  | 0.0                | 10.550    | В                             |
| B-A    | 23                       | 6                          | 577                  | 0.040 | 23                     | 0.1                  | 0.1                | 9.096     | A                             |
| C-AB   | 6                        | 1                          | 831                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.494     | A                             |
| C-A    | 338                      | 84                         |                      |       | 338                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |



### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 9                        | 2                          | 630                  | 0.014 | 9                      | 0.0                  | 0.0                | 10.436    | В                             |
| B-A    | 19                       | 5                          | 593                  | 0.032 | 19                     | 0.1                  | 0.0                | 8.784     | А                             |
| C-AB   | 4                        | 1                          | 793                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.842     | Α                             |
| C-A    | 276                      | 69                         |                      |       | 276                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 69                       | 17                         |                      |       | 69                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 8                        | 2                          | 634                  | 0.012 | 8                      | 0.0                  | 0.0                | 10.353    | В                             |
| B-A    | 16                       | 4                          | 604                  | 0.026 | 16                     | 0.0                  | 0.0                | 8.568     | A                             |
| C-AB   | 3                        | 0.81                       | 765                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.187     | A                             |
| C-A    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 58                       | 14                         |                      |       | 58                     |                      |                    |           |                               |



# 2025 + Development, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.45               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.45              | Α           |  |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 337                 | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 16                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 92                  | 100.000            |

## **Origin-Destination Data**

### Demand (PCU/hr)

|      | То              |                 |             |                 |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |
|      | Robinson Road S | 0               | 27          | 310             |  |  |  |  |
| From | Gresley Way     | 10              | 0           | 6               |  |  |  |  |
|      | Robinson Road N | 89              | 3           | 0               |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |             |                 |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|
| _    |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |
|      | Robinson Road S | 0               | 38          | 26              |  |  |  |  |  |
| From | Gresley Way     | 80              | 0           | 50              |  |  |  |  |  |
|      | Robinson Road N | 76              | 0           | 0               |  |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.38          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.02    | 12.38         | 0.0         | В       | 9                      | 14                               |
| C-AB   | 0.01    | 6.36          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 81                     | 122                              |
| A-B    |         |               |             |         | 25                     | 37                               |
| A-C    |         |               |             |         | 284                    | 427                              |

### Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 609                  | 0.007 | 4                      | 0.0                  | 0.0                | 8.928     | А                             |
| B-A    | 8                        | 2                          | 570                  | 0.013 | 7                      | 0.0                  | 0.0                | 11.510    | В                             |
| C-AB   | 3                        | 0.63                       | 616                  | 0.004 | 3                      | 0.0                  | 0.0                | 6.160     | A                             |
| C-A    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-B    | 20                       | 5                          |                      |       | 20                     |                      |                    |           |                               |
| A-C    | 233                      | 58                         |                      |       | 233                    |                      |                    |           |                               |

### 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 5                        | 1                          | 598                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.112     | А                             |
| B-A    | 9                        | 2                          | 555                  | 0.016 | 9                      | 0.0                  | 0.0                | 11.861    | В                             |
| C-AB   | 3                        | 0.78                       | 614                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.214     | A                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 24                       | 6                          |                      |       | 24                     |                      |                    |           |                               |
| A-C    | 279                      | 70                         |                      |       | 279                    |                      |                    |           |                               |

### 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 583                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.376     | A                             |
| B-A    | 11                       | 3                          | 534                  | 0.021 | 11                     | 0.0                  | 0.0                | 12.384    | В                             |
| C-AB   | 4                        | 0.98                       | 613                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.316     | A                             |
| C-A    | 97                       | 24                         |                      |       | 97                     |                      |                    |           |                               |
| A-B    | 30                       | 7                          |                      |       | 30                     |                      |                    |           |                               |
| A-C    | 341                      | 85                         |                      |       | 341                    |                      |                    |           |                               |

### 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 582                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.377     | A                             |
| B-A    | 11                       | 3                          | 534                  | 0.021 | 11                     | 0.0                  | 0.0                | 12.383    | В                             |
| C-AB   | 4                        | 0.98                       | 613                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.358     | A                             |
| C-A    | 97                       | 24                         |                      |       | 97                     |                      |                    |           |                               |
| A-B    | 30                       | 7                          |                      |       | 30                     |                      |                    |           |                               |
| A-C    | 341                      | 85                         |                      |       | 341                    |                      |                    |           |                               |



### 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 598                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.114     | A                             |
| B-A    | 9                        | 2                          | 555                  | 0.016 | 9                      | 0.0                  | 0.0                | 11.861    | В                             |
| C-AB   | 3                        | 0.78                       | 614                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.294     | A                             |
| C-A    | 80                       | 20                         |                      |       | 80                     |                      |                    |           |                               |
| A-B    | 24                       | 6                          |                      |       | 24                     |                      |                    |           |                               |
| A-C    | 279                      | 70                         |                      |       | 279                    |                      |                    |           |                               |

### 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 609                  | 0.007 | 5                      | 0.0                  | 0.0                | 8.934     | А                             |
| B-A    | 8                        | 2                          | 571                  | 0.013 | 8                      | 0.0                  | 0.0                | 11.510    | В                             |
| C-AB   | 3                        | 0.63                       | 616                  | 0.004 | 3                      | 0.0                  | 0.0                | 6.199     | A                             |
| C-A    | 67                       | 17                         |                      |       | 67                     |                      |                    |           |                               |
| A-B    | 20                       | 5                          |                      |       | 20                     |                      |                    |           |                               |
| A-C    | 233                      | 58                         |                      |       | 233                    |                      |                    |           |                               |



# 2025 + Development, PM

### **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.57               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.57              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 96                  | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 82                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 333                 | 100.000            |

## **Origin-Destination Data**

### Demand (PCU/hr)

|      |                 | То              |             |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |
| F    | Robinson Road S | 0               | 5           | 91              |  |  |  |  |  |  |
| From | Gresley Way     | 21              | 0           | 61              |  |  |  |  |  |  |
|      | Robinson Road N | 330             | 3           | 0               |  |  |  |  |  |  |

# **Vehicle Mix**

|      | То              |                 |             |                 |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |
|      | Robinson Road S | 0               | 80          | 70              |  |  |  |  |
| From | Gresley Way     | 40              | 0           | 64              |  |  |  |  |
|      | Robinson Road N | 33              | 67          | 0               |  |  |  |  |



### Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.09    | 8.75          | 0.2         | А       | 56                     | 84                               |
| B-A    | 0.05    | 11.19         | 0.1         | В       | 19                     | 29                               |
| C-AB   | 0.01    | 7.21          | 0.0         | А       | 4                      | 7                                |
| C-A    |         |               |             |         | 301                    | 452                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 84                     | 125                              |

### Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 46                       | 11                         | 754                  | 0.061 | 46                     | 0.0                  | 0.1                | 8.332     | Α                             |
| B-A    | 16                       | 4                          | 498                  | 0.032 | 16                     | 0.0                  | 0.0                | 10.447    | В                             |
| C-AB   | 3                        | 0.83                       | 774                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.210     | A                             |
| C-A    | 247                      | 62                         |                      |       | 247                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 69                       | 17                         |                      |       | 69                     |                      |                    |           |                               |

### 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 55                       | 14                         | 748                  | 0.073 | 55                     | 0.1                  | 0.1                | 8.509     | Α                             |  |
| B-A    | 19                       | 5                          | 488                  | 0.039 | 19                     | 0.0                  | 0.1                | 10.751    | В                             |  |
| C-AB   | 4                        | 1                          | 803                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.908     | А                             |  |
| C-A    | 295                      | 74                         |                      |       | 295                    |                      |                    |           |                               |  |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |  |
| A-C    | 82                       | 20                         |                      |       | 82                     |                      |                    |           |                               |  |

### 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 67                       | 17                         | 742                  | 0.091 | 67                     | 0.1                  | 0.2                | 8.750     | A                             |
| B-A    | 23                       | 6                          | 473                  | 0.049 | 23                     | 0.1                  | 0.1                | 11.192    | В                             |
| C-AB   | 6                        | 1                          | 844                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.497     | A                             |
| C-A    | 361                      | 90                         |                      |       | 361                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 100                      | 25                         |                      |       | 100                    |                      |                    |           |                               |

### 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 67                       | 17                         | 741                  | 0.091 | 67                     | 0.2                  | 0.2                | 8.755     | А                             |
| B-A    | 23                       | 6                          | 473                  | 0.049 | 23                     | 0.1                  | 0.1                | 11.193    | В                             |
| C-AB   | 6                        | 1                          | 844                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.458     | А                             |
| C-A    | 361                      | 90                         |                      |       | 361                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 100                      | 25                         |                      |       | 100                    |                      |                    |           |                               |



### 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 55                       | 14                         | 748                  | 0.073 | 55                     | 0.2                  | 0.1                | 8.517     | Α                             |
| B-A    | 19                       | 5                          | 488                  | 0.039 | 19                     | 0.1                  | 0.1                | 10.752    | В                             |
| C-AB   | 4                        | 1                          | 803                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.819     | A                             |
| C-A    | 295                      | 74                         |                      |       | 295                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 82                       | 20                         |                      |       | 82                     |                      |                    |           |                               |

### 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 46                       | 11                         | 753                  | 0.061 | 46                     | 0.1                  | 0.1                | 8.348     | А                             |
| B-A    | 16                       | 4                          | 498                  | 0.032 | 16                     | 0.1                  | 0.0                | 10.454    | В                             |
| C-AB   | 3                        | 0.83                       | 774                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.160     | А                             |
| C-A    | 247                      | 62                         |                      |       | 247                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 69                       | 17                         |                      |       | 69                     |                      |                    |           |                               |



# 2032 Base, AM

### **Data Errors and Warnings**

No errors or warnings

# **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.49               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.49              | Α           |

### **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D7 | 2032 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

### **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 336                 | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 17                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 81                  | 100.000            |

## **Origin-Destination Data**

### Demand (PCU/hr)

|      | То              |                 |             |                 |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|
| From |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |
|      | Robinson Road S | 0               | 28          | 308             |  |  |
|      | Gresley Way     | 11              | 0           | 6               |  |  |
|      | Robinson Road N | 78              | 3           | 0               |  |  |

# **Vehicle Mix**

|      | То              |                 |             |                 |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|
| From |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |
|      | Robinson Road S | 0               | 38          | 22              |  |  |  |
|      | Gresley Way     | 80              | 0           | 50              |  |  |  |
|      | Robinson Road N | 75              | 0           | 0               |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.47          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.02    | 12.24         | 0.0         | В       | 10                     | 15                               |
| C-AB   | 0.01    | 6.38          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 71                     | 107                              |
| A-B    |         |               |             |         | 26                     | 39                               |
| A-C    |         |               |             |         | 283                    | 424                              |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 603                  | 0.007 | 4                      | 0.0                  | 0.0                | 9.017     | Α                             |
| B-A    | 8                        | 2                          | 577                  | 0.014 | 8                      | 0.0                  | 0.0                | 11.386    | В                             |
| C-AB   | 2                        | 0.62                       | 610                  | 0.004 | 2                      | 0.0                  | 0.0                | 6.178     | Α                             |
| C-A    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |
| A-B    | 21                       | 5                          | ·                    |       | 21                     |                      |                    |           |                               |
| A-C    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|
| B-C    | 5                        | 1                          | 592                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.203     | Α                             |  |
| B-A    | 10                       | 2                          | 562                  | 0.018 | 10                     | 0.0                  | 0.0                | 11.729    | В                             |  |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.240     | Α                             |  |
| C-A    | 70                       | 17                         |                      |       | 70                     |                      |                    |           |                               |  |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |  |
| A-C    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 577                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.469     | А                             |
| B-A    | 12                       | 3                          | 542                  | 0.022 | 12                     | 0.0                  | 0.0                | 12.237    | В                             |
| C-AB   | 4                        | 0.96                       | 604                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.350     | А                             |
| C-A    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 339                      | 85                         |                      |       | 339                    |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 577                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.470     | А                             |
| B-A    | 12                       | 3                          | 542                  | 0.022 | 12                     | 0.0                  | 0.0                | 12.236    | В                             |
| C-AB   | 4                        | 0.96                       | 604                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.385     | A                             |
| C-A    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 339                      | 85                         |                      |       | 339                    |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 592                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.205     | А                             |
| B-A    | 10                       | 2                          | 562                  | 0.018 | 10                     | 0.0                  | 0.0                | 11.731    | В                             |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.309     | Α                             |
| C-A    | 70                       | 17                         |                      |       | 70                     |                      |                    |           |                               |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |
| A-C    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 603                  | 0.007 | 5                      | 0.0                  | 0.0                | 9.021     | А                             |
| B-A    | 8                        | 2                          | 577                  | 0.014 | 8                      | 0.0                  | 0.0                | 11.386    | В                             |
| C-AB   | 3                        | 0.63                       | 610                  | 0.004 | 3                      | 0.0                  | 0.0                | 6.210     | A                             |
| C-A    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |



# 2032 Base, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.49               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.49              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D8 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 336                 | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 17                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 81                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |             |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |
|      | Robinson Road S | 0               | 28          | 308             |  |  |  |  |  |  |
| From | Gresley Way     | 11              | 0           | 6               |  |  |  |  |  |  |
|      | Robinson Road N | 78              | 3           | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |             |                 |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |
|      | Robinson Road S | 0               | 38          | 22              |  |  |  |  |  |
| From | Gresley Way     | 80              | 0           | 50              |  |  |  |  |  |
|      | Robinson Road N | 75              | 0           | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 9.47          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.02    | 12.24         | 0.0         | В       | 10                     | 15                               |
| C-AB   | 0.01    | 6.38          | 0.0         | А       | 3                      | 5                                |
| C-A    |         |               |             |         | 71                     | 107                              |
| A-B    |         |               |             |         | 26                     | 39                               |
| A-C    |         |               |             |         | 283                    | 424                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 603                  | 0.007 | 4                      | 0.0                  | 0.0                | 9.017     | A                             |
| B-A    | 8                        | 2                          | 577                  | 0.014 | 8                      | 0.0                  | 0.0                | 11.386    | В                             |
| C-AB   | 2                        | 0.62                       | 610                  | 0.004 | 2                      | 0.0                  | 0.0                | 6.178     | A                             |
| C-A    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 5                        | 1                          | 592                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.203     | Α                             |  |  |
| B-A    | 10                       | 2                          | 562                  | 0.018 | 10                     | 0.0                  | 0.0                | 11.729    | В                             |  |  |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.240     | Α                             |  |  |
| C-A    | 70                       | 17                         |                      |       | 70                     |                      |                    |           |                               |  |  |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |  |  |
| A-C    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |  |  |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 577                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.469     | A                             |
| B-A    | 12                       | 3                          | 542                  | 0.022 | 12                     | 0.0                  | 0.0                | 12.237    | В                             |
| C-AB   | 4                        | 0.96                       | 604                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.350     | A                             |
| C-A    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 339                      | 85                         |                      |       | 339                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 577                  | 0.011 | 7                      | 0.0                  | 0.0                | 9.470     | A                             |
| B-A    | 12                       | 3                          | 542                  | 0.022 | 12                     | 0.0                  | 0.0                | 12.236    | В                             |
| C-AB   | 4                        | 0.96                       | 604                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.385     | A                             |
| C-A    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 339                      | 85                         |                      |       | 339                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 592                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.205     | A                             |
| B-A    | 10                       | 2                          | 562                  | 0.018 | 10                     | 0.0                  | 0.0                | 11.731    | В                             |
| C-AB   | 3                        | 0.76                       | 608                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.309     | A                             |
| C-A    | 70                       | 17                         |                      |       | 70                     |                      |                    |           |                               |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |
| A-C    | 277                      | 69                         |                      |       | 277                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 603                  | 0.007 | 5                      | 0.0                  | 0.0                | 9.021     | А                             |
| B-A    | 8                        | 2                          | 577                  | 0.014 | 8                      | 0.0                  | 0.0                | 11.386    | В                             |
| C-AB   | 3                        | 0.63                       | 610                  | 0.004 | 3                      | 0.0                  | 0.0                | 6.210     | A                             |
| C-A    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 232                      | 58                         |                      |       | 232                    |                      |                    |           |                               |



# 2032 + Development, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.47               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.47              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road S |            | ONE HOUR     | ✓            | 352                 | 100.000            |
| Gresley Way     |            | ONE HOUR     | ✓            | 17                  | 100.000            |
| Robinson Road N |            | ONE HOUR     | ✓            | 95                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |             |                 |
|------|-----------------|-----------------|-------------|-----------------|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |
|      | Robinson Road S | 0               | 28          | 324             |
| From | Gresley Way     | 11              | 0           | 6               |
|      | Robinson Road N | 92              | 3           | 0               |

## **Vehicle Mix**

|      | То              |                            |    |                 |  |  |  |  |  |
|------|-----------------|----------------------------|----|-----------------|--|--|--|--|--|
|      |                 | Robinson Road S Gresley Wa |    | Robinson Road N |  |  |  |  |  |
|      | Robinson Road S | 0                          | 38 | 26              |  |  |  |  |  |
| From | Gresley Way     | 80                         | 0  | 50              |  |  |  |  |  |
|      | Robinson Road N | 76                         | 0  | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| в-с    | 0.01    | 9.54          | 0.0         | А       | 6                      | 8                                |  |
| B-A    | 0.02    | 12.41         | 0.0         | В       | 10                     | 15                               |  |
| C-AB   | 0.01    | 6.39          | 0.0         | А       | 3                      | 5                                |  |
| C-A    |         |               |             |         | 84                     | 126                              |  |
| A-B    |         |               |             |         | 26                     | 39                               |  |
| A-C    |         |               |             |         | 297                    | 446                              |  |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 601                  | 0.008 | 4                      | 0.0                  | 0.0                | 9.059     | А                             |
| B-A    | 8                        | 2                          | 572                  | 0.014 | 8                      | 0.0                  | 0.0                | 11.490    | В                             |
| C-AB   | 3                        | 0.64                       | 615                  | 0.004 | 3                      | 0.0                  | 0.0                | 6.179     | A                             |
| C-A    | 69                       | 17                         |                      |       | 69                     |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 244                      | 61                         |                      |       | 244                    |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| B-C    | 5                        | 1                          | 589                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.254     | Α                             |  |  |
| B-A    | 10                       | 2                          | 556                  | 0.018 | 10                     | 0.0                  | 0.0                | 11.860    | В                             |  |  |
| C-AB   | 3                        | 0.78                       | 613                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.236     | А                             |  |  |
| C-A    | 82                       | 21                         |                      |       | 82                     |                      |                    |           |                               |  |  |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |  |  |
| A-C    | 291                      | 73                         |                      |       | 291                    |                      |                    |           |                               |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 573                  | 0.012 | 7                      | 0.0                  | 0.0                | 9.536     | А                             |
| B-A    | 12                       | 3                          | 534                  | 0.023 | 12                     | 0.0                  | 0.0                | 12.414    | В                             |
| C-AB   | 4                        | 0.99                       | 611                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.343     | А                             |
| C-A    | 101                      | 25                         |                      |       | 101                    |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 357                      | 89                         |                      |       | 357                    |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 573                  | 0.012 | 7                      | 0.0                  | 0.0                | 9.537     | А                             |
| B-A    | 12                       | 3                          | 534                  | 0.023 | 12                     | 0.0                  | 0.0                | 12.413    | В                             |
| C-AB   | 4                        | 0.99                       | 611                  | 0.006 | 4                      | 0.0                  | 0.0                | 6.386     | A                             |
| C-A    | 101                      | 25                         |                      |       | 101                    |                      |                    |           |                               |
| A-B    | 31                       | 8                          |                      |       | 31                     |                      |                    |           |                               |
| A-C    | 357                      | 89                         |                      |       | 357                    |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 589                  | 0.009 | 5                      | 0.0                  | 0.0                | 9.257     | Α                             |
| B-A    | 10                       | 2                          | 556                  | 0.018 | 10                     | 0.0                  | 0.0                | 11.860    | В                             |
| C-AB   | 3                        | 0.78                       | 613                  | 0.005 | 3                      | 0.0                  | 0.0                | 6.319     | А                             |
| C-A    | 82                       | 21                         |                      |       | 82                     |                      |                    |           |                               |
| A-B    | 25                       | 6                          |                      |       | 25                     |                      |                    |           |                               |
| A-C    | 291                      | 73                         |                      |       | 291                    |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 600                  | 0.008 | 5                      | 0.0                  | 0.0                | 9.063     | А                             |
| B-A    | 8                        | 2                          | 572                  | 0.014 | 8                      | 0.0                  | 0.0                | 11.492    | В                             |
| C-AB   | 3                        | 0.64                       | 615                  | 0.004 | 3                      | 0.0                  | 0.0                | 6.217     | A                             |
| C-A    | 69                       | 17                         |                      |       | 69                     |                      |                    |           |                               |
| A-B    | 21                       | 5                          |                      |       | 21                     |                      |                    |           |                               |
| A-C    | 244                      | 61                         |                      |       | 244                    |                      |                    |           |                               |



# 2032 + Development, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| П  | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.59               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.59              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name      | Time Period name | Period name Traffic profile type |       | Start time (HH:mm) Finish time (HH:mm) |    | Run automatically |
|-----|--------------------|------------------|----------------------------------|-------|--|----|-------------------|
| D10 | 2032 + Development | PM               | ONE HOUR                         | 15:45 | 17:15                                  | 15 | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-----------------|------------|--------------|--------------|---------------------|--------------------|--|
| Robinson Road S |            | ONE HOUR     | ✓            | 100                 | 100.000            |  |
| Gresley Way     |            | ONE HOUR     | ✓            | 86                  | 100.000            |  |
| Robinson Road N |            | ONE HOUR     | ✓            | 347                 | 100.000            |  |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |             |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |  |
|      | Robinson Road S | 0               | 5           | 95              |  |  |  |  |  |  |  |
| From | Gresley Way     | 22              | 0           | 64              |  |  |  |  |  |  |  |
|      | Robinson Road N | 344             | 3           | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

| ,    |                 |                 |             |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-------------|-----------------|--|--|--|--|--|--|--|
|      |                 | То              |             |                 |  |  |  |  |  |  |  |
|      |                 | Robinson Road S | Gresley Way | Robinson Road N |  |  |  |  |  |  |  |
| _    | Robinson Road S | 0               | 80          | 70              |  |  |  |  |  |  |  |
| From | Gresley Way     | 40              | 0           | 64              |  |  |  |  |  |  |  |
|      | Robinson Road N | 33              | 67          | 0               |  |  |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.10    | 8.82          | 0.2         | А       | 59                     | 88                               |
| B-A    | 0.05    | 11.30         | 0.1         | В       | 20                     | 30                               |
| C-AB   | 0.01    | 7.13          | 0.0         | А       | 5                      | 7                                |
| C-A    |         |               |             |         | 314                    | 471                              |
| A-B    |         |               |             |         | 5                      | 7                                |
| A-C    |         |               |             |         | 87                     | 131                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 48                       | 12                         | 753                  | 0.064 | 48                     | 0.0                  | 0.1                | 8.372     | Α                             |
| B-A    | 17                       | 4                          | 496                  | 0.033 | 16                     | 0.0                  | 0.0                | 10.509    | В                             |
| C-AB   | 3                        | 0.85                       | 780                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.133     | Α                             |
| C-A    | 258                      | 64                         |                      |       | 258                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 58                       | 14                         | 747                  | 0.077 | 57                     | 0.1                  | 0.1                | 8.558     | Α                             |
| B-A    | 20                       | 5                          | 485                  | 0.041 | 20                     | 0.0                  | 0.1                | 10.833    | В                             |
| C-AB   | 4                        | 1                          | 811                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.824     | A                             |
| C-A    | 308                      | 77                         |                      |       | 308                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 70                       | 18                         | 740                  | 0.095 | 70                     | 0.1                  | 0.2                | 8.815     | A                             |
| B-A    | 24                       | 6                          | 470                  | 0.052 | 24                     | 0.1                  | 0.1                | 11.303    | В                             |
| C-AB   | 6                        | 1                          | 853                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.407     | A                             |
| C-A    | 376                      | 94                         |                      |       | 376                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 105                      | 26                         |                      |       | 105                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 70                       | 18                         | 740                  | 0.095 | 70                     | 0.2                  | 0.2                | 8.819     | A                             |
| B-A    | 24                       | 6                          | 470                  | 0.052 | 24                     | 0.1                  | 0.1                | 11.305    | В                             |
| C-AB   | 6                        | 1                          | 853                  | 0.007 | 6                      | 0.0                  | 0.0                | 6.370     | A                             |
| C-A    | 376                      | 94                         |                      |       | 376                    |                      |                    |           |                               |
| A-B    | 6                        | 1                          |                      |       | 6                      |                      |                    |           |                               |
| A-C    | 105                      | 26                         |                      |       | 105                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 58                       | 14                         | 747                  | 0.077 | 58                     | 0.2                  | 0.1                | 8.565     | А                             |
| B-A    | 20                       | 5                          | 485                  | 0.041 | 20                     | 0.1                  | 0.1                | 10.839    | В                             |
| C-AB   | 4                        | 1                          | 811                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.732     | A                             |
| C-A    | 308                      | 77                         |                      |       | 308                    |                      |                    |           |                               |
| A-B    | 4                        | 1                          |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 48                       | 12                         | 752                  | 0.064 | 48                     | 0.1                  | 0.1                | 8.387     | А                             |
| B-A    | 17                       | 4                          | 496                  | 0.033 | 17                     | 0.1                  | 0.0                | 10.519    | В                             |
| C-AB   | 3                        | 0.85                       | 780                  | 0.004 | 3                      | 0.0                  | 0.0                | 7.082     | A                             |
| C-A    | 258                      | 64                         |                      |       | 258                    |                      |                    |           |                               |
| A-B    | 4                        | 0.94                       |                      |       | 4                      |                      |                    |           |                               |
| A-C    | 72                       | 18                         |                      |       | 72                     |                      |                    |           |                               |

## **Annex TN4 G**

Robinson Road/ IOT Access Road Priority Junction Assessment



## **Junctions 10**

## **PICADY 10 - Priority Intersection Module**

Version: 10.0.4.1693

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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Robinson Road-IOT Access Road.j10

Path: P:\23000's\23325\Junction Assessment\Internal Junctions

**Report generation date:** 08/08/2022 16:53:28

»2022 Base, AM

»2022 Base, PM

»2025 Base, AM

»2025 Base, PM

»2025 + Development, AM

»2025 + Development, PM

»2032 Base, AM

»2032 Base, PM

»2032 + Development, AM

»2032 + Development, PM

## Summary of junction performance

|             |                    | AM        |      |         | PM        |      |  |  |
|-------------|--------------------|-----------|------|---------|-----------|------|--|--|
|             | Q (PCU)            | Delay (s) | RFC  | Q (PCU) | Delay (s) | RFC  |  |  |
|             |                    |           | 2022 | Base    |           |      |  |  |
| Stream B-C  | 0.0                | 6.47      | 0.01 | 0.1     | 5.17      | 0.07 |  |  |
| Stream B-A  | 0.0                | 14.49     | 0.00 | 0.0     | 7.41      | 0.00 |  |  |
| Stream C-AB | 0.3                | 5.47      | 0.13 | 0.0     | 6.83      | 0.02 |  |  |
|             |                    |           | 2025 | Base    |           |      |  |  |
| Stream B-C  | 0.0                | 6.47      | 0.01 | 0.1     | 5.20      | 0.08 |  |  |
| Stream B-A  | 0.0                | 14.55     | 0.00 | 0.0     | 7.44      | 0.00 |  |  |
| Stream C-AB | 0.3                | 5.47      | 0.13 | 0.0     | 6.85      | 0.02 |  |  |
|             | 2025 + Development |           |      |         |           |      |  |  |
| Stream B-C  | 0.0                | 6.56      | 0.01 | 0.1     | 5.32      | 0.08 |  |  |
| Stream B-A  | 0.0                | 15.13     | 0.00 | 0.0     | 7.85      | 0.00 |  |  |
| Stream C-AB | 0.3                | 5.54      | 0.14 | 0.0     | 6.70      | 0.02 |  |  |
|             |                    |           | 2032 | Base    |           |      |  |  |
| Stream B-C  | 0.0                | 6.48      | 0.01 | 0.1     | 5.25      | 0.08 |  |  |
| Stream B-A  | 0.0                | 14.65     | 0.00 | 0.0     | 7.50      | 0.00 |  |  |
| Stream C-AB | 0.3                | 5.45      | 0.14 | 0.0     | 6.88      | 0.02 |  |  |
|             | 2032 + Development |           |      |         |           |      |  |  |
| Stream B-C  | 0.0                | 6.57      | 0.01 | 0.1     | 5.37      | 0.08 |  |  |
| Stream B-A  | 0.0                | 15.24     | 0.00 | 0.0     | 7.91      | 0.00 |  |  |
| Stream C-AB | 0.4                | 5.52      | 0.15 | 0.0     | 6.73      | 0.03 |  |  |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle.



## File summary

## **File Description**

| Title       |            |
|-------------|------------|
| Location    |            |
| Site number |            |
| Date        | 18/05/2022 |
| Version     |            |
| Status      | (new file) |
| Identifier  |            |
| Client      |            |
| Jobnumber   |            |
| Enumerator  | DTA\arcady |
| Description |            |
|             | -          |

## **Units**

| Distance units | Distance units   Speed units   Traffic units input |     | Traffic units results | Flow units | Av. delay units | Total delay units | Rate of delay units |  |
|----------------|--|-----|-----------------------|------------|-----------------|-------------------|---------------------|--|
| m              | kph  | PCU | PCU                   | perHour    | s               | -Min              | perMin              |  |

## **Analysis Options**

| Vehicle<br>length<br>(m) | (Calculate () | Calculate<br>detailed<br>queueing<br>delay | Show lane queues in feet / metres | Show all<br>PICADY<br>stream<br>intercepts | Calculate<br>residual<br>capacity | RFC<br>Threshold | Av. Delay<br>threshold<br>(s) | Q<br>threshold<br>(PCU) | Use iterations<br>with HCM<br>roundabouts | Max number of iterations for roundabouts |
|--------------------------|---------------|--|-----------------------------------|--|-----------------------------------|------------------|-------------------------------|-------------------------|---|--|
| 5.75                     |               |  |                                   |  |                                   | 0.85             | 36.00                         | 20.00                   |   | 500                                      |

## **Demand Set Summary**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D1  | 2022 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D2  | 2022 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D3  | 2025 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D4  | 2025 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D5  | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D6  | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D7  | 2032 Base          | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |
| D8  | 2032 Base          | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |
| D9  | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | <b>√</b>          |
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

## **Analysis Set Details**

| ID        | Include in report | Network flow scaling factor (%) | Network capacity scaling factor (%) |  |  |
|-----------|-------------------|---------------------------------|-------------------------------------|--|--|
| <b>A1</b> | ✓                 | 100.000                         | 100.000                             |  |  |



# **2022** Base, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.22               | А            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.22              | Α           |  |

## **Arms**

## **Arms**

| Arm | Name            | Description | Arm type |
|-----|-----------------|-------------|----------|
| Α   | Robinson Road N |             | Major    |
| В   | IOT Access Road |             | Minor    |
| С   | Robinson Road S |             | Major    |

## **Major Arm Geometry**

| Arm             | Width of carriageway Has kerbed central (m) reserve |  | Has right-turn<br>storage | Visibility for right turn<br>(m) | Blocks? | Blocking queue<br>(PCU) |
|-----------------|---|--|---------------------------|----------------------------------|---------|-------------------------|
| Robinson Road S | 11.65   |  |                           | 98.6                             | ✓       | 0.00                    |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

## **Minor Arm Geometry**

| Arm             | Minor arm<br>type   | Width at give-way (m) | Width at<br>5m (m) | Width at<br>10m (m) | Width at<br>15m (m) | Width at<br>20m (m) | Estimate flare length | Flare length<br>(PCU) | Visibility to left (m) | Visibility to right (m) |
|-----------------|---------------------|-----------------------|--------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|------------------------|-------------------------|
| IOT Access Road | One lane plus flare | 10.00                 | 7.04               | 5.75                | 5.74                | 5.27                | <b>✓</b>              | 3.00                  | 250                    | 160                     |

## Slope / Intercept / Capacity

#### **Priority Intersection Slopes and Intercepts**

| Stream | Intercept<br>(PCU/hr) |       |       | Slope<br>for<br>C-A | Slope<br>for<br>C-B |
|--------|-----------------------|-------|-------|---------------------|---------------------|
| B-A    | 575                   | 0.079 | 0.200 | 0.126               | 0.285               |
| B-C    | 861                   | 0.100 | 0.252 | -                   | -                   |
| С-В    | 631                   | 0.184 | 0.184 | -                   | -                   |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.



## **Traffic Demand**

## **Demand Set Details**

| ID | Scenario name   Time Period name   Traffic profile type |    | Start time (HH:mm) Finish time (HH:mm) |       | Time segment length (min) | Run automatically |   |
|----|---|----|--|-------|---------------------------|-------------------|---|
| D1 | 2022 Base   | AM | ONE HOUR                               | 06:45 | 08:15                     | 15                | ✓ |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 69                  | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 373                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
| F    | Robinson Road N | 0               | 2               | 67              |  |  |  |  |  |  |  |
| From | IOT Access Road | 1               | 0               | 6               |  |  |  |  |  |  |  |
|      | Robinson Road S | 316             | 57              | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

## HV %s

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
| F    | Robinson Road N | 0               | 50              | 66              |  |  |  |  |  |  |  |
| From | IOT Access Road | 100             | 0               | 50              |  |  |  |  |  |  |  |
|      | Robinson Road S | 19              | 4               | 0               |  |  |  |  |  |  |  |

## Results

## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| В-С    | 0.01    | 6.47          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.00    | 14.49         | 0.0         | В       | 0.92                   | 1                                |
| C-AB   | 0.13    | 5.47          | 0.3         | A       | 83                     | 124                              |
| C-A    |         |               |             |         | 259                    | 389                              |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 61                     | 92                               |



## Main Results for each time segment

## 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 848                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.403     | А                             |
| B-A    | 0.75                     | 0.19                       | 522                  | 0.001 | 0.74                   | 0.0                  | 0.0                | 13.803    | В                             |
| C-AB   | 62                       | 15                         | 777                  | 0.080 | 61                     | 0.0                  | 0.1                | 5.438     | А                             |
| C-A    | 219                      | 55                         |                      |       | 219                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 50                       | 13                         |                      |       | 50                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 845                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.431     | A                             |
| B-A    | 0.90                     | 0.22                       | 512                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.081    | В                             |
| C-AB   | 79                       | 20                         | 806                  | 0.098 | 79                     | 0.1                  | 0.2                | 5.377     | A                             |
| C-A    | 256                      | 64                         |                      |       | 256                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 60                       | 15                         |                      |       | 60                     |                      |                    |           |                               |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 841                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.468     | A                             |
| B-A    | 1                        | 0.28                       | 498                  | 0.002 | 1                      | 0.0                  | 0.0                | 14.485    | В                             |
| C-AB   | 107                      | 27                         | 846                  | 0.126 | 107                    | 0.2                  | 0.3                | 5.326     | A                             |
| C-A    | 304                      | 76                         |                      |       | 304                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 74                       | 18                         |                      |       | 74                     |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 841                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.468     | Α                             |
| B-A    | 1                        | 0.28                       | 498                  | 0.002 | 1                      | 0.0                  | 0.0                | 14.485    | В                             |
| C-AB   | 107                      | 27                         | 846                  | 0.127 | 107                    | 0.3                  | 0.3                | 5.350     | А                             |
| C-A    | 304                      | 76                         |                      |       | 304                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 74                       | 18                         |                      |       | 74                     |                      |                    |           |                               |

## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised<br>level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|----------------------------------|
| B-C    | 5                        | 1                          | 845                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.435     | Α                                |
| B-A    | 0.90                     | 0.22                       | 512                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.081    | В                                |
| C-AB   | 79                       | 20                         | 806                  | 0.099 | 80                     | 0.3                  | 0.2                | 5.427     | А                                |
| C-A    | 256                      | 64                         |                      |       | 256                    |                      |                    |           |                                  |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                                  |
| A-C    | 60                       | 15                         |                      |       | 60                     |                      |                    |           |                                  |



## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 847                  | 0.005 | 5                      | 0.0                  | 0.0                | 6.406     | А                             |
| B-A    | 0.75                     | 0.19                       | 522                  | 0.001 | 0.76                   | 0.0                  | 0.0                | 13.802    | В                             |
| C-AB   | 62                       | 16                         | 777                  | 0.080 | 62                     | 0.2                  | 0.1                | 5.473     | А                             |
| C-A    | 219                      | 55                         |                      |       | 219                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 50                       | 13                         |                      |       | 50                     |                      |                    |           |                               |



# **2022 Base, PM**

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.85               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.85              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

|   | ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|---|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| Ī | D2 | 2022 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn  Vehicle mix varies over entry |   | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|---|---|--------------------|---------------------------|--|
| ✓   | ✓ | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm Linked a    |  | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-----------------|--|--------------|--------------|---------------------|--------------------|--|
| Robinson Road N |  | ONE HOUR     | ✓            | 315                 | 100.000            |  |
| IOT Access Road |  | ONE HOUR     | ✓            | 54                  | 100.000            |  |
| Robinson Road S |  | ONE HOUR     | ✓            | 61                  | 100.000            |  |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 2               | 313             |  |  |  |  |  |  |  |
| From | IOT Access Road | 2               | 0               | 52              |  |  |  |  |  |  |  |
|      | Robinson Road S | 50              | 11              | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 22              |  |  |  |  |  |
| From | IOT Access Road | 0               | 0               | 4               |  |  |  |  |  |
|      | Robinson Road S | 58              | 9               | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.07    | 5.17          | 0.1         | А       | 48                     | 72                               |
| B-A    | 0.00    | 7.41          | 0.0         | А       | 2                      | 3                                |
| C-AB   | 0.02    | 6.83          | 0.0         | А       | 11                     | 16                               |
| C-A    |         |               |             |         | 45                     | 68                               |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 287                    | 431                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 39                       | 10                         | 809                  | 0.048 | 39                     | 0.0                  | 0.1                | 4.858     | A                             |
| B-A    | 2                        | 0.38                       | 513                  | 0.003 | 1                      | 0.0                  | 0.0                | 7.038     | A                             |
| C-AB   | 9                        | 2                          | 613                  | 0.014 | 9                      | 0.0                  | 0.0                | 6.623     | A                             |
| C-A    | 37                       | 9                          |                      |       | 37                     |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 236                      | 59                         |                      |       | 236                    |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 47                       | 12                         | 798                  | 0.059 | 47                     | 0.1                  | 0.1                | 4.986     | Α                             |  |  |
| B-A    | 2                        | 0.45                       | 503                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.188     | А                             |  |  |
| C-AB   | 11                       | 3                          | 609                  | 0.018 | 11                     | 0.0                  | 0.0                | 6.695     | Α                             |  |  |
| C-A    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |  |  |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |  |  |
| A-C    | 281                      | 70                         |                      |       | 281                    |                      |                    |           |                               |  |  |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 57                       | 14                         | 781                  | 0.073 | 57                     | 0.1                  | 0.1                | 5.170     | Α                             |
| B-A    | 2                        | 0.55                       | 488                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.406     | Α                             |
| C-AB   | 13                       | 3                          | 605                  | 0.022 | 13                     | 0.0                  | 0.0                | 6.810     | A                             |
| C-A    | 54                       | 13                         |                      |       | 54                     |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 345                      | 86                         |                      |       | 345                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 57                       | 14                         | 781                  | 0.073 | 57                     | 0.1                  | 0.1                | 5.170     | А                             |
| B-A    | 2                        | 0.55                       | 488                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.406     | Α                             |
| C-AB   | 13                       | 3                          | 605                  | 0.022 | 13                     | 0.0                  | 0.0                | 6.830     | A                             |
| C-A    | 54                       | 13                         |                      |       | 54                     |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 345                      | 86                         |                      |       | 345                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 47                       | 12                         | 798                  | 0.059 | 47                     | 0.1                  | 0.1                | 4.986     | Α                             |
| B-A    | 2                        | 0.45                       | 503                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.188     | А                             |
| C-AB   | 11                       | 3                          | 609                  | 0.018 | 11                     | 0.0                  | 0.0                | 6.730     | Α                             |
| C-A    | 44                       | 11                         |                      |       | 44                     |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 281                      | 70                         |                      |       | 281                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 39                       | 10                         | 809                  | 0.048 | 39                     | 0.1                  | 0.1                | 4.863     | А                             |
| B-A    | 2                        | 0.38                       | 513                  | 0.003 | 2                      | 0.0                  | 0.0                | 7.038     | А                             |
| C-AB   | 9                        | 2                          | 613                  | 0.014 | 9                      | 0.0                  | 0.0                | 6.640     | A                             |
| C-A    | 37                       | 9                          |                      |       | 37                     |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 236                      | 59                         |                      |       | 236                    |                      |                    |           |                               |



# 2025 Base, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.23               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.23              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D3 | 2025 Base     | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 71                  | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 384                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 2               | 69              |  |  |  |  |  |  |  |
| From | IOT Access Road | 1               | 0               | 6               |  |  |  |  |  |  |  |
|      | Robinson Road S | 325             | 59              | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 66              |  |  |  |  |  |
| From | IOT Access Road | 100             | 0               | 50              |  |  |  |  |  |
|      | Robinson Road S | 19              | 4               | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 6.47          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.00    | 14.55         | 0.0         | В       | 0.92                   | 1                                |
| C-AB   | 0.13    | 5.47          | 0.3         | А       | 87                     | 130                              |
| C-A    |         |               |             |         | 266                    | 398                              |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 63                     | 95                               |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 847                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.406     | A                             |
| B-A    | 0.75                     | 0.19                       | 521                  | 0.001 | 0.74                   | 0.0                  | 0.0                | 13.845    | В                             |
| C-AB   | 65                       | 16                         | 781                  | 0.083 | 64                     | 0.0                  | 0.1                | 5.433     | A                             |
| C-A    | 224                      | 56                         |                      |       | 224                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 52                       | 13                         |                      |       | 52                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 844                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.435     | А                             |
| B-A    | 0.90                     | 0.22                       | 510                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.133    | В                             |
| C-AB   | 83                       | 21                         | 811                  | 0.103 | 83                     | 0.1                  | 0.2                | 5.373     | A                             |
| C-A    | 262                      | 66                         |                      |       | 262                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 62                       | 16                         |                      |       | 62                     |                      |                    |           |                               |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 841                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.472     | Α                             |
| B-A    | 1                        | 0.28                       | 496                  | 0.002 | 1                      | 0.0                  | 0.0                | 14.553    | В                             |
| C-AB   | 112                      | 28                         | 852                  | 0.132 | 112                    | 0.2                  | 0.3                | 5.326     | A                             |
| C-A    | 310                      | 78                         |                      |       | 310                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 76                       | 19                         |                      |       | 76                     |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 841                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.473     | A                             |
| B-A    | 1                        | 0.28                       | 496                  | 0.002 | 1                      | 0.0                  | 0.0                | 14.553    | В                             |
| C-AB   | 112                      | 28                         | 852                  | 0.132 | 112                    | 0.3                  | 0.3                | 5.353     | A                             |
| C-A    | 310                      | 78                         |                      |       | 310                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 76                       | 19                         |                      |       | 76                     |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 844                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.438     | A                             |
| B-A    | 0.90                     | 0.22                       | 510                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.136    | В                             |
| C-AB   | 83                       | 21                         | 811                  | 0.103 | 84                     | 0.3                  | 0.2                | 5.427     | A                             |
| C-A    | 262                      | 65                         |                      |       | 262                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 62                       | 16                         |                      |       | 62                     |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 847                  | 0.005 | 5                      | 0.0                  | 0.0                | 6.409     | А                             |
| B-A    | 0.75                     | 0.19                       | 521                  | 0.001 | 0.76                   | 0.0                  | 0.0                | 13.847    | В                             |
| C-AB   | 65                       | 16                         | 782                  | 0.083 | 65                     | 0.2                  | 0.2                | 5.466     | A                             |
| C-A    | 224                      | 56                         |                      |       | 224                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 52                       | 13                         |                      |       | 52                     |                      |                    |           |                               |



# 2025 Base, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| ſ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.85               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.85              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D4 | 2025 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 324                 | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 56                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 62                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 2               | 322             |  |  |  |  |  |  |  |
| From | IOT Access Road | 2               | 0               | 54              |  |  |  |  |  |  |  |
|      | Robinson Road S | 51              | 11              | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 22              |  |  |  |  |  |
| From | IOT Access Road | 0               | 0               | 4               |  |  |  |  |  |
|      | Robinson Road S | 58              | 9               | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.08    | 5.20          | 0.1         | А       | 50                     | 74                               |
| B-A    | 0.00    | 7.44          | 0.0         | А       | 2                      | 3                                |
| C-AB   | 0.02    | 6.85          | 0.0         | А       | 11                     | 16                               |
| C-A    |         |               |             |         | 46                     | 69                               |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 295                    | 443                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 41                       | 10                         | 808                  | 0.050 | 40                     | 0.0                  | 0.1                | 4.879     | А                             |
| B-A    | 2                        | 0.38                       | 511                  | 0.003 | 1                      | 0.0                  | 0.0                | 7.058     | A                             |
| C-AB   | 9                        | 2                          | 612                  | 0.014 | 9                      | 0.0                  | 0.0                | 6.634     | A                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 242                      | 61                         |                      |       | 242                    |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 49                       | 12                         | 796                  | 0.061 | 48                     | 0.1                  | 0.1                | 5.011     | A                             |
| B-A    | 2                        | 0.45                       | 501                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.213     | A                             |
| C-AB   | 11                       | 3                          | 608                  | 0.018 | 11                     | 0.0                  | 0.0                | 6.708     | A                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 289                      | 72                         |                      |       | 289                    |                      |                    |           |                               |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 59                       | 15                         | 779                  | 0.076 | 59                     | 0.1                  | 0.1                | 5.204     | A                             |
| B-A    | 2                        | 0.55                       | 486                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.438     | Α                             |
| C-AB   | 13                       | 3                          | 604                  | 0.022 | 13                     | 0.0                  | 0.0                | 6.826     | A                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 355                      | 89                         |                      |       | 355                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 59                       | 15                         | 779                  | 0.076 | 59                     | 0.1                  | 0.1                | 5.204     | А                             |
| B-A    | 2                        | 0.55                       | 486                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.438     | А                             |
| C-AB   | 13                       | 3                          | 604                  | 0.022 | 13                     | 0.0                  | 0.0                | 6.847     | А                             |
| C-A    | 55                       | 14                         |                      |       | 55                     |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 355                      | 89                         |                      |       | 355                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 49                       | 12                         | 796                  | 0.061 | 49                     | 0.1                  | 0.1                | 5.012     | А                             |
| B-A    | 2                        | 0.45                       | 501                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.216     | Α                             |
| C-AB   | 11                       | 3                          | 608                  | 0.018 | 11                     | 0.0                  | 0.0                | 6.744     | Α                             |
| C-A    | 45                       | 11                         |                      |       | 45                     |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 289                      | 72                         |                      |       | 289                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 41                       | 10                         | 808                  | 0.050 | 41                     | 0.1                  | 0.1                | 4.883     | А                             |
| B-A    | 2                        | 0.38                       | 511                  | 0.003 | 2                      | 0.0                  | 0.0                | 7.058     | А                             |
| C-AB   | 9                        | 2                          | 612                  | 0.014 | 9                      | 0.0                  | 0.0                | 6.651     | A                             |
| C-A    | 38                       | 9                          |                      |       | 38                     |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 242                      | 61                         |                      |       | 242                    |                      |                    |           |                               |



# 2025 + Development, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.11               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 1.11              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D5 | 2025 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 112                 | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 455                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | To              | )               |                 |
|------|-----------------|-----------------|-----------------|-----------------|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |
| F    | Robinson Road N | 0               | 2               | 110             |
| From | IOT Access Road | 1               | 0               | 6               |
|      | Robinson Road S | 396             | 59              | 0               |

## **Vehicle Mix**

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 75              |  |  |  |  |  |  |  |
| From | IOT Access Road | 100             | 0               | 50              |  |  |  |  |  |  |  |
|      | Robinson Road S | 33              | 4               | 0               |  |  |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 6.56          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.00    | 15.13         | 0.0         | С       | 0.92                   | 1                                |
| C-AB   | 0.14    | 5.54          | 0.3         | А       | 96                     | 145                              |
| C-A    |         |               |             |         | 321                    | 482                              |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 101                    | 151                              |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 840                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.466     | Α                             |
| B-A    | 0.75                     | 0.19                       | 508                  | 0.001 | 0.74                   | 0.0                  | 0.0                | 14.197    | В                             |
| C-AB   | 70                       | 18                         | 812                  | 0.086 | 70                     | 0.0                  | 0.2                | 5.484     | A                             |
| C-A    | 272                      | 68                         |                      |       | 272                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 83                       | 21                         |                      |       | 83                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 835                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.507     | А                             |
| B-A    | 0.90                     | 0.22                       | 495                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.573    | В                             |
| C-AB   | 92                       | 23                         | 848                  | 0.108 | 92                     | 0.2                  | 0.2                | 5.425     | A                             |
| C-A    | 317                      | 79                         |                      |       | 317                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 99                       | 25                         |                      |       | 99                     |                      |                    |           |                               |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 829                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.562     | А                             |
| B-A    | 1                        | 0.28                       | 477                  | 0.002 | 1                      | 0.0                  | 0.0                | 15.129    | С                             |
| C-AB   | 127                      | 32                         | 897                  | 0.141 | 127                    | 0.2                  | 0.3                | 5.399     | A                             |
| C-A    | 374                      | 94                         |                      |       | 374                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 121                      | 30                         |                      |       | 121                    |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 829                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.562     | A                             |
| B-A    | 1                        | 0.28                       | 477                  | 0.002 | 1                      | 0.0                  | 0.0                | 15.130    | С                             |
| C-AB   | 127                      | 32                         | 897                  | 0.142 | 127                    | 0.3                  | 0.3                | 5.449     | A                             |
| C-A    | 374                      | 93                         |                      |       | 374                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 121                      | 30                         |                      |       | 121                    |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 835                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.510     | А                             |
| B-A    | 0.90                     | 0.22                       | 495                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.574    | В                             |
| C-AB   | 92                       | 23                         | 848                  | 0.109 | 92                     | 0.3                  | 0.2                | 5.527     | А                             |
| C-A    | 317                      | 79                         |                      |       | 317                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 99                       | 25                         |                      |       | 99                     |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 839                  | 0.005 | 5                      | 0.0                  | 0.0                | 6.471     | А                             |
| B-A    | 0.75                     | 0.19                       | 508                  | 0.001 | 0.76                   | 0.0                  | 0.0                | 14.199    | В                             |
| C-AB   | 71                       | 18                         | 812                  | 0.087 | 71                     | 0.2                  | 0.2                | 5.544     | A                             |
| C-A    | 272                      | 68                         |                      |       | 272                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 83                       | 21                         |                      |       | 83                     |                      |                    |           |                               |



# 2025 + Development, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.67               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left         | Normal/unknown | 0.67              | Α           |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D6 | 2025 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 381                 | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 56                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 157                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |  |
| F    | Robinson Road N | 0               | 2               | 379             |  |  |  |  |  |  |  |  |
| From | IOT Access Road | 2               | 0               | 54              |  |  |  |  |  |  |  |  |
|      | Robinson Road S | 146             | 11              | 0               |  |  |  |  |  |  |  |  |

## **Vehicle Mix**

|      |                 | To              | )               |                 |
|------|-----------------|-----------------|-----------------|-----------------|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |
|      | Robinson Road N | 0               | 50              | 32              |
| From | IOT Access Road | 0               | 0               | 4               |
|      | Robinson Road S | 82              | 9               | 0               |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |  |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|--|
| в-с    | 0.08    | 5.32          | 0.1         | А       | 50                     | 74                               |  |
| B-A    | 0.00    | 7.85          | 0.0         | А       | 2                      | 3                                |  |
| C-AB   | 0.02    | 6.70          | 0.0         | А       | 13                     | 19                               |  |
| C-A    |         |               |             |         | 131                    | 197                              |  |
| A-B    |         |               |             |         | 2                      | 3                                |  |
| A-C    |         |               |             |         | 348                    | 522                              |  |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 41                       | 10                         | 797                  | 0.051 | 40                     | 0.0                  | 0.1                | 4.949     | Α                             |
| B-A    | 2                        | 0.38                       | 494                  | 0.003 | 1                      | 0.0                  | 0.0                | 7.305     | А                             |
| C-AB   | 10                       | 2                          | 653                  | 0.015 | 10                     | 0.0                  | 0.0                | 6.545     | Α                             |
| C-A    | 108                      | 27                         |                      |       | 108                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 285                      | 71                         |                      |       | 285                    |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 49                       | 12                         | 782                  | 0.062 | 48                     | 0.1                  | 0.1                | 5.100     | Α                             |  |  |
| B-A    | 2                        | 0.45                       | 480                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.524     | A                             |  |  |
| C-AB   | 12                       | 3                          | 658                  | 0.019 | 12                     | 0.0                  | 0.0                | 6.569     | Α                             |  |  |
| C-A    | 129                      | 32                         |                      |       | 129                    |                      |                    |           |                               |  |  |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |  |  |
| A-C    | 341                      | 85                         |                      |       | 341                    |                      |                    |           |                               |  |  |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 59                       | 15                         | 763                  | 0.078 | 59                     | 0.1                  | 0.1                | 5.322     | A                             |
| B-A    | 2                        | 0.55                       | 461                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.849     | Α                             |
| C-AB   | 16                       | 4                          | 665                  | 0.024 | 16                     | 0.0                  | 0.0                | 6.642     | A                             |
| C-A    | 157                      | 39                         |                      |       | 157                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 417                      | 104                        |                      |       | 417                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 59                       | 15                         | 763                  | 0.078 | 59                     | 0.1                  | 0.1                | 5.322     | А                             |
| B-A    | 2                        | 0.55                       | 461                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.849     | Α                             |
| C-AB   | 16                       | 4                          | 665                  | 0.024 | 16                     | 0.0                  | 0.0                | 6.701     | А                             |
| C-A    | 157                      | 39                         |                      |       | 157                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 417                      | 104                        |                      |       | 417                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 49                       | 12                         | 782                  | 0.062 | 49                     | 0.1                  | 0.1                | 5.103     | Α                             |
| B-A    | 2                        | 0.45                       | 480                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.524     | Α                             |
| C-AB   | 12                       | 3                          | 658                  | 0.019 | 12                     | 0.0                  | 0.0                | 6.687     | A                             |
| C-A    | 129                      | 32                         |                      |       | 129                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 341                      | 85                         |                      |       | 341                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 41                       | 10                         | 797                  | 0.051 | 41                     | 0.1                  | 0.1                | 4.952     | А                             |
| B-A    | 2                        | 0.38                       | 494                  | 0.003 | 2                      | 0.0                  | 0.0                | 7.309     | A                             |
| C-AB   | 10                       | 2                          | 653                  | 0.015 | 10                     | 0.0                  | 0.0                | 6.600     | A                             |
| C-A    | 108                      | 27                         |                      |       | 108                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 285                      | 71                         |                      |       | 285                    |                      |                    |           |                               |



# 2032 Base, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

| Γ, | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
|    | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.24               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.24              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Time Period name Traffic profile type |       | Start time (HH:mm)   Finish time (HH:mm) |    | Run automatically |
|----|---------------|------------------|---------------------------------------|-------|--|----|-------------------|
| D7 | 2032 Base     | AM               | ONE HOUR                              | 06:45 | 08:15                                    | 15 | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |  |
|-----------------|------------|--------------|--------------|---------------------|--------------------|--|
| Robinson Road N |            | ONE HOUR     | ✓            | 74                  | 100.000            |  |
| IOT Access Road |            | ONE HOUR     | ✓            | 7                   | 100.000            |  |
| Robinson Road S |            | ONE HOUR     | ✓            | 401                 | 100.000            |  |

# **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 2               | 72              |  |  |  |  |  |  |  |
| From | IOT Access Road | 1               | 0               | 6               |  |  |  |  |  |  |  |
|      | Robinson Road S | 340             | 61              | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |
| _    | Robinson Road N | 0               | 50              | 66              |  |  |  |  |  |  |
| From | IOT Access Road | 100             | 0               | 50              |  |  |  |  |  |  |
|      | Robinson Road S | 19              | 4               | 0               |  |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 6.48          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.00    | 14.65         | 0.0         | В       | 0.92                   | 1                                |
| C-AB   | 0.14    | 5.45          | 0.3         | А       | 92                     | 138                              |
| C-A    |         |               |             |         | 276                    | 414                              |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 66                     | 99                               |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 847                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.411     | Α                             |
| B-A    | 0.75                     | 0.19                       | 518                  | 0.001 | 0.74                   | 0.0                  | 0.0                | 13.907    | В                             |
| C-AB   | 68                       | 17                         | 788                  | 0.086 | 67                     | 0.0                  | 0.2                | 5.413     | A                             |
| C-A    | 234                      | 58                         |                      |       | 234                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 54                       | 14                         |                      |       | 54                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|--|
| B-C    | 5                        | 1                          | 844                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.440     | Α                             |  |  |  |
| B-A    | 0.90                     | 0.22                       | 508                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.210    | В                             |  |  |  |
| C-AB   | 88                       | 22                         | 820                  | 0.107 | 88                     | 0.2                  | 0.2                | 5.353     | Α                             |  |  |  |
| C-A    | 273                      | 68                         |                      |       | 273                    |                      |                    |           |                               |  |  |  |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |  |  |  |
| A-C    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |  |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 7                        | 2                          | 840                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.479     | A                             |
| B-A    | 1                        | 0.28                       | 492                  | 0.002 | 1                      | 0.0                  | 0.0                | 14.653    | В                             |
| C-AB   | 119                      | 30                         | 862                  | 0.138 | 119                    | 0.2                  | 0.3                | 5.309     | A                             |
| C-A    | 322                      | 81                         |                      |       | 322                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 840                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.479     | А                             |
| B-A    | 1                        | 0.28                       | 492                  | 0.002 | 1                      | 0.0                  | 0.0                | 14.653    | В                             |
| C-AB   | 119                      | 30                         | 863                  | 0.138 | 119                    | 0.3                  | 0.3                | 5.337     | A                             |
| C-A    | 322                      | 81                         |                      |       | 322                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 79                       | 20                         |                      |       | 79                     |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 844                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.443     | Α                             |
| B-A    | 0.90                     | 0.22                       | 508                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.210    | В                             |
| C-AB   | 88                       | 22                         | 820                  | 0.107 | 88                     | 0.3                  | 0.2                | 5.407     | Α                             |
| C-A    | 273                      | 68                         |                      |       | 273                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 65                       | 16                         |                      |       | 65                     |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 846                  | 0.005 | 5                      | 0.0                  | 0.0                | 6.413     | А                             |
| B-A    | 0.75                     | 0.19                       | 518                  | 0.001 | 0.76                   | 0.0                  | 0.0                | 13.908    | В                             |
| C-AB   | 68                       | 17                         | 789                  | 0.087 | 68                     | 0.2                  | 0.2                | 5.450     | A                             |
| C-A    | 234                      | 58                         |                      |       | 234                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 54                       | 14                         |                      |       | 54                     |                      |                    |           |                               |



# 2032 Base, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.86               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 0.86              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D8 | 2032 Base     | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |
|------------------------------|-------------------------------|--------------------|---------------------------|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 338                 | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 58                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 66                  | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То              |                 |                 |  |  |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |  |  |
|      | Robinson Road N | 0               | 2               | 336             |  |  |  |  |  |  |  |
| From | IOT Access Road | 2               | 0               | 56              |  |  |  |  |  |  |  |
|      | Robinson Road S | 54              | 12              | 0               |  |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 22              |  |  |  |  |  |
| From | IOT Access Road | 0               | 0               | 4               |  |  |  |  |  |
|      | Robinson Road S | 58              | 9               | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.08    | 5.25          | 0.1         | А       | 51                     | 77                               |
| B-A    | 0.00    | 7.50          | 0.0         | А       | 2                      | 3                                |
| C-AB   | 0.02    | 6.88          | 0.0         | А       | 12                     | 18                               |
| C-A    |         |               |             |         | 49                     | 73                               |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 308                    | 462                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 42                       | 11                         | 805                  | 0.052 | 42                     | 0.0                  | 0.1                | 4.905     | А                             |
| B-A    | 2                        | 0.38                       | 509                  | 0.003 | 1                      | 0.0                  | 0.0                | 7.093     | A                             |
| C-AB   | 10                       | 2                          | 612                  | 0.016 | 10                     | 0.0                  | 0.0                | 6.655     | А                             |
| C-A    | 40                       | 10                         |                      |       | 40                     |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 253                      | 63                         |                      |       | 253                    |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 50                       | 13                         | 792                  | 0.064 | 50                     | 0.1                  | 0.1                | 5.045     | Α                             |  |  |
| B-A    | 2                        | 0.45                       | 498                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.257     | А                             |  |  |
| C-AB   | 12                       | 3                          | 608                  | 0.019 | 12                     | 0.0                  | 0.0                | 6.733     | Α                             |  |  |
| C-A    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |  |  |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |  |  |
| A-C    | 302                      | 76                         |                      |       | 302                    |                      |                    |           |                               |  |  |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 62                       | 15                         | 775                  | 0.080 | 62                     | 0.1                  | 0.1                | 5.249     | А                             |
| B-A    | 2                        | 0.55                       | 482                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.496     | Α                             |
| C-AB   | 15                       | 4                          | 603                  | 0.024 | 15                     | 0.0                  | 0.0                | 6.858     | A                             |
| C-A    | 58                       | 15                         |                      |       | 58                     |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 370                      | 92                         |                      |       | 370                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 62                       | 15                         | 775                  | 0.080 | 62                     | 0.1                  | 0.1                | 5.249     | А                             |
| B-A    | 2                        | 0.55                       | 482                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.497     | А                             |
| C-AB   | 15                       | 4                          | 603                  | 0.024 | 15                     | 0.0                  | 0.0                | 6.877     | А                             |
| C-A    | 58                       | 14                         |                      |       | 58                     |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 370                      | 92                         |                      |       | 370                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 50                       | 13                         | 792                  | 0.064 | 50                     | 0.1                  | 0.1                | 5.048     | Α                             |
| B-A    | 2                        | 0.45                       | 498                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.258     | А                             |
| C-AB   | 12                       | 3                          | 608                  | 0.019 | 12                     | 0.0                  | 0.0                | 6.774     | Α                             |
| C-A    | 48                       | 12                         |                      |       | 48                     |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 302                      | 76                         |                      |       | 302                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 42                       | 11                         | 805                  | 0.052 | 42                     | 0.1                  | 0.1                | 4.910     | А                             |
| B-A    | 2                        | 0.38                       | 509                  | 0.003 | 2                      | 0.0                  | 0.0                | 7.097     | A                             |
| C-AB   | 10                       | 2                          | 612                  | 0.016 | 10                     | 0.0                  | 0.0                | 6.676     | A                             |
| C-A    | 40                       | 10                         |                      |       | 40                     |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 253                      | 63                         |                      |       | 253                    |                      |                    |           |                               |



# 2032 + Development, AM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Г | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 1.12               | Α            |

#### **Junction Network**

| Driving side | Lighting       | Network delay (s) | Network LOS |  |
|--------------|----------------|-------------------|-------------|--|
| Left         | Normal/unknown | 1.12              | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D9 | 2032 + Development | AM               | ONE HOUR             | 06:45              | 08:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over entry | Vehicle mix source | PCU Factor for a HV (PCU) |  |
|------------------------------|-------------------------------|--------------------|---------------------------|--|
| ✓                            | ✓                             | HV Percentages     | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 115                 | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 7                   | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 472                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      |                 | То                              |    |                 |  |  |  |  |  |  |
|------|-----------------|---------------------------------|----|-----------------|--|--|--|--|--|--|
|      |                 | Robinson Road N   IOT Access Ro |    | Robinson Road S |  |  |  |  |  |  |
|      | Robinson Road N | 0                               | 2  | 113             |  |  |  |  |  |  |
| From | IOT Access Road | 1                               | 0  | 6               |  |  |  |  |  |  |
|      | Robinson Road S | 411                             | 61 | 0               |  |  |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 74              |  |  |  |  |  |
| From | IOT Access Road | 100             | 0               | 50              |  |  |  |  |  |
|      | Robinson Road S | 32              | 4               | 0               |  |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.01    | 6.57          | 0.0         | А       | 6                      | 8                                |
| B-A    | 0.00    | 15.24         | 0.0         | С       | 0.92                   | 1                                |
| C-AB   | 0.15    | 5.52          | 0.4         | А       | 102                    | 153                              |
| C-A    |         |               |             |         | 331                    | 497                              |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 104                    | 156                              |

## Main Results for each time segment

#### 06:45 - 07:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 839                  | 0.005 | 4                      | 0.0                  | 0.0                | 6.470     | A                             |
| B-A    | 0.75                     | 0.19                       | 506                  | 0.001 | 0.74                   | 0.0                  | 0.0                | 14.261    | В                             |
| C-AB   | 74                       | 18                         | 819                  | 0.090 | 73                     | 0.0                  | 0.2                | 5.456     | A                             |
| C-A    | 282                      | 70                         |                      |       | 282                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |

## 07:00 - 07:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |  |  |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|--|--|
| в-с    | 5                        | 1                          | 834                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.512     | Α                             |  |  |
| B-A    | 0.90                     | 0.22                       | 492                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.655    | В                             |  |  |
| C-AB   | 97                       | 24                         | 856                  | 0.113 | 97                     | 0.2                  | 0.2                | 5.398     | А                             |  |  |
| C-A    | 327                      | 82                         |                      |       | 327                    |                      |                    |           |                               |  |  |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |  |  |
| A-C    | 102                      | 25                         |                      |       | 102                    |                      |                    |           |                               |  |  |

## 07:15 - 07:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 829                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.568     | A                             |
| B-A    | 1                        | 0.28                       | 474                  | 0.002 | 1                      | 0.0                  | 0.0                | 15.237    | С                             |
| C-AB   | 135                      | 34                         | 908                  | 0.148 | 134                    | 0.2                  | 0.4                | 5.380     | A                             |
| C-A    | 385                      | 96                         |                      |       | 385                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 124                      | 31                         |                      |       | 124                    |                      |                    |           |                               |

## 07:30 - 07:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 7                        | 2                          | 829                  | 0.008 | 7                      | 0.0                  | 0.0                | 6.569     | А                             |
| B-A    | 1                        | 0.28                       | 474                  | 0.002 | 1                      | 0.0                  | 0.0                | 15.238    | С                             |
| C-AB   | 135                      | 34                         | 908                  | 0.148 | 135                    | 0.4                  | 0.4                | 5.426     | A                             |
| C-A    | 385                      | 96                         |                      |       | 385                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 124                      | 31                         |                      |       | 124                    |                      |                    |           |                               |



## 07:45 - 08:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 5                        | 1                          | 834                  | 0.006 | 5                      | 0.0                  | 0.0                | 6.513     | Α                             |
| B-A    | 0.90                     | 0.22                       | 492                  | 0.002 | 0.90                   | 0.0                  | 0.0                | 14.656    | В                             |
| C-AB   | 97                       | 24                         | 856                  | 0.113 | 97                     | 0.4                  | 0.3                | 5.500     | А                             |
| C-A    | 327                      | 82                         |                      |       | 327                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 102                      | 25                         |                      |       | 102                    |                      |                    |           |                               |

## 08:00 - 08:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 5                        | 1                          | 839                  | 0.005 | 5                      | 0.0                  | 0.0                | 6.473     | А                             |
| B-A    | 0.75                     | 0.19                       | 506                  | 0.001 | 0.76                   | 0.0                  | 0.0                | 14.261    | В                             |
| C-AB   | 74                       | 19                         | 819                  | 0.091 | 74                     | 0.3                  | 0.2                | 5.519     | A                             |
| C-A    | 281                      | 70                         |                      |       | 281                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 85                       | 21                         |                      |       | 85                     |                      |                    |           |                               |



# 2032 + Development, PM

## **Data Errors and Warnings**

No errors or warnings

## **Junction Network**

#### **Junctions**

|   | Junction | Name     | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|---|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| Γ | 1        | untitled | T-Junction    | Two-way         | Two-way         | Two-way         |                       | 0.68               | Α            |

#### **Junction Network**

| Driving side | Driving side Lighting |      | Network LOS |  |
|--------------|-----------------------|------|-------------|--|
| Left         | Normal/unknown        | 0.68 | Α           |  |

## **Traffic Demand**

#### **Demand Set Details**

| ID  | Scenario name      | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) | Run automatically |
|-----|--------------------|------------------|----------------------|--------------------|---------------------|---------------------------|-------------------|
| D10 | 2032 + Development | PM               | ONE HOUR             | 15:45              | 17:15               | 15                        | ✓                 |

| Vehicle mix varies over turn | Vehicle mix varies over turn   Vehicle mix varies over entry |                | PCU Factor for a HV (PCU) |  |
|------------------------------|--|----------------|---------------------------|--|
| ✓                            | ✓  | HV Percentages | 2.00                      |  |

## **Demand overview (Traffic)**

| Arm             | Linked arm | Profile type | Use O-D data | Av. Demand (PCU/hr) | Scaling Factor (%) |
|-----------------|------------|--------------|--------------|---------------------|--------------------|
| Robinson Road N |            | ONE HOUR     | ✓            | 395                 | 100.000            |
| IOT Access Road |            | ONE HOUR     | ✓            | 58                  | 100.000            |
| Robinson Road S |            | ONE HOUR     | ✓            | 161                 | 100.000            |

## **Origin-Destination Data**

## Demand (PCU/hr)

|      | То              |                 |                 |                 |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|
|      |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |
| F    | Robinson Road N | 0               | 2               | 393             |  |  |  |  |
| From | IOT Access Road | 2               | 0               | 56              |  |  |  |  |
|      | Robinson Road S | 149             | 12              | 0               |  |  |  |  |

## **Vehicle Mix**

|      | То              |                 |                 |                 |  |  |  |  |
|------|-----------------|-----------------|-----------------|-----------------|--|--|--|--|
| From |                 | Robinson Road N | IOT Access Road | Robinson Road S |  |  |  |  |
|      | Robinson Road N | 0               | 50              | 32              |  |  |  |  |
|      | IOT Access Road | 0               | 0               | 4               |  |  |  |  |
|      | Robinson Road S | 82              | 9               | 0               |  |  |  |  |



## Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Q (PCU) | Max LOS | Av. Demand<br>(PCU/hr) | Total Junction<br>Arrivals (PCU) |
|--------|---------|---------------|-------------|---------|------------------------|----------------------------------|
| в-с    | 0.08    | 5.37          | 0.1         | А       | 51                     | 77                               |
| B-A    | 0.00    | 7.91          | 0.0         | А       | 2                      | 3                                |
| C-AB   | 0.03    | 6.73          | 0.0         | А       | 14                     | 21                               |
| C-A    |         |               |             |         | 134                    | 201                              |
| A-B    |         |               |             |         | 2                      | 3                                |
| A-C    |         |               |             |         | 361                    | 541                              |

## Main Results for each time segment

#### 15:45 - 16:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 42                       | 11                         | 794                  | 0.053 | 42                     | 0.0                  | 0.1                | 4.977     | A                             |
| B-A    | 2                        | 0.38                       | 492                  | 0.003 | 1                      | 0.0                  | 0.0                | 7.344     | A                             |
| C-AB   | 11                       | 3                          | 652                  | 0.017 | 11                     | 0.0                  | 0.0                | 6.568     | A                             |
| C-A    | 110                      | 28                         |                      |       | 110                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 296                      | 74                         |                      |       | 296                    |                      |                    |           |                               |

## 16:00 - 16:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| B-C    | 50                       | 13                         | 779                  | 0.065 | 50                     | 0.1                  | 0.1                | 5.135     | А                             |
| B-A    | 2                        | 0.45                       | 477                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.572     | Α                             |
| C-AB   | 14                       | 3                          | 657                  | 0.021 | 14                     | 0.0                  | 0.0                | 6.596     | A                             |
| C-A    | 131                      | 33                         |                      |       | 131                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 353                      | 88                         |                      |       | 353                    |                      |                    |           |                               |

## 16:15 - 16:30

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 62                       | 15                         | 759                  | 0.081 | 62                     | 0.1                  | 0.1                | 5.369     | А                             |
| B-A    | 2                        | 0.55                       | 457                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.914     | A                             |
| C-AB   | 18                       | 4                          | 665                  | 0.026 | 18                     | 0.0                  | 0.0                | 6.675     | A                             |
| C-A    | 160                      | 40                         |                      |       | 160                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 433                      | 108                        |                      |       | 433                    |                      |                    |           |                               |

## 16:30 - 16:45

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 62                       | 15                         | 759                  | 0.081 | 62                     | 0.1                  | 0.1                | 5.369     | Α                             |
| B-A    | 2                        | 0.55                       | 457                  | 0.005 | 2                      | 0.0                  | 0.0                | 7.914     | A                             |
| C-AB   | 18                       | 4                          | 665                  | 0.026 | 18                     | 0.0                  | 0.0                | 6.734     | A                             |
| C-A    | 160                      | 40                         |                      |       | 160                    |                      |                    |           |                               |
| A-B    | 2                        | 0.55                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 433                      | 108                        |                      |       | 433                    |                      |                    |           |                               |



## 16:45 - 17:00

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| в-с    | 50                       | 13                         | 779                  | 0.065 | 50                     | 0.1                  | 0.1                | 5.138     | Α                             |
| B-A    | 2                        | 0.45                       | 477                  | 0.004 | 2                      | 0.0                  | 0.0                | 7.573     | А                             |
| C-AB   | 14                       | 3                          | 657                  | 0.021 | 14                     | 0.0                  | 0.0                | 6.714     | Α                             |
| C-A    | 131                      | 33                         |                      |       | 131                    |                      |                    |           |                               |
| A-B    | 2                        | 0.45                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 353                      | 88                         |                      |       | 353                    |                      |                    |           |                               |

## 17:00 - 17:15

| Stream | Total Demand<br>(PCU/hr) | Junction<br>Arrivals (PCU) | Capacity<br>(PCU/hr) | RFC   | Throughput<br>(PCU/hr) | Start queue<br>(PCU) | End queue<br>(PCU) | Delay (s) | Unsignalised level of service |
|--------|--------------------------|----------------------------|----------------------|-------|------------------------|----------------------|--------------------|-----------|-------------------------------|
| В-С    | 42                       | 11                         | 794                  | 0.053 | 42                     | 0.1                  | 0.1                | 4.981     | А                             |
| B-A    | 2                        | 0.38                       | 492                  | 0.003 | 2                      | 0.0                  | 0.0                | 7.344     | А                             |
| C-AB   | 11                       | 3                          | 652                  | 0.017 | 11                     | 0.0                  | 0.0                | 6.625     | A                             |
| C-A    | 110                      | 28                         |                      |       | 110                    |                      |                    |           |                               |
| A-B    | 2                        | 0.38                       |                      |       | 2                      |                      |                    |           |                               |
| A-C    | 296                      | 74                         |                      |       | 296                    |                      |                    |           |                               |





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