Gatwick Airport Northern Runway Project

Transport Assessment Annex B – Strategic Transport Modelling Report

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Appendices

Executive summary

This document, the DCO **Transport Assessment Annex B – Strategic Transport Modelling Report** is Annex B of the **Transport Assessment** (TA) (Doc Ref. 7.4), which forms part of the Development Consort Order (DCO) application prepared on behalf of London Gatwick Airport ('Gatwick'). This provides the findings of the assessment process for the proposal to make best use of Gatwick Airport's existing runways (referred to within this report as the "Project'). The Project proposes alterations to the existing northern runway which, together with the lifting of the current restrictions on its use, would enable dual runway operations. The Project includes the development of a range of infrastructure and facilities which, with the alterations to the northern runway, would enable the airport passenger and aircraft operations to increase.

This report provides the detail around the suite of transport models that have been used to develop a sustainable surface access strategy for the future of the airport and help assess the impacts of the proposed development on the surface transport network. The report provides a summary of the rationale for the development of the transport models and technical detail on these models.

Model development

The Gatwick Strategic Model, which is known as GHOST (Gatwick's Holistic Overview of Strategic Transport) was developed in order for Gatwick to assess the impact of any potential future airport growth scenarios on the transport network.

There are three core model components to the GHOST model which align to the modelling structure outlined in TAG (Unit M1.1).

- The demand model – capable of reflecting changes in the distribution and mode of non-airport demand and the mode of travel for airport demand (employees and passengers).
- Assignment models – capable of establishing the likely routes taken by airport and non-airport demand and producing costs for the demand model.
- Simulation models – used for the detailed operational assessment of key pieces of infrastructure at and adjacent to the airport.

GHOST is made up of:

- a highway assignment model in SATURN;
- a separate rail and bus/coach assignment model in Emme;
- a variable demand model in Emme; and
- a Gatwick Mode Choice model, known as GSAM.

GHOST has been developed using available model data including:

- the South East Regional Traffic Model (SERTM) provided by National Highways;
- PLANET South provided by the Department for Transport (DfT);
- Crawley Local Transport Model (CLTM);
- London Highway Assignment Model (LoHAM) from Transport for London (TfL); and
- a wealth of existing data sources including but not limited to traffic count data from local authorities and WebTRIS, surveyed traffic count data, journey time data, distribution data Green Book data, timetable data, Gatwick employee survey data and Civil Aviation Authority (CAA) data.

All the elements of the strategic transport model have been through development, calibration and validation using the appropriate TAG guidance. The model is deemed appropriate for assessment for the DCO and associated impacts of the development at Gatwick and throughout the review of the models to support the DCO application stakeholders have been able to review and interrogate detailed statistics on the model.

Forecast methodology

The model has been developed to a June 2016 base year and considers the following assessment years to analyse the peak construction and the operation of the airport:

- 2018 – Forecast to support environmental modelling workstreams;
- 2029 – First Full Year of Operation;
- 2032 – Interim Assessment Year;
- 2038 – Interim Assessment Year, to support environmental modelling workstreams; and
- 2047 – Ultimate Year.

In terms of background growth assumptions in accordance with TAG Unit M4, an uncertainty log was developed for both demand (eg developments) and supply (eg new transport infrastructure). The demand uncertainty log was used as the basis for reviewing assumptions at a fine level of spatial detail in the Area of Detailed Modelling (AoDM). National Trip End Model (NTEM) assumptions were updated accordingly, and the most current local plan assumptions were used as the basis for the growth trajectory in each local authority district. These were further extrapolated beyond the relevant local plan period adopting the assumptions in the NTEM.

The forecasts prepared by Gatwick for the Northern Runway and Baseline Cases adopt a 'No Heathrow R3' assumption, as providing a robust assessment of local conditions. Therefore, the Core assessment cases for the Northern Runway Project are as follows:

- Gatwick Future Baseline with no Heathrow Third Runway (R3); and
- Gatwick Northern Runway or "With Project", which assumes the NRP opens in 2029 and Heathrow R3 does not come forward.

Growth in passengers, employees and cargo for both cases and all assessment years were developed by ICF (Gatwick's aviation forecasting consultant) and used in the modelled scenarios. Additional growth in servicing vehicles to/from the airport has been assumed alongside indirect and catalytic job growth due to the NRP, which was provided by a third-party consultant on behalf of Gatwick.

The strategic model includes measures around the Surface Access Commitments (SACs) (**ES Appendix 5.4.1: Surface Access Commitments** Doc Ref. 5.3), most notably increases in forecourt and parking charges and investment in sustainable modes. In the Future baseline, the public transport mode share for air passenger surface access is forecast to rise to 52%; and in the With Project case (where further investments are made in public transport and higher charges applied to car users) to 56% by 2047.

In terms of employees, the strategic model shows that a sustainable transport mode share of around 55% by 2047 is achievable.

Even with increases in sustainable mode share, the modelling also assumes proposed highway mitigation is in place in the 'with Project' scenarios in 2032, 2038, and 2047. Highway works are proposed as part of the Project to both the South Terminal and North Terminal roundabouts, to improve capacity and mitigate against significant effects, with additional improvement works also proposed at the Longbridge Roundabout. The highway works are also required to cater for background growth, which would have a negative impact on airport operations without mitigation. Since the Preliminary Environmental Information Report (PEIR), the final designs and details of the improvement works have been the subject of refinement, with further road traffic assessment and detailed engagement with highway authorities, including National Highways.

Core scenario

Highway network performance summary

In the Future baseline, annual average public transport mode share for air passenger surface access is forecast to rise to 52%; and in the With Project case (where further investments are made in public transport and higher charges applied to car users) to 56% by 2047. As improvements are made to local public transport, and Gatwick charges are applied to single-occupancy commuter car parking (With Project case only), the car solo share is forecast to drop to 50% in Future baseline and 45% With Project.

The impact of the Project compared to the Future baseline on the highway network across five performance areas has been assessed by considering the AADT, journey times, Volume to Capacity Ratios, and a Magnitude of Impact metric.

From 2016 to 2047 there are forecast increases in traffic flows within the Future baseline scenarios. Consequently, congestion and travel times increase across the network, particularly on the Strategic Road Network (SRN) as a consequence of the growth projected and in the absence of further schemes introduced beyond those already committed in investment plans.

The With Project scenario shows increases in flows on the M25 and M23 compared to the Future baseline. Despite this growth, the Project has minimal impact on journey times across the network, but also results in a reduction in some journey times on routes past the airport as a result of the introduction of the highway mitigation which provides a step change in capacity through the M23 Spur corridor.

All of these local impact areas are examined in further detail in local VISSIM microsimulation modelling, which is reported in the TA.

Public transport network performance summary

From 2016 to 2047 there is an increase in the rail and bus/coach share, and this is increased further With Project.

In the Future baseline, the rail related load factors increase such that there is increased standing on the Brighton Mainline, and for longer than is observed in the base. There is an increase in the amount of standing in the With Project scenario, although this is not significant, and only from 2038 onwards northbound in the AM period, and from 2032 in the southbound PM period.

There are around 5 more standers per carriage forecast in the With Project case than in the baseline in the worst hour in the peak direction. The standing forecast is well within the standing capacity of the trains. The Thameslink Class 700 trains are designed for standing in the peak hours. The demand forecast takes no account of the Covid pandemic and therefore the volumes of background rail demand may be over-stated in all future years.

There is no material crowding forecast for the Arun Valley Line and the North Downs Line.

Construction scenarios

Two scenarios have been modelled to assess the impact of construction at two different phases of the development being delivered. These scenarios reflect:

- the airfield and airport works; and
- the effect of the highway construction.

The airfield construction scenario adds 33 vehicles (HGVs and LGVs) in and out an hour along the M23 Spur, and 150 construction worker vehicles in the morning peak hour. These changes are small and no significant impacts are shown by the model.

Highway construction has been modelled to represent the period of the overall construction programme (which could be up to 8 months) when there is greatest capacity constraint. The modelling includes North Terminal, South Terminal and Longbridge Roundabout. This includes narrowing of lanes and lane closures in the vicinity of the terminal roundabouts. The modelling showed that the constraint on the highway network at both South and North Terminal roundabouts leads to slightly lower numbers of trips using the key routes in/out of the airport via the M25 and M23 corridors across the day.

Additionally, there are increases in AADT through Crawley where vehicles that would normally use the Spur use alternate routes to avoid the constraints on the Spur and terminal roundabouts which are causing congestion/delays. However, the temporary impact on junction operation is limited with the main affects being seen immediately adjacent to the airport.

Cumulative development scenarios

Three reasonably foreseeable developments (Horley Business Park, Gatwick Green, and West of Ifield) have been tested separately from the Core scenario modelling based on discussions with Local Authorities around their uncertain status and given their location and scale.

The overall pattern of impact shown in the Core modelling is retained in these scenarios although there are a small number of junctions in the vicinity of the airport and at the M23 Junction 8/M25 Junction 7 showing impacts as a consequence of the additional growth.

The three developments have no impact on air passenger mode shares, with Rail having the highest mode share at 45%, as in the Core Modelling. There is no change in mode share greater than 1.2 percentage points for each mode, with a small reduction in car mode compared to the With Project scenarios.

Conclusion

From a highway perspective, the SACs proposed, and the highway mitigation measures included as part of the Project result in journey times which are not notably affected between the Future baseline and With Project scenarios, with minimal changes to end-to-end journey times.

There are some areas affected with impacts flagged through the Magnitude of Impacts assessment, particularly near Gatwick. All of these local impact areas are examined in further detail in local VISSIM microsimulation modelling, which is reported in the TA. Locations further from the airport are also further examined as part of the TA.

The airfield construction scenario adds a small number of construction vehicles and construction worker vehicles during peak hours. These changes, reflected in the highway model, give rise to no significant impacts.

Highway construction has been modelled to represent the period of the greatest capacity restraint on the network from the overall construction programme. The modelling shows that the constraint on the highway network at both South and North Terminal roundabouts leads to slightly lower numbers of trips using the key routes in/out of the airport via the M25 and M23 corridors across the day.

In terms of rail, the Project will increase the number of rail passengers but based on the line loading, seated loading factor and standing capacity assessments, no significant increase in crowding on rail services is expected as a result of the Project.

Given the adaptability of bus and coach provision, it is not considered necessary to model crowding on bus and coach services explicitly within the modelling framework. However, the assessment includes service frequency and quality as a measure of public transport amenity. The bus and coach assessment indicates that additional peak period services or network changes include consideration of new or revised routes, provides for increased patronage by both employees on local bus services and air passengers on coaches. Increased service frequencies provide improved amenity for non-airport users also, benefitting both local communities and businesses by improving connectivity.

1 Introduction

1.1 Background

1.1.1 This document, the Strategic Transport Modelling Report, is Annex B of the TA, which forms part of the DCO application prepared on behalf of London Gatwick Airport ('Gatwick'). This provides the findings of the assessment process for the proposal to make best use of Gatwick Airport's existing runways (referred to within this report as 'the Project'). The Project proposes alterations to the existing northern runway which, together with the lifting of the current restrictions on its use, would enable dual runway operations. The Project includes the development of a range of infrastructure and facilities which, with the alterations to the northern runway, would enable the airport passenger and aircraft operations to increase. Further details regarding the components of the Project can be found in the Section 7 of this report.

1.2 Purpose

1.2.1 This report sets out the development of the model used to enable forecast transport modelling to be undertaken to understand the effects on the transport system from the change in activity at Gatwick.

1.2.2 Gatwick developed a suite of transport models to help shape a sustainable surface access strategy for the future of the airport. The models enable different travel policies at the airport to be assessed to help reduce the impact of increased Air Traffic Movements (ATMs) on the surface transport network.

1.2.3 The models were developed and refined to support Gatwick's NRP and enable the assessment of environmental effects in line with national guidance set out in the IEMA (Institute of Environmental Management and Assessment) Environmental Impact Assessment (EIA) guidance and in the Department for Transport's (DfT) Transport Analysis Guidance (TAG).

1.2.4 This Strategic Transport Modelling Report sets out the rationale for the development of the transport models, key sources of data, and the calibration performance of the model. The forecasting information covers the key assumptions and provides an assessment of the potential effects of the scenarios set out above. This report does not cover forecasting using the VISSIM microsimulation model, which also forms part of the Gatwick model suite. The **Transport Assessment Annex C – VISSIM Forecasting Report** (Doc Ref. 7.4) is provided.

1.3 Stakeholder engagement

1.3.1 Throughout the development of the transport models, technical aspects have been discussed with the relevant stakeholders, including the DfT, National Highways (NH), Surrey County Council (SCC), West Sussex County Council (WSCC), Network Rail (NR) and TfL. This has involved the sharing of model development technical notes and data collection/validation reports for the base year models.

1.3.2 Outputs and findings from the forecast transport modelling have also been shared and discussed with these parties in detail. Summary data and information shared with the relevant district councils and stakeholders engaged through the Transport Working Group (TWG) which is described in more detail in the TA.

1.3.3 The content presented in this report has been shared and discussed with stakeholders through a number of workshops prior to the DCO submission. Stakeholder engagement meetings are recorded in Section 12.3 of the **Environmental Statement** (ES) (Doc Ref. 5.1)

1.4 Structure of report

1.4.1 This report is set out as follows:

- Section 2 provides an outline of the modelling framework, the range of interventions to be tested and the requirements for the models developed.
- Section 3 sets out the key features of the models, this covers the general architecture of the models developed, the coverage, time periods and segmentation.
- Section 4 lists out the types of data that were collected and collated on behalf of developing the models.
- Section 5 describes the model development approach.
- Section 6 describes the forecasting methodology, approach to the outputs (such as those of the environmental assessment), and assessment of effects approach.
- Section 7 sets out the specific Northern Runway proposals in the context of the strategic model assumptions.
- Section 8 describes the scenarios being modelled.
- Section 9 describes the development of the Uncertainty Log.
- Section 10 describes the reference case forecast results and analysis.
- Section 11 describes the potential network (both Highway and public transport) performance in the Core Scenario - Future baseline.
- Section 12 describes the potential network (both Highway and public transport) performance in the Core Scenario – With Project.
- Section 13 evaluates the construction scenarios including airfield construction activity and the construction of the highway mitigation.
- Section 14 describes the potential network (both Highway and public transport) performance in the Cumulative Development scenarios.
- Section 15 provides an overall summary and conclusion of the forecast work undertaken.

2 Modelling framework and assessment requirements

2.1 Model uses

2.1.1 The Gatwick Strategic Model, known as GHOST was developed in order for Gatwick to assess the impact of any potential future airport growth scenarios on the transport network. It allows Gatwick to understand the impacts of changes in transport system capacity or performance on airport accessibility and the modes of transport used by passengers and employees.

2.1.2 The GHOST model was designed to specifically test proposals that include:

- growth in passenger numbers;
- change in flight schedules (such as the mixture of long haul and short haul flights, change in arrival and departure profiles and aircraft size) affecting passenger numbers and demographics;
- growth in staff numbers;
- changes to surface transport access and behaviour;
- responses to changes in travel cost over time; and
- surface access designs.

2.1.3 Additionally, the model is capable of including the potential impacts of:

- Committed proposals for upgrades to the wider transport system (eg highway junction improvements, rail service upgrades, bus frequency changes).
- Committed development proposals with the local area covering housing, employment or mixed-use development sites.
- The model is capable of providing traffic forecasts and network speed impacts that are required for environmental assessments covering noise and air quality.

2.2 Interventions to be tested

2.2.1 The previous work undertaken for the Gatwick Second Runway proposals, in response to the Airports Commission, identified a range of potential transport schemes that could be required to support growth at Gatwick. The strategic model was developed in order to be able to assess the impact of these interventions. These included:

- highway widening;
- junction improvements, including grade separation;
- signal timings/controller change;
- changes to rail and bus/coach services;
- public transport service frequency changes and speed changes;
- parking regime changes; and
- pricing/fare changes (including access charges and car parking).

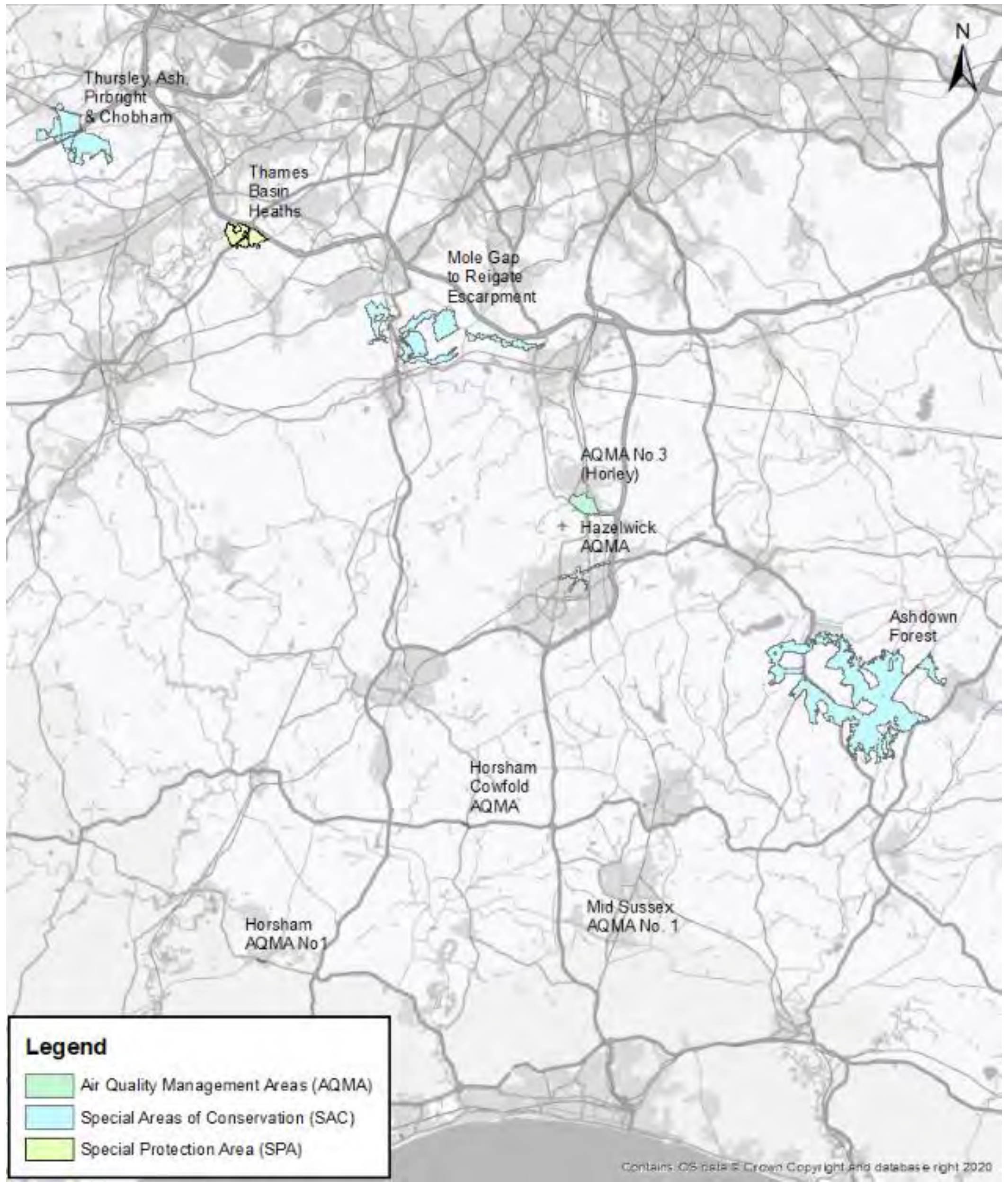
2.3 Key requirements

2.3.1 The core requirement of the GHOST model is a capability to assess the transport network affected by Gatwick in order to assess the impact of future changes at the airport.

2.3.2 Considering the specifics of potential changes at the airport and the transport system serving it, the following requirements were used as the basis for developing the model:

- multi-modal capability with highway, public transport (rail and bus/coach) modes represented;
- time periods that take account of peaks at Gatwick and peaks on the surrounding road and rail networks, which in some cases may differ;
- separate segmentation for airport passengers and employees in order to be able to update passengers and employee numbers, their distribution, and represent the different perceptions of mode choice for each group;
- inclusion of goods traffic movements consistent with airport operations, services and airborne cargo demand;
- the highway model includes detailed junction modelling covering a suitable area, and takes account of flow metering and blocking back effects to accurately reflect delays and potential upstream effects;
- demand modelling functionality to represent the potential behavioural responses to changes in travel costs, such as changes in trip distribution and mode, for non-airport users;
- sufficient detail at the airport is included to be able to provide inputs into local more detailed simulations models that model the detailed operation of key pieces of infrastructure (eg capable of assessing detailed highway junction performance, or the operation of Gatwick Airport Station); and
- inclusion of sufficient spatial detail and accuracy to facilitate environmental assessments for noise and air quality. Figure 1 shows the environmentally sensitive areas in the local area highlighting the potential relevance of model detail in these areas.

Figure 1: Environmentally sensitive areas near to Gatwick



3 Key features of models

3.1 Overall modelling architecture

3.1.1 Figure 2 outlines the overall modelling structure that the GHOST Model follows. This aligns with the approach in TAG (Unit M1.1). It outlines three core model components:

- The demand model – capable of reflecting changes in the distribution and mode of non-airport demand and the mode of travel for airport demand (employees and passengers).
- Assignment models – capable of establishing the likely routes taken by airport and non-airport demand and producing costs for the demand model.
- Simulation models – used for the detailed operational assessment of key pieces of infrastructure at and adjacent to the airport.

3.1.2 The demand model consists of two main components, a non-airport demand model capable of forecasting how background travel on the system will behave in response to future travel costs changes (eg increasing congestion), and an airport demand model structured to consider the different travel characteristics of both passengers and employees. The demand models take as inputs the forecast changes in travel demand for both background growth and growth at the airport. They forecast, based on the change in travel costs relative to the base models, how travellers may change their behaviour. These behavioural responses include change in destinations (ie choosing to travel to different shops from the base year) or modes (eg switching from car to public transport).

3.1.3 For the airport demand model, specific consideration is given to the different modes of access used by passengers and employees and specifically the key influences on their decision making, including parking costs, forecourt charges, location of parking and the availability and quality of public transport services. The development of the demand models is covered in a technical note provided at Appendix A.

3.1.4 There are three assignment models covering the road network, rail network and the bus and coach network serving the airport. These provide the basis for determining the routes that travellers are likely to take in the network and provide the costs that are used in the demand models.

3.1.5 The road network model was derived from National Highway's SERTM, Crawley Transport Model (CRTM) and TfLs LoHAM.

3.1.6 The rail model was derived from DfTs PLANET South model which includes the London rail and tube network ensuring there that London connections are considered.

3.1.7 The bus and coach network model was developed by Gatwick from timetable data reflecting the services and wider connections linking the airport to the local area and urban centres across the country.

3.2 Source model overview: Use of existing models

3.2.1 The main objective of the model development is to create a suite of models that covers the requirements listed in Chapter 2.

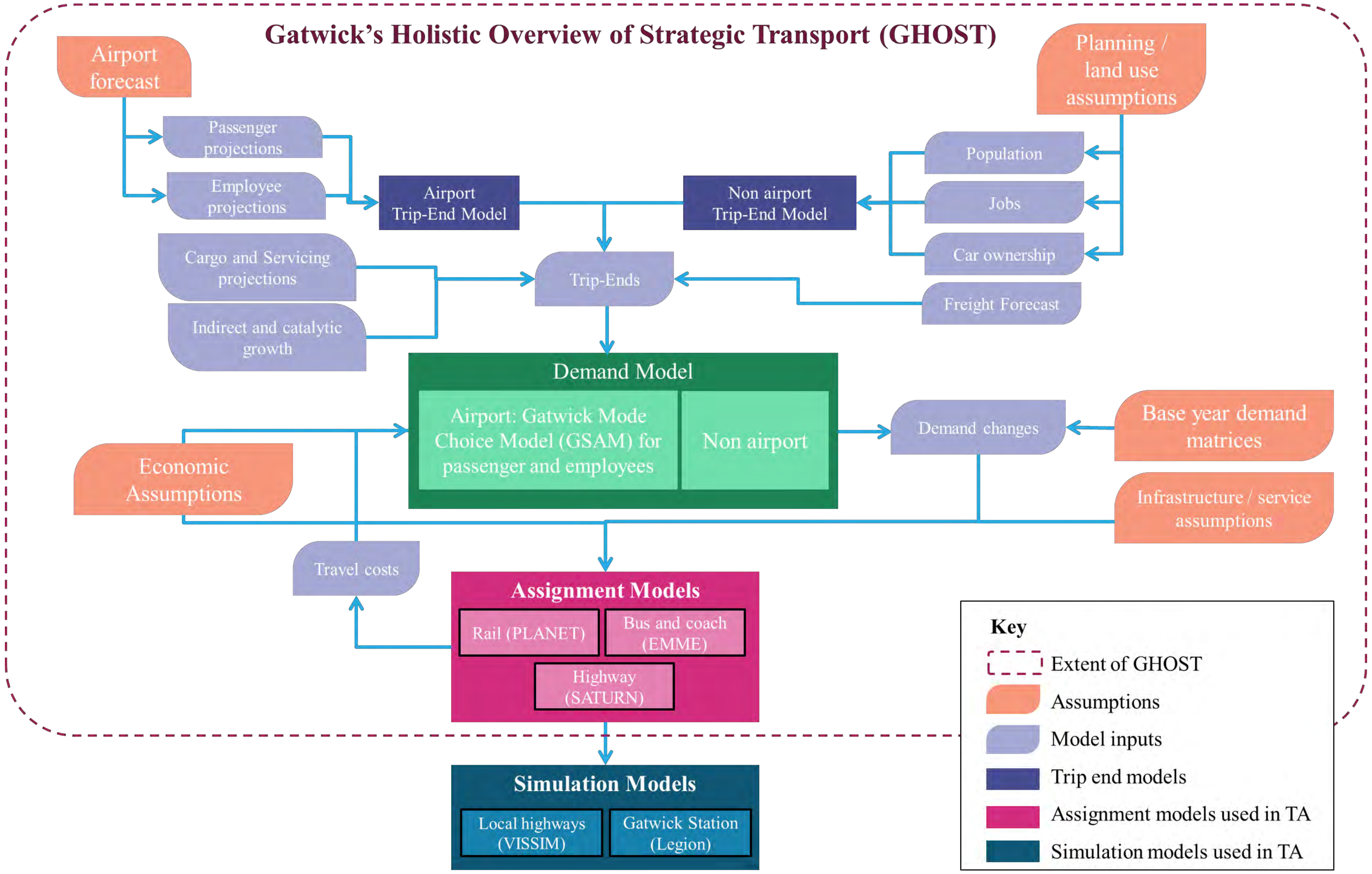
3.2.2 A number of pre-existing models have provided useful source data to support the development of the GHOST model. The approach was therefore to make best use of existing model components, along with the incorporation of relevant data, to ensure the approach aligns with guidance within the DfTs TAG. The key source models are summarised below.

3.2.3 Other models such as SCCs transport model were considered but on review were not considered appropriate for developing a model of the Gatwick area due to incompatibility of software.

South East Regional Traffic Model (SERTM), Version 1, DF3

3.2.4 National Highways (then Highways England) commissioned the development of five regional transport models in 2015, one of which covers the South East region. The South East model covers the South East England region which includes Gatwick and the surrounding area with a modelled base year of March 2015.

Figure 2: Model architecture



3.2.5 These regional models were developed in order to assist in the assessment of Road Investment Strategy (RIS) schemes. The nature of the regional model means that there is no single geographic area of focus, and therefore to use the model for a local study, local area updates and recalibration/validation was required.

3.2.6 Key features of SERTM are:

- base year of March 2015;
- average hour model for the AM, IP and PM periods;
- 2,306 zones based on individual and aggregated MSOAs (Middle layer Super Output Areas); and
- large urban areas have been coded as "fixed speed" which includes London, Crawley and Horsham.

London Highway Assignment Model (LoHAM) Version P4

3.2.7 The LoHAM is owned by TfL. London is the area of focus with detailed simulation network inside the M25. At the time of developing the GHOST model TfL were creating an updated model with a base year of November 2016 which wasn't yet complete, with only the initial networks available for use during the development stage.

3.2.8 The Highway Assignment Model (HAM) is fed by TfLs demand model, known as the London Transportation Studies (LTS) model, with a separate public transport model, Railplan, used to assess the public transport network.

Crawley Local Transport Model (CLTM)

3.2.9 The CLTM is owned by WSCC. The model focuses its area of detailed modelling on the town of Crawley with some extension of the simulation network coding to the north to account for trips between Crawley and both Gatwick and Horley. The model has a base year of November 2015.

3.2.10 The SATURN highway assignment model is supported by a spreadsheet-based trip-end and mode choice model in order to assess mode share in terms of public transport and active modes. This methodology means that other demand responses such as time period choice are not considered.

PLANET South (PS)

3.2.11 PLANET South (PS) is an AM peak rail model covering the south of England with a base year of 2011. PS is a member of the PLANET group of models, owned by the DfT. It is focussed on national rail (Train Operating Companies (TOCs)); but London Underground, Docklands Light Rail (DLR) and Croydon Tramlink services are also included to provide London access and cross London connectivity for rail trips.

3.3 Model platform

3.3.1 This section outlines the different software components that have been adopted to make best use of the available models in the development of the GHOST model.

Highway Assignment Model (HAM)

3.3.2 The South East region and the area around Gatwick in particular experience congestion during the peak periods. This, along with the network detail needed to assess widening and junction improvements requires a model platform that can assess these types of interventions.

3.3.3 The HAM was developed in the SATURN software, which is the most appropriate software for strategic highway modelling and is the software used by all of the source highway models. SATURN allows flow metering and blocking back to be modelled as well as achieving good convergence over large areas where detailed simulation is required for all junction types.

Public transport assignment model

3.3.4 Emme was used for the public transport models. Emme is a well-established and reliable software for public transport assignment, including modelling impacts of in-vehicle crowding on passenger route choice. Both TfL and DfT have their principal rail models in Emme software (Railplan and PS respectively) and its strengths and limitations are well understood.

Variable Demand Model (for non-airport movements)

3.3.5 The highway and public transport parts of the model are linked through a TAG aligned VDM. Two options were considered: adapting the SERTM VDM which is coded in DfT software DIADEM; or developing an equivalent VDM in Emme scripting software for a more bespoke application.

3.3.6 Following a review, it was determined that an Emme option was preferred to allow for an improved interface between all component model parts, allowing for greater control over methodology and quality control.

Airport Demand Models

3.3.7 For consistency with other parts of the model and for efficiency (fast matrix calculations) the airport demand models were implemented in the Emme software.

3.3.8 The Gatwick Surface Access Models (GSAM) are mode choice models for travel to/from Gatwick. GSAM is a key component of the strategic model; its role is to forecast how the mode choices of air passengers and airport employees change as transport supply (times and costs) change. It is comprised of two parts:

- an Air passenger model called GapSAM (Gatwick air passenger Surface Access Model); and
- an employee access model called GemSAM (Gatwick employee Surface Access Model).

3.4 Model coverage and network structure

Highway model coverage

3.4.1 SERTM was used as a basis for assessing the extent of the modelled area which is shown in Figure 3. The AoDM extends to the A27 in the south and Croydon in the North. The extent of the AoDM was determined through analysis of scale of the potential Affected Road Network (ARN) using SERTM by uplifting airport demand and reassigning to the base network to identify the ARN following the quantification method outlined in DMRB.

3.4.2 The Fully Modelled Area (FMA) includes the entire M25 and road network in London, however it should be noted that outside of the AoDM London is coded as a fixed speed network.

Public transport model coverage

3.4.3 The extent of the public transport models for both rail and local bus and coach are shown in Figure 4, Figure 5 and Figure 6 respectively. The rail model covers all national rail demand, stations and services in southeast England, while the bus/coach model covers demand for travel to and from Gatwick only.

3.4.4 It was deemed advantageous that the rail model should include rail demand for all London corridors given that travel to Gatwick for many movements requires cross-London travel. Therefore, full coverage of PS has been included. This covers a far wider area, including origins that have become directly linked to Gatwick by Thameslink in recent years, such as Stevenage, Peterborough and Cambridge.

3.4.5 The bus/coach model includes all local bus services that operate to, from or within the Crawley, Horley and Gatwick area. These are operated mainly by Metrobus plus a few by Southdown. The services include those that do not serve Gatwick such as Route 11 (Maidenbower) and 23 (Worthing) from which a transfer at Crawley bus station would be required to reach Gatwick.

3.4.6 The bus/coach model also includes all coach services operated by Megabus and National Express nationwide, plus other coach operators operating services at Gatwick.

Zoning System

3.4.7 Model zoning is an important part of the transport models as it dictates the areas that generate demand for travel and how they load onto the transport networks. The zoning structure used in the modelling differs between the highway and public transport models to respect the relevant detail in each and ensure the loading of demand on the networks is appropriate.

3.4.8 The GHOST Highway Assignment Model (HAM) base year zone system has 1,423 zones (referred to as the GHOST Zoning System). 1,105 of these are internal zones representing the Fully Modelled Area (FMA) and 30 are blank for forecasting. The rest of the zones are external zones, which represent the entire UK. The system has been developed based on SERTM zone system, which has 2,306 zones based on individual and aggregated MSOAs (Middle layer Support Output Areas). Gatwick itself has 10 zones in GHOST representing the different access points to the onsite airport locations. Additionally, 30 point zones have been added to represent off-site areas such as car parks and hotels that have a Gatwick trip-end. This same zone system is used for the bus model.

3.4.9 The demand model uses the GHOST zoning system. Base demand and skim inputs from rail (PS zoned) model are converted from PS to GHOST zoning system before use in the demand model.

Figure 3: GHOST HAM coverage and areas

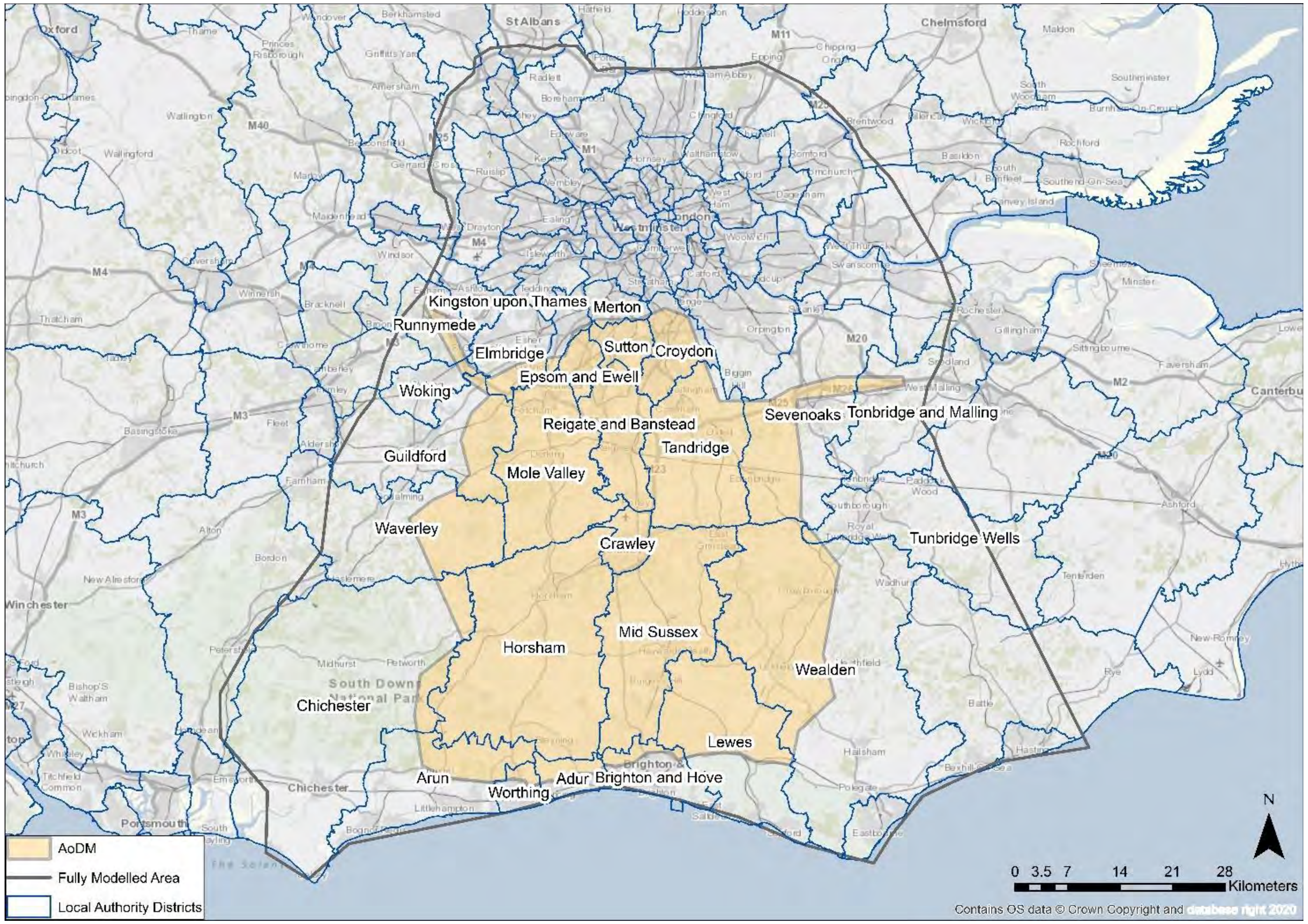


Figure 4: Rail network extent

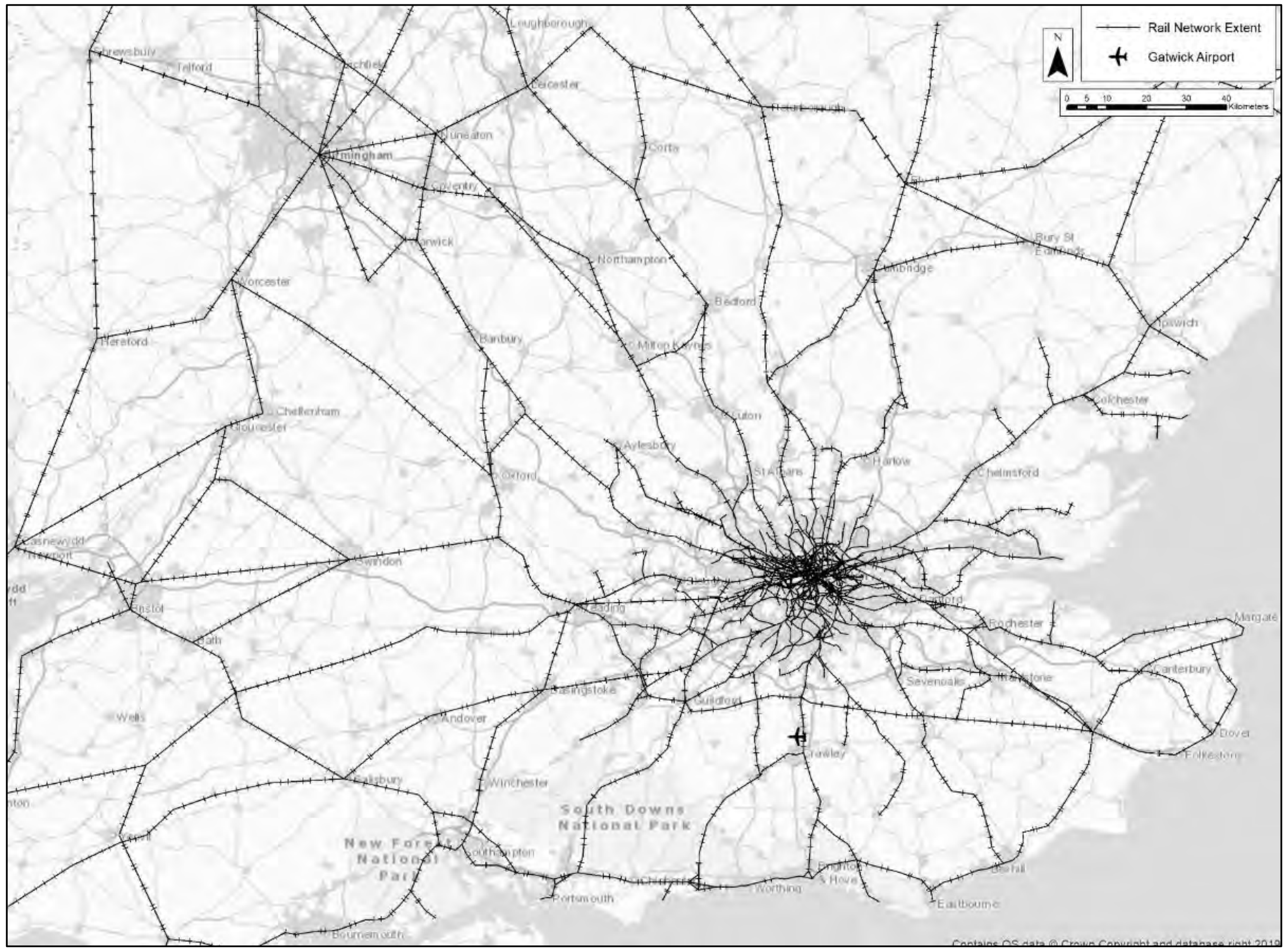
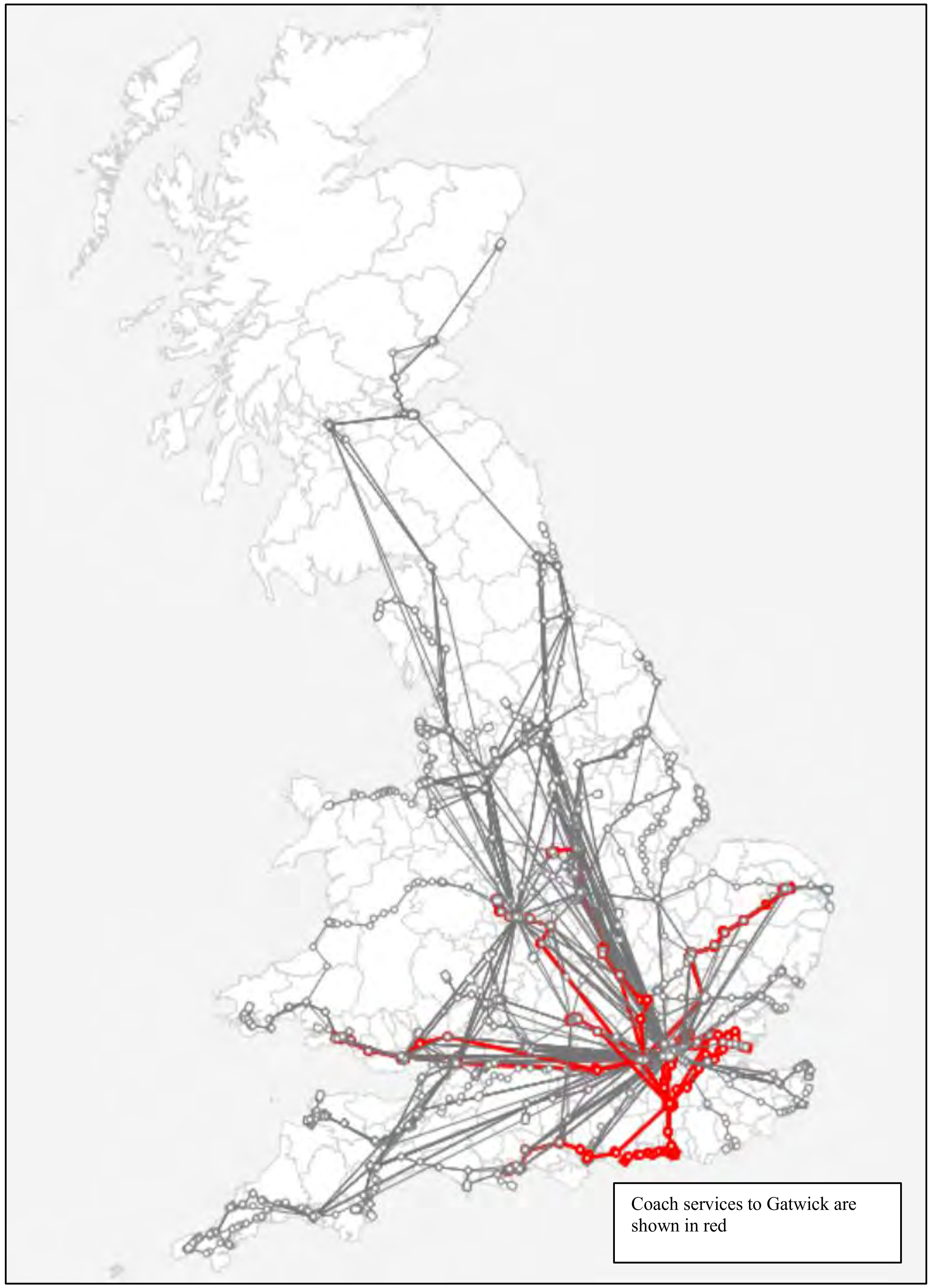


Figure 5: Local bus network

Figure 6: Coach network (interpeak)



3.5 Model base year

3.5.1 An extensive data collection exercise was undertaken by Gatwick in 2016 including traffic count data, mobile phone data, and an employee travel survey.

3.5.2 This also corresponds with typical road conditions prior to the M23 Smart Motorway programme, which started in 2018 and completed in September 2020, and the subsequent Covid pandemic. The M23 Smart Motorway programme resulted in roadworks and associated speed limit restrictions on the major strategic route to the airport.

3.5.3 From 2016 through to 2018 there was disruption (reduced and re-routed services, cancellations, short formed services) on the Southern rail network including Brighton Main Line due to reconstruction of London Bridge station and Thameslink Programme, followed by timetable disruption and industrial action. Analysis of growth rates showed that during this period there was lower than normal growth (or even contraction) and unreliable counts. Following discussion with train operator Govia Thameslink Railway (GTR) it was determined that 2016 demand would be estimated by interpolating between counts taken before and after the disruption. The resulting underlying growth rates were checked against other areas, that were not affected, and found to be similar.

3.5.4 Taking all the above into account, 2016 was therefore determined to be the most appropriate base year for the strategic model as it would replicate more normal conditions alongside the appropriate count datasets.

3.6 Time periods and seasonality

3.6.1 The interaction of airport and non-airport travel demand is complex in part driven by the seasonal variations in travel demand. The airport peak season occurs during the August period, and this corresponds to lower levels of commuting demand particularly on the rail and local road networks (between 2% and 6% lower than June). For the assessments supporting the PEIR, the modelling used June weekday non-airport demand and overlayed with airport busy day August demand. Although this was a robust case, it produced an unrealistic scenario, as high levels of commuting and peak season airport conditions do not tend to occur at the same time.

3.6.2 For the assessments contained in this chapter, to reflect a more reasonable scenario, June average weekday conditions for non-airport demand have been overlayed with a peak weekday in June airport demand. This represents the robust conditions anticipated during non-school holiday periods of the year with daily airport demand representing 93% of weekday conditions that may occur. Comparing the busy August day in PEIR with the revised June assumption, the June busiest peak weekday is 3.5% lower than the August busy day. As the air traffic forecasts assume more 'busy' days in the future, the difference between the June peak day and August peak day reduces in future years to between 1% and 2%. On this basis, the revised approach is considered more appropriate and provides a reasonable robust case for the purposes of the assessments for the Project.

3.6.3 In addition to analysing the seasonality profiles, road traffic count sites on both the strategic and local road network were analysed to understand the peak flows on the highway network. The analysis concluded that in the morning peak period there were distinct peak hours on the SRN and local road networks, in order to assess the peak impact upon the network two separate hours therefore needed to be modelled. In the evening peak period, SRN and local road network profiles are similar and therefore an average hour is most representative of typical conditions.

3.6.4 Therefore, the time period definitions for the HAM are:

- AM Peak Hour 1 (AM1) – representing the peak in flows on the SRN network between 07:00 – 08:00;
- AM Peak Hour 2 (AM2) – representing the peak in vehicles on the local road network between 08:00 – 09:00;
- Inter Peak Average Hour (IP) – representing an average hour flow between 09:00 – 16:00;
- PM Average Hour (PM) – representing an average hour flow between 16:00 – 18:00; and
- Off Peak Average Hour (OP) – representing an average hour flow between 18:00 – 07:00.

3.6.5 It should be noted that the VDM has the same periods as the HAM except that periods AM1 and AM2 were combined into a single AM Peak period. However, the public transport models and GSAM have the following time periods:

- AM Peak – representing the period 07:00-09:00;
- Interpeak – representing the period 09:00-16:00;
- PM Peak– representing the period 16:00-18:00;
- Off Peak 1 – representing the period 18:00-24:00;
- Off Peak 2 – representing the period 00:00-04:00; and
- Off Peak 3 – representing the period 04:00-07:00.

3.6.6 The three off peak periods have been selected to reflect the three very different levels of service to/from Gatwick in the off-peak: during Off Peak 1 (evening) there is good level of service and high public transport mode share; in Off Peak 2 (night) there is little demand and most rail and bus lines have no service; and Off Peak 3 (early morning) when a reduced service operates and there is low public transport mode share but significant airport demand.

3.7 Segmentation

3.7.1 The following level of segmentation has been applied in the highway assignment model:

- car – employers' business;
- car – commute;
- car – other;
- car – Gatwick employees;
- car – Gatwick passengers;
- Light goods vehicles (LGVs); and
- Heavy goods vehicles (HGVs).

3.7.2 In the VDM the segments are:

- home-based work (commute);
- home-based employers business;
- non-home-based employers business;
- home-based other;
- non-home-based other;
- LGV (fixed); and
- HGV (fixed).

3.7.3 The rail assignment has been segmented by purpose as in the existing PS model: business, commute and leisure; and the bus/coach assignment will only include assignment of airport passengers and employees.

3.7.4 The airport passenger and employee mode choice models have adopted a segmentation that is appropriate to airport passengers and employees. For air passengers the segmentation has the same categories used in several existing SE England airport choice models: UK-resident business, UK-resident leisure, UK-non-resident business, UK-non-resident leisure.

3.8 PCU values

3.8.1 The PCU values used for GHOST model are the same as those used for the RTM models. As Table 1 shows, a value of 2.5 was used for heavy vehicles in the assignment.

Table 1: PCU values by vehicle type

	Car	LGV	HGV
PCU Value	1.0	1.0	2.5

3.9 Assignment methodology

Highway assignment

3.9.1 The assignment procedure used for the highway model is an interaction between an equilibrium assignment and a junction delay calculation, distributing demand according to Wardrop's first principle of traffic equilibrium:

"*Under equilibrium conditions traffic arranges itself in congested networks in such a way that no individual trip makers can reduce his path costs by switching routes*"

3.9.2 This is implemented in SATURN based on the Frank-Wolfe Algorithm, which employs an iterative process. The process is based on successive 'All or Nothing' iterations, which are combined to minimise an 'Objective Function'. The travel costs are recalculated after each iteration and compared to those from the previous iteration. The process is terminated once successive iteration costs have not changed significantly. The process enables multi-routeing between any origin-destination pair.

3.9.3 The AM models both utilise the PASSQ function in SATURN. This is a mechanism to pass queues over from a previous time period, and GONZO is a factor applied to a matrix for this assignment.

- the AM1 has a PASSQ assignment to represent the period 06:00 – 07:00 with a GONZO factor of 1 (ie full demand from 07:00 – 08:00); and
- the AM2 model uses the AM1 assignment as its PASSQ.

Public transport assignment

3.9.4 The public transport assignment is undertaken using the assignment algorithm of the Emme software and in the case of rail, the crowding functions of PS. Separate assignments are undertaken for rail (national rail, London Underground, DLR and Croydon Tramlink) and bus (local bus and scheduled coach). Trips that use both (eg local bus then rail) are treated as rail trips.

3.9.5 Routing through the network depends on the items included in the generalised cost function, which are as follows:

- Access time to bus stop/rail station;
- waiting time at the bus stop/rail station;
- in-vehicle time;
- boarding/transfer penalty;
- interchange walking time;
- crowding penalties (peak periods only; rail only); and
- egress time from final bus stop/rail station to destination.

3.9.6 This is a standard approach for modelling public transport except in the one respect that we include modelling of crowding in the peak rail assignments using the methodology inherited from the

PS model. This is appropriate to modelling rail route choice and generalised costs in peak times in the London area.

3.9.7 Fares do not influence the assignment routing but are included in generalised costs for the variable demand and airport mode choice models.

3.10 Generalised cost formulation and parameter values

3.10.1 The generalised costs in the HAM include both the monetary (ie fuel cost and vehicle operating cost) and non-monetary (ie travelling time) costs of a journey. Parameters are input for individual user classes. Monetary values are input to SATURN as pence per kilometre (PPK) and non-monetary are input as pence per minute (PPM).

3.10.2 These costs interact to affect route choice. If time is highly valued and distance is not valued at all, the quickest journey will be chosen, no matter how long the distance. Similarly, if distance is highly valued and time not at all, the shortest distance will be chosen.

3.10.3 Generalised cost values are calculated based on the vehicle operating costs, values of time and user class splits as outlined within the TAG November 2021 databook 1.17. Vehicle operating costs are calculated as follows:

- Values are calculated using the equations (paras 5.1.4 and 5.1.10) in TAG Unit A1.3 for both fuel and non fuel (eg maintenance) operating costs.
- Each equation using parameters from the TAG databook along with an average speed for the network in question.
- Average network speeds are calculated from RTF18 values for the south east of England by time period.
- As per the guidance in Unit A1.3, for non work purposes, non-fuel vehicle operating costs are excluded hence for car commuting and car other purposes the values are lower than for car business.
- Values for airport employees were considered equivalent to car commuting values.
- Values for airport passengers were a weighted combination of business and leisure values based on the overall split of air passengers.

3.10.4 Value of travel time are calculated as follows:

- Value of time (VoT) for working and non working time, vehicle occupancies and extent of working/non working time, escalation in values over time taken from the TAG databook.
- Ratio of OGV1:OGV2 set at 39:61 based on table TRA3105 in DfTs road traffic statistics1 using data for the 'south east' region.
- Multiplier of 2.3 applied to HGV VoT to reflect the attractiveness of motorways and trunk roads was incorporated - this was also adopted in SERTM.
- The value of time for air passengers was taken from that estimated from the Gatwick Surface Access Model (GSAM). Values for business and leisure air travellers have been combined based on observed proportions in 2016 (ie 14% of passengers are business travellers) to estimate a value for this user class.

3.10.5 The resultant values adopted in the GHOST model are listed in Table 2 and Table 3.

Table 2: Vehicle operating cost assumptions - Pence per Kilometre (2010 prices, 2016 values)

	AM	IP	PM
Car Business	11.99	11.76	12.04
Car Commuting	5.65	5.56	5.67
Car Other	5.65	5.56	5.67
LGV	13.17	13.09	13.19
HGV	39.12	38.17	39.34
Gatwick Employees	5.65	5.56	5.67
Gatwick Air Pax	6.54	6.43	6.56

Table 3: Value of time assumption - pence per minute (2010 prices, 2016 values)

	AM	IP	PM
Car Business	30.11	30.85	30.54
Car Commuting	20.19	20.52	20.26
Car Other	13.93	14.84	14.59
LGV	21.82	21.82	21.82
HGV	49.98	49.98	49.98
Gatwick Employees	20.19	20.52	20.26
Gatwick Air Pax	35.76	35.76	35.76

[1] www.gov.uk/government/organisations/department-for-transport/series/road-traffic-statistics

4 Data

4.1.1 Data used to develop, calibrate and validate a traffic model can come from a variety of sources. A key component of developing the model is establishing the extent of existing available data across the study area that can be used to develop the model. For the development of the GHOST HAM an extensive data collection exercise was undertaken to aid the development of the model and assist in calibration/validation.

4.1.2 This section focuses on both the data that have been used to calibrate and validate the model and the data used to develop the network and matrix by outlining the different sources and processing methods. Note, independent validation data are a subset of the main dataset that has not been used for developing the model.

Highway related data

4.1.3 To support the development of the highway model, data was required to capture the configuration of junctions and their characteristics (eg signal timings), the observed journey times and delays on the network, as well as traffic volumes and the classes of vehicles using the network. All data received was reviewed and processed to develop a consistent dataset to represent June 2016 conditions. A series of seasonality adjustments was used to ensure any secondary data not occurring during June 2016 was adjusted accordingly.

4.1.4 As outlined in Section 3.2, existing HAMs were used to inform the development of the highway component of the GHOST model. These sources include:

- SERTM, owned by National Highways;
- LoHAM, owned by TfL; and
- CLTM, owned by WSCC.

4.1.5 The application of these models is described in more detail in Section 5.

4.2 Traffic count data

4.2.1 For the development of the Gatwick Highway Assignment Model (HAM) an extensive primary data collection exercise was undertaken in 2016 to aid the development a model in the local area and assist in the calibration and validation exercise. Additional count data was collected in summer 2019. A variety of secondary data sources were identified from local highway authorities, including SCC, WSCC, ESCC and TfL. The data collected was used to provide information on either traffic volumes or journey times.

4.2.2 National Highways have an extensive set of permanent monitoring sites across the Strategic Road Network (SRN) available via their WebTRIS platform. These measure the volume of traffic on the network and provide continuous output. This was used to support the derivation of robust seasonality profiles and average hourly volumes at specific sites covering the A27, A23, M25 and M23. Volumetric data available via DfT for minor and major roads was also considered for this purpose.

4.2.3 In total there are 663 calibration counts and 119 validation counts, highlighting that 15.2% of the count data used are independent data for validation purposes. Figure 7 shows the count data by source, including:

- WebTRIS;
- CLTM;
- TfL;
- SCC data;
- WSCC data;
- ESCC data; and
- primary data collection.

Screenlines and cordons

4.2.4 The traffic count data outlined have been used in the development of cordons and screenlines for model calibration and validation.

4.2.5 These are categorised as follows:

- screenlines between urban areas to help capture inter urban traffic movements, and
- cordons around urban areas to help ensure that traffic inbound and outbound from these locations is accurately captured.

4.2.6 The alignment of these screenlines were identified based on available traffic count data from the datasets described above. Primarily these were based on where good volumetric data was available either from permanent monitoring sites administered by local authorities/WebTRIS and count locations from the data collection undertaken in June 2016.

4.2.7 The location of the model screenlines and count data are shown in Figure 8. In addition to the screenlines, Ad hoc count data have also been identified to aid model calibration and validation. These are shown in Figure 9.

4.2.8 The screenlines have been categorised as primary, secondary or tertiary depending on how close to Gatwick they are and the significance to scheme assessment. Following engagement with stakeholders a tiered approach to TAG criteria was adopted, reflecting the reality that those screenlines further away from Gatwick will have less relevance to the assessment of the proposals at Gatwick.

4.2.9 The split of calibration and validation screenlines is shown in Figure 11. In total 44 screenlines have been used in calibration and 10 screenlines in validation.

4.2.10 The split of calibration and validation counts is also shown in Figure 11, in total 15.2% of the counts used to develop the model have been used for validation. Within the primary and secondary counts the proportion used for validation is 20%.

4.2.11 The screenlines further away from Gatwick have been set to calibration to ensure overall traffic volumes are controlled and form a box around the study area. The validation screenlines cut across key areas of interest such as the Ashdown Forest and South Downs National Park. The calibration cordons control movements into the towns in which the validation screenlines and counts act as a check on traffic volumes across key movements such as North-South and East-West. The definition of the screenlines was a product of consultation with stakeholders through the model calibration and validation stages.

Figure 7: Count data by source

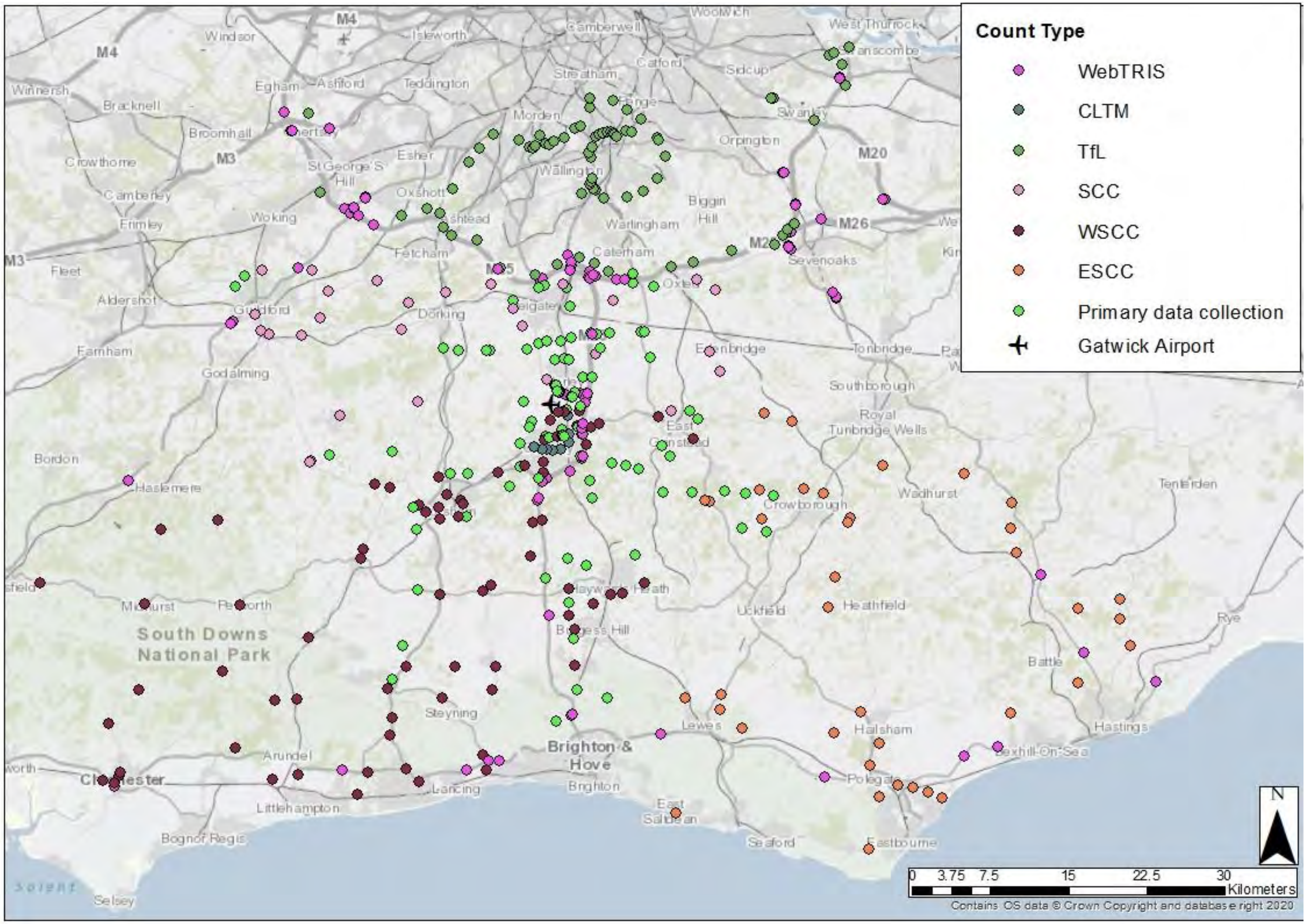


Figure 8: Screenline locations

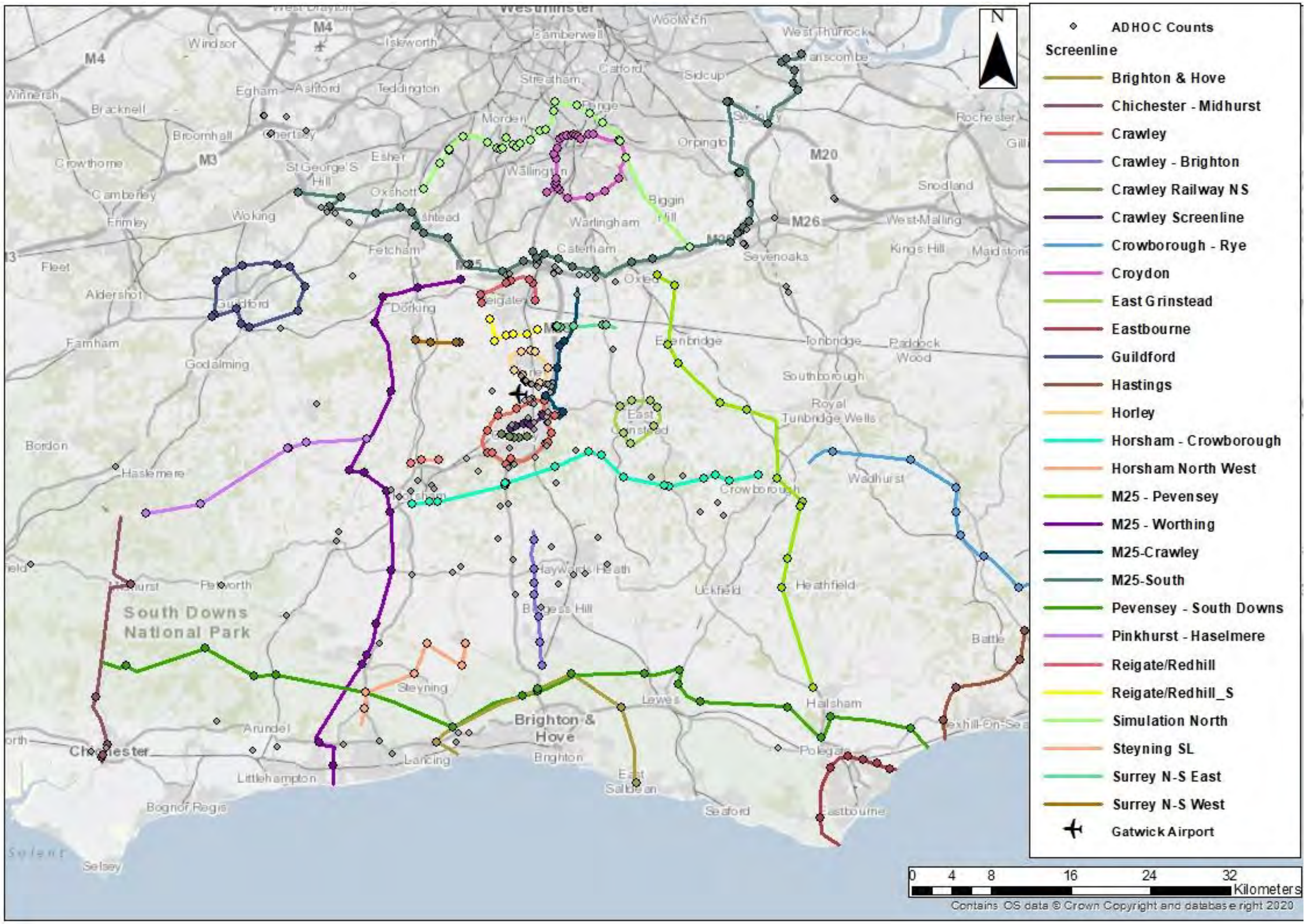


Figure 9: Location of ad hoc counts

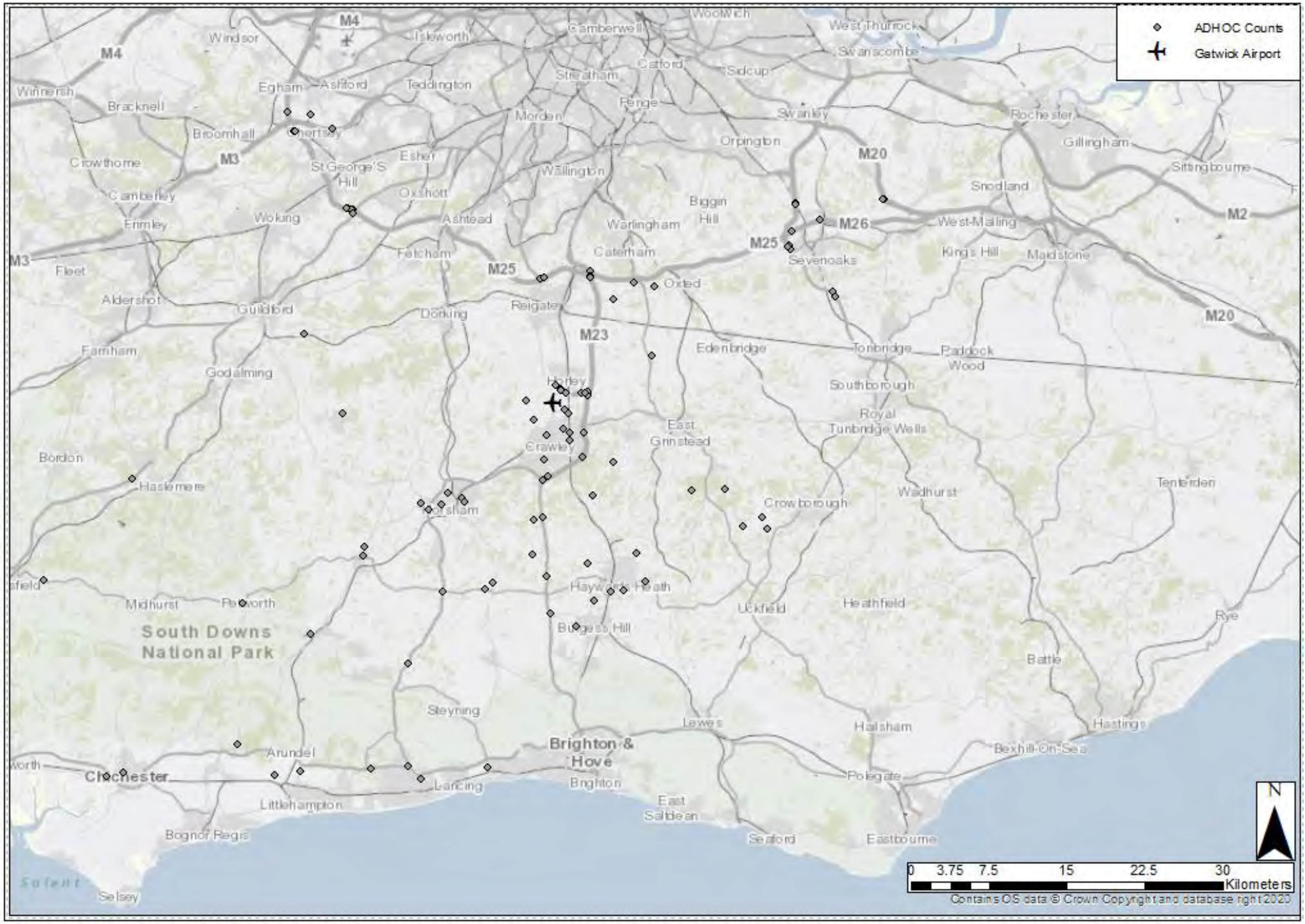


Figure 10: Primary, secondary, and tertiary screenlines

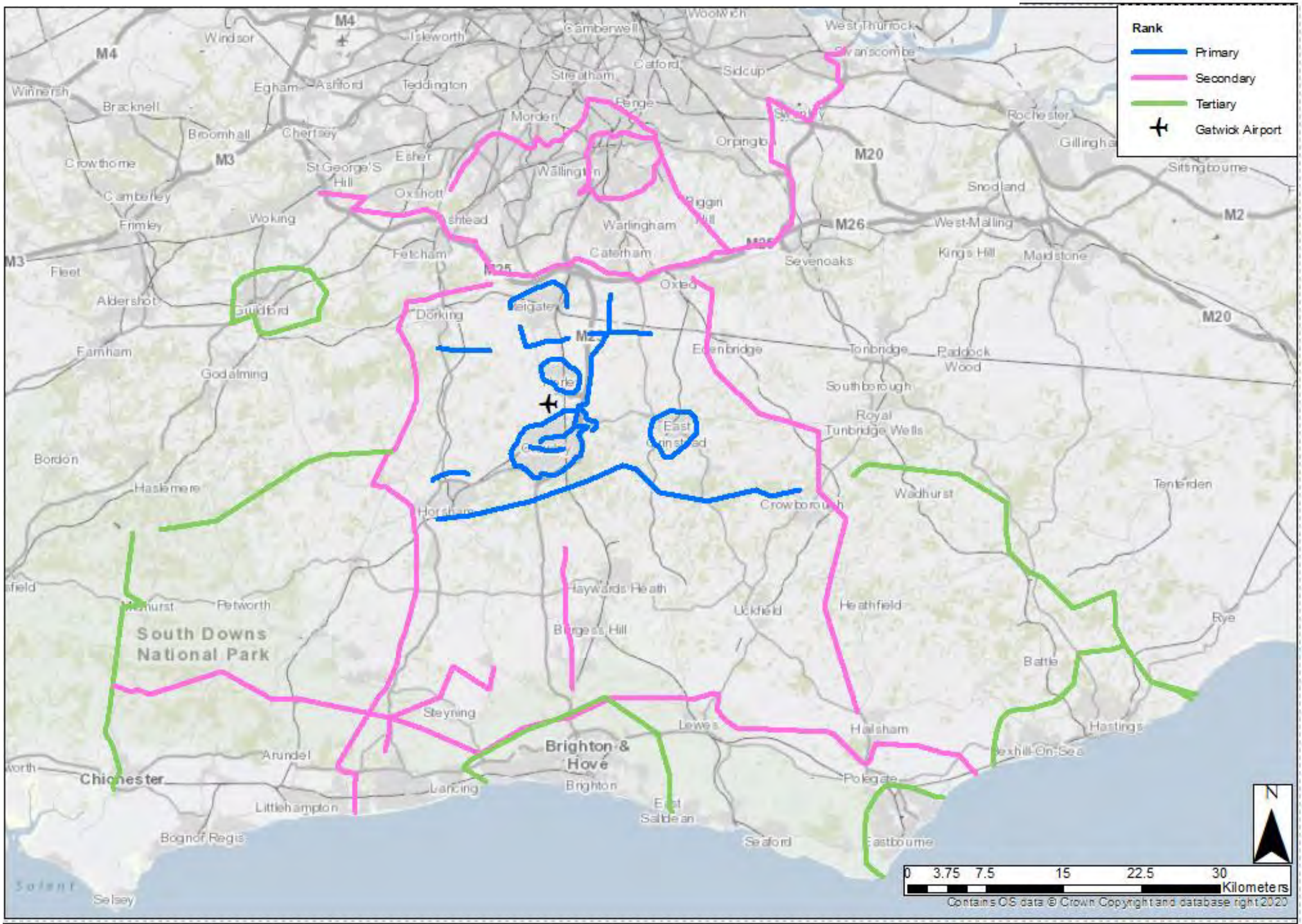
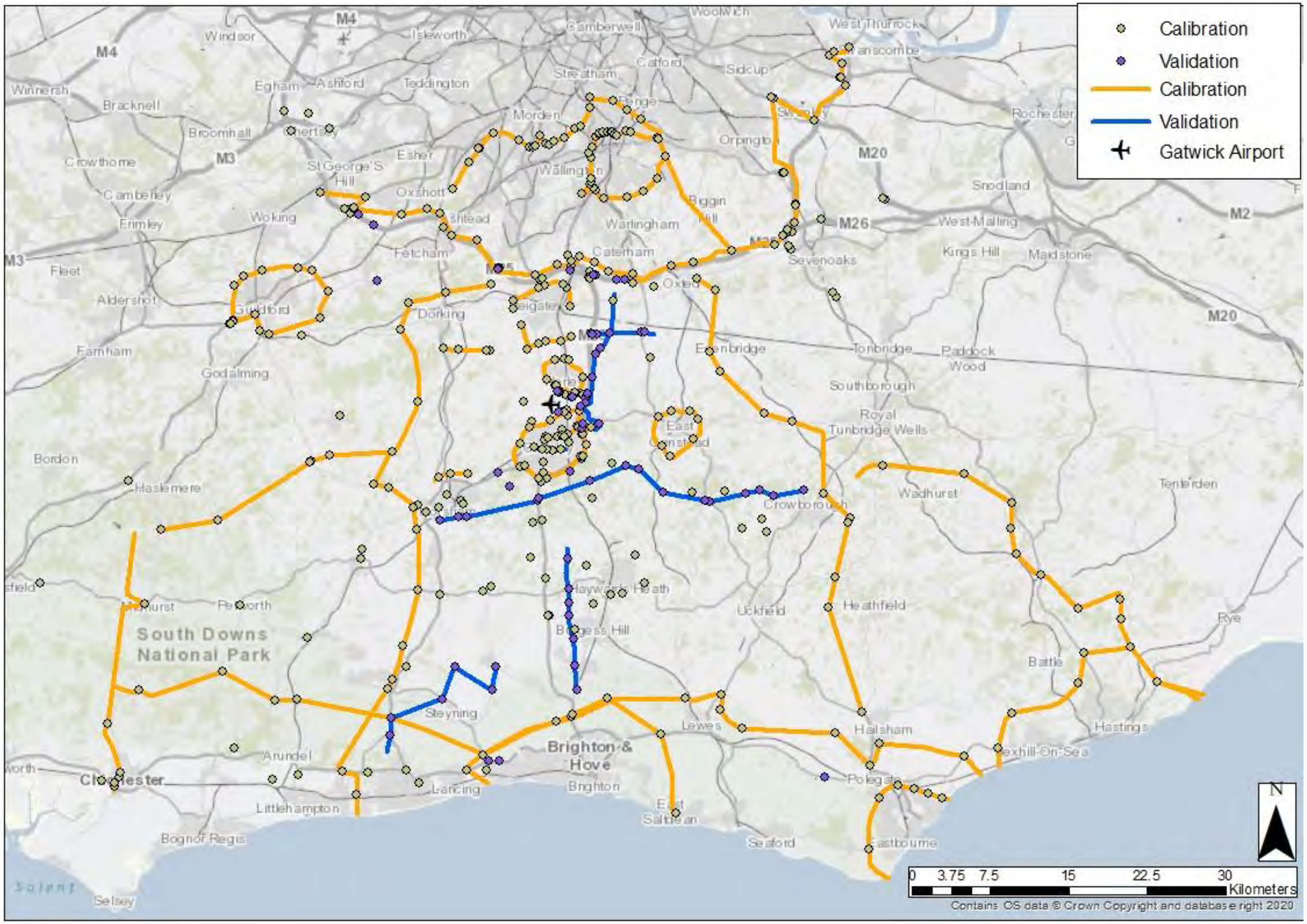


Figure 11: Calibration and validation classification



4.3 Journey time data

4.3.1 Historical journey time data were sourced from INRIX. This data represents an estimated road speed at different times of day based on real time GPS feeds from vehicle navigation systems and in vehicle security systems. These feeds are processed to form estimates of vehicle speeds on individual sections of road (or road links). Data were obtained for the period 1st April 2016 to 30th June 2016.

4.3.2 Table 4 lists the attributes available in the dataset provided and includes an estimated travel speed for each hour for each link within the data capture period. In addition, the data supplied includes historic datasets used to enabled a review of real time GPS observations and infill time slices where actual data are not available.

Table 4: Journey time dataset specification

Parameter	Description
Date Time	Date/Time of speed record (local time)
Segment ID	INRIX XD segment ID (which can be linked to the metadata file)
UTC Date Time	Date/Time of speed record (UTC)
Speed(km/hour)	Published speed (kph)
Hist Av Speed(km/hour)	The historical average speed (kph) – what we would typically expect to see on that segment at that time on that day type
Ref Speed(km/hour)	A 'reference' speed (kph) – The speed that a vehicle would be expected to travel along this segment during uncongested times.
Travel Time(Minutes)	Travel Time (Minutes)
CValue	A value to indicate how much the speed value differs from (A) the historic average speed and (B) the speeds recently published on the segment.
Pct Score30	This is set to 100 if the published speed was based on real time GPS data (0 otherwise).
Pct Score20	This is set to 100 if the published speed was the historic average (0 otherwise) –this is done when there is insufficient real time data to generate a real time speed
Pct Score10	This is set to 100 if the published speed was the reference speed – this is done when there is not enough data for a real time value and have observed enough historic data to create an historic average (this may happen for new sections of roads or in some overnight time bins on small roads)

4.3.3 The journey time data have been processed for June 2016 only to reflect the month being modelled. For each segment of interest a threshold of the PctScore30 has been defined to capture a minimum of 10 observations for each segment. The average PctScore30 for all links in all time periods to get a minimum of 10 records is 90.9% which indicates almost all travel time data are based directly upon observed values for June 2016.

4.3.4 For segments where there is insufficient or missing data, speeds have been calculated based on the speed of adjacent links or historical averages. This applies primarily to a short section of route 7 where a new link road was built around the time of the data. Bank holidays, school holidays and weekends were filtered out of the data to represent a weekday average travel time for each hour within the modelled periods.

Selected travel time routes

4.3.5 Journey time routes were chosen to represent the SRN within the modelled area. All motorways, trunk roads and A roads were considered to form part of the network of routes adopted, as well as the major local routes in the vicinity of Gatwick, and routes through Crawley and Horley. The correspondence between the modelled network and the INRIX links was considered to determine the start and end points of each route, to ensure a good comparison of distance and speed between the observed and modelled values.

4.3.6 A total of 21 two-directional routes were created, which were further split into partial routes, with the aim for each sub-route to be between 3km-15km in length and less than 40-minutes travel time, as specified in TAG Unit M3.1. A total of 94 partial routes were created. In some cases, the partial routes exceed the recommended 15km, where appropriate route splitting points were not available, or where there was limited correspondence between the INRIX link geometry and the SATURN highway network. This related to partial routes on the M25 where sections are generally long.

4.3.7 Details of the 21 routes are shown in Table 5 and in Figure 12 for the Crawley area and Figure 13 for the full AoDM. The number of partial routes created for each route is listed.

Table 5: Details of journey time routes

Route Name	Direction	Distance (km)	Number of partial routes
M25: J5 – J10	A: EB B: WB	44.94	4
A25: Gomshall - A21	A: EB B: WB	44.07	5
A264: A23 - A24	A: EB B: WB	10.47	1
A24: A264 - M25 J9	A: NB B: SB	28.22	3
A24: A27 - A264	A: NB B: SB	31.15	3
A27: A280 - A26	A: EB B: WB	35.94	3
A272: High Street, Billingshurst - A22	A: EB B: WB	45.64	4
A26: A27 – A22	A: NB B: SB	11.95	1
A23: A27 – M23	A: NB B: SB	25.59	3
A23: M23 J11 - A22	A: EB B: WB	16.77	2
A22: A26 – Station Road, East Grinstead	A: NB B: SB	25.00	3
A22: Station Road, East Grinstead – M25 J6	A: NB B:SB	16.26	1
B2036: A272 - A23	A: NB B: SB	21.76	2
B2030: M25 J6 - A23	A: NB B: SB	10.13	1
A23/A217: M25 J9 – M25 J8	A: NB B: SB	15.62	2
A23: Longbridge Roundabout – M23 J7	A: NB B: SB	14.05	2
M23: J11 - Coulsdon	A: NB B: SB	29.64	4
Crawley: Brighton Road – A23/Airport	A: NB B: SB	8.46	1
Crawley: Southgate Avenue - Northgate Avenue	A: NB B: SB	3.70	1
Crawley: Horsham Road – Copthorne Way	A: EB B: WB	9.32	1
Crawley: Brighton Road to Horley	A: NB B: SB	11.3	2

Figure 12: Journey time routes at Gatwick and Crawley

Figure 13: All journey time routes

4.4 Trip matrix data

Mobile Network Data

4.4.1 Citi Logik (CL) were commissioned in 2016 to provide travel demand data for an area within the south east of England. In the context of the Gatwick model, a broad specification to the data was included to ensure that temporal and geographic characteristics of travel through the area could be identified. MND was collected by Citi Logik over a 3-month period, between 25th March 2016 and 9th April 2016, and 18th April 2016 to 30th May 2016. The following processes utilised 24 days of data from this period since weekends, bank holidays and Easter holidays were excluded.

4.4.2 Trips are defined as rail, motorised, static or other/slow. The motorised trip data were used in the process of creating highway demand for the GHOST HAM and the other modes were excluded.

4.4.3 The Mobile Network Data (MND) study area is shown in Figure 14.

4.4.4 The MND is a sample of observed movements. Origins and destinations of movements within the Geofence and study areas are known specifically, whereas in the external area, only the points of entry/exit of the geofence are known.

4.4.5 To account for the entire population of the study area, Citi Logik expanded the dataset based on the population of the home zone of each device. This methodology relies upon the home locations so it can only be used within the Geofence. Consequently, only trips relating to those who live within the Geofence are represented in the MND. This limitation is accounted for within the matrix fusion process.

4.4.6 Expansion factors for the area within the Geofence are important to the matrix fusion process as the sampling error is a function of the sample size. The expansion factors are not uniform across the study area. The distribution of expansion factors by journey are shown in a histogram in Figure 15. The histogram indicates that most expansion factors are in the 2-4 range indicating a good sample size has been achieved across most of the study area. The maximum expansion factor is 6, indicating a greater than 15% sample has been achieved everywhere which indicates there are no areas with very poor coverage.

4.4.7 The spatial distribution of expansion factors is shown in Figure 16.

4.4.8 There is a significant variation in the spatial distribution of factors. There are no clear patterns that result from this; both central London and very rural areas show the full range of factors indicating that it is most likely down to market share of the MND varying across areas.

4.4.9 The DfTs National Travel Survey dataset has been obtained at End User Licence (EUL) level via the UK Data Service (dataset Study Number 5340). The dataset, obtained for the period of 2002 – 2017, provides records from a series of household surveys designed to provide regular, up-to-date data on personal travel and monitor changes in travel behaviour over time[2]. The dataset has been used to provide validation checks throughout the matrix building process, namely providing trip length distribution information.

4.4.10 In addition, TfL provided data from their own research on movements within and from/to Greater London. This was also derived from MND and was used as the basis for checking the amount of demand within London and between the M23 corridor and London.

SERTM

4.4.11 National Highways' SERTM matrices were used as the basis for the GHOST matrix build. These matrices represent an average weekday in March 2015. These matrices were built using a range of data sources including census data and MND. The matrix build process relied heavily on synthetic matrix building methodology to make up for known shortcomings in the MND. It should also be noted that the SERTMs purpose is to represent the general pattern of trips across strategic areas, and so it is likely to be lacking the local detail required for a model like GHOST. The methodology set out to enhance these matrices is intended to improve the local detail without losing the strategic patterns that the regional models should represent well.

EDMOND

4.4.12 The MND study area does not cover all of London. Furthermore, given the nature of the SERTM, the SERTM matrix build process was never intended to accurately represent intra-urban trips in detail. For the Gatwick study it is important that the modelled conditions within Greater London (within the M25) are representative of those observed. To achieve this, the demand data from SERTM has been further enhanced using available data from TfL.

4.4.13 During the most recent update of the LoHAM, demand data have been collected from mobile network data in an exercise known as Project EDMOND. The data have been processed into prior matrices by TfL and provided at a London borough level.

INRIX

4.4.14 Light goods vehicles (LGV) and other goods vehicles (OGV) matrices have also been developed. The matrices are based upon the SERTM LGV and OGV matrices, supplemented with data commissioned from INRIX for this study.

4.4.15 INRIX were commissioned to provide origin-destination data for all trips which start, end, or route through the area shown in Figure 17.

4.4.16 Data was provided for a period of April, May and June 2016 for all trips in the INRIX dataset classified as "fleet", ie all trips which are not classified as private car, segmented by time period and vehicle weight. Origins and destinations were provided on a sector to sector level.

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[2] https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=5340

Figure 14: MND study area

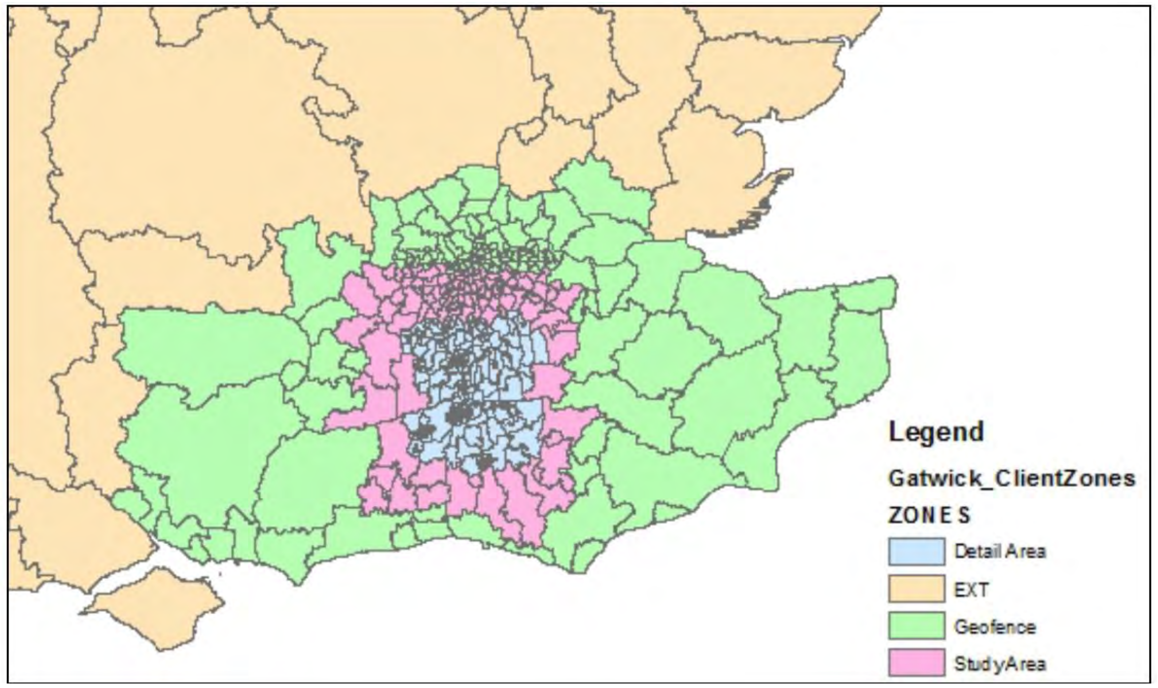


Figure 15: Distribution of expansion factors

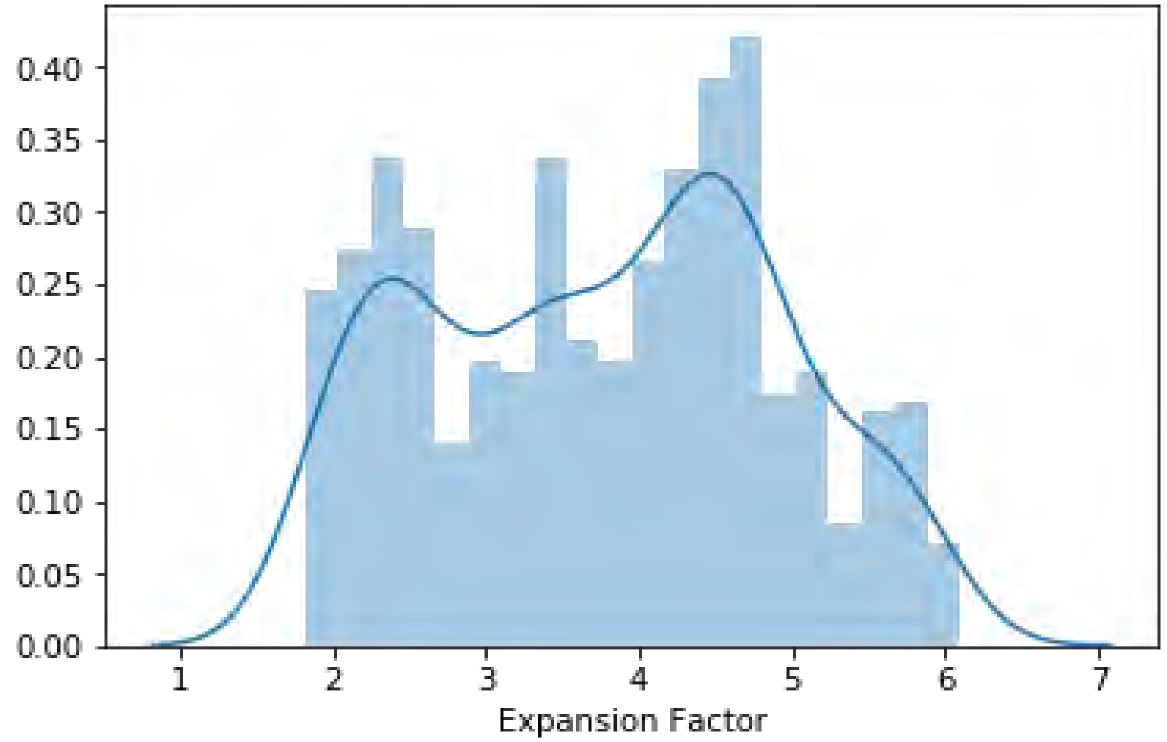


Figure 16: MND expansion factors

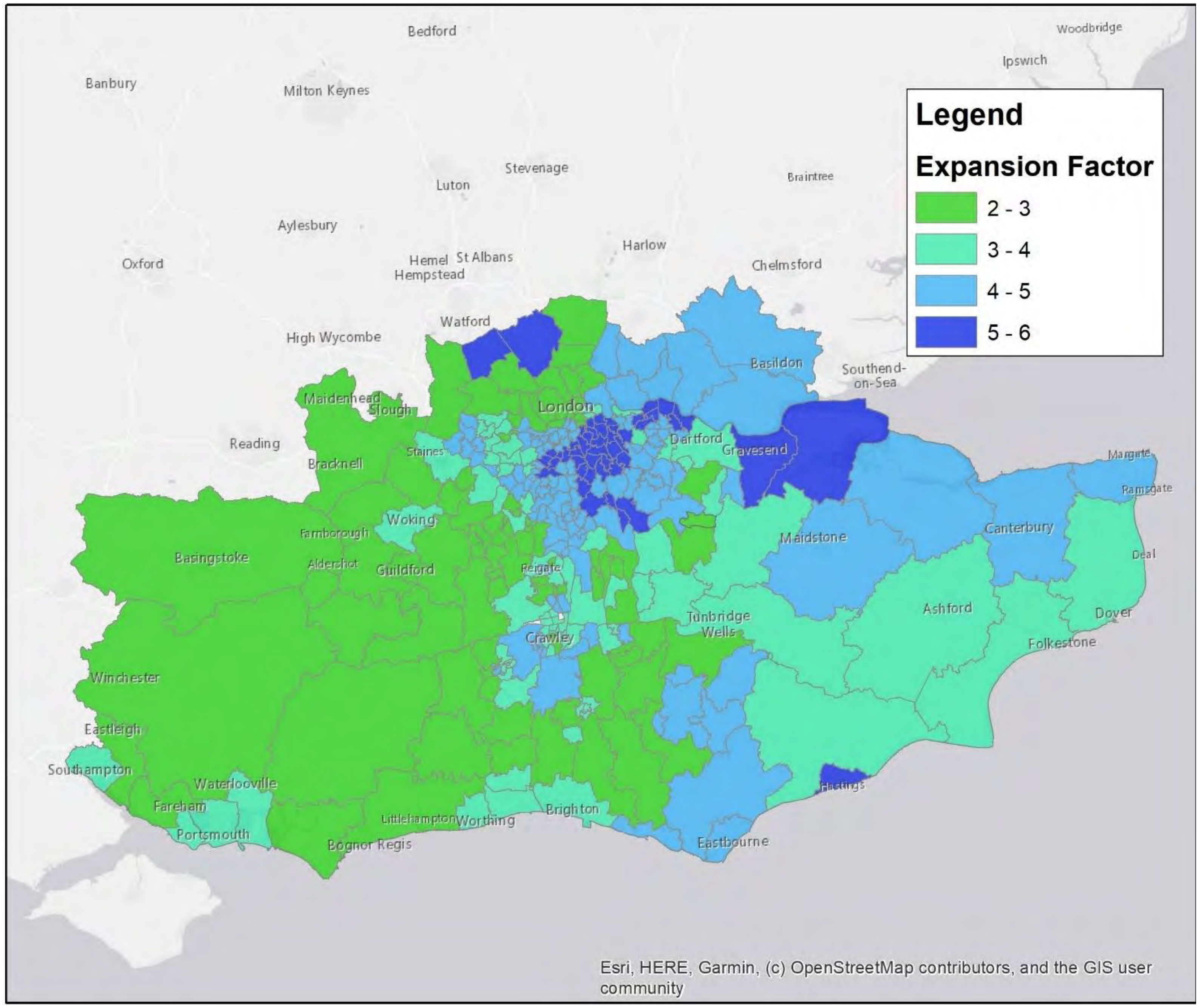
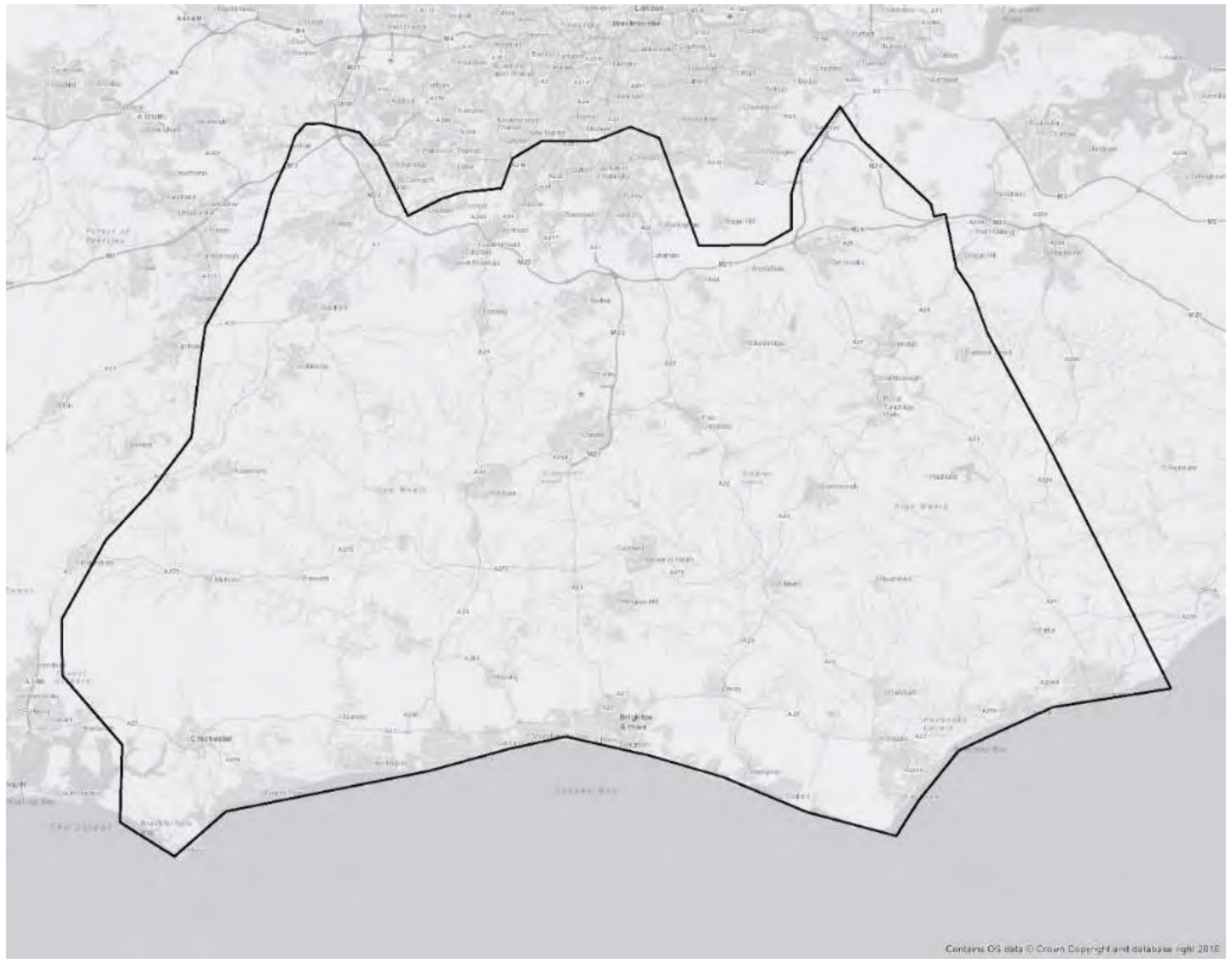


Figure 17: Area covered by INRIX goods vehicle data



4.5 Public transport data

4.5.1 The Rail model and bus/coach model component of the GHOST model utilises a variety of data sources and is summarised in Table 6.

Rail data

DfT

4.5.2 Data publicly available through the DfTs online rail statistics portal provides information on the number of services, seats and standing capacity in/out of London termini for 2016. This information was used to validate the rail model at a 24-hour level.

4.5.3 DfT provided access to Green Book data for use on the study. This is very detailed data providing information on train formations/capacities and average loadings crossing a cordon formed by the TfL Zone 1 boundary. These data were used to code individual service capacities and to size the matrices. The following was received:

- All TOCs except GTR – passenger flows, services and formations for all services originating/terminating/through London termini, autumn 2016;
- GTR – passenger flows, 2012 & 2019; and
- GTR – services, seats and total capacities, 2016.

Google Directions API data

4.5.4 Journey time analysis via Google Directions API was explored. The data captured through this process provides information relating to in-vehicle travel time, transfers/interchanges, walk-time and wait time. A selection of origin-destination pairs relating to Gatwick and various key London locations were analysed. The data collected through this method corresponded to July 2019. This is not aligned with the base year of the model, 2016, therefore it was necessary to assess the impact of changes in the intervening period and impacts these changes may have on travel routes and times, particularly relating to Thameslink/London Bridge disruptions in 2016.

Office of Rail and Road statistics

4.5.5 The Office of Rail and Road (ORR) provide statistics through its online portal relating to entries and exits across all national rail stations in each year. The following two sources were utilised:

- estimates-of-station-usage-2010-11; and
- estimates-of-station-usage-2016-17.

Rail Delivery Group Common Interface File (CIF) Timetable

4.5.6 Rail Delivery Group (RDG) timetable information forms the foundation for inputs relating to all National Rail services for the rail model. The extracted data pertain to the May-Dec 2016 timetable. Data comprising train origin and destination termini, departure/arrival times and stop-stop times were processed for use in the rail model for all TOCs in London and the south east.

Bus and coach data

4.5.7 The foundation of the bus/coach network uses a combination of General Transit Feed Specification (GTFS)[3] data and Open Street Map (OSM) for 2019.

4.5.8 To assist in the validation of the bus/coach model, online resources were used to assess the validity of modelled services and journey times. These were obtained from operator websites including Megabus, Oxford Bus Company, National Express and easyBus.

4.6 Air passenger data

4.6.1 CAA data from Gatwick air passenger surveys 2014-2018 was used to provide the database of air passenger details such as home location, mode of travel, travel purpose, parking location.

4.6.2 Gatwick provided counts of passengers arriving at, and departing from, Gatwick North and South terminals in 15-minute time slices. These were used in the development of weights to expand the air passenger surveys.

4.7 Employee survey data

4.7.1 For the employee model, behavioural survey data were obtained from the Gatwick employee and employment survey that Gatwick undertakes periodically of all employees who work within the airport. The last one, used in this study, was taken in Spring 2016. The data captured includes job type, work start and end times (for up to three shifts), home location and travel mode.

4.7.2 There were 5,323 usable responses from a total workforce of around 23,000. Gatwick also shared their 2016 *Travel to Work Survey* report which described findings.

4.7.3 Oxera provided the full breakdown of employee job categories for all employees in 2015/16 to allow for expansion of the data to the workforce total of 23,807 employees.

4.8 Parking data

4.8.1 Parking locations for employees are based on those stated in the employee survey, which have been matched to model zones.

4.8.2 For passengers parking on the airport the CAA profiler data provided information on locations where passengers park. Parking locations for May to July 2016 by terminal were allocated to the North Terminal; South Terminal; and North Terminal long stay parking and weighted by airport trips to provide the proportion of passengers using North and South terminals parking in each location.

4.8.3 Passengers parking off-site or using the off-site valet provision have been allocated to car parks based on the relative capacities of the off-site car parks, using information provided by Gatwick.

4.9 Fares

Rail

4.9.1 UK-wide rail fares to/from Gatwick (for use in GSAM) and for all movements across the UK (for use in the VDM) were obtained from RDG for 2017 with some for 2019 that were deflated to 2017 to match. These were adjusted to 2016 base year using a fare index, and then discounted to a 2010 price base using the TAG GDP Deflator.

4.9.2 The employee rail fares included the 25% discount offered by the Gatwick Travel Pass if the origin zone is within the employee discount zone. This pass offers a 25% discount for employees on Thameslink, Gatwick Express, Southern and First Great Western as far as Wokingham[4]. This scheme existed in 2016 and remains in place as of the time of writing.

Bus/Coach

4.9.3 Fares on local bus services (Metrobus, Southdown PSV) and coach services (easybus, Megabus, National Express, and Oxford Airline) in 2019 were obtained from the operator websites along with the approximate distance by road, to create a relationship between fare and distance.

4.9.4 The fares for local bus services were obtained from operator websites (Metrobus operates almost all services at Gatwick) which provide the fare zones; representative stops within these zones were used to determine fares. Employees are able to buy discounted travelcards allowing unlimited travel on the Metrobus

[3] General Transit Feed Specification – an electronic timetable format describing the schedule of different public transport services

[4] https://www.gatwickairport.com/business-community/careers/why-work-at-gatwick/staff-travel/

and Southdown PSV services within the wider network that serves Gatwick.

Taxi

4.9.5 Taxi fares in 2019 from a sample of locations to Gatwick were extracted for Uber and minicabs (https://www.minicabit.com/quotes). It is our understanding that very few people hail a black cab for a trip to the airport therefore these fares were not used in the taxi fare calculations.

Parking costs

4.9.6 For the air passengers, on-airport parking costs for durations of 1 to 9 days were obtained from the Gatwick website for long stay, valet and short stay parking at north and south terminals. Data was collected for November, early December, February, April and June to examine seasonal variation.

Table 6: Public transport data sources

Public transport Mode	Data Source	Type	Year, Coverage
Rail	Planet South model	-	2012, AM only
Rail	DfT Rail Statistics – Rai0201/Rai0203	Services/Seats	2016 (24h), London Termini
Rail	ORR Estimates of station Usage	Demand	2012 & 2016, National Rail stations
Rail	DfT Green Book – Total Load	Total Load	2016, (All TOCs excluding GTR, by service), London Termini
Rail	DfT Green Book – Seats + total capacity/Services	Seats/Services	2016, (All TOCs excluding GTR, by service), London Termini
Rail	GTR Data – Total Load	Total Load	2012, 2019 (All GTR services), London Termini
Rail	GTR Data – Seats + total capacity/Services	Seats/Services	2016, (All GTR services), London Termini
Rail	Google Directions API	Journey Times	2019, (routes to/through London/Gatwick)
Rail	Rail Delivery Group, CIF Timetable	Services/Journey Times	2016, May
Rail	TfL Working Timetable	Services/Journey Times	2016 - 2019
Rail	National Highways South East Regional Transport Model	Demand	2015
Rail	TEMPRO	Demand	-
Rail	National Rail Travel Survey 2009	Demand	2009
Rail/Bus	Gatwick Employee Survey	Demand	2016
Rail	CAA Gatwick Departing Air Passenger Survey	Demand	2014 - 2018
Rail/Bus	Gatwick Terminal Counts	Demand	2016
Bus/ Coach	GTFS/OSM	Services/Journey Times	2019
Bus/ Coach	Online timetables	Services/Journey Times	2019

5 Strategic transport model development

5.1 Highway assignment model

5.1.1 The highway assignment model represents vehicle movements to and from Gatwick as well as other strategic and local trips on the road network.

5.1.2 Prior to the assessment of Future baseline scenarios, the highway model was built to represent current traffic conditions and is referred to as the 'base model' and is representative of average weekday traffic conditions consistent with June 2016.

5.1.3 The base model is built in consideration of guidance specified within DfTs TAG Unit M3.1, May 2020[5] and is built within the software suite SATURN. The wider role of the highway model and its interaction with the demand model is to supply generalised costs for the base model and future year scenarios.

Network development

5.1.4 The highway model, known as GHOST, is principally built using the SERTM developed by National Highways. Further network detail was incorporated through utilising the following additional models:

- CLTM; and
- LoHAM.

5.1.5 Inherited assumptions with respect to treatment of signalised junctions, detailed coding decorum and representation of tolls and network were considered in the model development process and addressed accordingly. The additional network included within the HAM model is shown in Figure 18.

5.1.6 National Highway's RTMs, focus on regional strategic routing meaning all motorways, A Roads and B Roads in the area around Gatwick are included. However, only some local roads are included to aid routing onto the SRN and for zone loading. To adapt this model for a local study, such as for Gatwick, local area refinement is needed to add more network and zoning.

5.1.7 This process to refine the AoDM included a review of existing SERTM coding and inclusion of additional network. There were four key stages in the local refinement process in the network area:

1. add in network in Crawley and Horley from CLTM;
2. add in network in Croydon and Sutton from LoHAM (version P4);
3. make further refinements and adding of additional detail;
   a. add in additional network coding that is not available from other highway models;
   b. add in fixed route coding to represent bus routes in the AoDM; and
   c. adapt centroid connector coding to match GHOST zone system.

5.1.8 Within the rest of the "fully modelled area" the fixed speed coding of SERTM has been retained. Other areas of fixed speed coding in the fully modelled area, eg on the south coast will retain the SERTM coding and forecast methodology. The fixed speed areas in the GHOST model are shown in Figure 19.

5.1.9 The resultant network from this process is shown in Figure 20, with the input from both the CLTM and LoHAM identified alongside the additionally coded network.

Zoning system

5.1.10 The base year GHOST HAM zoning system comprises 1,423 zones, of which 1,105 are internal zones representing the FMA and 30 are blank for forecasting. The rest of the zones are external zones, which represent the entire UK. The system has been developed based on SERTM zone system, which has 2,306 zones based on individual and aggregated MSOAs (Middle layer Support Output Areas).

5.1.11 The comparison of GHOST zone system can be seen in Figure 21 against SERTM. The zone system in the AoDM is further disaggregated when compared to SERTM, which is mainly at a MSOA area.

5.1.12 Gatwick has been split from the two-zone representation of North and South terminals in SERTM to 10 zones in GHOST representing the different access points to the onsite airport locations. Additionally, 30 point zones have been added to represent off-site areas such as car parks and hotels that have a Gatwick trip-end.

Matrix development

5.1.13 The development of the highway model trip matrices considered the travel demand with respect to the following three regions:

- **Gatwick** – covering the terminals and all associated airport activity directly associated with the Gatwick operations;
- **local area** – the local area around the airport covering Crawley, Horley and local adjacent built-up areas; and
- **rest of model** – the remaining wider area covered by the highway model.

5.1.14 An estimate of June 2016 average weekday demand was built up progressively using the available sources of data and evaluating the strengths of each data source over each of the three geographies in order to generate prior matrices.

5.1.15 This tiered approach was required to reflect the need for increasing confidence in the quality of the travel demand estimated in the model within each region and the relative weight of analytical effort needed to build the model. Following the review of each of the sources of data, the development of base year matrices consisted of the following key steps:

- Re-zoning of demand sources to common zone system
- Review of demand sources against NTS data and CAA/Gatwick employee survey to check the appropriateness of the different sources. This considered trip length, purpose and time of day comparisons.
- Non airport demand was taken predominately from SERTM, with some updates derived using the Citi Logik source data where clear patterns emerged. Updates were controlled against NTS data.
- TfL distribution data was used to update the demand within London that was present in the SERTM source data.
- All airport demand (employees and passengers) was taken from the Gatwick employee survey data or passenger data.

5.1.16 The general approach to the development of the Gatwick base year highway matrices was that SERTM formed the starting point, with enhancements to certain elements of the matrices as follows:

- MND have been used to enhance the car elements of the matrices. This follows an extensive verification and adjustment process of the Gatwick MND before fusing with SERTM;
- INRIX data have been used to enhance the goods vehicles elements of the matrices;
- The TfL LoHAM model has been used to enhance the section of the matrices that covers London (referred to as EDMOND data in this chapter); and

[5]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938864/tag-m3-1-highway-assignment-modelling.pdf

- demand relating to Gatwick passenger and employment has been replaced using specific demand generated for those elements.

Figure 18: GHOST additional network

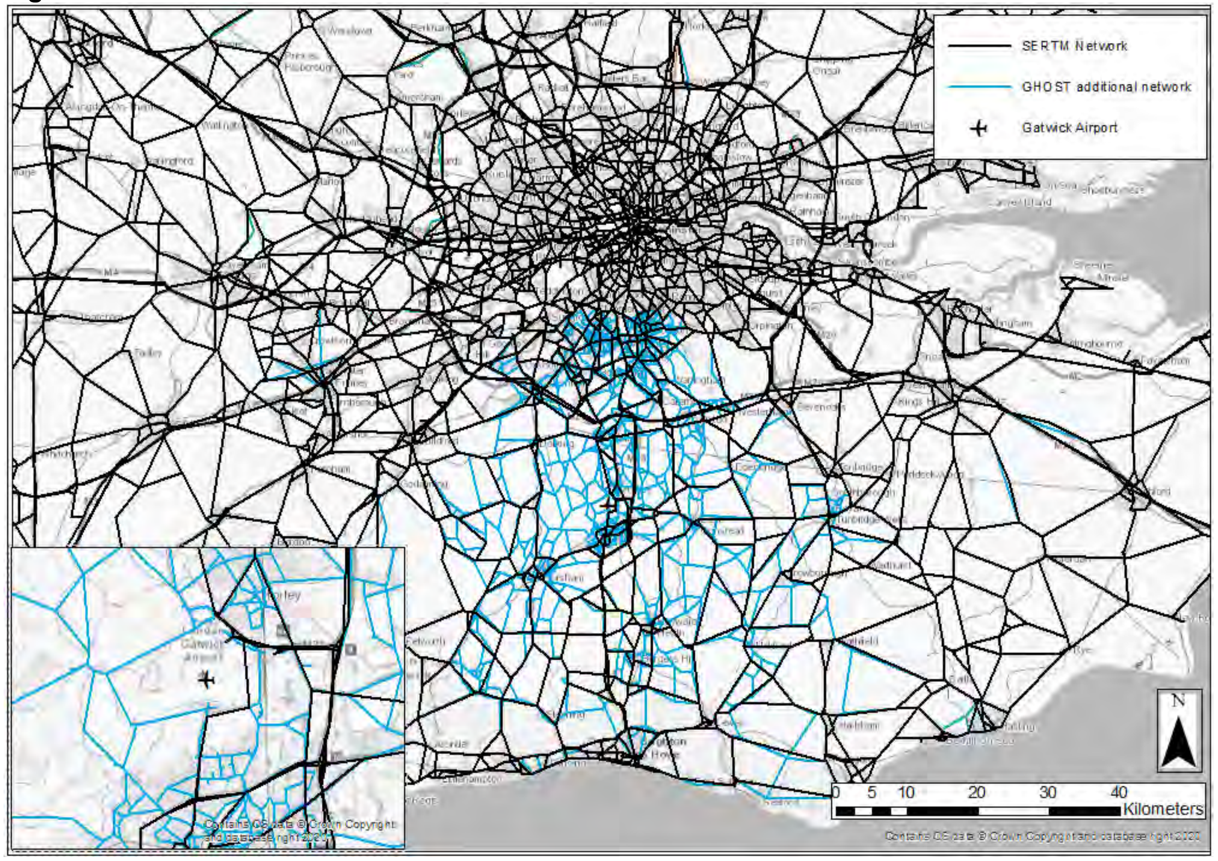


Figure 19: Fixed Speed Coding in GHOST HAM

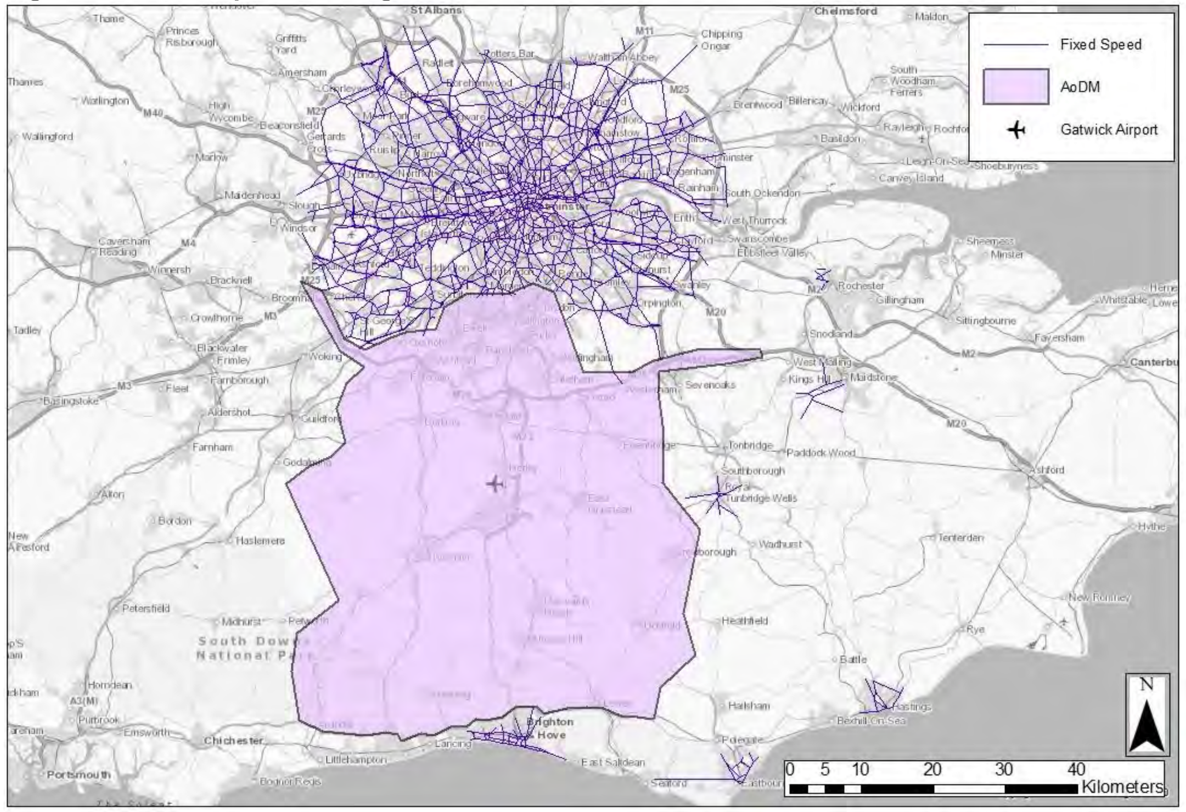


Figure 20: AoDM GHOST HAM Network

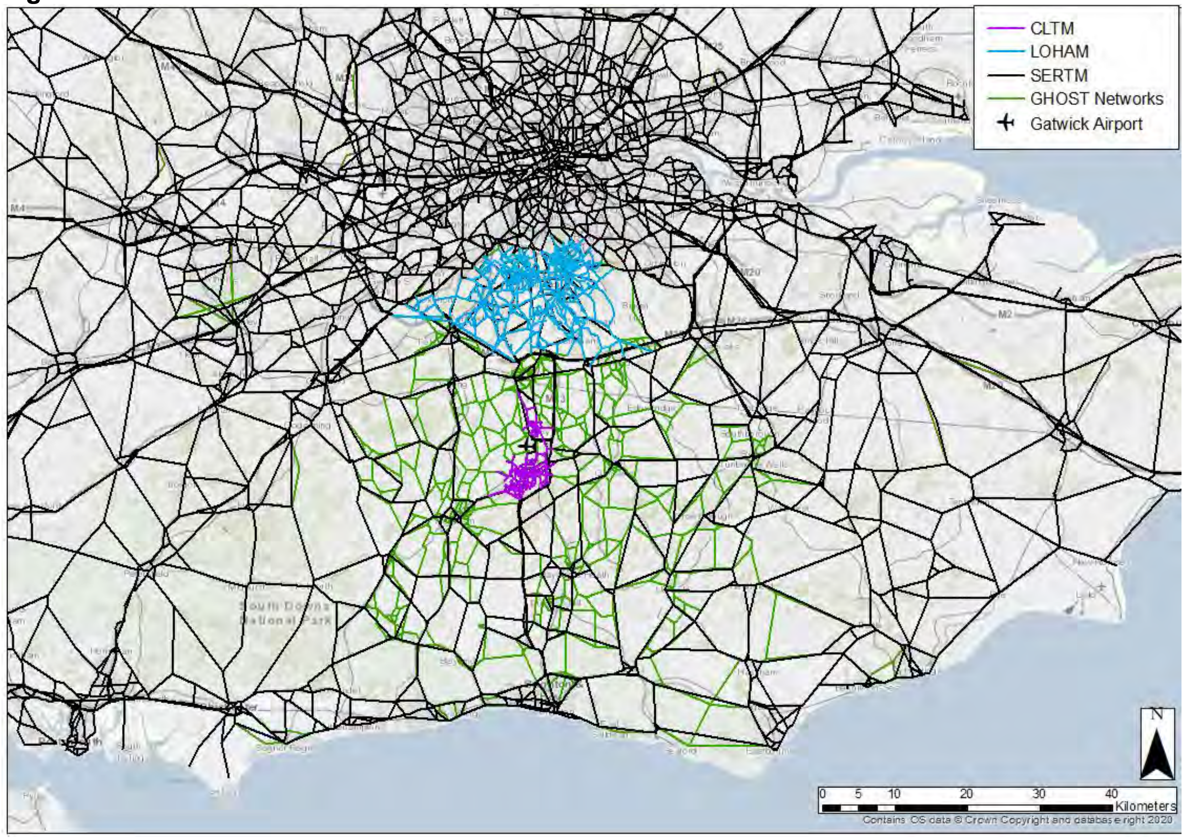
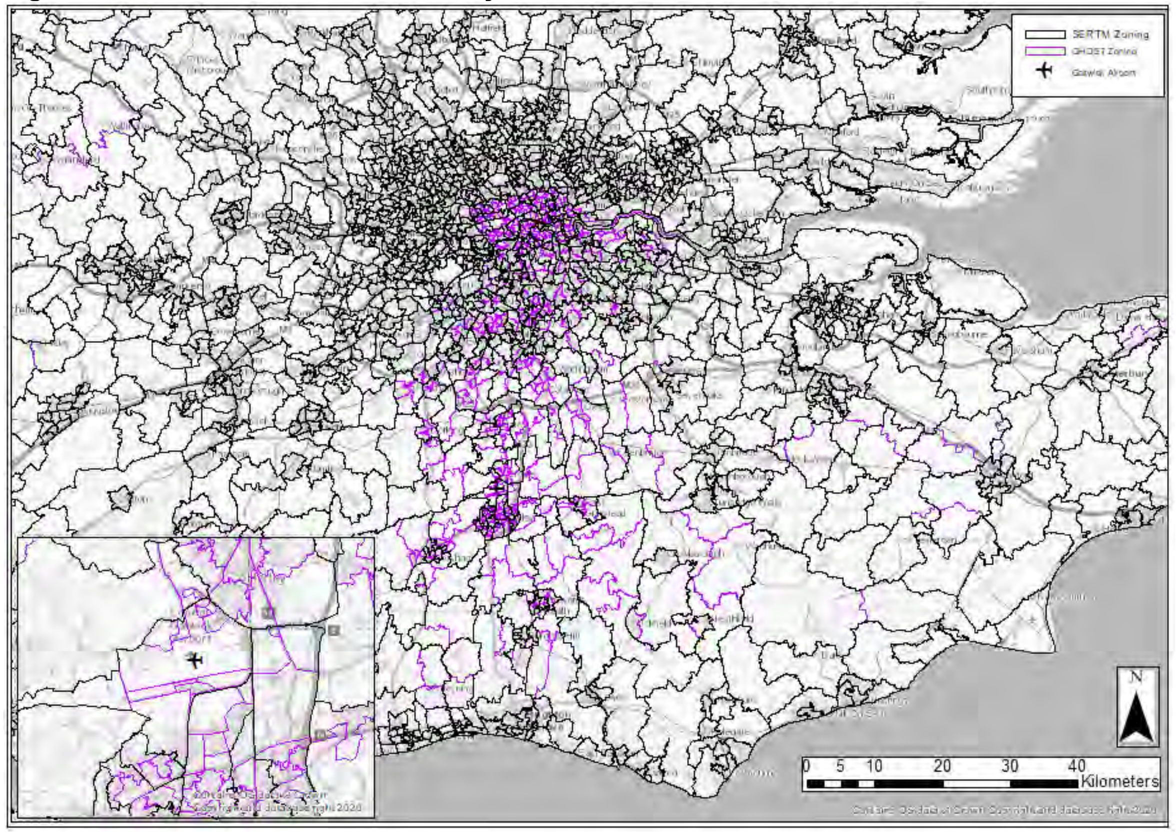


Figure 21: GHOST and SERTM Zone System



Highway performance metrics

5.1.17 A calibration/validation process was undertaken with the aim of adjusting the model to improve the fit with observed data – including both traffic volumes and journey times. This was done in stages.

5.1.18 Network calibration was undertaken which picked up on the following reviews:

- modelled capacities verses observed traffic flows;
- 6.
- investigation of large delays and very slow speeds;
- initial volume/capacity; and
- modelled shortest path routes against Google Maps.

5.1.19 As set out in TAG, calibration and validation screenlines and cordons were developed using the traffic count data. Following a detailed network calibration, review of routing, and adjustments to the prior matrices to improve the fit of the prior matrices, a matrix calibration process was undertaken.

5.1.20 In order to determine the success of the matrix estimation process, the modelled flows were compared to the counts. Calibration sites were reviewed on the same basis as validation sites, with the following measures used for comparison:

- the absolute differences between modelled flows and counts; and
- the GEH statistic

5.1.21 Modelled link flows have been assessed across the calibration/validation screenlines. Table 7 and Table 8 present the calibration and validation screenline performance, with the number of passes for each screenline category and time period, when the TAG criteria is applied strictly at 5%.

Table 7: Calibration screenline performance at TAG 5% criteria

Screenlines	Number of screenlines	AM1	AM2	IP	PM
Primary	18	17	16	18	16
Secondary	12	7	8	12	10
Tertiary	14	13	11	12	11
All	**44**	**37**	**35**	**42**	**37**

Table 8: Validation screenline performance at TAG 5% criteria

Screenlines	Number of screenlines	AM1	AM2	IP	PM
Primary	6	4	4	4	4
Secondary	4	0	2	2	2
All	**10**	**4**	**6**	**6**	**6**

5.1.22 A tiered approach considers that primary screenlines are assessed against the criteria of modelled flows within 5% of observed flow, with secondary screenlines within 7.5%, and tertiary screenlines within 10% being considered a pass. Table 9 presents the calibration screenline performance, with the number of passes for each screenline category and time period when this tiered approach is applied.

Table 9: Calibration screenline performance at agreed tiered criteria

Screenlines	Number of screenlines	AM1	AM2	IP	PM
Primary	18	17	16	18	16
Secondary	12	10	9	12	11
Tertiary	14	14	14	14	14
All	**44**	**41**	**39**	**44**	**41**

5.1.23 Table 10 presents the screenline passes for validation screenlines.

Table 10: Validation screenline performance at agreed tiered criteria

Screenlines	Number of screenlines	AM1	AM2	IP	PM
Primary	6	4	4	4	4
Secondary	4	2	3	2	2
All	**10**	**6**	**7**	**6**	**6**

5.1.24 Table 11 presents a combined summary of the screenlines irrespective of calibration or validation status, split between primary, secondary, and tertiary screenlines using the agreed tiered criteria set out in paragraph 5.1.22.

Table 11: Combined screenline performance at agreed tiered criteria

Screenlines	Number of screenlines	AM1	AM2	IP	PM
Primary	24	21	20	22	20
Secondary	16	12	12	14	13
Tertiary	14	14	14	14	14
All	**54**	**47**	**46**	**50**	**47**

5.1.25 It can be seen that primary and secondary screenlines fall just short of the guidelines for 'all or nearly all' to pass, but that overall the model is performing well when considering how close some screenlines are to meeting criteria as set out in this section above.

5.1.26 Journey time validation has been conducted for 42 routes, which are further split into 98 partial routes for more detailed analysis. Table 12 shows the number of full journey time routes that meet the criteria and guidelines set out within TAG. As well as the total passes, the routes have been split into those that are on the SRN and those not on the SRN.

Table 12: Journey time route at full route level: number of routes passing (either 15% or within 1-minute)

Time Period	Count	AM1	AM2	IP	PM
All Routes	42	39 (93%)	36 (86%)	41 (98%)	36 (86%
SRN	8	7 (88%)	6 (88%)	7 (88%)	6 (88%)
Non SRN	34	32 (94%)	30 (88%)	34 (100%)	30 (88%)

5.1.27 The partial route performance provides additional assurance that at an even more detailed level the performance of the model is good. Table 13 presents the number of partial journey time routes that meet guidelines set out within TAG.

Table 13: Journey time route at partial route level: number of routes passing (either 15% or within 1-minute)

Time Period	Count	AM1	AM2	IP	PM
All Routes	98	83 (85%)	83 (85%)	93 (95%)	80 (82%)
SRN	28	22 (79%)	25 (89%)	26 (93%)	24 (86%)
Non SRN	70	61 (87%)	58 (83%)	67 (96%)	57 (80%)

5.1.28 As can be seen from Table 13 the partial routes in the AM1, AM2 and IP time periods meet guidelines set out within TAG, and the IP partial route performance is seen to exceed it substantially. The PM time period is slightly below the guidelines at the partial route level but meets it at full route level and shows a very strong level of performance across all time periods.

5.1.29 The screenline statistics and journey time information show that the model meets the required standard and provides a robust baseline on which to undertake the forecasting on.

[6] The GEH statistic, which is a form of the Chi-squared statistic that incorporates both relative and absolute errors

5.2 Rail model

5.2.1 The role of the rail model is to produce zone-to-zone travel times and costs for the variable demand and airport mode choice models; and to assign rail trips onto services so that rail volumes may be reviewed and interpreted and crowding conditions assessed. In this section the development of the rail model is briefly described.

Source model

5.2.2 The DfT PS model formed the starting point for the rail assignment model. This covers national rail services across south east of England, London Underground, Croydon Tramlink and DLR.

5.2.3 PS has a 2011 base year and represents only the AM peak. This therefore needed updating to 2016, and to reflect rail services across the day in the airport mode choice models, as a significant amount of airport access is outside the traditional peaks.

Network development

5.2.4 PS provided the base network of nodes and links and the zoning system. The nodes and links were updated from 2011 to 2016, adding new links and stations such as Oxford Parkway, adding some existing stations that were not previously coded, and editing or completely replacing network elements requiring extra detail for the Gatwick analysis, eg Croydon Tramlink. PS has 1,392 zones. The single PS zone representing Crawley was split into north and south parts.

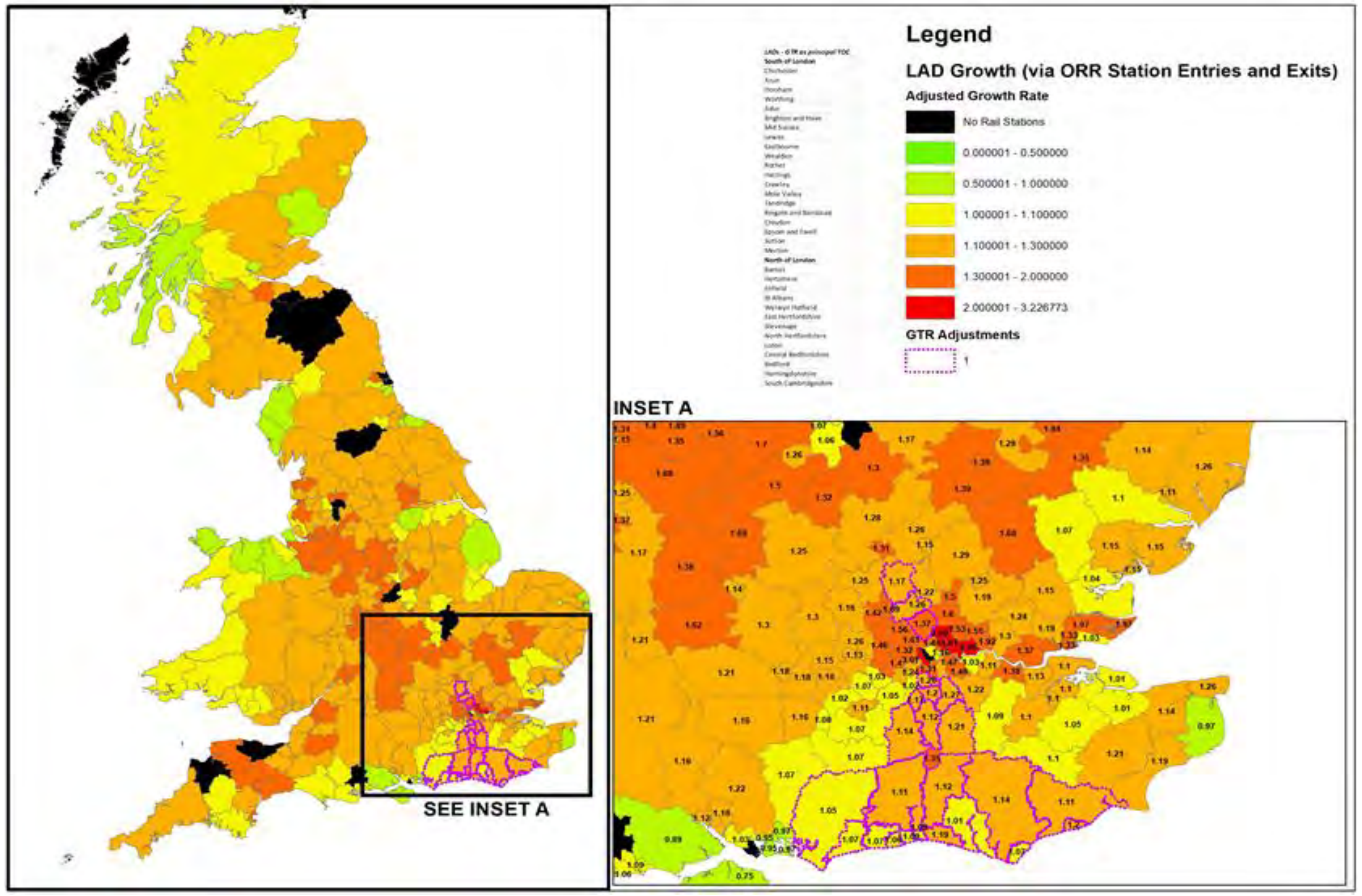
5.2.5 The 07:00-10:00 AM rail services coded in PS were deleted. Service coding was developed for six modelling periods (AM peak 07:00-09:00, Interpeak 0900-1600, PM peak 16:00-18:00, evening 18:00-00:00, night 00:00-04:00 and early morning 04:00-07:00). The services, calling points and journey times came from Network Rail CIF input for the May-Dec 2016 timetable. The train capacities (seats and standing spaces) came from DfT Green Book data for Spring 2016.

Matrix development

5.2.6 The starting point was the PS AM Peak 2011 matrix. To expand to all periods and update from 2011 to 2016, the following steps were taken:

- Create a 2011 24hr Production-Attraction (PA) matrix by expanding the 2011 AM PA matrix using National Rail Travel Survey (NRTS) outward/return PA profiles (as used in DfT MOIRA 2.2 model). These vary by purpose, time band, and flow type (eg to/from London).
- Apply growth to the 24hr 2011 PA matrix to create a 2016 version using growth rates derived from ORR station entries and exits data for 2011 and 2016 and similar TfL data.
- In areas adversely affected by Thameslink Programme disruptions in 2016 (including the Brighton Main Line), the growth rates were obtained from an interpolation between 2012 and 2019.
- Create 2016 OD matrices for each of the six model periods by multiplying outward and return factors from the National Rail Travel Survey (NRTS) to the 24hr PAs.
- Assign to the networks.
- Refine volumes at 24-hour level and time period level using observed data at the London cordon and adjusting outward/return factors and overall 24hr volumes.

Figure 22: 2010/11 to 2016/17 LAD Growth



5.2.7 The demand growth from 2011 to 2016 at local authority level is shown in Figure 22. The pink outlined zones are those affected by Thameslink Programme disruption – growth for these zones was determined by interpolation between pre- and post-disruption counts.

Rail performance metrics

5.2.8 The performance of the rail model was assessed by undertaking service, journey time and line loading comparisons in line with the guidance set out in TAG Unit M3.2. Specifically, the following metrics were adopted:

- number of National Rail services across the London cordon (TfL Zone 1 boundary);
- number of seats on national rail services across the London cordon;
- journey times between selected locations;
- passenger volumes across the London cordon;
- passenger volumes entering/exiting at Gatwick; and
- passenger volumes arriving at and departing from Gatwick.

5.2.9 Validation was undertaken in sequential steps: ensuring the modelled supply (train services and capacities) and demand were realistic at 24-hour level at the London cordon, then repeating for each of the five periods (not including night time OP2) and then focusing attention on volumes at Gatwick.

5.2.10 At 24hr level the 2-dir modelled passenger volumes are 1% above the counts for the Southern network (ie for GTR services crossing the London cordon at Victoria, Blackfriars and London Bridge).

5.2.11 In the individual periods, the 2-dir volumes differ from the counts by +1% (AM), 0% (IP), +4% (PM), -2% (OP1) and +6% (OP3). The coded train capacities were also checked and confirmed to be a close match to observed data.

5.2.12 At Gatwick the modelled entries were compared against gateline data as shown in Figure 23. The numbers on the y-axis have been omitted for confidentiality reasons, but it can be seen that the match is close. The gateline data is independent, ie it was not used in development of the demand matrices, so this is a strong validation.

5.2.13 The passenger volumes on arrival at and on departure from Gatwick Airport Station are also a reasonably close match as shown in Figure 24.

5.2.14 These summary performance statistics indicate that the model estimates passenger volumes that are a good match to count data and that capacity and crowding conditions are a reasonable reflection of reality.

Figure 23: Gatwick Airport Station entries, 2016

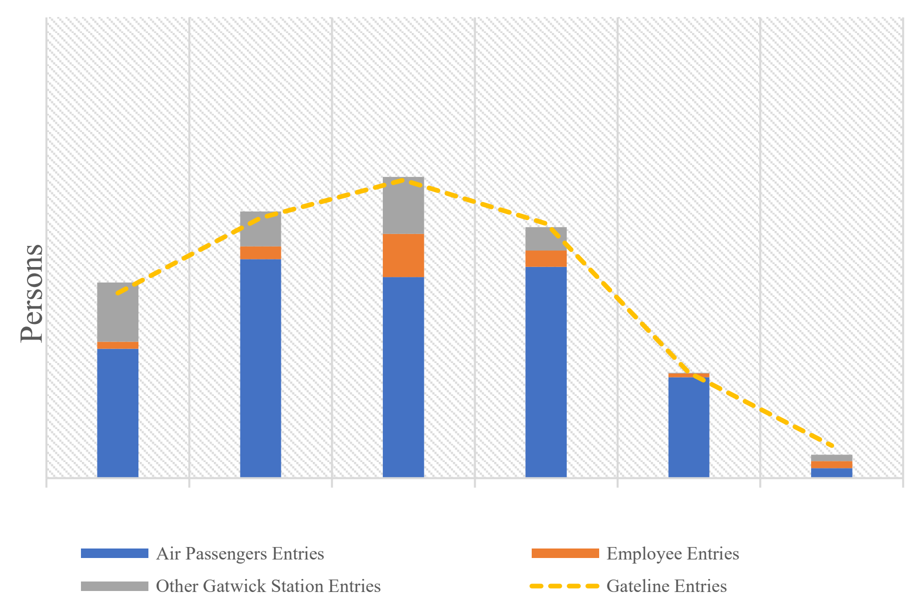
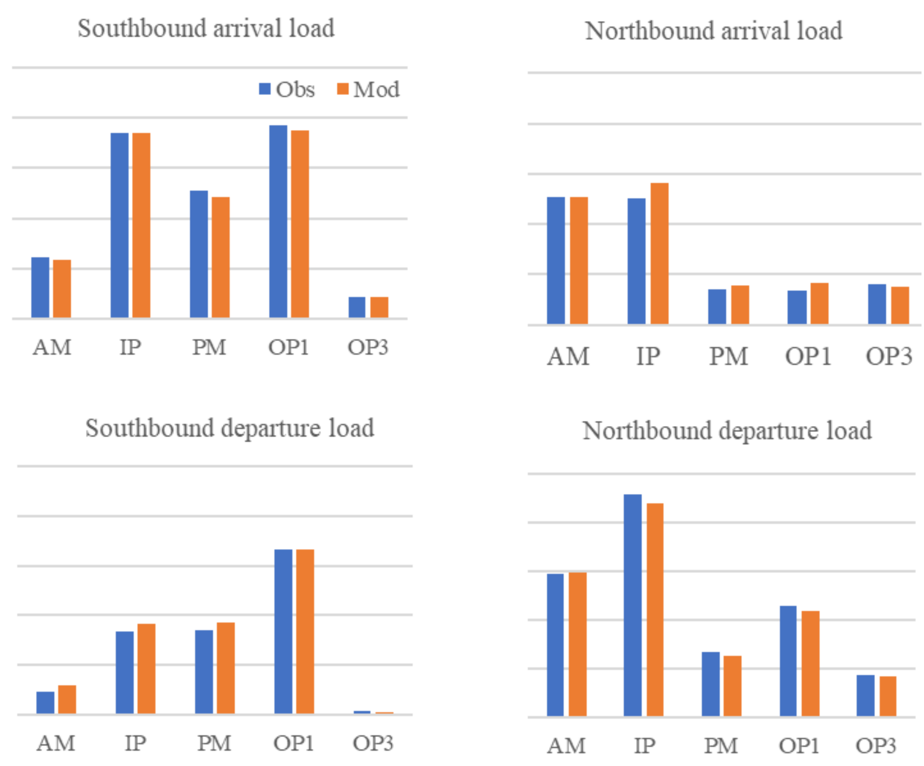


Figure 24: Loads on arrival at/departure from Gatwick Airport Station



5.3 Bus/coach model

5.3.1 In the absence of any suitable source model that could be built upon, a bus/coach model was developed from scratch with the same base year and time periods as for rail. Coach services are mostly used by Gatwick air passengers and bus services by Gatwick employees.

5.3.2 The role of the bus/coach model is to produce zone-to-zone times and costs for the airport mode choice models; and to assign bus/coach trips onto services so that volumes may be reviewed and interpreted. In this section the development of the bus/coach model is briefly described.

Network development

Coach network

5.3.3 There is a limited coach network serving Gatwick. Some locations such as London Victoria and Oxford have excellent coach links to Gatwick throughout the day, but most towns and cities are either not directly connected to Gatwick or there is a low frequency service. From these places coach passengers going to/from Gatwick may need to change coaches at Victoria coach station or Heathrow Airport.

5.3.4 To ensure that the bus/coach model identifies realistic routes and generalised costs for those with direct and indirect access to Gatwick, the complete (GB-wide) coach networks operated by National Express and Megabus were coded. In addition, any other coach operators that serve Gatwick, eg Oxford Bus Company. The data source was GTFS.

Bus network

5.3.5 The local bus network serving Gatwick is provided by Metrobus, supplemented by a few services from other operators, eg Southdown. All bus services that call at Gatwick or within the built-up areas of Horley and Crawley have been included in the model. This ensures that all local areas are connected to Gatwick by bus either directly or with interchange, generally at Crawley bus station.

5.3.6 GTFS data for the bus services were obtained to build a bus network at stop-to-stop level which was then overlaid onto the road networks to obtain the network shown in Figure 5.

Matrix development

5.3.7 Bus and coach demand matrices have been developed for airport passengers and airport employees using data from the expanded CAA passenger survey and Gatwick employment surveys respectively.

5.3.8 Operators were approached for patronage data but for reasons of commercial confidentiality this was not made available, and it was not possible to undertake a survey. Therefore, the bus/coach matrices are partial. This limits our ability to comment on capacity, however it is reasonable to assume that if/when demand exceeds capacity then operators would respond with higher frequencies or larger vehicles.

Bus/coach performance metrics

5.3.9 The following metrics were adopted for validation for bus/coach:

- number of coach services at Gatwick;
- number of local bus services;
- journey times; and
- passengers boarding local bus services at Gatwick.

5.3.10 The validation indicated that modelled bus and coach routes, frequencies and journey times are in close accordance with observed data.

5.3.11 As the demand matrices are partial (they exclude non-airport demand) the full validation of demand was not possible.

5.3.12 Bus boarding counts provided by Metrobus at North Terminal (where we would expect the vast majority of bus passengers are air passengers or airport employees) showed a good match in each time period. At South Terminal there are a lot of non-airport bus passengers interchanging between rail and bus; the model includes only the airport trips, the boarding counts suggest that airport trips make up about half of all bus passengers boarding in the vicinity of the South Terminal.

5.4 Variable demand model

Development approach

5.4.1 The VDM was developed to forecast demand and find equilibrium between the demand and supply. The VDM was developed in EMME with highway assignment undertaken in SATURN.

5.4.2 The model hierarchy follows the relevant guidance in TAG with choices applied incrementally, as opposed to absolutely. This incremental nature accounts for cost changes between the base and the forecast scenarios using a pivot point approach that is similar to the VDMs in the National Highways RTMs, eg SERTM.

5.4.3 In accordance with TAG guidance, the model hierarchy is as follows:

- mode choice – car and rail (lowest sensitivity);
- destination choice; and
- route choice - undertaken for the highway model in SATURN (highest sensitivity).

5.4.4 TAG also refers to macro time period choice as the lowest sensitivity response (lower than mode choice). In our experience inclusion of this stage makes little difference to results but does extend run times. For this reason, it was excluded.

5.4.5 Destination choice is singly constrained for Business and Other trips, and doubly constrained for commute trips. The destination choice logit parameters are as shown in Table 14. These are the median values from TAG Unit M2 Table 5.1.

Table 14: Destination choice parameters

Segment	Car	Rail	Constraint
HBEB	0.067	0.036	Production
HBW	0.065	0.033	Production and Attraction
HBO	0.090	0.036	Production
NHBEB	0.081	0.042	Origin
NHBO	0.077	0.033	Origin
Dev	0.083	-	Development End

5.4.6 The mode choice logit parameters are shown in Table 15. These are the median values from TAG Unit M2 Table 5.2.

Table 15: Mode choice parameters

Segment	Theta
HBEB	0.45
HBW	0.68
HBO	0.53
NHBEB	0.73
NHBO	0.81
Dev	-

5.4.7 The generalised costs used in the model are detailed in Section 6.

5.4.8 The base demand was assigned on an origin/destination basis and, for highway, calibrated in SATURN using matrix estimation. The VDM considers home based demand and non-home-based demand separately, the former modelled as productions and attractions and the latter modelled as origins and destinations. Conversion of the home-based trips from PAs to ODs results in discrepancies between the validated base demand and the VDM base reference demand. To overcome this, as is standard practice, a set of factors referred to as Fitting on Factors (FOFs) were calculated. These FOFs are applied on each iteration before assigning the demand to correct the differences.

5.4.9 Outbound and return factors define the proportion of home-based trips going out and returning in each time period. This is necessary to assign the demand and find equilibrium between demand and supply. These factors were calculated from the mobile phone data.

5.4.10 There are differences between the time period definitions in the highway, rail and VDMs. This is shown in Table 16. Distribution and mode choice calculations are undertaken at the VDM time period level, and subsequently split where necessary for assignment using the ratio of demand in each sub time period in the base model.

Table 16: VDM and assignment time periods

Time period	Highway	Rail	VDM
AM	AM1: 07:00 – 08:00 AM2: 08:00 – 09:00	AM: 07:00 - 09:00	AM: 07:00 – 09:00
IP	IP: 09:00 – 16:00	IP: 09:00 – 16:00	IP: 09:00 – 16:00
PM	PM: 16:00 – 18:00	PM: 16:00 – 18:00	PM: 16:00 – 18:00
OP	OP: 18:00 – 07:00	OP1: 18:00 - 00:00 OP2: 00:00 - 04:00 OP3: 04:00 - 07:00	OP: 18:00 – 07:00

5.4.11 The VDM calculates demand for persons. The highway model assigns Passenger Car Units (PCUs); therefore occupancy factors are required to convert between persons and PCUs. For business and commute trips, these are imported from National Highways SERTM and are listed in Table 17.

Table 17: Car occupancy factors

Segment	Occupancy factor
HBEB	1.11
HBW	1.1
NHBEB	1.18

5.4.12 The occupancy factors for other trips are calculated based on trip distance. The parameters are dependent on the location of the origin zone. The parameters are shown in Table 18.

Table 18: Other occupancy factor parameters

Segment parameter	Urban	Rural	London
HBO a	0.00113	0.00113	0.00113
HBO b	0.524	0.482	0.549
NHBO a	0.00108	0.00108	0.00108
NHBO b	0.418	0.418	0.497

5.4.13 Highway and rail assignment times and costs are iterated in VDM. The rail time and fare skims have been re-zoned from PS zoning to GHOST zoning, splitting based on population and jobs.

5.4.14 Choices predicted by multinomial logit models depend on the difference in generalised costs between two alternatives. This can result in overly sensitive to cost changes for longer distance trips. As recommended in TAG Unit M2.1, cost damping is applied in the model as a function of distance. The cost damping parameters were imported from SERTM, shown in Table 19.

Table 19: Cost damping parameters

	k	α	d_c	d_0	η
Car Business	30	0.5	10	99.5	0.387
Car Commute	30	0.5	10	30.5	0.248
Car Other	30	0.5	10	31.2	0.315
Rail Business	30	0.5	10	165.5	0.435
Rail Commute	30	0.5	10	30.5	0.248
Rail Other	30	0.5	10	31.2	0.315

5.4.15 LGV and HGV and segments are fixed, they are not subject to destination choice or mode choice.

5.4.16 Gatwick employee and passenger demand is modelled by the Gatwick Mode Choice Model (GSAM). This is integrated into the VDM and run on each iteration of the VDM. The Gatwick employee and passenger demand is assigned on each iteration of the VDM. GSAM is discussed in further detail in Section 5.5.

Realism testing

5.4.17 Three realism tests were undertaken for the base model:

- A fuel cost realism test by increasing the highway fuel costs by 20% in both the VDM and the highway assignment model;
- a public transport fare realism test by increasing public transport fares by 20% in the VDM; and
- a car journey time realism test by increasing journey time skims by 20% in the VDM.

5.4.18 The model meets the TAG criteria set out in Unit M4 Section 6.4 and Unit M2 for all three realism tests as shown in Table 20. The responses are sensible and the model is considered suitability for forecasting.

Table 20: Realism test summary

Test	TAG Criteria	Model
Car Fuel Cost	-0.25 to -0.35	-0.35 ✓
Public transport Fare	-0.2 to -0.9	-0.31 ✓
Car Journey Time	No greater than -2.0	-0.07 ✓
VDM Convergence	GAP<0.1%	<0.1% ✓

5.5 Gatwick mode choice model

Development approach

5.5.1 The Gatwick Mode Choice Model (GSAM) was developed to calculate the changes in mode choice for airport passengers and employees. GSAM was applied as an incremental logit model, in a similar manner to the main VDM.

5.5.2 GSAM is summarised as follows.

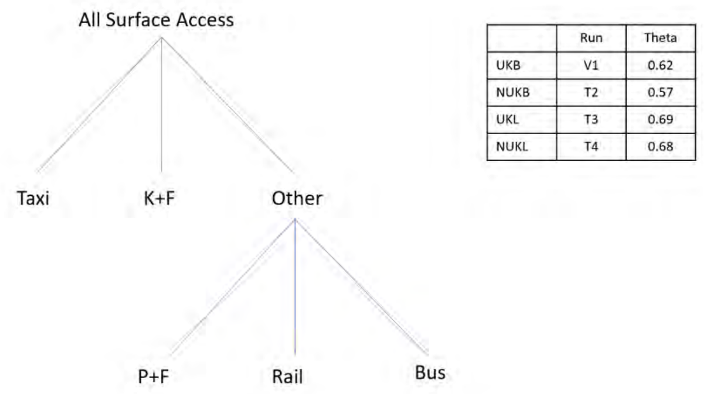
- Behavioural data for the period around/including the model base year 2016 were developed – databases were provided by Gatwick from the CAA rolling survey of departing airport passengers, and from the most recent periodic employee travel survey (Spring 2016).
- A database of transport times and costs from the highway, rail and bus models and other sources such as rail fares databases, taxi rates etc was developed and joined to the behavioural data.
- Scripts to estimate models using Biogeme (v3.2.6) statistical software were developed.
- Utility functions defined.
- Model parameters estimated for a multinomial logit model.
- A range of models were tested, each assessed, to consider the overall fit; significance; magnitudes and signs of the parameters; key ratios, eg the value of time; and other sensibility and reasonableness tests.
- Utility functions were varied and relevant corrections/transformations applied to inputs. This process was repeated to estimate different models, testing a range of alternative utility functions.
- When no further improvements were found, alternative hierarchies (nesting structures) for improved model fit and plausibility were tested.
- The final models were run on the survey database to check that observed mode shares could be replicated with reasonable accuracy.
- The final models were then implemented in the GSAM application and base realism tests were undertaken to check sensitivities (elasticities).
- Elasticities were compared against benchmarks from other models and DfT guidance.
- An expert reviewer was engaged to advise on the suitability of the approach and assist in the finalisation.

5.5.3 To best align with the other model components, data inputs for the estimations have been undertaken at a time period level (AM, IP, PM, OP1, OP2, OP3), representing a single trip. For the employee model, GemSAM, this is the average of the two directions and for the passenger model, GapSAM, this is half the round-trip cost.

Model hierarchy

5.5.4 A two-level model hierarchy produced the most statistically significant structure for air passengers, as shown in Figure 25, with the nesting parameters (theta values). The structure implies more sensitivity to switching within the lower nest (Park and Fly, Bus, Rail).

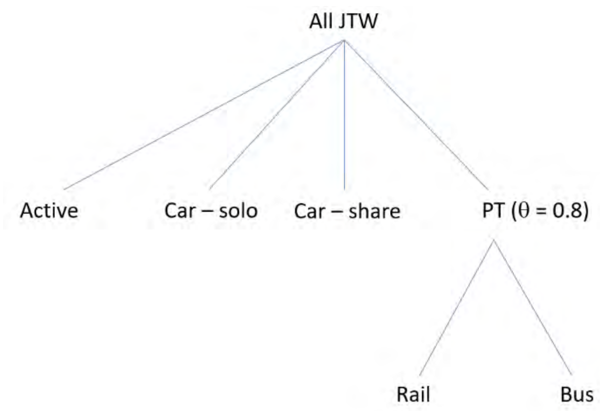
Figure 25: GapSAM (Air Passenger) model testing



	Run	Theta
UKB	V1	0.62
NUKB	T2	0.57
UKL	T3	0.69
NUKL	T4	0.68

5.5.5 For airport employees, the best model fit was nesting of the public transport modes as shown in Figure 26.

Figure 26: GemSAM (Airport Employee) model hierarchy



5.5.6 For UK Leisure, the model fit was significantly improved when out of pocket costs for car and taxi (fuel cost, taxi fare, parking fee) were shared among the vehicle occupants; for the other segments the fit was not improved. Therefore, sharing of fuel cost, taxi fare and parking fee has been accepted for UKL and rejected for other segments. There is no information in the survey data of whether costs are in fact shared or not. We have assumed that fuel costs are shared for the car share option for airport employees.

Realism testing

5.5.7 A wide range of base realism tests were undertaken to test the sensitivity of the model and to benchmark elasticities against existing models of airport access choice (notably LASAM). The elasticities were found to be in reasonable ranges. The estimation of the models and elasticities were submitted for external expert review.

6 Forecast methodology

6.1 Introduction

6.1.1 This section outlines the overall modelling approach:

- the future years assessed;
- approach to forecasting future transport demand;
- impact of COVID Pandemic on travel demand;
- the coding of future transport network;
- future travel costs – non airport related;
- future travel costs – airport related;
- adjustments to rail mode share;
- creation of outputs for environmental analysis;
- interaction with simulation models;
- risks and uncertainties; and
- assessment of effects.

6.2 Identification of future years

6.2.1 Forecasts have been prepared for the following assessment years:

- **2018**: Forecast to support environmental modelling workstreams, although not reported on in this document.
- **2029**: First Full Year of Operations of the proposed Northern Runway Project (Highway Scheme under construction).
- **2032**: Interim Assessment Year, by which time highway mitigation is expected to have been completed and which represents a year in which environmental effects are likely to be higher than 2029.
- **2038**: Interim Assessment Year, developed primarily to support the Environmental Modelling workstreams.
- **2047**: Ultimate Year, 15 years after highway scheme open.

6.3 Approach to forecasting future transport demand

6.3.1 The methodology set out in TAG Unit M4 was used to produce demand forecasts for each of the model years.

6.3.2 The DfTs Trip End Presentation Program (TEMPro) (V7.2) was used to source the National Trip End Model (NTEM) assumptions. This sets out national travel demand growth for each local authority area based on a set of planning assumptions covering employment and housing projections.

6.3.3 As detailed in Section 9, a demand Uncertainty Log was used as the basis for reviewing these assumptions at a fine level of spatial detail in the AoDM. The NTEM assumptions were then updated accordingly, and the most current local plan assumptions were used as the basis for the growth trajectory in each local authority district. These were further extrapolated beyond the relevant local plan period adopting the assumptions in the NTEM.

6.3.4 The growth in travel demand was calculated for each modelled demand segment, mode and car availability combination based on this update of population and employment projects by factoring the standard TEMPro forecasts, accordingly, as recommended in the guidance.

6.3.5 In London, MoTiON 3.0.18 data from TfL was adopted to modify the assumptions in London for growth in travel demand. This involved the updating of population and employment forecasts for the London boroughs.

6.3.6 The developments outlined in the Uncertainty Log are for varying sizes and it is appropriate to treat these in different ways, with large developments being modelled explicitly. Further information on this is detailed in Section 9.

6.3.7 Goods vehicle growth rates were taken from Road Traffic Forecast 2018 (RTF18) Scenario 1. The traffic growth factors (in vehicle miles) at regional level were applied to the 2016 base goods vehicle demand. Goods vehicle forecasting at Gatwick was undertaken using passenger and cargo forecasts. This is detailed in Section 7.6.

6.3.8 The distribution of Heathrow Airport demand was taken from SERTM – this was based on data from the DfT on the current two runway (R2) only scenario, with demand projections based on 2014 DfT forecasts. This demand was updated using the latest available public demand forecasts for Heathrow[7] which assumed by 2047, a total of 92 million passengers per annum (mppa). Specific time period assumptions were derived by comparing base Heathrow assumptions with observed counts on the M4 Spur, and T5 slip roads on the M25.

6.4 Impact of COVID Pandemic on travel demand

6.4.1 At the time of writing, there is a lot of speculation relating to the impact of the COVID-19 pandemic on long term trends associated with mobility. This includes discussions around the extent of changes in flexible working conditions offered in certain employment sectors, and the sustained impact on commuting and business-related travel. Due to this level of uncertainty, no specific account has been made in the forecasting of background travel demand to reflect any specific long-term trends. We would in general consider these impacts to result in a downside to travel demand making the assessments undertaken in this report conservative.

6.5 Coding future transport networks

6.5.1 To aid the development of the supply side of the model, an Uncertainty Log was compiled, as detailed in Section 9. Where detailed drawings and other information is available this has been used to inform the assumptions in the models. Approaches to coding were consistent with those used in the preparation of the base models.

6.6 Future travel costs – non airport related

6.6.1 The generalised costs used in the model were taken from TAG Data Book November 2021 (v1.17). The vehicle operating costs have been calculated using the RTF18 average network speeds for the South East region. This data have been transformed into the appropriate units for each model component.

Variable demand modelling

6.6.2 Table 21 presents the values used in the VDM. This includes for both car and rail modes segmented by purpose and including operating costs for car travel.

Highway modelling

6.6.3 The values of time for Gatwick employees are assumed to be the same as for commuters generally. The Gatwick air passenger value of time in the 2016 base year was estimated in GSAM. For forecast years the Gatwick air passenger value of time is assumed to increase in proportion to the increase in the car business value of time.

6.6.4 Table 22 presents the Highway model values of time for each time period. Note that for the AM1 and AM2 time periods use the same values. The Gatwick air passenger vehicle operating costs are calculated as 14% of business and 86% of other vehicle operating costs. This ratio has been derived from the 14% business to 86% leisure passenger mix at Gatwick. The values used are presented in Table 23.

[7] UK Aviation Forecasts 2017: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878705/uk-aviation-forecasts-2017.pdf

Table 21: VDM generalised costs

	2016	2018	2029	2032	2038	2047
Car Business VoT (p/hr)	1,835.74	1,868.67	2,094.09	2,184.20	2,377.09	2,684.24
Car Commute VoT (p/hr)	1,219.74	1,241.62	1,391.40	1,451.27	1,579.43	1,783.51
Car Other VoT (p/hr)	874.29	889.97	997.33	1,040.24	1,132.11	1,278.39
Car Business VOC (p/km)	11.75	12.19	10.33	9.71	8.84	8.26
Car Commute VOC (p/km)	5.55	6.10	4.90	4.60	4.07	3.68
Car Other VOC (p/km)	5.55	6.10	4.90	4.60	4.07	3.68
Rail Business VoT (p/hr)	2,635.38	2,682.65	3,006.26	3,135.62	3,412.53	3,853.47
Rail Commute VoT (p/hr)	1,069.77	1,088.96	1,220.33	1,272.83	1,385.24	1,564.23
Rail Other VoT (p/hr)	488.28	497.04	556.99	580.96	632.27	713.96

Table 22: Highway values of time (pence per minute)

Purpose	2016	2018	2029	2032	2038	2047
AM						
Car business	30.11	30.65	34.34	35.82	38.99	44.02
car commute	20.19	20.55	23.03	24.02	26.14	29.52
Car other	13.93	14.18	15.89	16.57	18.04	20.37
LGV	21.82	22.21	24.89	25.96	28.25	31.90
HGV	49.98	50.87	57.01	59.46	64.72	73.08
Car Gatwick employee	20.19	20.55	23.03	24.02	26.14	29.52
Car Gatwick passenger	35.76	36.4	40.79	42.55	46.31	52.29
IP						
Car business	30.85	31.40	35.19	36.71	39.95	45.11
Car commute	20.52	20.89	23.41	24.41	26.57	30.00
car other	14.84	15.10	16.93	17.66	19.21	21.70
LGV	21.82	22.21	24.89	25.96	28.25	31.90
HGV	49.98	50.87	57.01	59.46	64.72	73.08
Car Gatwick employee	20.52	20.89	23.41	24.41	26.57	30.00
Car Gatwick passenger	35.76	36.4	40.79	42.55	46.31	52.29
PM						
Car business	30.54	31.09	34.84	36.34	39.55	44.66
Car commute	20.26	20.62	23.11	24.11	26.23	29.62
Car other	14.59	14.85	16.64	17.36	18.89	21.33
LGV	21.82	22.21	24.89	25.96	28.25	31.90
HGV	49.98	50.87	57.01	59.46	64.72	73.08
Car Gatwick employee	20.26	20.62	23.11	24.11	26.23	29.62
Car Gatwick passenger	35.76	36.4	40.79	42.55	46.31	52.29

Table 23: Highway vehicle operating costs (pence per km)

Purpose	2016	2018	2029	2032	2038	2047
AM						
Car business	11.99	12.44	10.57	9.95	9.08	8.50
Car commute	5.65	6.21	4.99	4.69	4.14	3.75
Car other	5.65	6.21	4.99	4.69	4.14	3.75
LGV	13.17	13.83	12.73	12.37	11.76	11.16
HGV	39.12	41.92	39.51	38.62	37.54	37.69
Car Gatwick employee	5.65	6.21	4.99	4.69	4.14	3.75
Car Gatwick passenger	6.54	7.08	5.77	5.43	4.83	4.42
IP						
Car business	11.76	12.20	10.34	9.72	8.85	8.28
Car commute	5.56	6.10	4.91	4.60	4.07	3.69
Car other	5.56	6.10	4.91	4.60	4.07	3.69
LGV	13.09	13.74	12.64	12.28	11.66	11.06
HGV	38.17	40.90	38.51	37.63	36.55	36.68
Car Gatwick employee	5.56	6.10	4.91	4.60	4.07	3.69
Car Gatwick passenger	6.43	6.95	5.67	5.32	4.74	4.33
PM						
Car business	12.04	12.50	10.63	10.01	9.14	8.56
Car commute	5.67	6.24	5.02	4.71	4.16	3.76
Car other	5.67	6.24	5.02	4.71	4.16	3.76
LGV	13.19	13.86	12.76	12.40	11.78	11.19
HGV	39.34	42.15	39.76	38.87	37.80	37.97
Car Gatwick employee	5.67	6.24	5.02	4.71	4.16	3.76
Car Gatwick passenger	6.56	7.12	5.81	5.45	4.86	4.43

Public transport fares

6.6.5 Public transport fares have been held constant in real terms at their base values for all future years. Historically, in each year between 2004 and 2013, government raised regulated rail fares by RPI + 1%. Since then, government has raised regulated rail fares by RPI in each year except for 2021 when they were raised by RPI + 1% (though, due to reductions in unregulated fares, the overall fares basket grew by RPI in 2021 also). Given this history and the uncertain government policy going forward, it has been assumed that fares will remain broadly constant in real terms in future years, and the same for bus and coach.

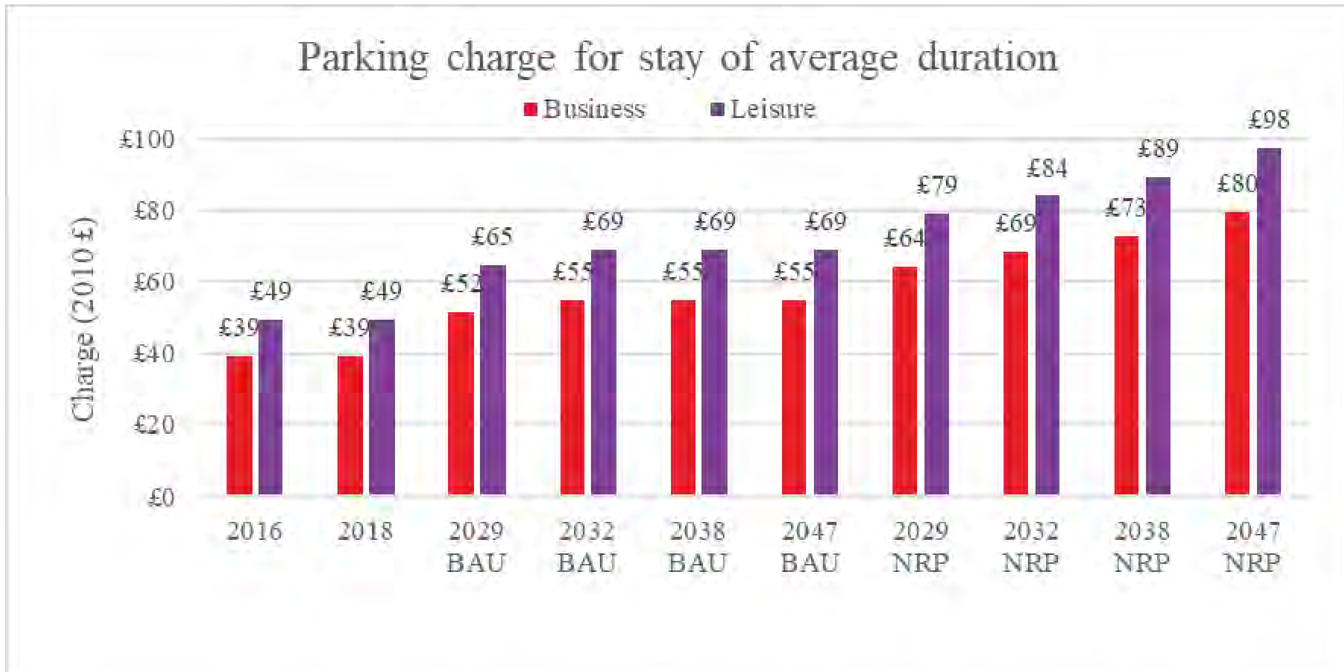
6.7 Future travel costs – airport related

6.7.1 Public transport fares for airport users are assumed to remain constant in real terms for all future years and scenarios.

6.7.2 The supply of off-airport car parking available to air passengers is assumed to stay constant, ie it is assumed that there will be no off-airport car park expansion beyond what is in existence now. In the June 2016 base, Gatwick estimates that the off-airport car parks were around 80% occupied. In future years, the (fixed) off-airport car parking is capped at 87.5% occupancy, based on data of peak occupancy at existing off-airport sites. Off-airport parking demand above this cap is re-allocated to on-airport car parks.

6.7.3 The price of air passenger parking (on-airport and off-airport) is assumed to escalate in real terms as shown Figure 27. This shows the average payment per car for business and leisure for a typical stay. The parking charge is lower for business than leisure because although the daily rate for business parking is higher, the duration of stay is significantly shorter. The escalation assumed is two percentage points higher for With Project (6.5% AAGR) than for Future Baseline (4.5% AAGR). This is primarily to manage the demand and to encourage mode switch to public transport.

Figure 27: Airport car park charges per car per stay



6.7.4 Car parking for employees is generally free to the user. A charge equivalent to £5 per vehicle per day (£4.12 in 2010 money used by the model) for single occupancy car is assumed, to encourage switch to car sharing and sustainable modes. Note, this is an assumption for modelling purposes and other mechanisms other than direct pricing would be available to Gatwick to achieve an equivalent generalised cost increase to encourage mode switch.

6.7.5 Charges were introduced in 2021 for cars and taxis entering the forecourt. This affects the taxi and car kiss-and-fly modes. In 2021 the minimum charge, for a 5-minute stay, was £5 (£4.12 in 2010 money used by the model). Assumptions for future years are shown in Table 24.

6.7.6 As with the car parking charges, the forecourt charge is raised more in With Project than Future Baseline to manage demand and encourage the switch to public transport. These modelled changes are consistent with Gatwick's sustainability policies.

Table 24: Forecourt access charge per car (2010 prices)

	2029	2032	2038	2047
Future Baseline	£8.90	£9.50	£9.50	£9.50
With Project	£12.20	£13.00	£13.80	£15.00

6.8 2018/19 adjustments to rail mode share

6.8.1 The base mode share models GapSAM and GemSAM were developed based on 2016 datasets. During 2016, there were a range of disruptions relating to the Thameslink Programme and reconstruction of London Bridge station, when train services were reduced and diverted making travel to Gatwick via London Bridge more difficult. A new timetable entered operation in May 2018 but due to reliability issues with this timetable which led to a series of revisions, and industrial action affecting train crew availability, normal levels of reliability did not fully return until Spring 2019.

6.8.2 This change in reliability resulted in a noticeable uplift in rail mode share from 2018 to 2019 of about 3.3%pts which coincided with a return to more reliable GTR services along Brighton Mainline. Figure 28 summarises the changes observed over this period.

6.8.3 The interpretation of this and its impact on the model components was:

- The step change in rail share was probably caused by the change from an unreliable and disrupted train service to a reliable train service towards the end of 2018 and early 2019.
- The GapSAM model would not be able to replicate the rail share boost because reliability is not an explanatory variable in the rail generalised costs.
- However, the mode constants can be recalibrated to capture the benefit of the reliability improvement and, more generally, to rebase mode shares to the latest data.
- The recalibrated mode constants can be used for 2018/19 runs to obtain mode shares that align with the observed outcome.
- It would be reasonable to continue using the recalibrated mode constants for future years, so long as the reliability changes are permanent.
- However, given the significant size of the jump in rail share (and because it is only one data point, and could not be confirmed in 2020 due to Covid), it was considered prudent.
- To target the situation in 2018/19 (ie averaging two data points: 2018 and 2019) rather than 2019.

6.8.4 To update the base mode choice model to reflect the observed mode shares, adjustments were made to the mode constants to reflect this.

6.9 Creation of outputs for environmental analysis

6.9.1 The results from GHOST are used in a number of environmental assessment disciplines. In order to generate outputs suitable for these, a method of calculating annual average traffic flows and speeds was required.

Preparation of traffic outputs

6.9.2 GHOST includes both background traffic, made up of non-airport related demand, namely cars, light goods vehicles (LGVs) and heavy goods vehicles (HGVs). In addition, airport demand is separated explicitly as airport passengers travelling by car, and airport employees travelling by car. As the annualisation of background traffic and airport traffic is likely to be different, it was determined that the most appropriate method for the estimation of traffic volumes on the network, was to separate airport and non-airport demand.

6.9.3 Whilst GHOST separates the main airport related traffic demands (passengers and employees), it does not separate all airport related traffic and activities such as air related freight and office related activities. To support the requirements of the environmental analysis, airport related traffic was deemed essential to be able to separate out for any link within GHOST. As this was not directly possible to output from the traffic model, a process was set up to overcome this issue within the traffic modelling software.

6.9.4 A matrix and assignment segmentation process was undertaken to separate all OD traffic to airport or non-airport related zones. Within the model, zones starting 67, excluding 67009 (which represents the Buckingham Gate business park, and is not part of the airport's operation), are classified as airport zones. The specific airport related zones identified are shown in Figure 29. Given the way the model was built, these are shown as a mix of polygons and points. Polygon zones are those which have defined geographic space and are all within the Gatwick site boundary, whilst point zones represent car parks – those starting 670 are on site car parks and those starting 671 are offset car parks.

Figure 28: Gatwick observed mode share data from CAA

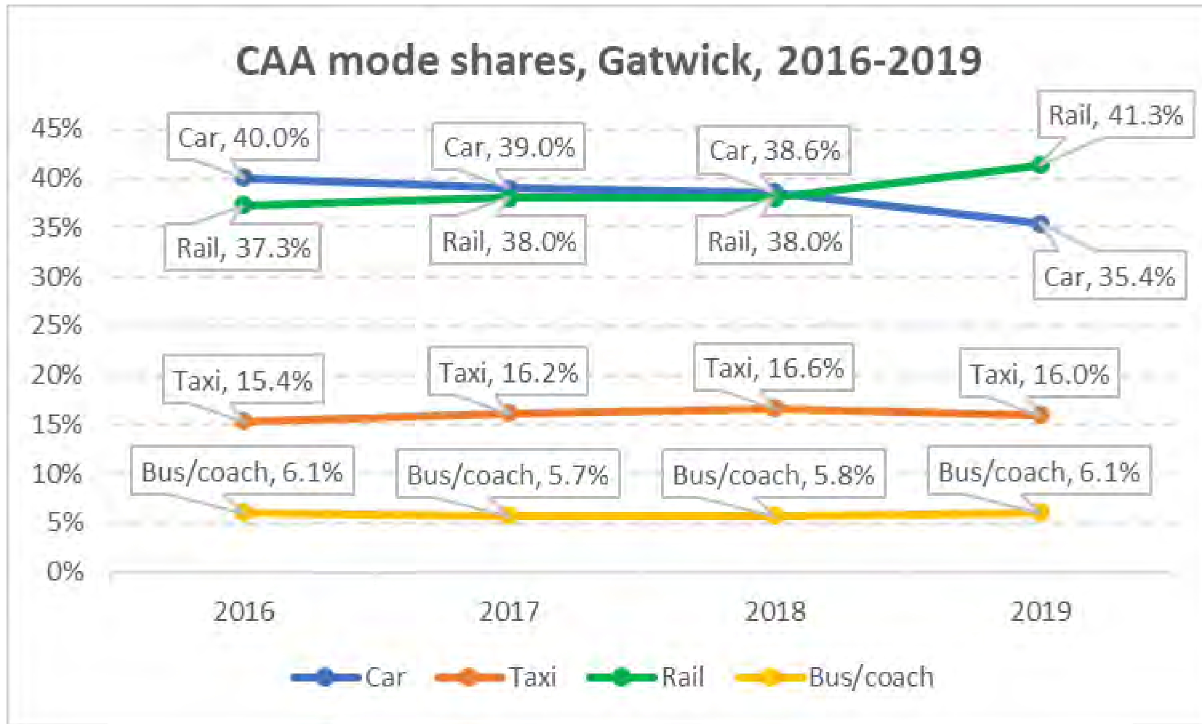
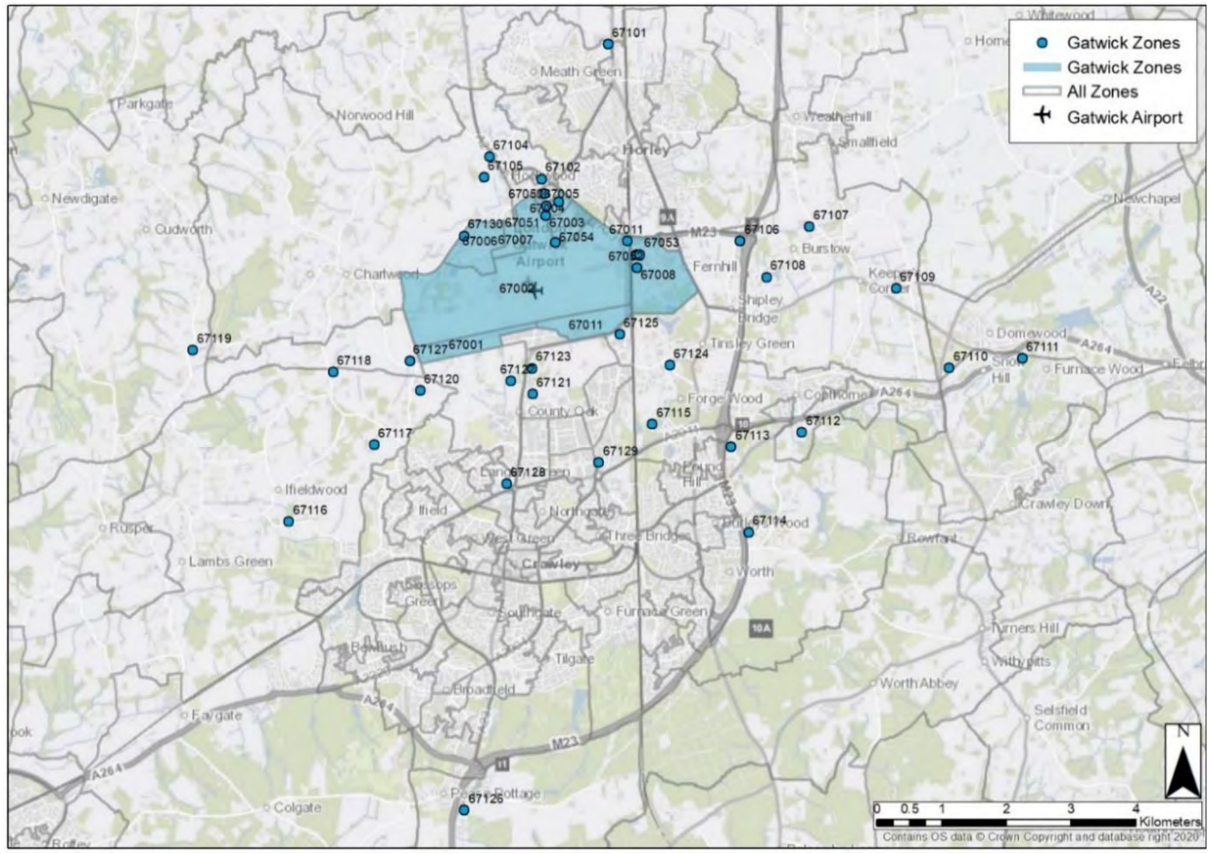


Figure 29: Airport related zones used as the basis for the 14UC assignment



6.9.5 The processing was such that the routing of all airport related traffic could be understood, and the proportion of airport related traffic for car, LGV and HGV traffic estimated for each link and for each time period. The hourly flow values were then combined to create an 11-hour traffic volume. This was undertaken as: AM1+AM2+(7xIP)+(2xPM).

6.9.6 This June weekday average 11hr flow was then converted to annual figures by a series of factors derived for airport and non-airport demand, as well as different factors for SRN and non-SRN roads. These are set out in the following sections.

Generation of traffic flow factors for non-airport related traffic

6.9.7 A combination of temporary Automatic Traffic Count (ATC) and permanent monitoring site data were collated based on the data collection exercise undertaken for the development of GHOST. It was used to estimate the relevant conversion factors to take the 11hr weekday traffic volume predicted by the model and generate 18hr and 24hr estimates of traffic volumes as well as factors to convert average weekday traffic (AWT) estimates to average daily traffic (ADT). Finally, these were also used to calculate factors for annualisation, to take average traffic volumes from June and generate annual average values that form the basis of the environmental analysis. The specific sites, and calculations for this are set out below.

6.9.8 A total of 522 bi-directional traffic counts were used as the basis of the generation of the factors. This approximates around 261 individual locations across the AoDM area. Of the 522 bi-directional count sites, they comprised of 65 SRN and 457 non-SRN data points. Each site included data for a minimum of between 1 to 30 days of 24-hour count data, some covering only weekday counts and others covering both weekday and weekend days. The data was processed to provide an estimate of AWT and ADT volumes at both 18hr and 24hr levels for SRN and non-SRN site locations. Table 25 presents the factors derived from the count data.

Table 25: SRN and non-SRN 11hr to 18/24 and AWT to ADT conversion

	SRN	Non-SRN
Average 11 to 24hr	1.48	1.37
Average 11 to 18hr	1.36	1.31
18hr AWT to 18hr ADT	0.980	0.935
24hr AWT to 24hr ADT	0.974	0.936

6.9.9 These factors are applied across all scenarios/years and applied to non-airport related traffic.

6.9.10 To calculate the relevant annualisation factors to convert from June AWT and ADT to AAWT and AADT respectively, a specific set of factors were calculated to convert from the June to Average. These were derived from a selection of WebTRIS counts in the area. These are presented in Table 26. These factors are applied across all scenarios/years.

Table 26: June AWT/ADT to AAWT/AADT (non-airport)

	Non-airport
June AWT to Average AAWT	0.97
June ADT to Average AADT	0.96

Generation of traffic flow factors for airport related traffic

6.9.11 The airport mode choice models (Gatwick Surface Access Model (GSAM)) for air passenger and airport employee mode choice, produce forecasts of airport highway demands for AM1 (07:00-08:00), AM2 (08:00-09:00), IP (average hour 09:00-16:00) and PM (average hour 16:00-18:00). These matrices are assigned to the highway model. GSAM also produces demand matrices for three OP periods, to make up the full 24 hours, but these are not assigned as there is no OP SATURN model. 11-hour assigned flows for the June weekday can be calculated by adding the four assignments.

6.9.12 To obtain the 18hr and 24hr AWT and ADT link volumes required for environmental analysis, the 11-hour volumes are expanded to 18hr and 24hr (June); the June volumes are converted to AWT, and the AWT is converted to ADT.

6.9.13 The 11-hour to 18-hour factor is obtained from GSAM. The 11-hour volume is obtained by summing periods AM1, AM2, IP and PM. The 18-hour total for 06:00-00:00 is obtained by summing periods AM1, AM2, IP, PM and OP1 (18:00-00:00) plus a percentage of period OP3 (04:00-07:00) that represents hour 06:00-07:00. The percentages are 33% for air passengers and 53% for employees; the proportions are obtained from the Base matrix building process which reports the hourly totals. Dividing the 18-hour total by the 11-hour total gives the 11-hour to 18-hour factor. This factor varies by scenario, depending on the GSAM forecasts.

6.9.14 The 11 to 24-hour factor is also obtained from GSAM. This is simply the sum of all modelled periods (24 hours) divided by the 11-hour total. This factor varies by scenario, depending on the GSAM forecasts.

6.9.15 A factor is applied to convert from June weekday to AWT. Base air passenger weekday matrices were created for each month of the year and for the annual average. The June to AWT factor is calculated by dividing the annual 24hr average by the June 24hr. This factor is calculated only for the base and is applied to all future scenarios. For employee travel, no monthly profile information was available so the June to AWT factor was assumed to be 1.

6.9.16 The final factor is for the conversion from AWT to ADT. Base air passenger matrices were created for weekday-only and for all (7) days. The AWT to ADT factor is calculated by dividing the annual 7-day demand average by the annual weekday demand. This factor is calculated only for the base and is applied to all future scenarios. For employee travel the AWT to ADT factors are derived from analysis of shift and non-shift factors.

6.9.17 The factors used vary slightly by year and scenario. Table 27 presents factors for 2016 alongside the source information.

Table 27: Employees and passengers 11hr to 18/24hr and AWT to ADT conversion (2016)

	Employees	Employees (source)	Passengers	Passengers (source)
Average 11 to 24hr	1.83	Derived from ICF/Mode Choice Model	1.81	Derived from ICF/Mode Choice Model
Average 11 to 18hr	1.56		1.39	
18hr AWT to 18hr ADT	0.97	From GEMSAM	1.04	
24hr AWT to 24hr ADT	0.97	From GEMSAM	1.04	

6.9.18 In common with the non-airport traffic, to calculate the relevant annualisation factors to convert from June AWT and ADT to AAWT and AADT respectively, a specific set of factors were calculated to convert from the June to Average. These were derived from counts taken on the M23 near Gatwick. These are presented in Table 28. These factors are applied across all scenarios/years.

Table 28: June AWT/ADT to AAWT/AADT (airport)

	Airport
June AWT to Average AAWT	0.94
June ADT to Average AADT	0.94

Preparation of environmental datasets

6.9.19 The requirements for the noise modelling were as follows[8]:

- 18-hour AAWT;
- individual hour flows (of AAWT) for the full 24-hour period;
- %HGVs on each road link per hour; and
- mean (pivoted) speed.

6.9.20 The outputs were provided with the following classification: Car, LGV, HGV, AirCar, AirLGV, and AirHGV enabling a distinction between background traffic and airport related traffic.

6.9.21 A summary of the factors generated for the 2047 non-Airport SRN, non-Airport non-SRN, Airport employees and Airport passengers is presented in Table 29. The factors for Air employees and Air passengers vary slightly across each year and scenario as the factors are influenced by the aviation forecast, with those presented being for 2047 with NRP. This table also outlines the source for each hour. The core 11-hours covered by the models were used directly in the case of AM1 and AM2, and profiled for the IP and PM. The 18-hour and 24-hour values were taken as fixed based on the scale of the data used to estimate these values and have greater confidence in these estimates. To support the requirements for the environmental analysis further factors were derived to provide the relevant, more disaggregated data.

6.9.22 For the Air Quality assessment 24-hour AADT data as well as period data (AM peak 07:00 – 10:00 (3hrs), Interpeak: 10:00 – 16:00 (6hrs), PM peak: 16:00 – 19:00 (3hrs), Off peak: 19:00 – 07:00 (12hrs)) were required.

Table 29: Hourly factors (2047 NRP)

Hour starting	Source/Method	Non-airport SRN	Non-airport non-SRN	Air employees	Air passengers
0	24 - 18hr residual factored by timeslice	0.58	0.66	1.08	0.69
1		0.48	0.42	0.32	0.47
2		0.47	0.40	0.41	0.72
3		0.64	0.59	0.61	1.15
4		1.15	1.18	1.36	1.57
5		2.69	2.76	2.22	1.41
6	Factoring from 18-11 residual	1.932	1.349	2.31	1.42
7	AM1 Model	1.00	1.00	1.00	1.00
8	AM2 Model	1.00	1.00	1.00	1.00
9	Convert from Modelled Avg Hour	1.00	1.02	1.09	1.06
10		0.97	0.92	0.84	0.95
11		0.95	0.92	0.72	0.95
12		0.96	0.95	1.05	1.09
13		0.97	0.96	1.14	1.06
14		1.02	1.04	1.24	0.97
15		1.13	1.19	0.91	0.93
16	Factoring from average PM hourly flow	1.02	0.98	0.98	1.00
17		0.98	1.02	1.02	1.00
18	Factoring from 18-11 residual	1.60	1.99	1.52	1.11
19	18hr - 11hr residual factored by time period	1.15	1.33	0.95	1.09
20		0.84	0.86	0.43	0.96
21		0.63	0.63	0.52	0.75
22		0.49	0.55	0.62	0.77
23		0.35	0.29	0.65	0.90

[8] DMRB noise and vibration (LA 111) states that "TRL 'Method 3' provides reliable results for most UK roads. Exceptions to this can include roads where the proportion of night time traffic to day time traffic is atypical, which can occur on roads serving facilities that operate 24 hours per day, for example airports or ports"

6.9.23 The outputs were provided with the following classification: Car, LGV, HGV, AirCar, AirLGV, and AirHGV enabling a distinction between background traffic and airport related traffic.

6.9.24 The AAWT hourly data are aggregated to the form periods needed on an AAWT basis. A factor from Table 26 or Table 28 is then applied to convert this to AADT. These values are then scaled to ensure they match the overall AADT to account for any rounding or similar errors arising from the use of multiple factors derived from differing sources in the calculation.

Speed pivoting

6.9.25 Speed pivoting was undertaken in line with LA 105[9]. This approach used processed observed journey time information, base model speed information, and the AoDM structure. A correspondence between observed links and the modelled speed was created to enable a link level comparison. Where multiple observed links map to a modelled links, then the observed speed is an average. This produces a table of pivoted speeds for each link in the base model.

6.9.26 A set of generic factors were also calculated based on link types defined by the adopted speed flow curves. These were applied to links without observed data but where speed flow curves existed, on the basis that they have similar characteristics and would experience similar variance in terms of modelled to observed.

6.9.27 Several adjustments were also made following initial calculations of the factors to ensure the factors were reasonable. Where the speed is less than 5 kph these were recalculated on the basis of 5 kph. Where the link distance was less than 100, a generic factor was used if the calculated factor was outside the range 0.5 to 2. A cap on the outturn speed of 113 is applied to ensure no forecast speed could be higher than legal limits. Factors are capped at 5.

6.9.28 For links with no speed flow curve applied an infilling process was undertaken utilising average factors from links with speed flow curves. Speed flow curves were grouped into London and non-London and a weighted average factor derived for these areas. If a link was within the London area (defined by being within the LoHAM model area extent) then the London factor was applied, if not a non-London factor was applied.

6.10 Interaction with simulation models

Railway station microsimulation

6.10.1 The Network Rail Legion model of Gatwick Airport Station has been adapted for use in this study. This is a microsimulation model of person movements in and around the railway station in AM and PM commuting peaks. Legion is the name of the software. It is used to assess whether the passageways, platforms, stairways, gate-lines etc are sized to handle the future demands.

6.10.2 The Legion model uses the forecast demands from the strategic rail model to expand the base year movements for each scenario:

- airport employee and air passenger station entries and exits coming to/from North Terminal;
- airport employee and air passenger station entries and exits coming to/from South Terminal;
- non-airport related station entries and exits.

6.10.3 The two-hour data from the rail model is converted to one-hour periods using surface access/egress hourly proportions derived from CAA survey data during the base matrix build.

6.10.4 Two datasets are passed to Legion for modelling: the raw station entry/exit forecasts and a calibrated version of the forecasts giving a closer match to observed entry and exit volumes in 2019 (see **Transport Assessment Annex D – Station and Shuttle: Legion Modelling Report** for more information (Doc Ref. 7.4)).

Highway microsimulation

6.10.5 A VISSIM-based microsimulation model has been built of the immediate vicinity of Gatwick. The highway assignment models are cordoned to provide matrices to feed into this model. This model is used to test in more detail the operational state of the network using the forecast flows from the strategic model but recognising the modelling of aspects such as signal timings can be better represented in the VISSIM model.

6.10.6 A separate **Transport Assessment Annex C – VISSIM Forecasting Report** outlines the use of the cordon matrices within the VISSIM model and any adjustments made prior to use. This report also outlines an assessment of the operation of the highway network around Gatwick.

6.10.7 This model was used to aid the development of the SATURN model coding, particularly with respect to signal timings, where possible, such as advising on likely stage times, and to that end there is a feedback relationship between the two models.

6.11 Risks and uncertainties

6.11.1 The forecasting of travel demand is inherently uncertain. Any forecast outputs could be higher or lower than those predicted. There are a range of macro and micro scale issues that contribute to this which are outlined below.

6.11.2 Underpinning the forecasts are the base models representing conditions in 2016. As outlined in the Local Model Validation Reports, there are inevitably areas of the models where flows are higher or lower than observed or where the journey time route is faster or slower along a given section than the observed data. Both highway and public transport models have been developed in line with TAG and validated against the acceptability guidelines relevant to each model.

6.11.3 The highway model performs well across the whole AoDM and particularly in the vicinity of Gatwick. However, where there are weaknesses in the performance of the model there is a need to be mindful of these in forecasting. One area highlighted in the LMVR is the M25 and how replicating the operation of key sections in the model required bespoke speed flow curves. As such there is a need to monitor performance here.

6.11.4 The public transport base model validation demonstrates a reasonable level of accuracy in replicating capacities and journey times both for rail and bus and coaches. There is uncertainty about use of bus and coach because (a) no data was available to use in building demand matrices for non-airport passengers, therefore the bus/coach model contains only surface access trips made by air passengers and journeys to work made by airport employees; and (b) the limited count data at Gatwick bus stops provided by Metrobus do not distinguish between airport and non-airport related passengers. Nevertheless, the comparison of local bus boardings at North Terminal (where the vast majority of bus activity is airport-related) looks reasonable.

6.11.5 As outlined in Section 6.3 and in Section 7.3, between 2020 and 2022 the UK, as well as the global aviation industry, has been experiencing the consequences of the COVID-19 pandemic. In the short term there was a collapse in demand across all modes: highway, rail and aviation. Whilst demand is recovering, flows across all of these modes are not yet at the pre-pandemic level and there is uncertainty over when this will be realised. There is

[9] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/dmrb-screening-model/

also uncertainty over the distribution traffic would have, by geography and time of time/day of week even if the volumes returned to overall levels. The highway base model is for 2016 and is thus pre-pandemic. The demand forecasts may therefore be overestimating the level of background traffic, therefore providing a more robust Future baseline on which to undertake the assessment.

6.11.6 Future development growth and transport scheme intervention is a considerable component of uncertainty, and this is explored further in Section 9 through the Uncertainty Log in terms of what development and transport schemes are included. There are further uncertainties evident in the TEMPro growth assumptions and ongoing trip rates as a result of the pandemic.

6.11.7 As demonstrated above there are a range of areas contributing to risks and uncertainties in building these models, and thus their use. These are acknowledged and provide the context in which this modelling has been undertaken and can be considered further when considering the impacts discussed later in this report.

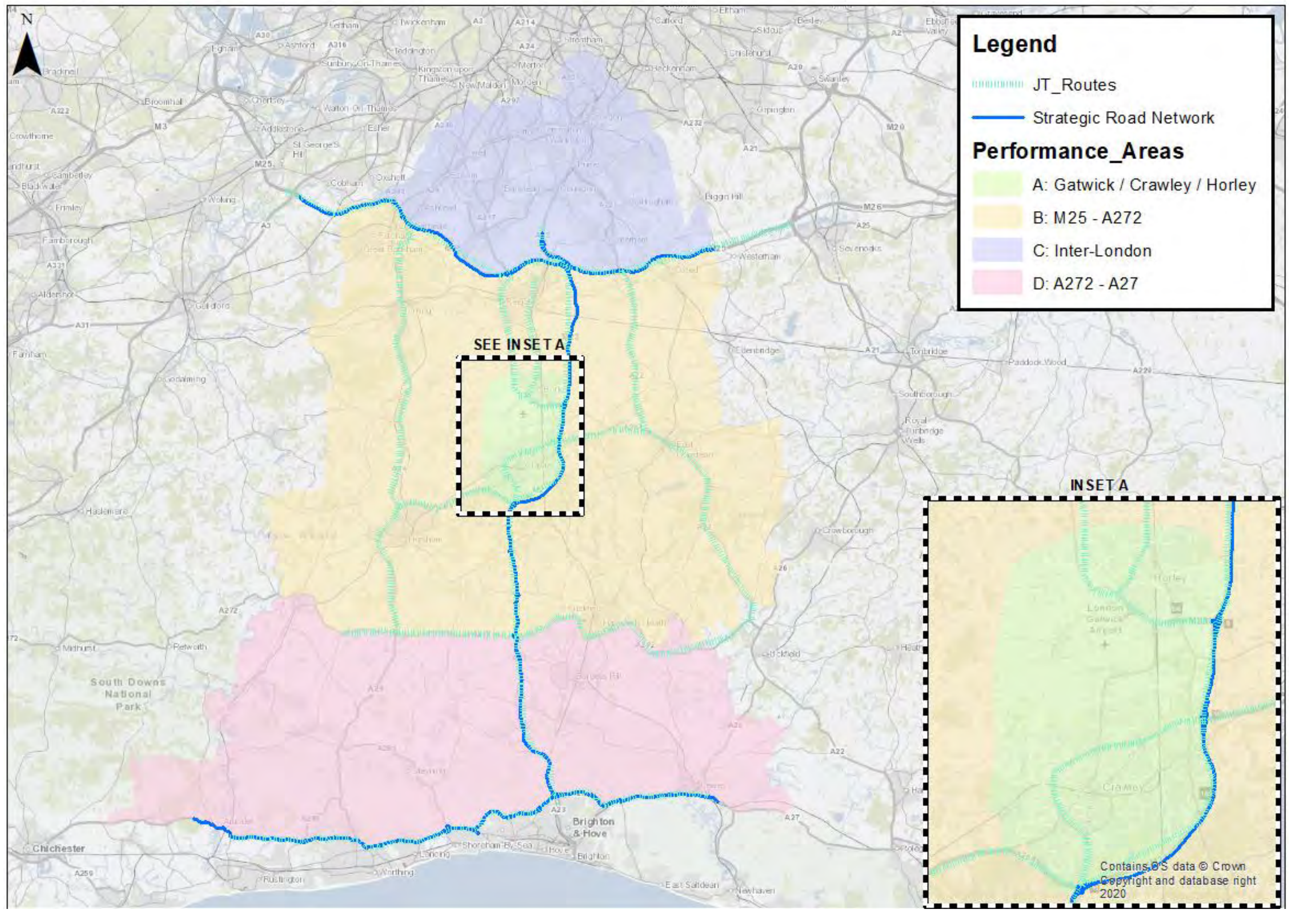
6.12 Assessment of effects

6.12.1 The following section details the performance of the highway model in relation to the Future baseline and With Project respectively. This covers the four assessment years of 2029, 2032, 2038 and 2047.

6.12.2 The performance of the highway model is assessed by considering the changes in network operation for each assessment year between the Future baseline and With Project scenarios. The assessment considers five performance areas presented in Figure 30:

- Strategic Road Network (SRN): M25 (J5 to J10), M23, A23 & A27 (Lewes to Arundel);
- Performance Area A: Gatwick, Crawley and Horley;
- Performance Area B: M25 to A272;
- Performance Area C: Inter-London; and
- Performance Area D: A272 – A27.

Figure 30: Highway model performance areas



6.12.3 The following network characteristics are explored in the analysis:

- **Annual Average Daily Traffic (AADT)** – presented in vehicle units and represents the annual average daily volume of road traffic expanded from the four individual modelled time periods. Summarised across all Performance Areas;
- **Journey times** – expressed as end-to-end travel times on key routes across the AoDM. These include the SRN routes in the vicinity of Gatwick, the periphery of Crawley and other key distributor roads. The routes analysed capture trips to/from Gatwick as well as other key strategic movements on the network. Presented for SRN, Performance Areas A, B and D; and
- **Volume to Capacity (V/C)** – ratios expressing the total road traffic volume utilising a link with respect to its total available capacity, this is a common metric used to assess the level of congestion. Modelled values are presented to capture the worst performing links (ie the maximum across all time periods). V/C is segmented in to three key operational categories presented in Table 30 and is considered for SRN & Performance Areas A-D.

Table 30: Volume/Capacity operational categories

Category	V/C definition
-	V/C < 70%
Grey	70% < V/C < 80%
Green	80% < V/C < 90%
Amber	90% < V/C < 100%
Red	V/C > 100%

- **Magnitude of Impact (Links/Nodes)** – Changes between link and node V/C metrics between the modelled years are categorised into Low, Medium and High and is presented for Performance Areas A-D. The categories are based on a combination of changes in V/C referred to as congestion indicators as well as the V/C standard in the latest of the compared scenario. For example, an instance of V/C changing by >10% with a corresponding V/C of <80% in the latest year scenario is deemed 'Negligible', however if the V/C standard is 90-95% in this context the change would be classified as 'High'. An overview of the parameters enforced as part of the categorisation process is presented in Table 31. Links with a flow of less than 20 PCUs are excluded from this process.

Table 31: Magnitude of impacts grid

Criteria		Magnitude of impacts						
	Negligible	Negligible	Minor		Moderate		Major	Major
Congestion Indicator	<80%	80 - 85%	85 - 90%		90 - 95%		95 - 100%	100% or more
<2% change in Congestion Indicator	Very Low	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
2-5% change in Congestion Indicator	Low	Negligible	Low	Low	Low	Medium	Medium	Medium
Between 5-10% change in Congestion Indicator	Medium	Negligible	Low	Low	Medium	High	High	High
>10% change in Congestion Indicator	High	Negligible	Low	Medium	High	High	High	High

7 Northern runway project assumptions

7.1 Introduction

7.1.1 The Project proposes alterations to the existing northern runway at Gatwick which would enable dual runway operations. Together with the alterations to the northern runway, the Project would include the development of a range of infrastructure and facilities to allow increased airport passenger numbers and aircraft operations and to allow Gatwick to make best use of its existing runways and infrastructure. A full Project Description is provided in Chapter 5 of the ES and an overview is provided in Chapter 2 of the TA.

7.1.2 It is anticipated that by 2047 these improvements could increase airport capacity up to 80.2 mppa, compared to a maximum potential capacity based on existing facilities of 67.2 mppa within the same timescale. This represents an increase of approximately 13 mppa.

7.2 Context

7.2.1 There are two major outside influences that will affect the predicted growth in demand at Gatwick these are:
- the COVID-19 pandemic; and
- the development of Runway 3 at Heathrow.

7.2.2 While the COVID-19 pandemic has had a severe impact on the global aviation industry it is expected that through the mid-2020s overall demand for air travel will recover to previous levels and then continue to grow.

7.2.3 Due to the uncertainty around when, or if, Heathrow's third runway (R3A) will come forward, the modelling work assumes growth at Heathrow with two runways. This approach provides a conservative assessment of the environmental impacts of the Project, because if Heathrow R3 was to come forward, air passenger demand at Gatwick would be likely to decline in the period immediately following the opening of Heathrow R3. However, by 2047, there would be little difference between air passenger demand at Gatwick with or without Heathrow R3.

7.2.4 The Heathrow R3 surface access narrative is predicated on "no more traffic", which is to say that total car traffic to the Airport is to be maintained at existing levels, albeit with variation in passenger and employee travel and therefore the distribution and timing of trips. Nevertheless, the overall strategy of no more traffic at Heathrow suggests that there would not be a material impact on the performance of the highway network should both proposals come forward. In terms of public transport, the network and catchments serving the two airports are different and therefore the cumulative effects of additional runways at Gatwick and Heathrow are unlikely to be significantly different to those modelled for the Project.

7.2.5 The forecasts prepared by Gatwick for the With Project and Future baseline therefore adopt a 'No Heathrow R3' assumption.

7.3 Seasonality

7.3.1 The passenger demand at the airport is highly seasonal with significantly higher volumes of passengers observed during the summer months. The development of the base models was focused on an average weekday in June on the basis this provided generally a higher level of background traffic than the school holiday period (eg July/August) on the road and rail networks, and that passenger demand in June was significantly higher than in the remainder of the year.

Airport seasonality

7.3.2 Figure 31 shows daily person trips at Gatwick (weekday arrivals and departures) for 2016. The blue line is from Gatwick terminal counts; the black and green lines indicate the split between car (including taxi) and public transport surface access, calculated by Arup from CAA data. The thick lines show the values in each month, while the thin lines show the (annual) average. The labels indicate the percentage difference from the average. For example, from the black line, there were 27% more car surface access air passenger trips on a June weekday than on the annual average weekday, 2016.

7.3.3 On the average weekday in 2016 there were about 112,000 surface access journeys at Gatwick, of which about 63,000 (56%) were by car/taxi; and about 49,000 (44%) were by public transport. The busiest month was August, with 148,000 surface access journeys (33% more than average), of which 89,000 were by car (41% more than average). July was the busiest month for public transport with 61,000 public transport trips (24% more than average).

7.3.4 The Gatwick strategic transport model represents an average weekday in June. Figure 31 shows that June was the third busiest month for car (after August and July; and the fourth busiest month for public transport (after July, August and September). June was chosen as the month to model because it is a busy month for the airport and outside the school summer holidays (non-airport traffic is lower in school holidays, so transport models are not normally created for July and August).

7.3.5 The public transport shares for air passenger surface access are shown in Figure 32. The weekday and 7-day public transport share was around 40% in June (compare with 44% annual weekdays; 43% annual all days).

7.3.6 While the model is for the month of June, it is common to quote some metrics such as mode shares as annual averages for weekdays (annual average weekday travel, AAWT) or for all days (annual average daily travel, AADT). The factors to convert air passenger surface access person trips from June to AAWT and AADT are shown in Table 33. These factors, established from base data are assumed to remain unchanged in future years.

7.3.7 Figure 33 shows the profiles for vehicles. It also shows the car persons line from Figure 33 for comparison. Again, August is the peak month with 37% more vehicles than average. The peak for vehicles (37%) is less pronounced than the peak for persons (41%). This is because average car occupancy varies by trip purpose, with business having lower occupancy than leisure and the purpose split varies across each month.

7.3.8 The average car occupancies are shown in Table 32.

Figure 31: Surface access by month, 2016

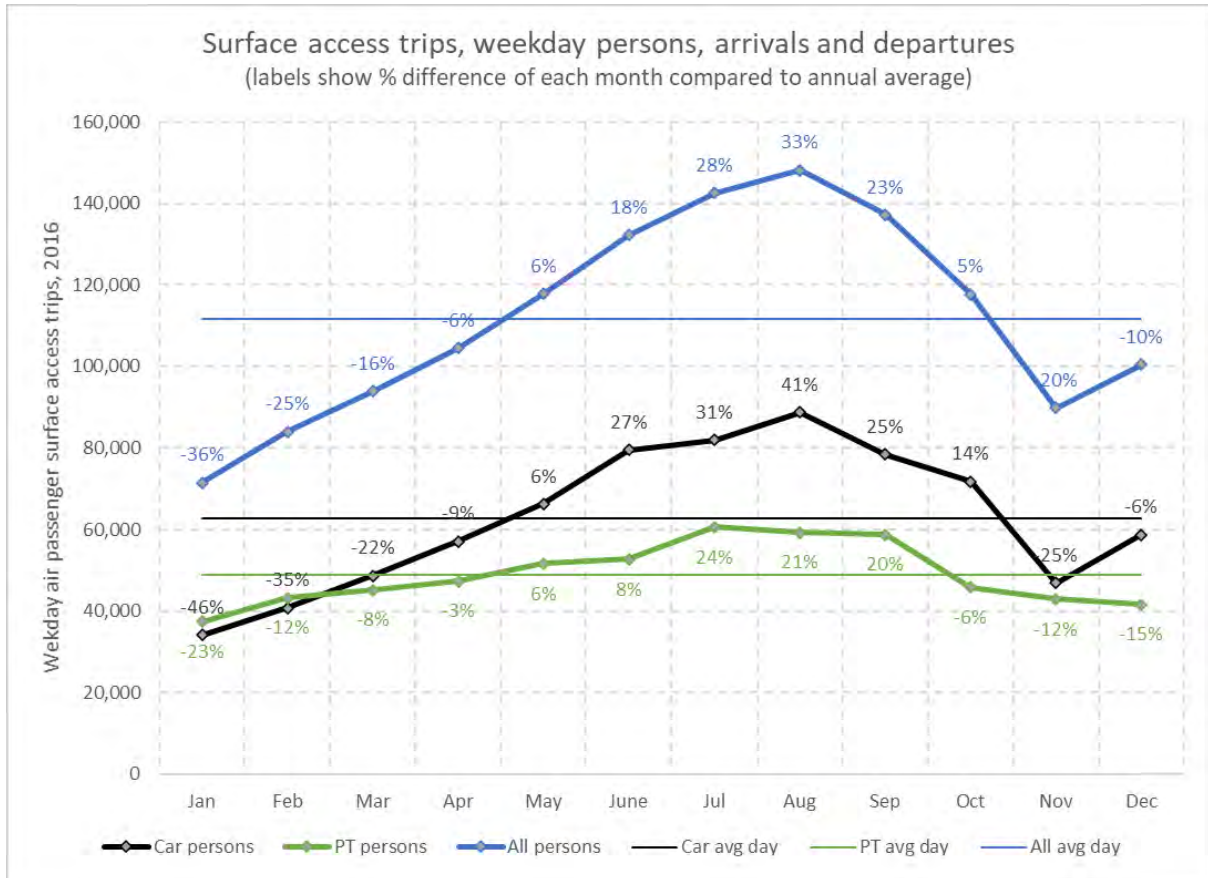


Figure 32: Surface access public transport shares, 2016

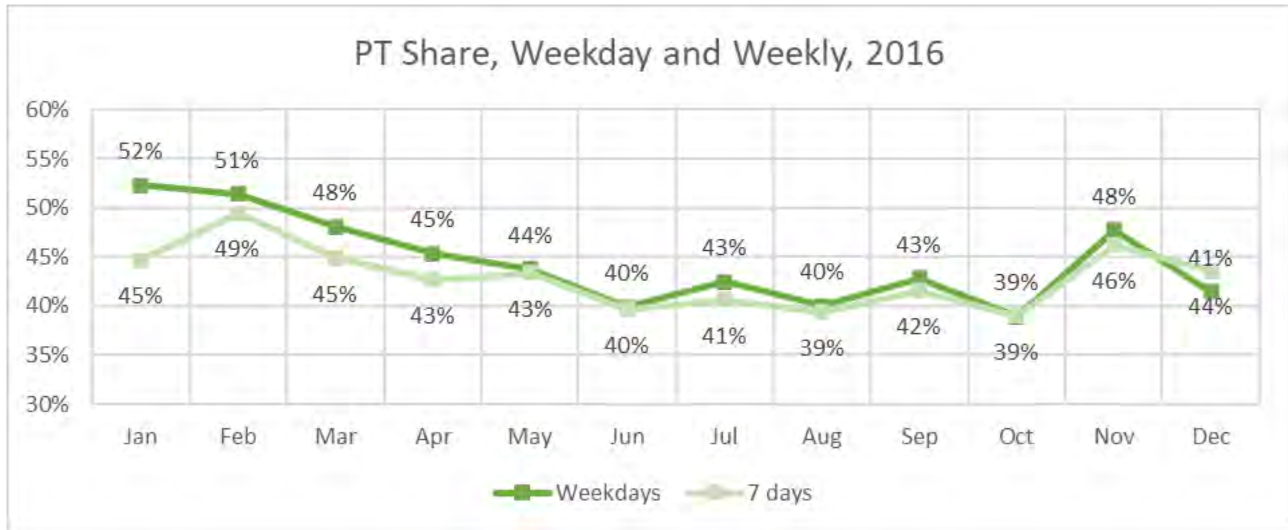


Figure 33: Car person and vehicle trips

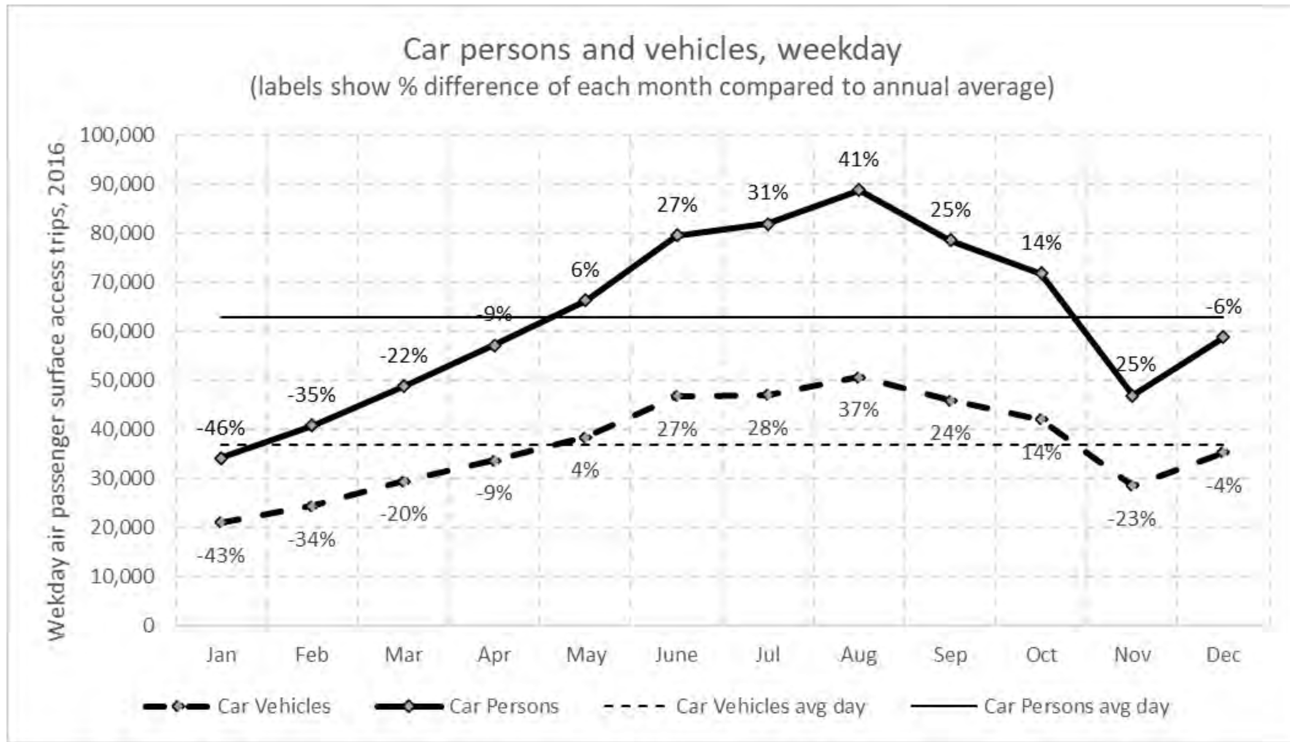


Table 32: Average car occupancies, weekday, 2016

Month	Occupancy
January	1.62
February	1.67
March	1.66
April	1.70
May	1.73
June	1.70
July	1.74
August	1.75
September	1.71
October	1.71
November	1.64
December	1.67
Average	1.70

Table 33: Factors to convert from the modelled day (June weekday) to AAWT, and from AAWT to AADT

Mode	June weekday to AAWT	AAWT to AADT
Car (parked)	0.81	1.05
Car (kiss & fly)	0.75	1.06
Taxi	0.80	1.01
Rail	0.95	0.97
Bus/coach	0.94	1.00
All surface access	0.85	1.01

7.3.9 Market mix refers to the mix of purposes (business and leisure), residency (UK and non-UK) and haul length (long and short). It is important to understand these as they vary seasonally and can influence the scale of demand and mode share.

7.3.10 Figure 34 shows how the mix varied in 2016 based on analysis of CAA data. For example, business made up 14% of annual trips, with a peak in November (19%) and a trough in August (7%); while leisure travel is the opposite, ie 86% annual average, trough in November (81%), and peak in August (93%).

7.3.11 Each component of the market mix had a different public transport share for surface access. The variations in public transport share by purpose, haul and residency are shown in Table 34 and Table 35. The public transport share for non-UK residents is approximately double that of UK residents. There are some small variations between weekdays and all days, and between June and annual.

7.3.12 In Table 35, the public transport shares for each permutation of purpose, haul and residency are shown, sorted from high to low public transport share. The four non-UK resident categories all have higher public transport shares than the four UK resident categories.

7.3.13 For the mode choice modelling, the segments are UK Business, non-UK Business, UK Leisure and non-UK Leisure. Table 36 shows the base mode shares.

7.3.14 Although there is no separate segmentation for long and short haul, the correct short/long haul mix is maintained in each segment residency/purpose segment by controlled expansion of the base survey data when creating base and forecast year demands.

7.3.15 The ICF forecasts of air passenger trips and market mixes are set out in the **Environmental Statement Appendix 4.3.1: Forecast Data Book** (Doc Ref. 5.3). Paragraph 8.4.1 states that purpose and residency proportions will remain similar to 2019 (the ICF base year) in all future scenarios. The numbers from Table 8.4.1 are converted to percentages in the Table 37 and Table 38. The percentages in the base transport model are also shown to confirm that the base assumptions are consistent.

Figure 34: Business, haul and residency shares, 2016, all days

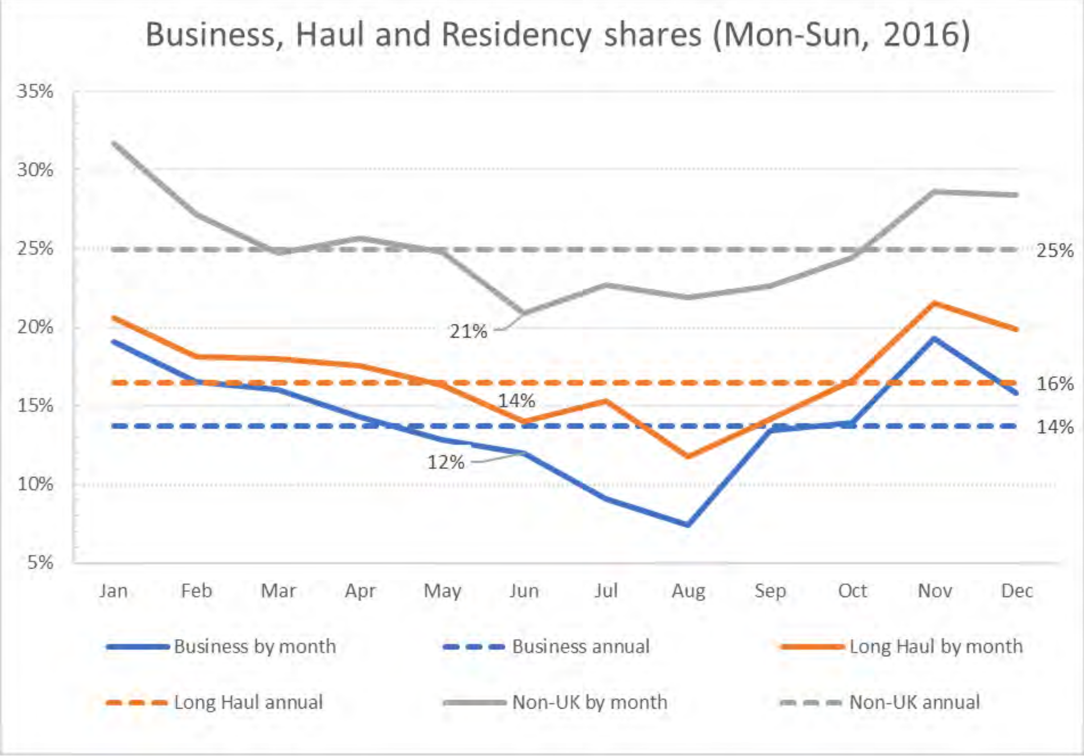


Table 34: Airport surface access public transport shares, 2016

			June (modelled month)		Annual	
Segmentation		Category	Public transport share (weekdays)	Public transport share (all days)	Public transport share (weekdays)	Public transport share (all days)
Purpose	Business	Business	51%	53%	56%	56%
	Leisure	Leisure	38%	38%	42%	40%
	All	All	40%	40%	44%	42%
Haul	SH	Short	40%	40%	46%	45%
	LH	Long	36%	38%	32%	32%
	All	All	40%	40%	44%	42%
Residency	UK	UK	33%	33%	36%	34%
	Non-UK	Non-UK	64%	65%	67%	68%
	All	All	40%	40%	44%	42%

Table 35: Public transport shares cross tabulations (Weekday, June 2016)

Purpose	Haul	Residency	Public transport Share
Leisure	Short	Non-UK	65%
Business	Short	Non-UK	63%
Leisure	Long	Non-UK	59%
Business	Long	Non-UK	47%
Business	Short	UK	47%
Business	Long	UK	37%
Leisure	Short	UK	32%
Leisure	Long	UK	28%
Total			40%

Table 36: Public transport share by model segment (Weekday, June 2016)

Segment	Public transport share
Non-UK Leisure	64%
Non-UK Business	61%
UK Business	46%
UK Leisure	31%
Total	40%

Table 37: Market mix, Future baseline

	Model 2016 Average weekday	Model 2016 Average 7-day	ICF 2019 Base	ICF 2029 Future Baseline	ICF 2032 Future Baseline	ICF 2038 Future Baseline	ICF 2047 Future Baseline
All pax	42.9	43.5	46.6	57.3	59.4	62.4	67.2
Transfer pax	1.7	1.7	1.8	2.5	2.5	2.6	2.6
Excl transfer pax	41.2	41.7	44.8	54.8	56.9	59.8	64.6
UKB	10%	9%	9%	9%	9%	9%	8%
UKL	65%	67%	67%	67%	67%	67%	67%
NUKB	6%	5%	5%	5%	5%	5%	5%
NUKL	19%	20%	20%	20%	20%	20%	20%
Total	100%	100%	100%	100%	100%	100%	100%
Business	16%	14%	14%	13%	13%	13%	13%
Non-UK	25%	25%	24%	25%	25%	25%	25%

Table 38: Market Mix. With Project

	Model 2016 Average weekday	Model 2016 Average 7-day	ICF 2019 Base	ICF 2029 With Project	ICF 2032 With Project	ICF 2038 With Project	ICF 2047 With Project
All pax	42.9	43.5	46.6	61.3	72.3	75.6	80.2
Transfer pax	1.7	1.7	1.8	2.7	2.7	2.7	2.9
Excl transfer pax	41.2	41.7	44.8	58.6	69.6	72.9	77.3
UKB	10%	9%	9%	9%	8%	8%	8%
UKL	65%	67%	67%	67%	67%	67%	67%
NUKB	6%	5%	5%	5%	5%	5%	5%
NUKL	19%	20%	20%	20%	20%	20%	20%
Total	100%	100%	100%	100%	100%	100%	100%
Business	16%	14%	14%	13%	13%	13%	13%
Non-UK	25%	25%	24%	25%	25%	25%	25%

7.3.16 The haul proportions in the ICF forecasts do change in future. ICF assume that long haul will increase from 19% in 2019 to between 23% and 27% in future cases, with corresponding falls in short haul and domestic. Table 8.3.1 of the **Environmental Statement Appendix 4.3.1: Forecast Data Book** is reproduced as Table 39 right.

7.3.17 Note that in the strategic model there is no distinction between 'domestic' and 'short'; these are combined into a single category, short haul. Following discussion with ICF, the advice was to:

- hold the purpose and residency mix constant for future years in all scenarios; and
- raise long haul by 4 to 8 percentages points depending on scenario (and reduce short haul by same amounts).

Adopted approach to seasonality

7.3.18 The ICF forecasts represent a Busy Day in August and reflects the worst case day for the Airport in a single year. However, an August day is not the busiest in terms of the local road network where traffic volumes can be 1-2% below the annual average condition. Overlaying the August busy day on average June weekday background traffic would represent an unrealistic worst case scenario, as these conditions would never materialise on the road network. In order to assess a reasonable worst case condition, the peak day in June for the airport was adopted, and was overlaid on the June average weekday background demand.

7.4 Airport demand growth

7.4.1 Gatwick's aviation consultants, ICF, provide forecasts of hourly air passenger arrivals and departures for an August "busy day", broken down by haul (long and short) and terminal (North Terminal and South Terminal). The hours are 'airside' based on the scheduled time the flights depart and arrive. These forecasts include only those passengers who start or end their trip at Gatwick, and therefore make surface access trips; the passengers who transfer between planes at Gatwick are excluded.

7.4.2 Table 40 shows the daily surface access trip totals for the Future baseline and With Project by year for High August and High June, and the factors used to convert between the two. The factors were agreed with ICF; starting at 0.95 and increasing towards 1 in later years as the peakiness of the monthly profile is assumed to flatten.

Table 39: Future market mix assumptions, ICF [Table 8.3.1: Gatwick Passengers, Market Mix (%)]

Table 8.3.1: Gatwick Passengers, Market Mix (%)

	2019 Actual	2029		2032		2038		2047	
		Base Case	Northern Runway Case	Base Case	Northern Runway Case	Base Case	Northern Runway Case	Base Case	Northern Runway Case
Domestic	7%	7%	6%	7%	5%	6%	5%	6%	5%
Short Haul	73%	70%	70%	70%	70%	69%	69%	67%	67%
Long Haul	19%	23%	23%	23%	25%	25%	26%	27%	27%
Total (m)	46.6	57.3	61.3	59.4	72.3	62.4	75.6	67.2	80.2

Table 40: Daily surface access forecasts

Scenario	High Aug arrivals and departures (thousands)	Factor (High August to High June)	High Jun arrivals and departures (thousands)
Future Baseline 2029	178.3	0.95	169.3
With Project 2029	189.6		180.0
Future Baseline 2032	182.1	0.96	174.8
With Project 2032	217.3		208.6
Future Baseline 2038	187.1	0.97	181.4
With Project 2038	226.9		220.1
Future Baseline 2047	193.9	0.97	188.0
With Project 2047	236.1		229.0

7.4.3 The next step is to split the hourly ICF North Terminal and South Terminal data into the GapSAM model segments. The same splits are applied in future years as in CAA data for the June 2016 Base. This is on the advice of ICF who anticipate no material changes in residency or trip purpose in future. The segment proportions are:

- UKB (UK Business): 9.7%;
- NUKB (non-UK Business): 5.3%;
- UKL (UK Leisure): 64.4%; and
- NUKL (non-UK Leisure): 20.5%.

7.4.4 The segmented High June arrivals and departures by terminal/hour are input to the air passenger surface access matrix build.

7.4.5 For each scenario, ICF provide airport employee growth from base to the scenario in question for shift and non-shift workers. These are used to factor the base employee commute tour matrices to future year scenarios. It is assumed that shift start and end time distributions will be unchanged from the Base. The forecasts for total airport employees are shown in Table 41.

Table 41: Gatwick employment forecasts

Employment category	Base	Future Baseline				With Project			
Cabin crew	5,791	7,066	7,227	7,464	7,791	7,378	8,225	8,481	8,775
Airport/airline management	671	756	767	783	805	777	834	851	871
Apron, ramp, cargo, baggage, drivers	2,434	2,549	2,556	2,571	2,588	2,605	2,744	2,754	2,760
Catering, cleaning, housekeeping	3,061	3,896	4,001	4,157	4,371	4,101	4,656	4,823	5,016
Customs, immigration, police, fire	1,073	1,383	1,422	1,480	1,559	1,459	1,665	1,727	1,799
IT	234	260	263	268	274	266	283	288	294
Maintenance trades	1,899	2,227	2,269	2,330	2,414	2,308	2,526	2,592	2,667
General management	1,374	1,480	1,493	1,513	1,541	1,506	1,577	1,598	1,623
Passenger services, sales, clerical	3,915	4,158	4,189	4,234	4,297	4,218	4,380	4,429	4,485
Pilots, ATC, flight operations	1,533	1,645	1,652	1,667	1,684	1,700	1,836	1,846	1,852
Security	1,822	2,189	2,235	2,303	2,397	2,278	2,522	2,596	2,680
TOTAL	**23,807**	**27,609**	**28,074**	**28,770**	**29,721**	**28,596**	**31,247**	**31,985**	**32,822**

7.5 Future year reference case air passenger matrix build

7.5.1 For each future scenario, reference air passenger surface access demand matrices were built. These represented the likely demand where no change in travel costs were considered. They provided the input into the mode choice model (GSAM) which calculated the change in mode share which is reported later in the forecasting report.

7.5.2 The process used applied a set of reference growth rates to the base air passenger surface-access tour matrices. The modelling was tour-based to ensure that the mode chosen for the two directions of the surface access trip was consistent, and based on the levels of service (times and costs) of the round trip at the relevant times of day. The base tour demand was in four dimensions:

- Four purpose/residency combinations: {UKB, NUKB, UKL, NUKL}; the splits held constant between base and future.
- Ten surface access modes {self-park on-airport, self-park off-airport, valet-park car stored on-airport, valet-park car stored off-airport, rental on-airport, rental off-airport, taxi, car drop off/pick up, bus/coach, rail}; the splits were held constant between base and future reference demands.
- Two terminals {South Terminal, North Terminal}; the splits vary by forecast.
- Thirty-six time landside period combinations {out: AM, IP, PM, OP1, OP2, OP3} x {return: AM, IP, PM, OP1, OP2, OP3}; the splits vary by forecast.

7.5.3 To create growth factors, the Gatwick CAA base air passenger survey data were expanded twice: firstly using the base terminal counts and, secondly, using the future terminal “counts” (forecasts of counts) for each category. Adjustments were made to convert scheduled (airside) times to surface access (landside) times:

- Waiting (departures) and exiting (arrivals) time distributions were applied to convert the ICF airside times to the distributed landside times required for surface access modelling.
- 50% of rail mode air passenger arrivals leaving the airport in period OP2 (00:00-04:00) were assumed to stay in a local hotel and postpone their departure until later in the day (10% to AM 07:00-09:00, 40% to OP 09:00-16:00). This behaviour was identified during base matrix building and is assumed to continue in future.

7.5.4 The array of growth factors is calculated by dividing the expanded future by the expanded base for each category. The growth factors are multiplied by the base tour matrices to create the future reference tour matrices. The totals are then checked to ensure that, when combined, daily trips sum to within 1% of the target High June values in the rightmost column of Table 40.

7.6 Cargo and goods vehicles

7.6.1 In 2017/18, Gatwick handled just over 102,000 tonnes of cargo. Gatwick’s cargo volumes are forecast to grow to just over 290,000 tonnes by 2047 in the Future baseline and just under 350,000 tonnes in the With Project scenario in the same period.

7.6.2 Forecast growth in cargo volumes is driven by an increasing proportion and volume of flights to long haul markets where cargo volumes are typically strong. To serve these markets the forecasts anticipate a greater proportion of wide-body aircraft with cargo capacities in line with or greater than today’s fleet. The forecast growth in cargo numbers is shown in Table 42.

Table 42: Cargo growth forecast (tonnes)

Year	Baseline	With Project
2016	76,800	
2018	150,057	
2029	227,705	250,816
2032	234,969	304,626
2038	254,499	322,949
2047	290,499	348,430

7.6.3 Goods vehicles for cargo are not the only ones accessing/exiting the airport as both light and heavy goods vehicles are required to service the airport and aeroplanes themselves as well. This can include deliveries for retail, waste or maintenance/construction work. Therefore, there were two assumptions applied to goods vehicles at the airport in order to increase the numbers to/from the airport. These were:

- Cargo – trips accessing the zone in the highway model representing the cargo terminal were increased by a growth factor between 2016 and the scenario being modelled. For example, the growth factor used for 2047 with Project was 4.54. representing an increase from 76,800 tonnes to 348,430 tonnes.
- Servicing – for any other goods vehicle trips using the Gatwick zones not related to the cargo terminal, these have been increased in line with the passenger per annum increase for each of the scenarios. The growth factors used for these vehicles is shown in Table 43.

Table 43: Growth in Gatwick goods vehicles servicing the airport

Year	Baseline	With Project
2029	1.4	1.5
2032	1.46	1.77
2038	1.53	1.85
2047	1.65	1.97

7.7 Indirect and catalytic employment growth

7.7.1 Indirect and catalytic employment growth numbers for the With Project scenarios were generated by economics consultant Oxera on behalf of Gatwick. A summary of the indirect and catalytic employment growth included in the With Project scenarios is shown in Table 44. The breakdown of indirect and catalytic growth by local authority district (LAD) was provided, and broken down by MSOA in proportion to forecast background jobs growth. Direct, indirect and catalytic employment are defined as:

- Direct: employment on airport (Gatwick and other on airport companies);
- Indirect: employment throughout the UK via the supply chain of firms at Gatwick; and
- Catalytic: other employment generated, eg through companies locating in the area due to access afforded by Gatwick.

7.7.2 It should be noted that these assumptions use the same methodology as the PEIR modelling. Oxera have updated their methodology since PEIR, however, the results from the new methodology were not available at the time of the Core Scenario modelling however even with the new method employment numbers were similar.

Table 44: Indirect and catalytic employment growth included in the With Project scenarios

Employment Type	Area	2029	2032	2038	2047
Indirect	Diamond	400	1,300	1,400	1,400
	C to C LEP	700	2,100	2,200	2,100
	5 Authorities	1,300	4,000	4,100	3,900
	UK Total	1,800	5,600	5,900	5,600
Catalytic	Diamond	-500	1,400	6,500	6,000
	C to C LEP	-900	2,500	11,300	10,400
	5 Authorities	-500	1,900	11,300	10,400

7.8 Car parking assumptions

7.8.1 Assumptions are required for future car parking so that the car trip ends can be distributed. The availability of car parking is separately assessed for:

- On- and off- airport air passenger self-parkers;
- On- and off- airport valet car storage; and
- On-airport employee parking.

7.8.2 The car parking assumptions have been agreed with Gatwick to ensure that the closures to enable with project works and reopening of car parks across all scenarios have been taken into account. This includes changes in car park use between staff, valet or park and fly provision. Staff parking provision remains consistent across all scenarios, although the exact locations may change.

7.8.3 Table 45 sets out the on-airport car parking spaces assumed for staff, air passenger park and fly (self-park) and air passenger valet car storage.

Table 45: On-airport parking provision

	Staff spaces	Park and Fly	Valet	Total
2019	6,090	19,981	19,084	45,155
2029 Future Baseline	6,090	26,552	19,084	51,726
2032 Future Baseline	6,090	26,552	19,084	51,726
2038 Future Baseline	6,090	26,552	19,084	51,726
2047 Future Baseline	6,090	26,552	19,084	51,726
2029 With Project	6,090	25,150	11,153	42,393
2032 With Project	6,090	28,350	13,952	48,392
2038 With Project	6,090	31,540	16,352	53,982
2047 With Project	6,090	33,540	16,352	55,982

7.8.4 Table 46 to Table 50 set out the trip end distribution by zone for air passenger self-park and valet-park both on and off airport, and for employees. The zones referenced in these tables are shown in Figure 35. On-airport zones with car parks are shaded and are numbered in the range 67001-67011; off-airport zones with car parks are located with a dot and are in the range 67101-67130.

7.8.5 Table 46 shows the distribution of trip ends for on-airport self-parkers in each scenario. The proportions are based on 2015-2018 survey data of where North Terminal and South Terminal passengers actually chose to park, which varies by terminal (passengers generally select a car park that is conveniently located for the terminal used). The proportions for North Terminal and South Terminal are then adjusted for future years to reflect proposed changes in on-airport car parking locations and capacity, while still retaining the general pattern.

Figure 35: Location of zones with car parking or valet storage

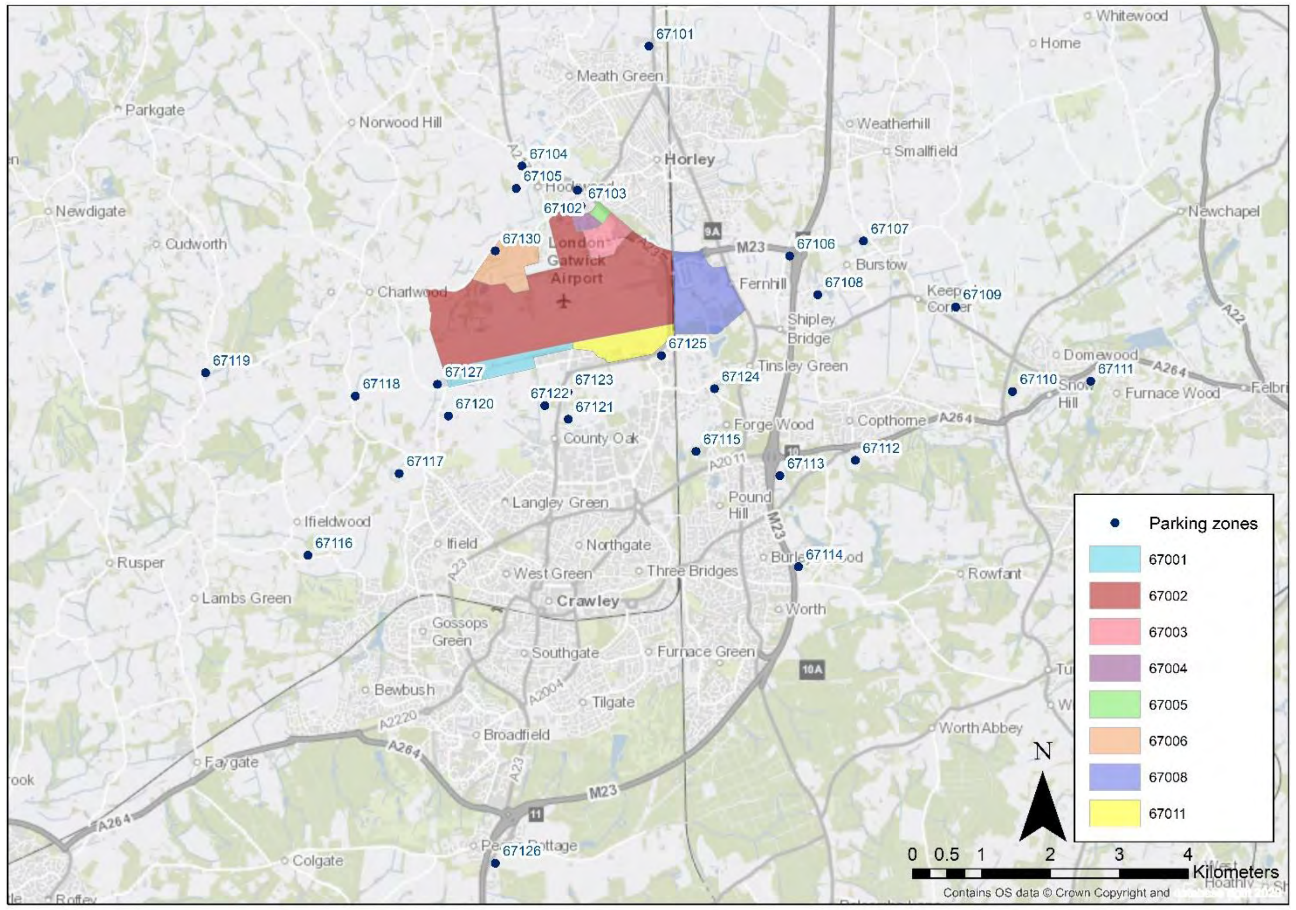


Table 46: Air passenger: car park and fly parking locations – on airport distribution

	Future Baseline		2029 With Project		2032 With Project		2038 With Project		2047 With Project	
Zone	**NT**	**ST**	**NT**	**ST**	**NT**	**ST**	**NT**	**ST**	**NT**	**ST**
67003	17%	0%	20%	0%	16%	0%	14%	0%	13%	0%
67004	29%	1%	34%	1%	28%	1%	24%	1%	21%	1%
67005	0%	0%	0%	0%	0%	0%	26%	1%	23%	1%
67006	46%	1%	40%	1%	48%	1%	28%	1%	37%	1%
67008	5%	95%	7%	98%	6%	96%	5%	95%	5%	95%
67011	2%	2%	0%	0%	2%	2%	2%	2%	2%	2%

7.8.6 Table 47 shows the distribution of trip ends for off-airport self-parkers. This is based on 2015-2018 survey data of where airport passengers who used off-airport parking actually chose to park. It is assumed that no new parking capacity will be developed off-airport and the Base distribution shown in the table is assumed to remain unchanged in all future year scenarios.

Table 47: Air passenger: car park and fly parking locations – off airport distribution

Zone	Proportion
67101	4%
67102	3%
67109	10%
67110	1%
67111	17%
67112	4%
67113	20%
67114	1%
67115	5%
67116	1%
67117	2%
67121	0%
67126	5%
67127	15%
67130	11%

7.8.7 Table 48 shows the assumptions for on-airport valet car storage. For departing passengers, the air passenger's car is dropped off at the terminal; the valet operator then moves the vehicle to a car storage area in the proportions shown in the table. For arriving passengers, the valet operator fetches the car from the car storage areas to the terminal where the air passenger picks it up. This is based on 2015-2018 survey data of where air passengers using on-airport valet operators actually chose to park, adjusted in future years for proposed changes in on-airport valet parking.

Table 48: Air passenger: car valet parking locations – on airport distribution

	Future Baseline	2029 With Project	2032 With Project	2038 With Project	2047 With Project
67006	29%	17%	14%	12%	12%
67007	5%	0%	0%	0%	0%
67008	36%	60%	48%	41%	41%
67011	29%	23%	39%	48%	48%

7.8.8 There are also off-airport valet companies. These operate in the same way as the on-airport operators but the cars are stored away from the airport. The proportions are shown in Table 49. This is based on 2015-2018 survey data of where air passengers using off-airport valet operators actually chose to park, with no adjustments in future years.

Table 49: Air passenger: car valet parking locations – off airport distribution

Zone	Proportion
67103	7%
67104	8%
67105	2%
67106	0%
67107	3%
67108	14%
67109	9%
67116	1%
67118	9%
67119	3%
67120	11%
67122	11%
67123	4%
67124	2%
67125	5%
67127	12%

7.8.9 Table 50 shows the distribution for employee parking. This is based on the 2016 GAM employee survey data of where employees actually chose to park, adjusted in future years for proposed changes in the employee parking. The survey data showed that very few employees park off-airport. In future years it is assumed that all employee parking is located on-airport.

Table 50: Employee parking distribution

Zone	Future Baseline	2029 With Project	2032 With Project	2038 With Project	2047 With Project
67001	43%	43%	43%	43%	43%
67002	2%	0%	0%	0%	0%
67003	0%	15%	15%	15%	15%
67005	15%	0%	0%	0%	0%
67006	8%	8%	8%	8%	8%
67007	6%	6%	6%	6%	6%
67008	19%	28%	28%	28%	28%
67010	7%	0%	0%	0%	0%

7.9 Car rental assumptions

7.9.1 Table 51 sets out the distribution of trips for car rental. The passengers who use on-airport car rental are assumed to use the facility in the same terminal. The passengers who use off-airport car rental providers are assumed to pick up and return their vehicle their vehicles at zones 67105, 67128 and 67129 in the proportions shown in Table 51.

Table 51: Car rental distributions

Zone	North Terminal	South Terminal
Car Rental – On airport		
67003 (NT)	100%	0%
67008 (ST)	0%	100%
Car Rental – Off airport		
67105	50%	50%
67128	25%	25%
67129	25%	25%

7.10 Taxi assumptions

7.10.1

Table 52 shows the assumptions for what taxis do next after dropping off air passengers. For taxis picking up, the same assumptions apply in reverse, eg 10% of taxis that pick-up at one of the arrivals forecourts arrive empty from Horley.

Table 52: Taxi assumptions

Empty leg	All future year scenarios
Return empty to where it came from	50%
Empty to taxi holding area at the same terminal (to wait in rank/holding area)	20%
Empty to taxi holding area at the other terminal (to wait in rank/holding area)	5%
Empty to Horley (to depot/rank, another fare etc.)	10%
Empty to Crawley (to depot/rank, another fare etc.)	15%
TOTAL	**100%**

7.11 U-turn assumptions

7.11.1 When preparing the base model, the counts data indicated a number of U-turns taking place at North Terminal and South Terminal roundabouts. These U-turns were included in the base model. In future year models it has been assumed that there are no U-turns.

7.12 Bus speeds

7.12.1 Bus and coach speeds have been reduced in future years in line with rising highway congestion. The speed factors from Base to future are shown in Table 53. These are based on the UK Road Traffic Forecasts 2018 Scenario 1 - Reference – average speed for motorway and all roads in SE England.

Table 53: Bus and coach speed factor relative to 2016

	AM	IP	PM	OP
2016	1.000	1.000	1.000	1.000
2018	0.997	0.997	0.997	0.999
2029	0.985	0.986	0.983	0.993
2032	0.981	0.982	0.978	0.991
2038	0.971	0.974	0.967	0.987
2047	0.947	0.963	0.934	0.981

7.13 Surface access commitments (SACs)

7.13.1 The SACs document has been submitted with the DCO application. It sets out measures which are treated as mitigation within the modelling work for the purposes of this assessment. The SACs will inform a future Airport Surface Access Strategy (ASAS) which will be a robust strategy to deliver the mode share commitments which Gatwick is making, through measures to improve rail, bus, and sustainable transport provision and use.

7.13.2 In alignment with the SACs, the future ASAS will focus on specific interventions related to staff travel in particular. The future ASAS will seek to promote sustainable and healthier modes of transport for staff and reduce travel to work by single occupancy car.

7.13.3 Surface access measures have been tested through the strategic modelling process to understand the impact of ‘pull’ and ‘push’ measures and the mode shares that could be achieved as a result, informing the mode share commitments in the SACs. ‘Pull’ measures include committed and planned transport improvements such as additional bus and coach services, planned upgrades on the Brighton-London main line or the M23 Smart Motorway Project. ‘Push’ measures include increasing forecourt or parking charges.

Mode share commitments

7.13.4 Gatwick commits to achieving the following annualised mode shares within three years of the opening of the new northern runway:

- 55% of air passenger journeys made by public transport;
- 55% of staff journeys to work made by public transport, shared travel and active modes;
- A reduction of all air passenger drop-off and pick-up car journeys to 12%; and
- 15% of staff journeys to work originating within 8km of the Airport to be made by active modes.

7.13.5 In addition to the commitments indicated above, Gatwick has identified longer term aspirations for mode shares for passengers and staff, which it will seek to achieve in addition to the mode share commitments. These aspirations are as follows:

- 60% of air passenger journeys made by public transport;
- 60% of staff journeys to work made by public transport, shared transport and active modes;
- Reduce air passenger drop-off and pick-up journeys by car to 10%;
- 20% of staff journeys to work originating within 8km of the Airport to be by active modes; and
- 50% of staff journeys to work originating within 16km of the Airport to be by public transport.

7.13.6 These commitments and the measures which support them have been developed through iterative testing in the model suite. The modelled interventions and related actions are set out below.

7.14 Proposed mitigation

7.14.1 In order to accommodate the proposed increase in passenger numbers, and taking into account other known and planned developments in the area and expected access and mode share changes, highway works are proposed as part of the Project. These are to both the South Terminal and North Terminal roundabouts, to improve capacity and mitigate against significant effects, with additional improvement works also proposed at the Longbridge Roundabout.

7.14.2 The final designs and details of the improvement works are the result of road traffic assessment and detailed engagement with highway authorities, including National Highways.

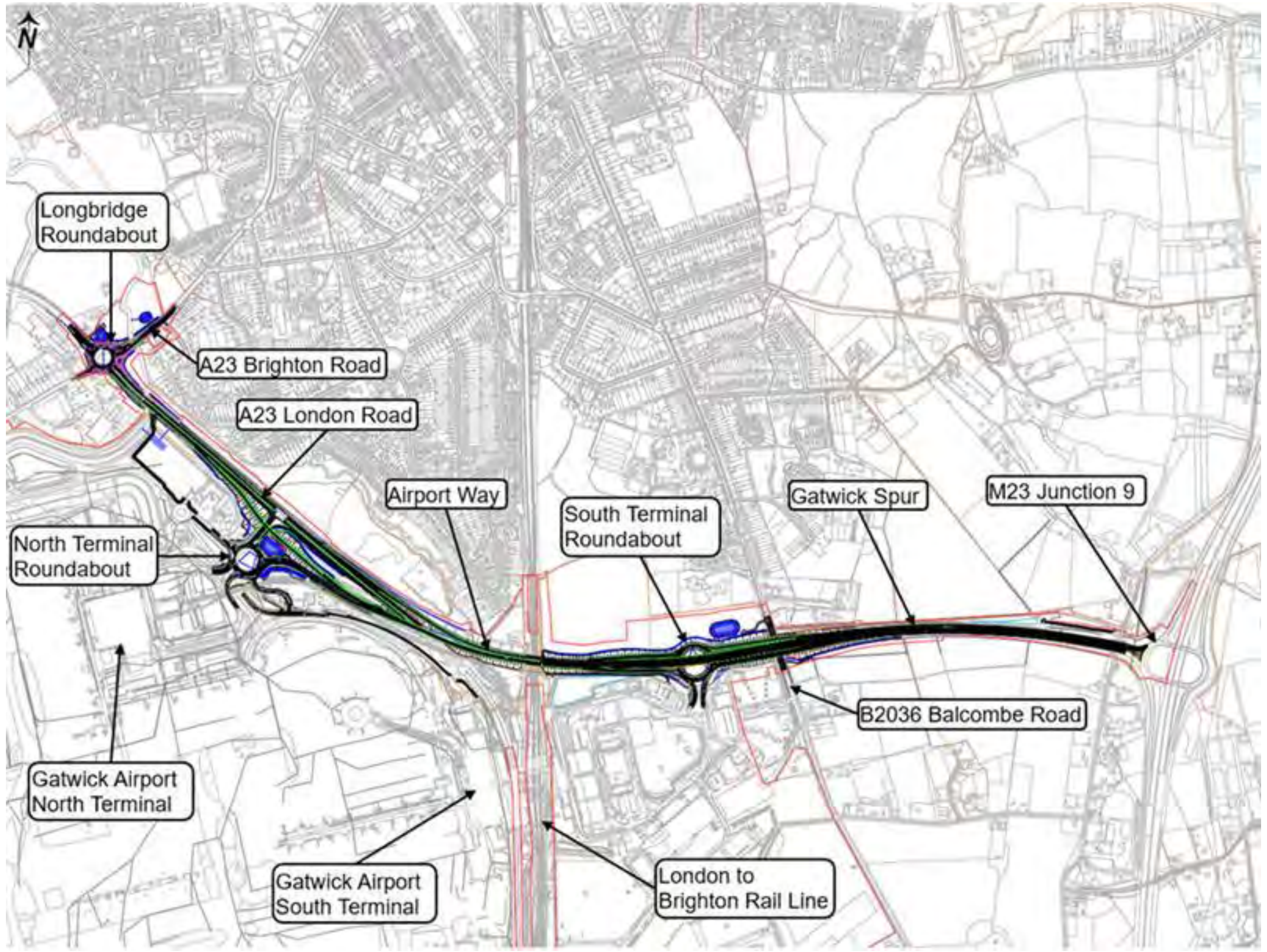
7.14.3 The proposed highway works are split into three sections as per the high-level summary of the proposed works provided below. The proposed highway works are illustrated in Figure 36.

- **Gatwick Spur (Formerly M23 Spur) and South Terminal Roundabout** – A full grade separation upgrade is proposed at South Terminal Roundabout. The South Terminal Roundabout is to remain at grade with the mainline consisting of Gatwick Spur and Airport Way to be grade separated via a proposed flyover. Four associated slip roads are proposed at the roundabout. The eastbound hard shoulder of M23 spur is to be converted to a running lane resulting in three lanes to be provided in the eastbound direction as per the existing westbound provision. The M23 spur is to be re-classified as an A road and is to be known as Gatwick Spur. A third lane westbound is to be introduced on Airport Way over the London to Brighton railway between the South Terminal Roundabout westbound merge slip road and the North Terminal Flyover diverge;
- **North Terminal Roundabout** – A partial grade separation upgrade is proposed. The North Terminal roundabout is to remain at grade with the size of the roundabout proposed to be increased along with proposed modifications to the roundabout approach arms. The North Terminal Flyover is to be introduced to provide direct connection between Airport Way westbound and A23 London Road Northbound. A new signal-controlled junction is to be introduced on A23 London Road northeast of North Terminal Roundabout. The Airport Way eastbound connection from North Terminal Roundabout is to be removed with traffic to utilise alternative route provided via A23 London Road

and a modified A23 London Road diverge onto Airport Way eastbound; and

- **Longbridge Roundabout** – The capacity of the existing at-grade roundabout is to be increased through modifications including widening of the circulatory carriageway, upgrades to the roundabout approaches and signalisation improvements. The A23 Brighton Road is to be upgraded with new turning bay provision. A third lane northbound is to be introduced on A23 London Road between the proposed North Terminal Flyover and Longbridge roundabout. The active travel infrastructure in the vicinity of the junction is to be modified to accommodate the roundabout design changes and a new link for pedestrians and cyclists is to be provided between Longbridge and North Terminal Roundabout via a proposed path on the western side of A23 London Road.

Figure 36: Proposed highway mitigation



7.14.4 The scheme also includes a range of other highway infrastructure works including structures and drainage improvements.

7.14.5 Alongside the Figure 36, a set of General Arrangement drawings have been submitted (**Surface Access Highways Plans – General Arrangements** (Doc Ref. 4.8.1) which show in more detail the layout in this location drawings 41700-XX-B-LLO-GA-200151 to 200153.

8 Scenarios

8.1 Introduction

8.1.1 This section outlines the different scenarios that have been assessed and their specific assumptions:

- Core Scenarios (Future baseline, With Project);
- Construction Scenarios (Airfield, Highway);
- Cumulative Development Scenarios (Cumulative Development Future Baseline plus (CDev), Cumulative Development With Project (CDev With Project)); and
- Habitat Regulations Assessment.

8.2 Core scenarios

8.2.1 The Core Scenarios have been run for all four assessment years: 2029, 2032, 2038, 2047.

Future Baseline - Business as Usual (BAU)

8.2.2 The Future baseline contains all committed transport projects and development growth identified in the Uncertainty Log which is detailed further in Section 9. This also includes background growth in households and employment across the country that may influence wider travel demand as outlined in Section 6.3. Future growth at Gatwick without the Northern Runway project is also included in this scenario as set out in Section 7.4.

8.2.3 As highlighted in Section 7.13, in the absence of the Project there will still be improvements to the key junctions near Gatwick. The North Terminal Roundabout, connecting Northway, Longbridge Way, the A23, Airport Way, Gatwick Way, and the North Terminal Approach, is to have the A23 South entry and the southern third of the roundabout widened to three lanes. The Airport Way entry is to be widened to four lanes including the segregated lane. The Longbridge Way entry and exit is to be widened.

8.2.4 The North Terminal roundabout will be signalised which will improve traffic flow and safety.

8.2.5 The South Terminal Roundabout, connecting the M23 spur, Airport Way, and the Gatwick Ring Road, is to have the Ring Road South exit and Airport Way eastbound approach widened. The South Terminal roundabout will be signalised which will improve traffic flow and safety.

Figure 37: North Terminal Future baseline scheme

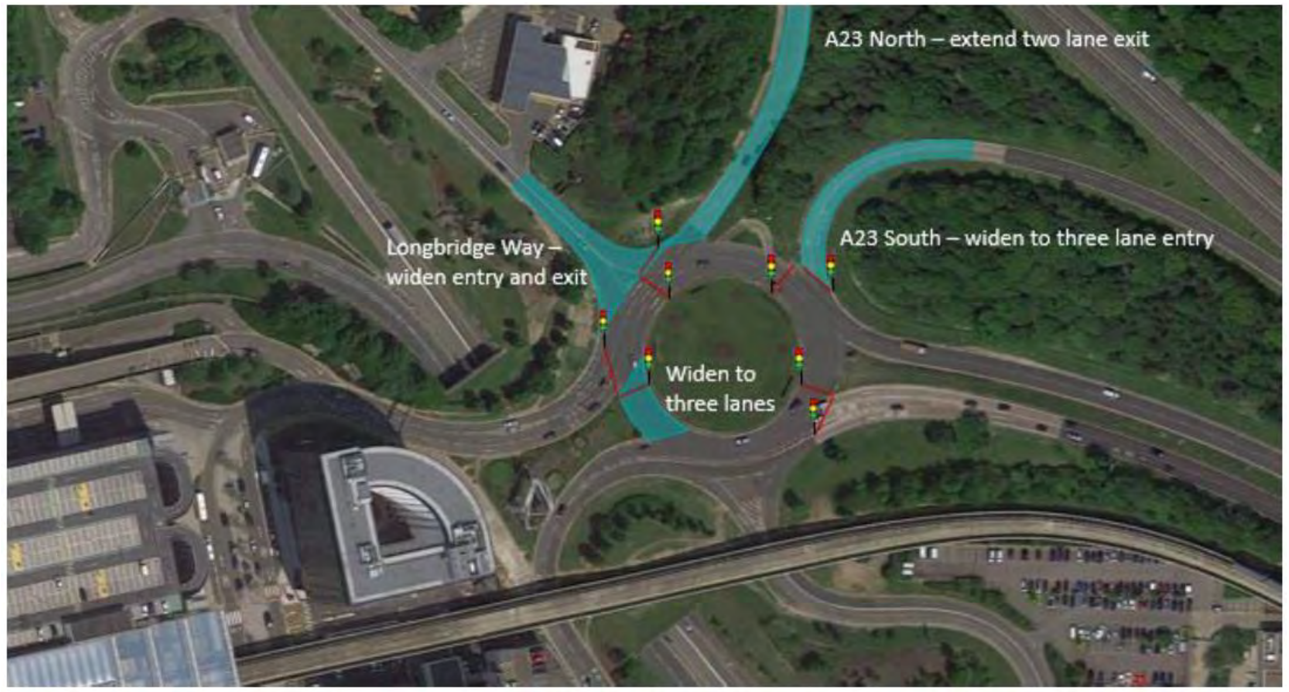
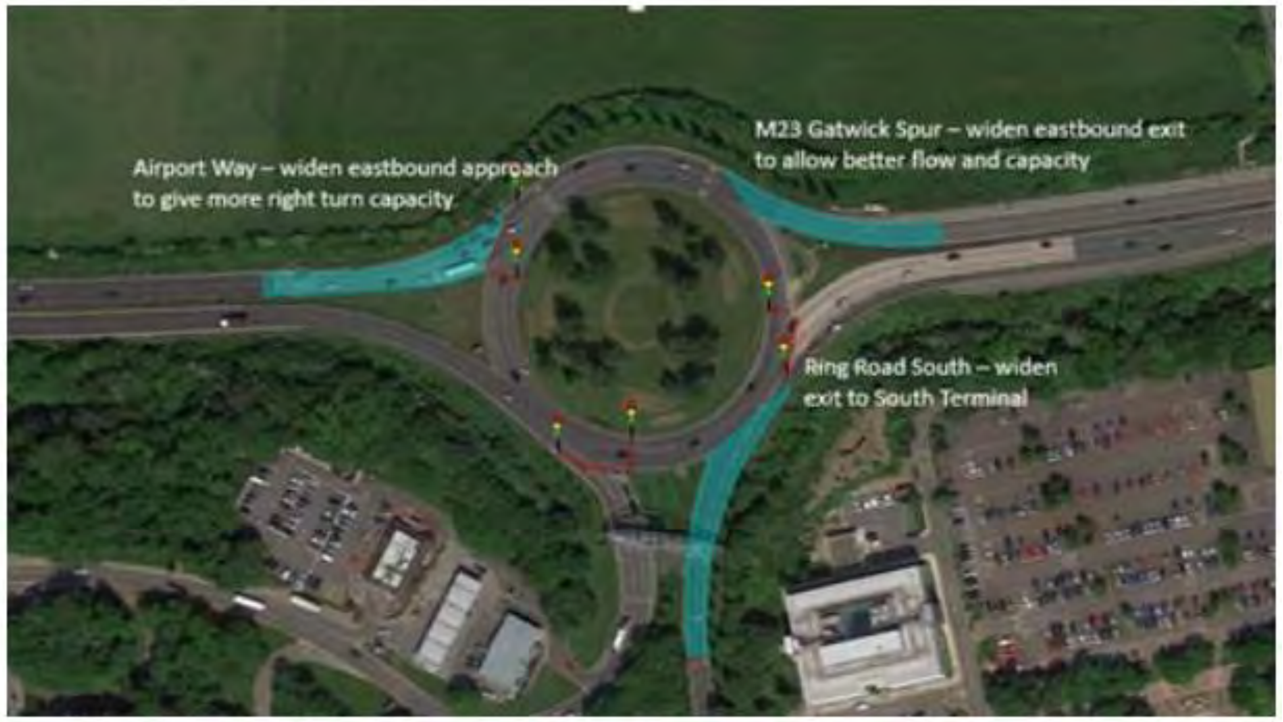


Figure 38: South Terminal Future baseline scheme



With Project - With Northern Runway

8.2.6 The With Project scenario includes all of the assumptions set out in Section 7, notably increases in passenger employee and cargo demand, changes to parking locations, increases to the pricing of parking and forecourt charges, indirect and catalytic employment growth as a result of the Project and the proposed highway mitigation as outlined in Section 7.13.

8.3 Construction scenarios

8.3.1 Two construction scenarios have been modelled to assess the impact of construction at two different phases of the development being delivered. These scenarios reflect:

- The airfield and airport works; and
- The effect of the highway construction.

8.3.2 This first provides an understanding the impact of peak construction vehicle traffic on the highway network. It considers construction traffic reflecting the significant airfield and airport works, which is programmed to be completed before running way opening (currently scheduled in 2029), modelled using the 2029 baseline scenario for airport and background traffic.

8.3.3 The second scenario provides an understanding of the impact of constructing the highway mitigation. This construction scenario uses the 2029 With Project airport traffic and considers the effects associated with highway construction, such as potential traffic redistribution using strategic modelling.

Airfield construction

8.3.4 A peak airfield construction scenario has been tested with construction trips added on to 2029 baseline traffic levels.

8.3.5 Construction vehicle data has been generated on a monthly basis by Gatwick's construction team in relation to core and non-core construction activities to deliver the Project.

8.3.6 The busiest month for construction vehicle activity is December 2026 with 38,450 construction vehicles for the busiest shift across that month, comprising 16,360 construction workforce or Person Owned Vehicles (POVs) and 22,090 other construction vehicles as a mix of HGVs, LGVs and Liveried Vans and a two-shift day.

8.3.7 However, December is a lower month for traffic on the highway network around the Airport and therefore the assessment has also considered other months during the peak months of construction activity in 2026 and 2027. Typically, the summer months, with high Airport activity and background traffic, are the busiest on the network.

8.3.8 Accordingly, the modelling and assessment considers the highest summer month which occurs in August 2027 with 21,834 vehicles for the busiest shift across that month, comprising 7,326 POVs and 14,508 other construction vehicles and two, 10-hour shifts and an 8-hour night shift.

8.3.9 This monthly data has been used to generate daily and peak period traffic volumes by:

- Considering shift patterns.
- Dividing monthly vehicle numbers by 22 working days per month.
- Assuming 1.5 construction workers per vehicle, which is considered to be conservative. Gatwick's construction team have data which suggest that a reasonable proportion of the recent workforce on airside projects at the Airport came to site in minivans with up to 6 people per van. As such, 1.5 construction workers per vehicle is considered a conservative case.
- Assuming 10% construction workforce public transport mode share. Again, this is a low percentage given the excellent connectivity provided by Gatwick Airport Station, as well as local bus and long-distance coach services.

8.3.10 The three shifts in August 2027 mean that, for the busiest daytime peak, the monthly total POVs is 7,326 vehicles, equivalent to 3,663 POVs in one direction. When divided by 22 working days and factored by 90% to reflect 10% of construction workers on public transport, this gives 150 construction worker vehicles travelling into the MA1 site in the AM peak period (07:00-08:00) and out of the site after the PM peak period (18:00-19:00) in August 2027.

8.3.11 In order to provide a reasonable distribution of potential locations from which construction workers will travel to/from the distribution of direct and indirect employment, advised by Oxera, was used. This distribution is shown in Figure 39 at the zonal level and Table 54 provides countywide totals.

Table 54: Airfield construction trip generation by county

County	Total Number of Trips (AM1)
West Sussex	38
Surrey	44
Kent	40
East Sussex	13
Croydon	7
Brighton and Hove	7

8.3.12 For HGVs and LGVs, the shift patterns in August 2027 mean that, for the busiest daytime shift, the monthly total construction vehicles are 14,508 vehicles, equivalent to 7,254 in one direction. When divided by 22 working days and spread over a 10-hour shift, the estimated vehicle trip generation is 33 vehicles (HGVs and LGVs) in and out every hour along the M23 Spur. At this stage, material-carrying construction vehicles, ie LGVs and HGVs, have not been excluded from peak hours on the highway network to test the impact of extra construction traffic in the peak.

8.3.13 The proposal is for all construction vehicles to travel to and from the airport from via M23 Junction 9, and no restrictions are proposed for construction worker vehicles. Construction traffic would be monitored to ensure compliance with proposed routes, unless disruption causes these to be unavailable and signed diversionary routes provided.

8.3.14 The estimated vehicle trip generation is 33 vehicles (HGVs and LGVs) in and out an hour along the M23 Spur, and 150 construction worker vehicles in the AM peak hour. As described above the construction workers have been distributed out over the local authorities while the construction vehicles have been defined in the HAM as fixed routes and the distribution of these vehicles is shown in Figure 40.

8.3.15 The modelling has tested the summer peak level of construction activity in August 2027 on 2029 baseline airport and background traffic levels to provide a robust assessment of potential construction impacts. The difference in traffic flows between 2027 and 2029 would be small (up to 5% higher) and accordingly within the daily variation in any given year.

8.3.16 The Airfield Construction scenario was run through the full GHOST suite, although given the primary intervention here is Highway related, only results for the Highway assignment are presented in Section 13.

Figure 39: Airfield construction trip generation by zone

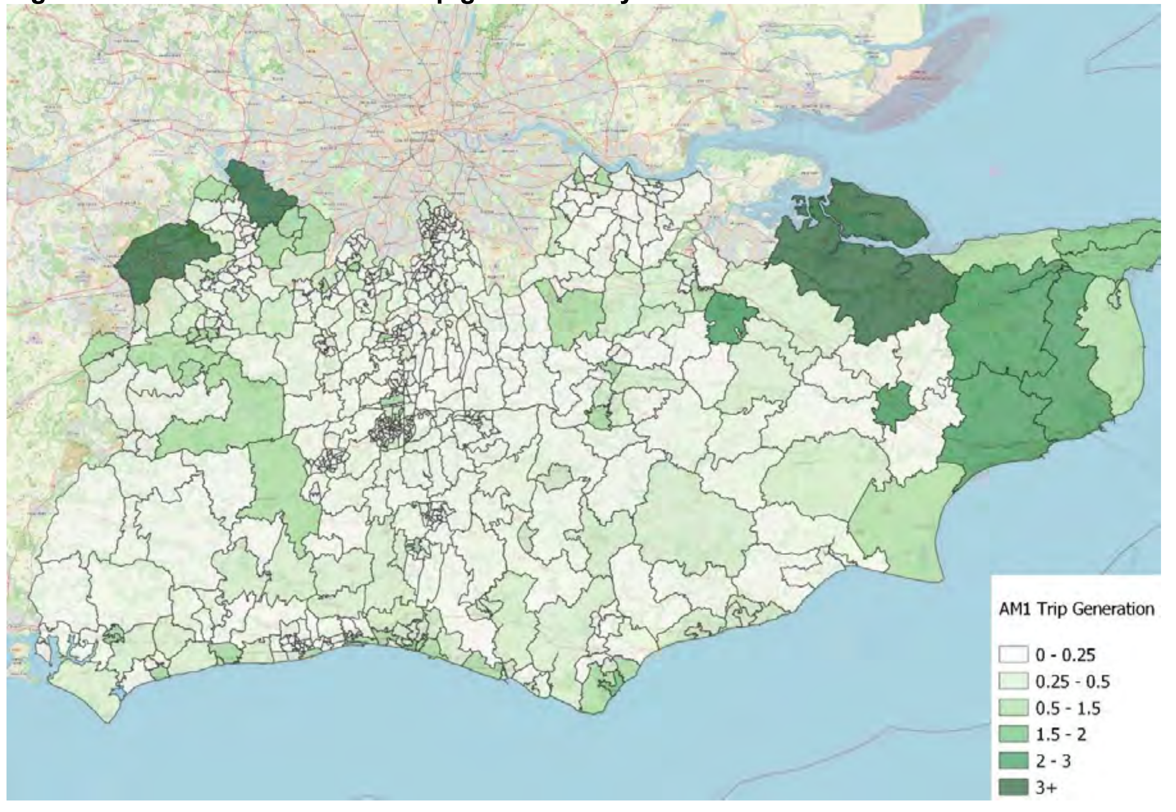
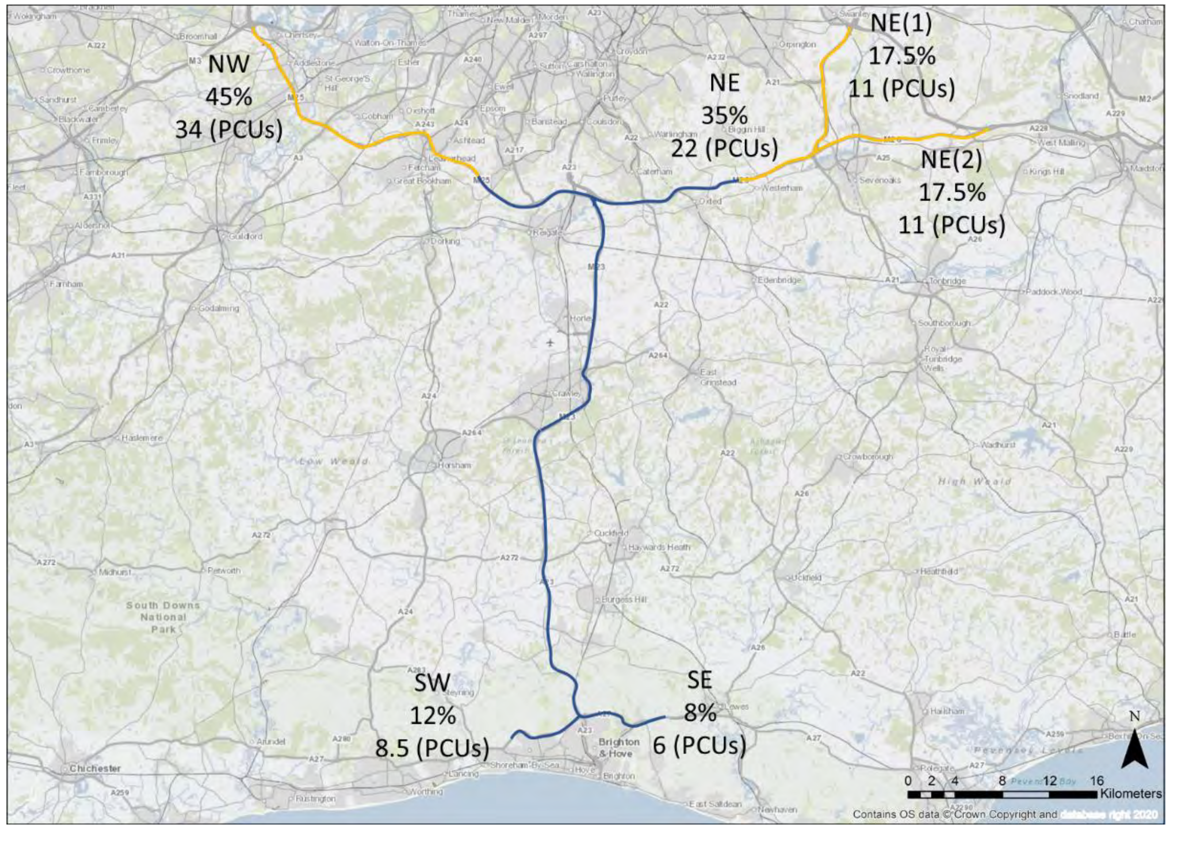


Figure 40: Distribution of construction vehicles in PCUs – AM Peak Hour (07:00-08:00) and PM Peak Hour (18:00-19:00)



Highway construction

8.3.17 As detailed in Section 7.13, improvement schemes are proposed along the corridor between and at Longbridge, North Terminal and South Terminal Roundabouts. The most complex highway construction phase as currently envisaged would involve a combination of construction works at the North and South Terminal roundabouts as well as Longbridge, as shown in Figure 41 to Figure 43. The construction methods are typical for the works envisaged but the sequencing of these to avoid unnecessary disruption creates complexity.

8.3.18 The works could last for a period of up to eight months and would include:

- Longbridge Roundabout;
- Narrowed approach lanes;
- North Terminal Roundabout;
- narrowing of circulatory;
- narrow lanes on merges and diverges, likely requiring some traffic management on the A23;
- A combination of narrow lanes and/or lane closures and contraflow running on the western section of Airport Way to allow the flyover to be built;
- South Terminal Roundabout;
- narrowing of circulatory; and
- narrowing of approach lanes on all approaches.

8.3.19 The modelling has tested the impact of the closure on 2029 With Project demand, ie assuming the Northern Runway is open, to provide a robust assessment of potential construction impacts with additional demand generated by increased runway capacity. It is envisaged that these works would take place between January and August, with much of the works carried out at quieter times. Overlaying on the existing June traffic ensures the robustness of the assessment. The scenario modelled assumes concurrent construction work on all elements (North Terminal, South Terminal and Longbridge Roundabout) all occurring simultaneously whereas in reality phasing may result in less overlap, further adding to the robustness of the modelled scenario.

Figure 41: Potential highway construction phase: Longbridge Roundabout

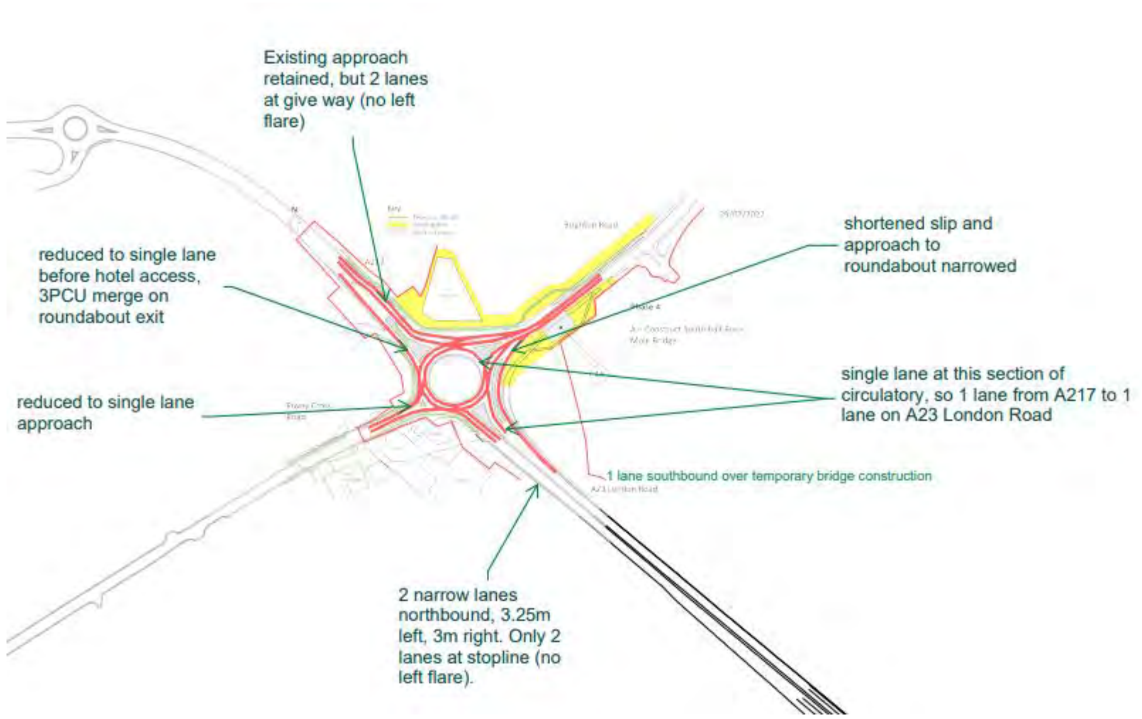


Figure 42: Potential highway construction phase: North Terminal Roundabout

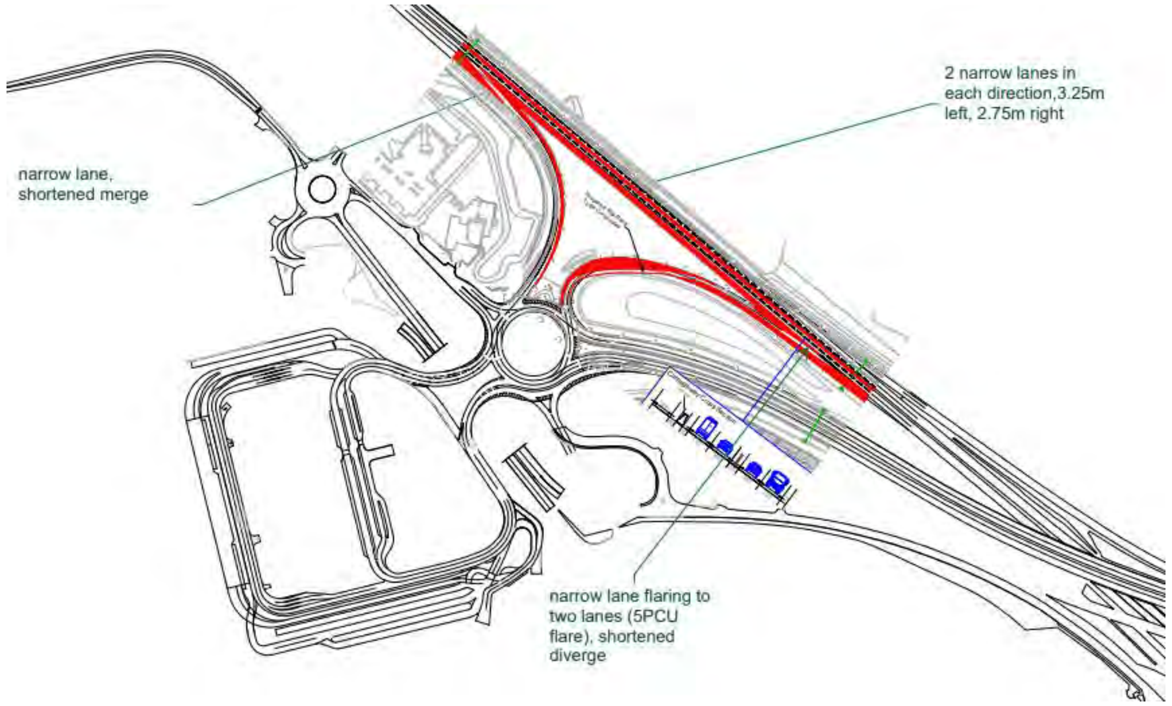
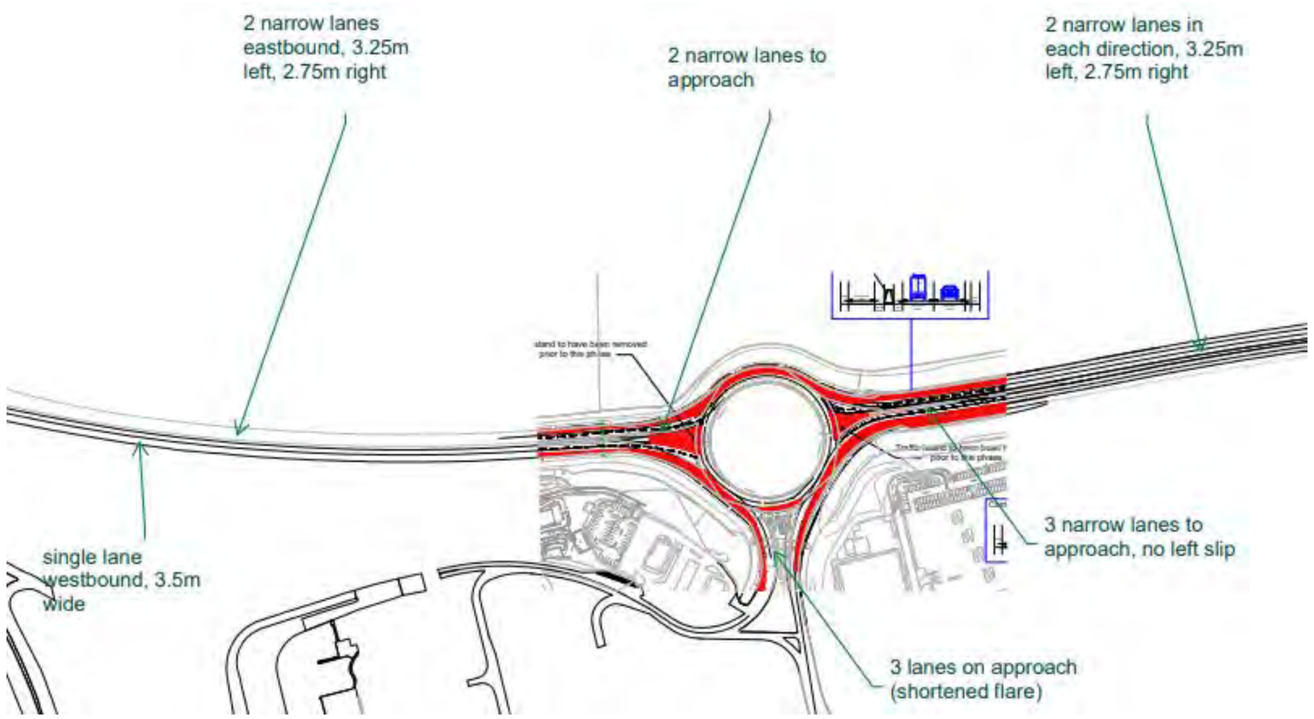


Figure 43: Potential highway construction phase: South Terminal Roundabout



8.4 Cumulative development

8.4.1 As detailed further in the Uncertainty Log Section 9, there are a number of developments within the vicinity of Gatwick that are considered 'reasonably foreseeable' and do not form part of the Core Scenario. However, given their geographical proximity to Gatwick deemed sufficiently important for a set of scenarios to be run that included key sites as identified with the Local Authorities. The 'Reasonably Foreseeable' sites included are as follows:

- Horley Business Park;
- West of Ifield; and
- Gatwick Green.

8.4.2 These developments have been added to the Core Scenarios to form Cumulative Development Scenarios. These Cumulative Development Scenarios have been run for all four assessment years: 2029, 2032, 2038, 2047.

8.5 Habitats Regulation Assessment (HRA)

8.5.1 A Habitats Regulations Assessment (HRA) (**ES Appendix 9.9.1: Habitat Regulations Assessment Report** (Doc Ref. 5.4)) was carried out for the 2032 and 2038 forecast years. The assessment covered the following sites:

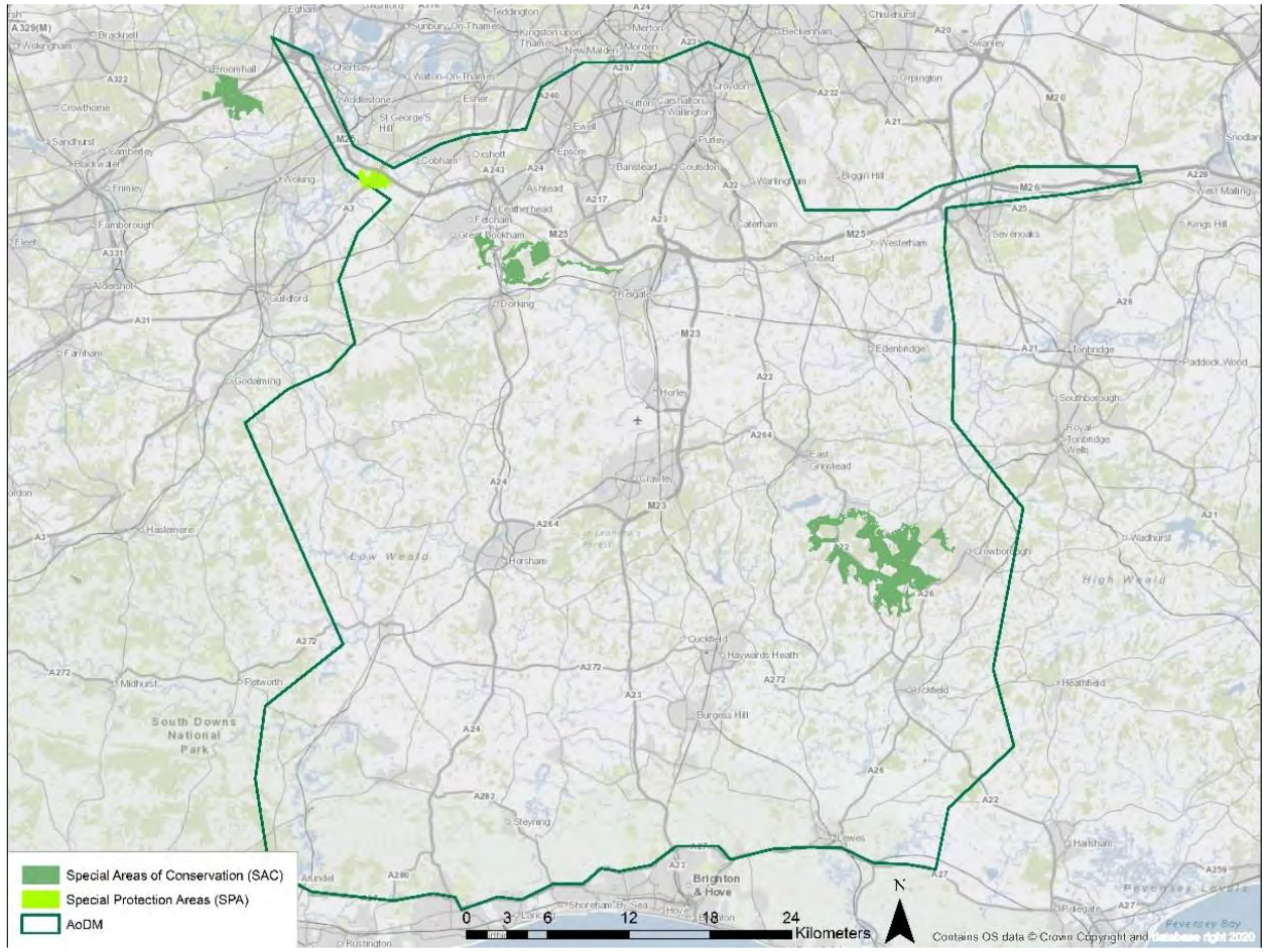
- Ashdown Forest Special Are of Conservation (SAC) and Special Protection Areas (SPA);
- Mole Gap to Reigate Escarpment SAC;
- Thames Basin Heaths SPA; and
- Thursley, Ash, Pirbright & Chobham SAC.

8.5.2 These are shown in Figure 44.

8.5.3 The HRA needs to include an assessment of air pollution changes from the project alone, but also the project acting in combination with other projects/plans in the area. The assessment scenarios for the HRA were carried out for 2032 and 2038 and are as follows:

- A - Future baseline scenario without any committed developments/plans and other projects for local authorities within 10km of each ecological site;
- B - Future baseline scenario with growth to account for committed developments and plans (which is the scenario known as Future baseline); and
- C - With Project scenario, which includes future growth from committed developments/plans and the contribution of the Project.

Figure 44: SACs and SPA



8.5.4 A comparison between scenarios C and B provide the impact of the project alone, while a comparison between scenarios C and A provides the impact of the project in combination with other committed developments/plans in the area.

8.5.5 To support this assessment, an additional scenario (A) for 2032 and 2038 was required. This represents an alternate future baseline scenario without any committed development plans which was called HRA.

8.5.6 Based on the Natural England Guidance[10] the following approach was used:

- Apply growth to the 2016 base demand up until 2022.
- Apply business as usual growth (ie without the Project) at the airport up until 2032 and 2038.
- Exclude all committed developments, plans and other projects for local authorities within 10km of each ecological site.

8.5.7 The local authorities within 10km of each site are shown in Table 55. The results of the HRA modelling were provided and included in the Environmental Impact Assessment. These are not reported in this Strategic Transport Modelling Report.

Table 55: Local authorities within 10km of sites

Ashdown Forest SAC/SPA	Mole Gap to Reigate Escarpment SAC	Thames Basin Heaths SPA	Thursley, Ash, Pirbright & Chobham SAC
Lewes	Elmbridge	Windsor and Maidenhead	Windsor and Maidenhead
Wealden	Epsom and Ewell	Bracknell Forest	Bracknell Forest
Sevenoaks	Guildford	Elmbridge	Elmbridge
Tunbridge Wells	Mole Valley	Epsom and Ewell	Guildford
Tandridge	Reigate and Banstead	Guildford	Runnymede
Crawley	Tandridge	Mole Valley	Spelthorne
Mid Sussex	Woking	Runnymede	Surrey Heath
	Crawley	Spelthorne	Woking
	Kingston upon Thames	Surrey Heath	
	Sutton	Woking	
		Kingston upon Thames	

[10] Natural England (2018), Approach to advising competent authorities on road traffic emissions and HRAs

9 Uncertainty Log

9.1 Background

9.1.1 In accordance with TAG Unit M4, an uncertainty log was developed for both demand (eg new developments) and supply (eg new transport infrastructure) that could impact the future performance of the transport system. The objective of this was to review the likelihood of specific proposals coming forward based on their current planning/funding status and use this as the basis for selecting a set of assumptions for the Future baseline.

9.1.2 The approach undertaken was to review the assumptions for authorities that sit within the AoDM alongside national bodies such as Network Rail (and Train Operating Companies), National Highways, and relevant bus/coach operators. Specific Local Authority districts were contacted for specific information around committed and planned development as shown in blue in Figure 45. In addition, TfLs assumptions for population and employment growth in Greater London were also reviewed, such that growth in the Greater London Area align with TfLs MoTiON 3.0.18. Note specific detailed assumptions were made for the London Boroughs of Sutton, Croydon, and Epsom and Ewell as these formed part of the AoDM.

9.1.3 For ease of cross reference, Table 56 provides an extract from TAG Unit M4 in relation to the classification of uncertainty. This is the framework applied in the subsequent sections.

9.2 Supply uncertainty – transport scheme data

9.2.1 The supply side uncertainty log was completed for each relevant mode of transport used within the model.

9.2.2 For highway schemes, data were collated from the following sources:

- SERTM Future Year transport schemes from National Highways;
- CLTM uncertainty log of infrastructure schemes;
- Highway network improvements provided by WSCC;
- Development-related transport mitigation identified through review of planning applications;
- Local Plan Schemes; and
- Infrastructure Delivery Plans.

Figure 45: Coverage area of uncertainty log

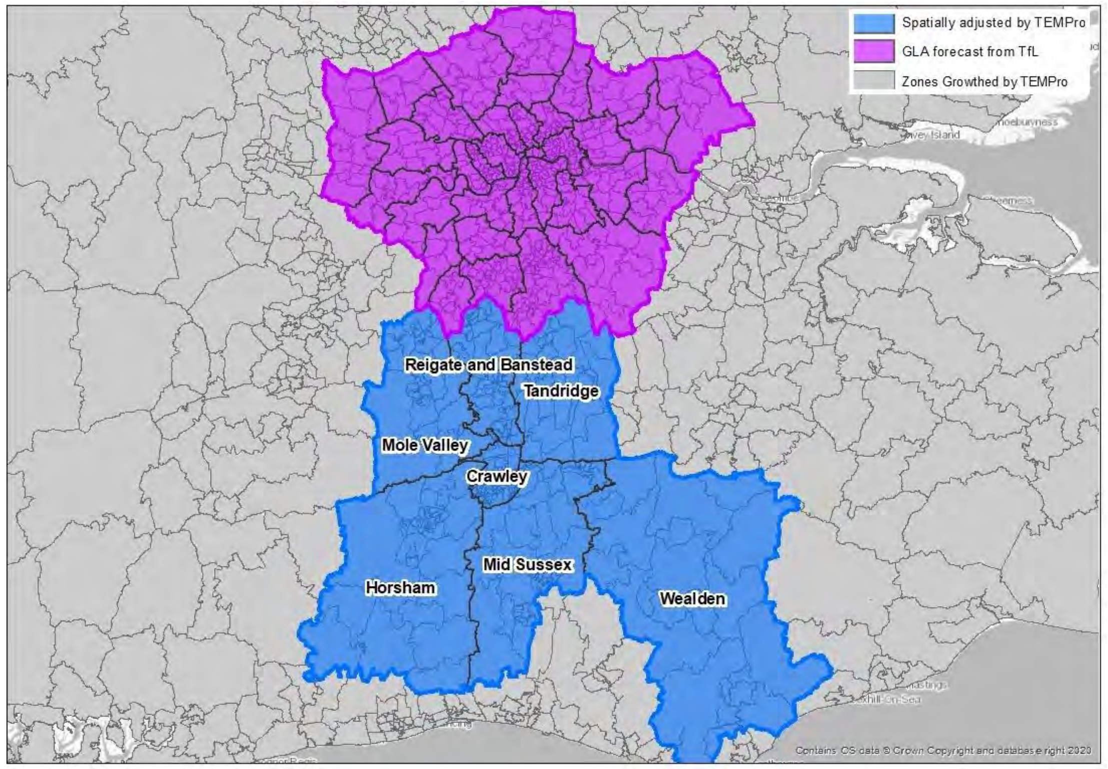


Table 56: Classification of future inputs (taken from TAG Unit M4)

Probability of the input	Status	Core scenario assumption
Near certain: The outcome will happen or there is a high probability that it will happen.	Intent announced by proponent to regulatory agencies. Approved development proposals. Projects under construction.	This should form part of the core scenario
More than likely: The outcome is likely to happen but there is some uncertainty.	Submission of planning or consent application imminent. Development application within the consent process.	This could form part of the core scenario
Reasonably foreseeable: The outcome may happen, but there is significant uncertainty	Identified within a development plan. Not directly associated with the transport strategy/scheme but may occur if the strategy/scheme is implemented. Development conditional upon the transport strategy/scheme proceeding. Or, a committed policy goal, subject to tests (eg of deliverability) whose outcomes are subject to significant uncertainty	These should be excluded from the core scenario but may form part of the alternative scenarios
Hypothetical: There is considerable uncertainty whether the outcome will ever happen.	Conjecture based upon currently available information. Discussed on a conceptual basis. One of a number of possible inputs in an initial consultation process. Or a policy aspiration	These should be excluded from the core scenario but may form part of the alternative scenarios

9.2.3 The schemes were cross checked against the National Highways road schemes website, information provided by Local Authorities and available public information. The major Road Investment Strategy (RIS) schemes were captured as well as other strategic schemes in the study area through discussions with Stakeholders.

9.2.4 Table 57 lists the major highway schemes and a full list can be found in Appendix B.

9.2.5 The future year rail schemes included in all future years (unless otherwise stated) are:

- Crossrail

Network Rail schemes

- North Downs Line increase from 2 trains per hour (tph) to 3 tph (increase from 1 tph to 2 tph at Gatwick)
- Thameslink ultimate frequency 24 tph

London Underground schemes

- Northern Line extension to Battersea Power Station
- Victoria Line upgrade
- Piccadilly Line upgrade
- Subsurface full upgrade
- LUL new vehicles

London Overground schemes

- East London Line upgrades
- Gospel Oak – Barking upgrades
- Dockland Light Railway and Croydon Tram schemes
- DLR Rolling Stock Replacement Programme
- Croydon Tram timetable change

9.2.6 HS2 was not coded as this would not have a significant impact on access to Gatwick as it operates outside the modelled area (first stop Birmingham).

9.2.7 Similar to the demand side uncertainty log, design stages and details given in the planning documents for development-related schemes were used to inform the uncertainty categories. Those schemes meeting the near certain or more than likely criteria were coded into the relevant future model networks.

9.2.8 Through stakeholder engagement with TfL it was clear that there is a desire to introduce some form of Road User Charging scheme. This is currently a hypothetical scheme with limited detail on how this would operate or how this would be modelled. There is also the forthcoming expansion to the Ultra Low Emission Zone (ULEZ) announced in November 2022 to take effect from August 2023. This would have some impact on demand levels across the capital, with an anticipated reduction in background car trips, and potentially some impact on airport related road traffic. Given the status of the Road User Charging Scheme, it has not been included in the Core scenarios.

Table 57: Major highway schemes

Index	Scheme name	Scheme promoter	Opening year
3	A2 Bean & Ebbsfleet Junction Improvement Scheme	National Highways	2022-2023
6	M23 Junctions 8-10: Smart Motorways	National Highways	Spring 2020
12	A27 East of Lewes	National Highways	2022
14	M25 Junction 10-16 Smart Motorway	National Highways	2025
19	Lower Thames Crossing – new link	National Highways	Before 2029 (assumed)
41	M23 Junction 9, north bound slip road – Carriageway widening	Crawley	Before 2026 (assumed)
42	M23 Junction 10 – Junction improvements, Signal, carriageway widening	Crawley	2023
46	Radford Road approach to Gatwick Road	Crawley	2023
138	Burgess Hill Northern Arc Land - Highways (A2300), bridges	WSCC	2029
354	M25 J8 Improvement Scheme	National Highways	Dec-20

9.3 Demand uncertainty – development data

9.3.1 The demand uncertainty log was populated using information from multiple planning documents in conjunction with council planning portals, mainly:

- Local Plan Development;
- Strategic Housing Land Availability Assessment;
- Annual Monitoring Report; and
- Housing/Employment Land Trajectory.

9.3.2 Table 58 outlines the local plan assumptions used as the basis for the assessment.

9.3.3 The data for each district was summarised and checked with data held by each Local Authorities to help verify the assumptions. A series of larger scale developments were identified where significant new access requirements were likely to be required or where travel patterns in the existing model zones were likely change significantly. These are listed in Table 59.

9.3.4 The uncertainty log identifies the likelihood of each development taking place as near certain, more than likely, reasonably foreseeable, hypothetical.

9.3.5 Assumptions of alternating commercial land-use size to number of full-time employees and build out rates across the future years were inferred based on planning documents and existing information of similar sites if no such data were available.

9.3.6 The full list of developments scoped in are included in Appendix C.

9.3.7 Zones within 15km radius of Gatwick and generating more than 200 two-way trips in the peak hour from developments captured in Uncertainty Log during peak hour were identified as special zones. They are illustrated in red in Figure 46: Special zones identified. The 200 two-way trip threshold ensured that travel demand of zones contributing more than 75% of trips from all developments classified as 'Near certain' or 'More than likely' would be modelled explicitly through adding in specific development demand for each site. The remaining 25% of trips were included through adjustments to TEMPro growth in these areas.

Table 58: Local plans

Local authority	Source	Plan period
Mid Sussex	District Plan 2014 – 2031	2014 – 2031
Reigate and Banstead	Reigate and Banstead Local Plan: Core Strategy	2012 – 2027
Wealden	Adopted Core Strategy	2013 – 2027
Mole Valley	Core Strategy	2009 – 2026
Epsom and Ewell	Core Strategy 2007	2006 – 2026
Crawley	Local Plan	2015 – 2030
Tandridge	Local Plan 2033 Proposed Version (under examination)	2013 – 2033
Horsham	Horsham District Planning Framework 2015 – 2031 (excluding South Downs National Park)	2015 – 2031
Sevenoaks	New Local Plan	2015 - 2035
Brighton & Hove	City Plan Part One 2016	2010 - 2030

Table 59: Major developments identified in Uncertainty Log

Index	Location	Local authority	Fully built year
2-4	Forge Wood Neighbourhood	Crawley	2030
19-21	Thales, Gatwick Road	Crawley	2019 (parcel 1&2) parcel 3 subject to planning application as of Jan 2022.
30	E2 Crawley Business Quarter	Crawley	2016
39	Land at London Road and Fleming Way (Elekta)	Crawley	2023
58-62	Burgess Hill Northern Arc Land North and North West of Burgess Hill Between Bedelands Nature Reserve in The East and Goddard's Green Waste Water Treatment Works In The West	Mid Sussex	2035
210-214	Land West of Bewbush (Kilnwood Vale)	Horsham	2030
224-231	Land North of Horsham, Strategic Site, Holbrook Park and Chennells	Horsham	2035
239	Nowhurst Business Park Guildford Road Broadbridge Heath, Slinfold	Horsham	2023
259	Broadlands Business Campus, Langhurstwood Road, Horsham	Horsham	2028
278-283	Horley North West Sector 'Land at Meath Green', Horley	Reigate and Banstead	2024
358-359	Land west of Uckfield – Site SD1	Wealden	2034
476-480	Land Adjoining East Croydon Station, bounded by George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road and Including Land to The North of Lansdowne Road, Croydon	Croydon	2025
625-627	1-2 Lansdowne Road	Croydon	2032
563-565	Land Bounded by George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Croydon	2032
654-658	Fort Halstead, Crow Drive, Kent	Sevenoaks	2030

9.3.8 Developments classified as near certain and more than likely informed growth to the base demand in the core scenarios.

- For major development sites listed in Table 59 where specific zones are assigned to, specific trip generation assumptions were developed based on data sourced from their respective transport assessments.
- For other shortlisted zones as shown in Figure 46, trip generation assumptions were developed from generic TRICS® data of comparable sites. These were adjusted where necessary to cover the full series of time periods modelled. Growth from these zones was removed from the TEMPro growth adjustment process set out above to avoid double counting. Specific trip distribution assumptions were made for each development zone based on the likely characteristics of the development and considering adjacent zones of similar characteristics.
- Other sites captured were fed into the travel demand growth calculations as outlined in Section 6.3.4 and 6.3.5.
- The growth in the Local Authorities in the vicinity of the airport is largely driven by specific development sites identified. Table 60 and Table 61 show the development growth modelled for housing and employment respectively, as well as the split between special development-related growth and overall growth based on TEMPro.

9.3.9 The scale of housing and employment development in Sutton, Mole Valley, Tandridge and Epsom and Ewell was such that no specific development sites were identified as 'special' meaning all of the development in this districts was treated through TEMPro adjustment.

9.3.10 More details of each modelled year can be found in Appendix D.

Figure 46: Special zones identified

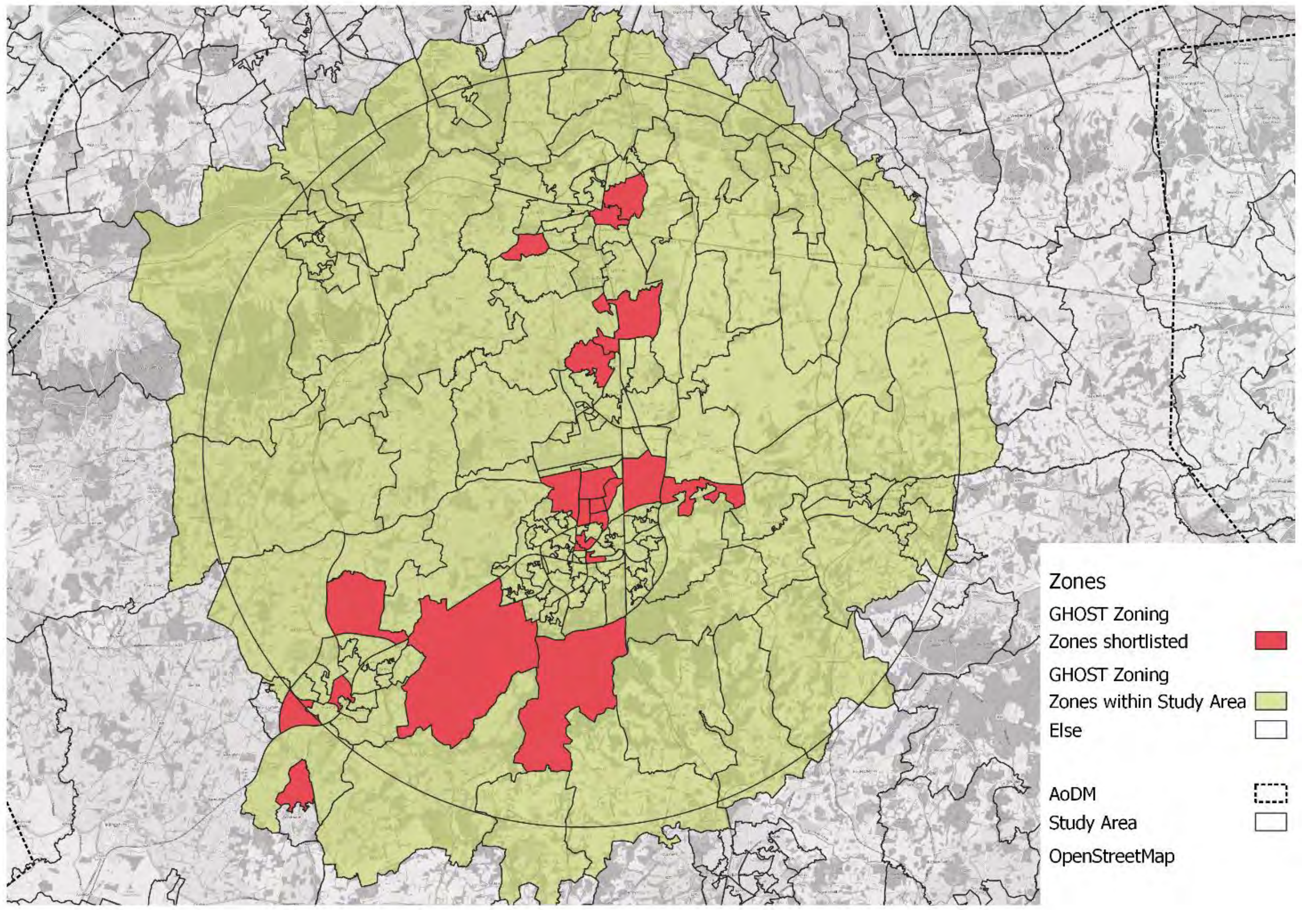


Table 60: Housing growth (dwellings) captured by special zones and after wider TEMPro adjustment in 2047

Local authority		All UL sites modelled	Special zones		Wider TEMP
			Absolute	% captured	
West Sussex	Horsham	8,143	6493	80%	16,233
	Crawley	3,790	2455	65%	5,560
	Mid Sussex	9,154	4466	49%	15,772
Surrey	Mole Valley	334	0	0%	4,715
	Reigate and Banstead	3,494	2830	81%	12,710
	Tandridge	595	0	0%	5,882
	Epsom and Ewell	161	0	0%	3,232
East Sussex	Wealden	7,060	1000	14%	11,815
London	Sutton	1,873	0	0%	20,791
	Croydon	6,954	2045	29%	41,687

Table 61: Employment growth (jobs) captured by special zones and after wider TEMPro adjustment in 2047

Local		All UL sites modelled	Special zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	6,855	6,796	99%	47
	Crawley	4,538	4,401	97%	5,202
	Mid Sussex	2,768	1,520	55%	9,357
Surrey	Mole Valley	0	0	-	3,633
	Reigate and Banstead	1,133	281	25%	6,817
	Tandridge	136	0	0%	11,599
	Epsom and Ewell	765	0	0%	2,387
East Sussex	Wealden	1,881	308	16%	5,017
London	Sutton	1,556	0	0%	8,444
	Croydon	14,911	14,957	100%	-52

Figure 47: Cumulative development site locations

9.4 Cumulative development

9.4.1 The developments included in the Core Scenario have Uncertainty Levels 'Near Certain' or 'More than Likely'. There are a number of developments within the vicinity of Gatwick that are considered 'reasonably foreseeable' and do not form part of the Core Scenario. However, given their geographical proximity to Gatwick, and interest raised by Local Authorities, were agreed to be considered as part of a Cumulative Development test. The cumulative development scenarios affect both the Future baseline and With Project tests. The three developments being tested in the scenarios are:

- Horley Business Park;
- Gatwick Green; and
- West of Ifield.

9.4.2 These sites are shown in Figure 47.

9.4.3 For each site, the level of information available varied and a series of assumptions were developed and discussed with the relevant Local Authorities. A build out/opening of 2027 was assumed (allowing 2 years for construction/opening) with completion after 10 years for Horley Business Park and West of Ifield, and with completion after 8 years for Gatwick Green. Each scheme has an associated set of network changes to support the development and enable trips to load onto the network. Table 62 sets out the build out rate assumptions for these developments.

Table 62: Development extent by assessment year

Site	2029	2032	2038	2047
Horley Business Park	20%	50%	100%	100%
Gatwick Green	25%	62.5%	100%	100%
West of Ifield	20%	50%	100%	100%

9.4.4 Both demand and supply side assumptions for these sites are detailed overleaf.

Horley Business Park

9.4.5 Horley Business Park is a strategic business park allocation to the northeast of Gatwick, accessed off the South Terminal roundabout comprising of some 116,000 sqm of office land use. The travel demand was calculated based on trip rates provided in DHAs report for Reigate and Banstead Borough Council. Similarly, the growth was included as an addition to the background growth of core scenarios.

9.4.6 Limited information was available on how the access to the site would function, in particular at South Terminal Roundabout. In the development of the assumptions used in this modelling work, a combination of LinSig junction modelling and VISSIM microsimulation modelling was used to identify signal timings for the South Terminal roundabout assuming an at-grade access directly from the roundabout.

West of Ifield

9.4.7 West of Ifield is a proposed new neighbourhood to the west of Crawley. Assumptions for this development has been provided by Steer who are working on the scheme. The development includes with 3,250 dwellings, 15,000 sqm office space, 3,500 sqm food store, 6,000 sqm retail, 900 pupil secondary school and 1,450 pupil secondary school.

9.4.8 Information was provided for two time periods 08:00 – 09:00 and 17:00 – 18:00 so TRICS® has been used to calculate the other time periods. The trip generation is presented in Table 63. The information provided was for person trip rates and this has been converted to vehicle trips based on mode shares provided.

9.4.9 The development involves the building of a section of the proposed Western Link Road and realignment of the existing Rusper Road to provide access to the site. This is assumed to be in place by 2029.

Gatwick Green

9.4.10 Gatwick Green is a development proposed in Crawley accessed from Balcombe Road. In the Crawley currently adopted Local Plan there is no mention of Gatwick Green as a site. However, the emerging Crawley Local Plan (Employment Land Trajectory)[11] and Crawley Transport Study include development of some 77,500 sqm GFA split into:

- B8 Parcels distribution 7,750 sqm (10%)
- B8 Commercial warehousing 46,500 sqm (60%)
- B2 Industrial estate 23,250 sqm (30%)

9.4.11 The growth from Gatwick Green is included as additional development over and above the TEMPro growth already included as it does not form part of the Local Plan growth in TEMPro 7.2.

9.4.12 TRICS® trip rate from Crawley Transport Study were used to calculate the demand in addition to the background growth. The distribution has been taken from zones within the Manor Royal Business District on the basis that there are several warehouses and distribution centre located in this area. The resulting trip generation for the site is provided in Table 64.

9.4.13 Note, the bottom row reports the data stated in the Crawley Transport Study, and the first four rows represent the calculations undertaken for the Gatwick forecasting inputs.

9.4.14 In the Crawley Transport Study, the development is estimated to generate 333 two-way trips in the AM peak and 298 two-way trips in the PM peak. It is assumed that a proportion of employees working at the site would use the sustainable mitigation measures. Subsequently, the residual Gatwick Green trips assumed to impact the network are 312 two-way trips (224 arrivals and 88 departures) in the AM peak and 281 trips in the PM peak (80 arrivals and 201 departures). The Transport Study also states there are significant proportion of HGV trips.

9.4.15 In order to generate specific estimates for input into the Gatwick model, and to cover the relevant time periods, a series of calculations were undertaken using data from TRICS for each of the development components. In the absence of vehicle splits for two of the employment types, car and GV splits of B8 commercial warehousing data have been applied to trips for:

- B8 parcel distribution; and
- B2 industrial estate.

9.4.16 The development would be accessed from Balcombe Road. It is assumed that the highway network needed to facilitate this development would be in place by 2029. There are also two HGV turn bans (left in and right out) as outlined in the Crawley Transport Study to mitigate the impact of HGVs on the northern section of Balcombe Road.

Table 63: West of Ifield trip generation

	AM1		AM2		IP		PM		OP	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Cars	229	478	431	545	487	463	783	641	75	55

Table 64: Gatwick Green trip generation

	AM1		AM2		IP		PM		OP		Daily	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Cars	77	0	94	7	52	46	39	126	12	17	767	803
OGVs	65	62	118	68	49	54	42	21	19	23	855	854
LGV	9	0	7	11	7	8	13	14	2	2	118	115
Total Trips	151	62	220	86	108	108	94	161	33	42	1,741	1,774
Total (In Crawley TS)	-	-	224	88	-	-	80*	201*	-	-	-	-

*Trip numbers for 17:00-18:00 in the Crawley Transport Study

[11] Employment Land Trajectory January 2021.pdf (crawley.gov.uk)

10 Reference case forecasting – results and analysis

10.1 Introduction

10.1.1 This section outlines the results from the reference case model forecasts. The reference case represents the future forecasts **assuming no demand response** associated with a change in travel costs, ie no reaction to congestion or future cost changes on the behaviour of travellers. It is prepared by expanding the base non airport demand, and air passenger and employee tour matrices to future years totals based on:

- TEMPro growth forecasts and development projections described in Section 9;
- Future year air passenger forecast by terminal by hour by direction; and
- Future year employee totals.

10.1.2 This section provides a review of the forecasts to understand the overall levels of demand growth resulting from these assumptions prior to the application of the VDM.

10.2 Airport passenger demand

10.2.1 The base year air passenger tour matrices are furnessed[12] to the June high forecast terminal counts for each scenario. The Base model contains matrices of air passenger tours (eg Home → Gatwick → Home) for 4 segments (UKL, UKB, NUKL, NUKB), 10 modes, 36 surface access periods (6 out periods x 6 return periods), and 2 terminals.

10.2.2 The residency and purpose proportions are assumed to stay broadly the same as the Base in all future year scenarios. The long haul/short haul splits do change in future years; these assumptions are provided by ICF.

10.2.3 Growth factors to create the future year tours for each scenario are calculated as follows:

- The CAA survey records are allocated to the 6 landside (surface access) time periods using departure and arrival time distributions.
- The CAA survey records are expanded to (a) June 2016 average weekday hourly observed counts; and (b) Future Year High June weekday hourly forecast counts – transfer passengers have already been removed from both datasets.
- The Reference growth rates are calculated for each combination of terminal, segment and departure/arrival time period by dividing Future by Base. The resulting growth rates (which are the same for all modes) are applied to the Base tours to create the Reference tours.

10.2.4 The figures below show the forecasts of daily surface access trips in each time period for each scenario on the modelled day (June high weekday). The time periods refer to landside, ie time of surface access arrival at Gatwick for departures. Figure 48 shows air passenger departures and Figure 49 shows air passenger arrivals.

Figure 48: Air passenger surface access trips, departures direction, land-side time bands

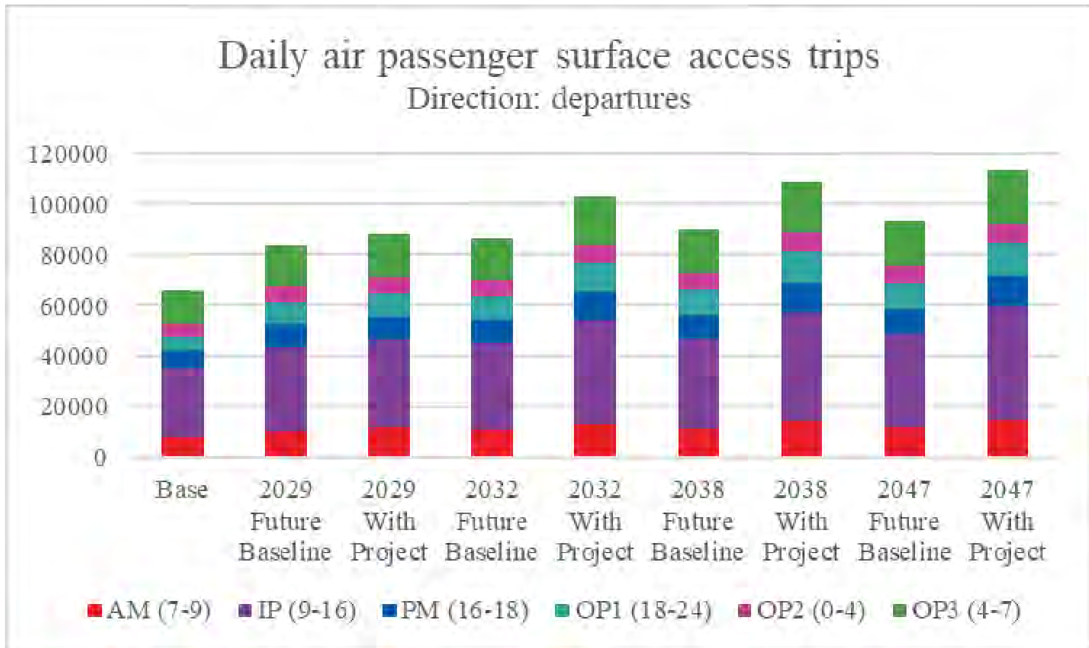
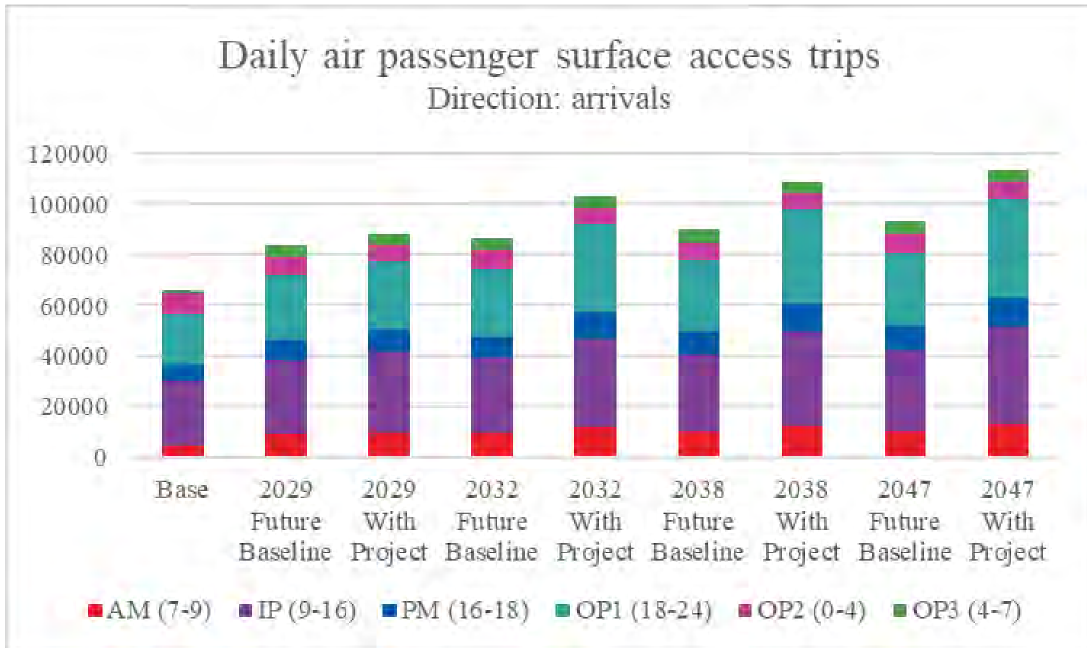


Figure 49: Air passenger surface access trips, arrivals direction, land-side time bands



[12] Furnessing is the process of factoring matrices iteratively to achieve a target set of trip ends.

10.2.5 The following tables show daily surface access trips (two-directional totals) by terminal, segment and reference case mode.

- Table 65 shows the totals;
- Table 66 shows changes from 2016 Base; and
- Table 67 shows percentage changes from 2016 Base.

10.2.6 The overall growth to 2047 is 42% in Baseline and 72% With Project. Reference public transport growth is slightly higher than car because the strongest passenger growth occurs at times when the Base public transport share is also strong; while the weakest growth is at night when public transport share is weak.

10.2.7 Figure 50 and Figure 51 show the hourly air passenger arrival time profiles for 2047 Future Baseline and With Project scenarios respectively (both Terminals combined). Airside refers to scheduled flight arrival times; landside refers to the time the arriving passengers exit the airport and start their surface egress journey – for some late arrivals this can be the following morning (overnight hotel stay).

10.2.8 The largest growth is in early morning Arrivals (airside 05:00-08:59) particularly in the With Project case (8,000 in Base → 14,300 in 2047 Baseline → 18,400 in 2047 With Project) which leads to the highest growth in landside travel being in the AM Peak.

10.2.9 Figure 52 and Figure 53 show the hourly air passenger departure time profiles for 2047 Future Baseline and With Project scenario respectively.

10.2.10 Departures shows peak in the early morning period (airside 06:00-07:00), after AM peak (09;00-11:00) and early afternoon (14:00-15:00).

10.2.11 Figure 54 and Figure 55 show the profiles for both directions combined.

10.2.12 For Landside, the hour with highest growth from 2016 in the Future baseline is 06:00-07:00 (84%) and With Project is 07:00-08:00 (127%).

- Future baseline 2047: hourly growth rate exceeds 66% between 06:00-09:00; at other times of day the growth is generally around 40%.
- With Project 2047: hourly growth rate exceeds 100% between 06:00-09:00 and 19:00 to midnight; at other times of day the growth is generally 50-60%.

Table 65: Daily surface access trips by terminal, segment and reference case mode, both directions (thousands)

Term	Seg	Mode	Base 2016	Base 2029	Base 2032	Base 2038	Base 2047	Project 2029	Project 2032	Project 2038	Project 2047
ST			63.5	69.4	70.8	72.0	76.4	74.8	93.8	98.4	103.1
NT			68.6	97.6	102.1	107.9	110.7	101.6	112.4	119.7	123.8
	UKB		12.7	15.9	16.5	17.1	17.6	16.8	19.5	20.6	21.3
	NUKB		5.1	6.8	7.0	7.3	7.6	7.1	8.4	8.9	9.3
	UKL		90.5	113.3	117.2	121.8	126.6	119.9	139.4	147.4	153.3
	NUKL		23.7	31.0	32.2	33.6	35.3	32.7	38.8	41.2	43.1
		Car	79.4	98.7	101.9	106.0	110.2	104.4	120.5	127.3	132.4
		PT	52.7	68.3	70.9	73.9	76.9	72.0	85.7	90.8	94.5
Total			**132.1**	**167.0**	**172.8**	**179.8**	**187.1**	**176.4**	**206.2**	**218.1**	**226.9**

Table 66: Daily surface access trips by terminal, segment and reference case mode, both directions, change from Base (thousands)

Term	Seg	Mode	Base 2016	Base 2029	Base 2032	Base 2038	Base	Project 2029	Project 2032	Project 2038	Project 2047
ST				5.9	7.3	8.5	12.9	11.3	30.3	34.9	39.6
NT				29.0	33.4	39.3	42.1	33.0	43.8	51.1	55.2
	UKB			3.2	3.7	4.3	4.8	4.0	6.8	7.9	8.6
	NUKB			1.7	1.9	2.2	2.5	2.0	3.3	3.8	4.2
	UKL			22.7	26.6	31.3	36.0	29.4	48.9	56.8	62.7
	NUKL			7.3	8.5	9.9	11.6	8.9	15.1	17.5	19.3
		Car		19.2	22.5	26.5	30.7	25.0	41.1	47.9	53.0
		PT		15.6	18.2	21.2	24.2	19.4	33.0	38.1	41.8
Total				**34.9**	**40.7**	**47.7**	**55.0**	**44.3**	**74.1**	**86.0**	**94.8**

Table 67: Daily surface access trips by terminal, segment and reference case mode, both directions, % change from Base

Term	Seg	Mode	Base 2016	Base 2029	Base 2032	Base 2038	Base 2047	Project 2029	Project 2032	Project 2038	Project 2047
ST				9%	11%	13%	20%	18%	48%	55%	62%
NT				42%	49%	57%	61%	48%	64%	74%	80%
	UKB			25%	29%	34%	38%	32%	54%	62%	67%
	NUKB			32%	38%	43%	49%	38%	65%	75%	82%
	UKL			25%	29%	35%	40%	32%	54%	63%	69%
	NUKL			31%	36%	42%	49%	38%	64%	74%	81%
		Car		24%	28%	33%	39%	31%	52%	60%	67%
		PT		30%	35%	40%	46%	37%	63%	72%	79%
Total				**26%**	**31%**	**36%**	**42%**	**34%**	**56%**	**65%**	**72%**

Figure 50: Arrivals profile, Future baseline, 2047

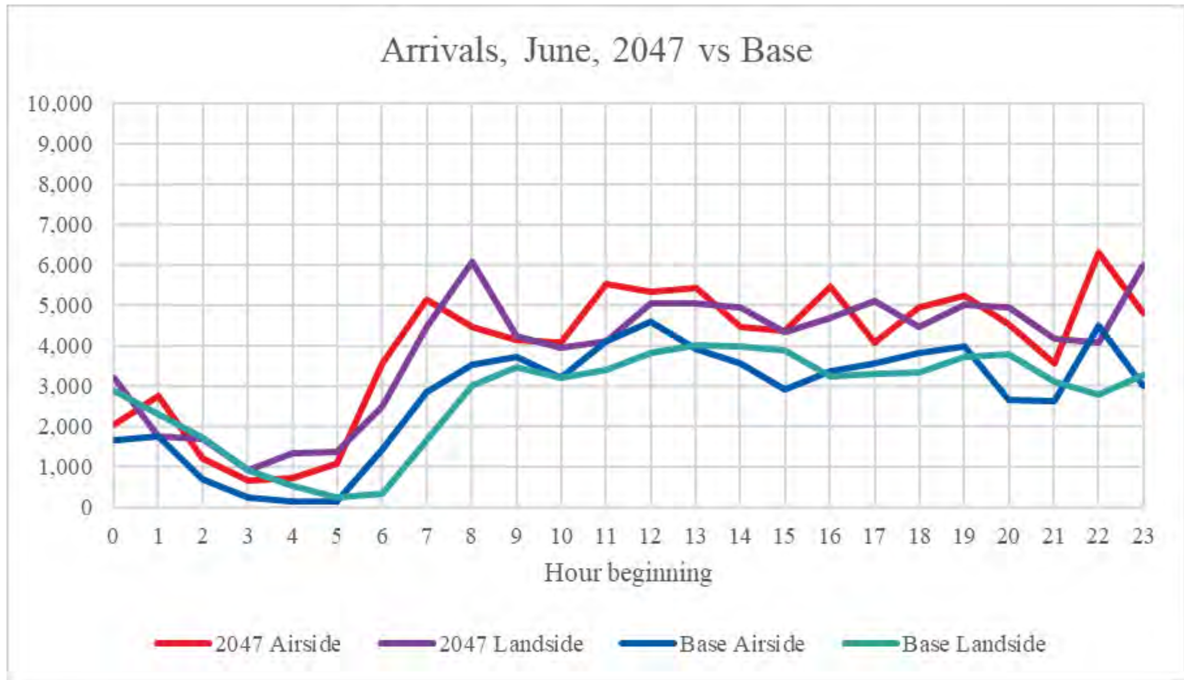


Figure 51: Arrivals profile, With Project 2047

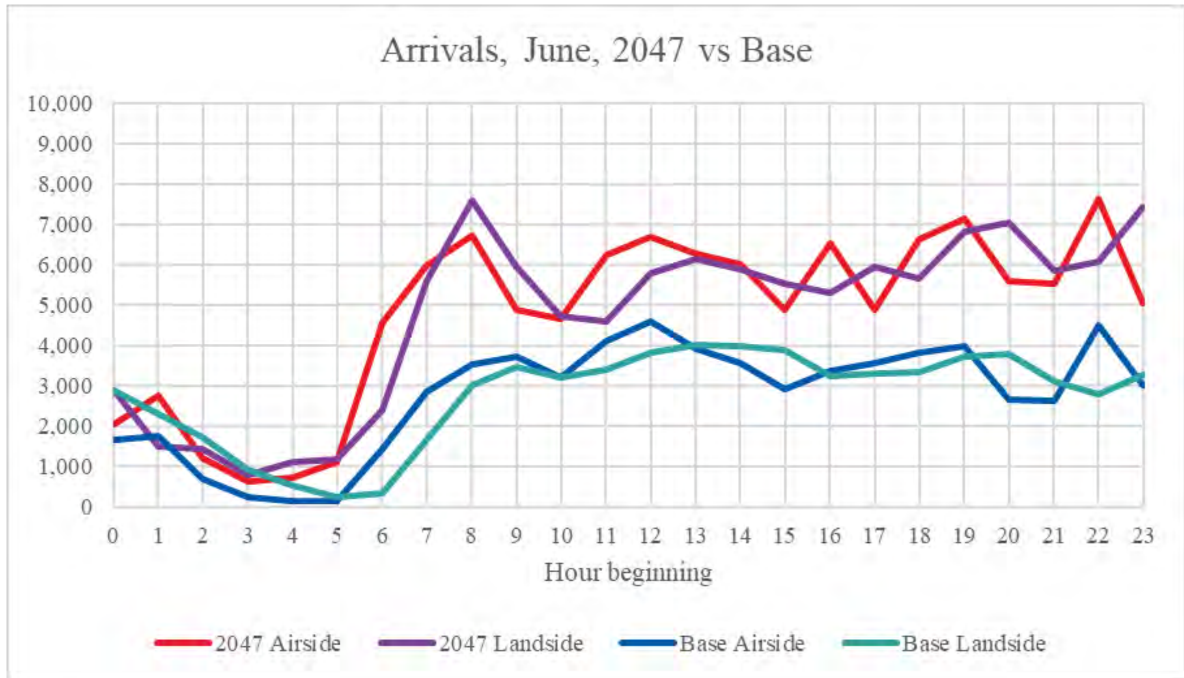


Figure 52: Departures profiles, Future baseline 2047

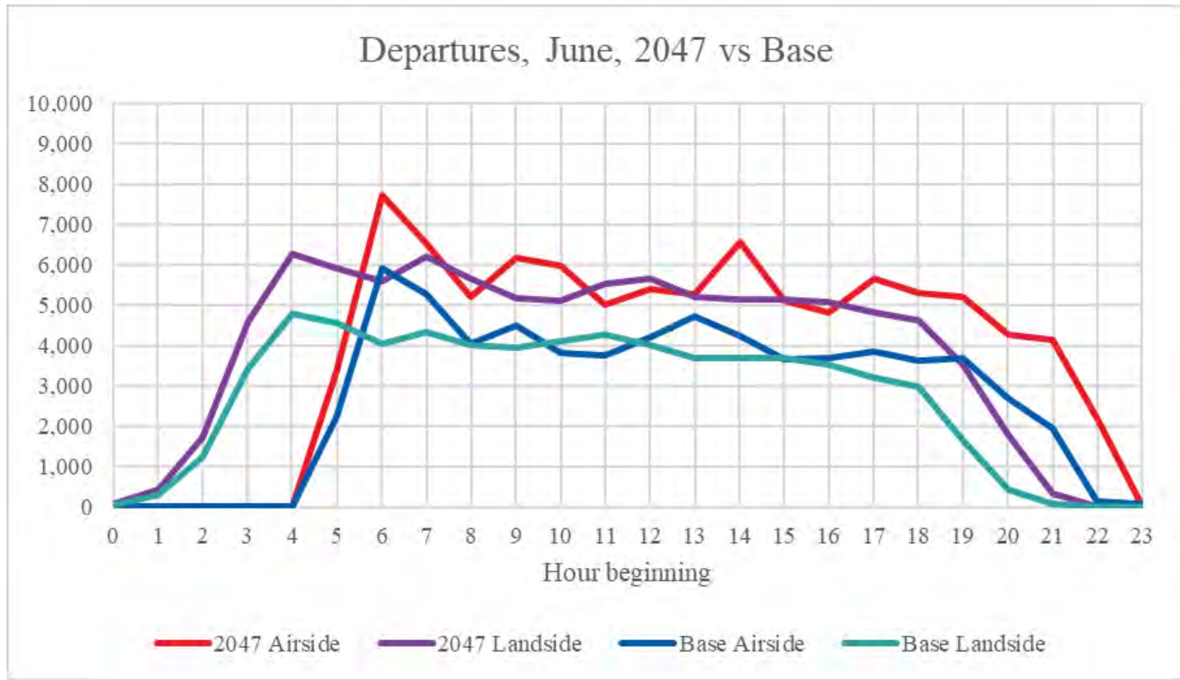


Figure 53: Departures profiles, With Project 2047

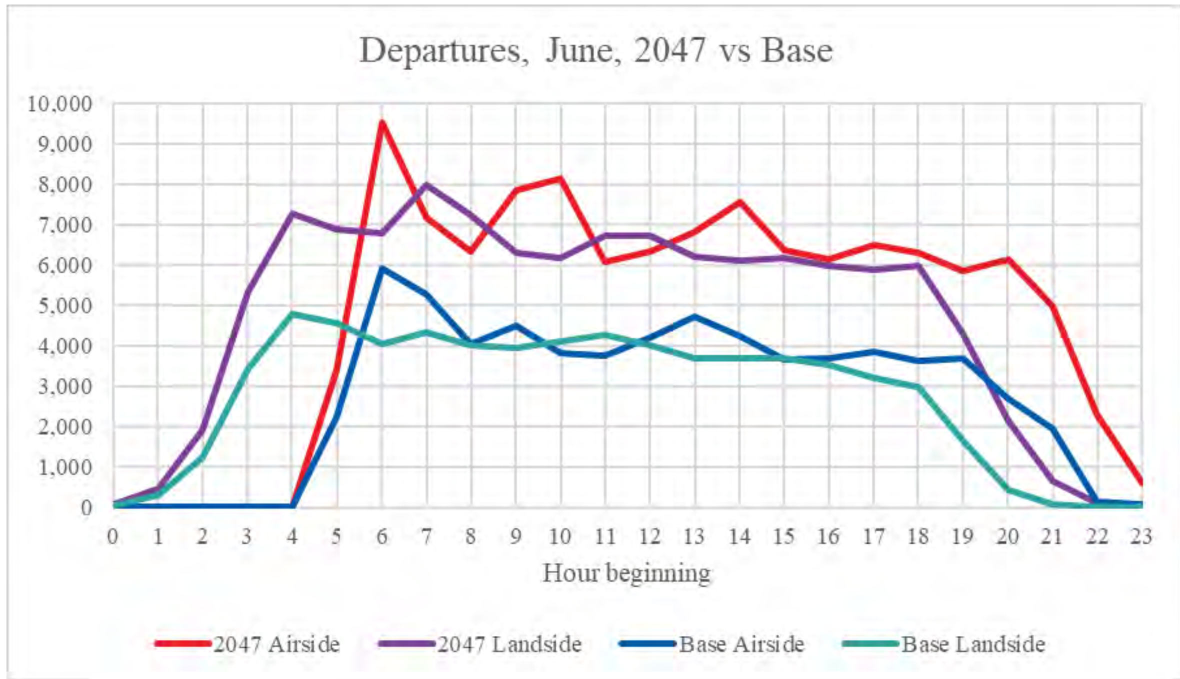
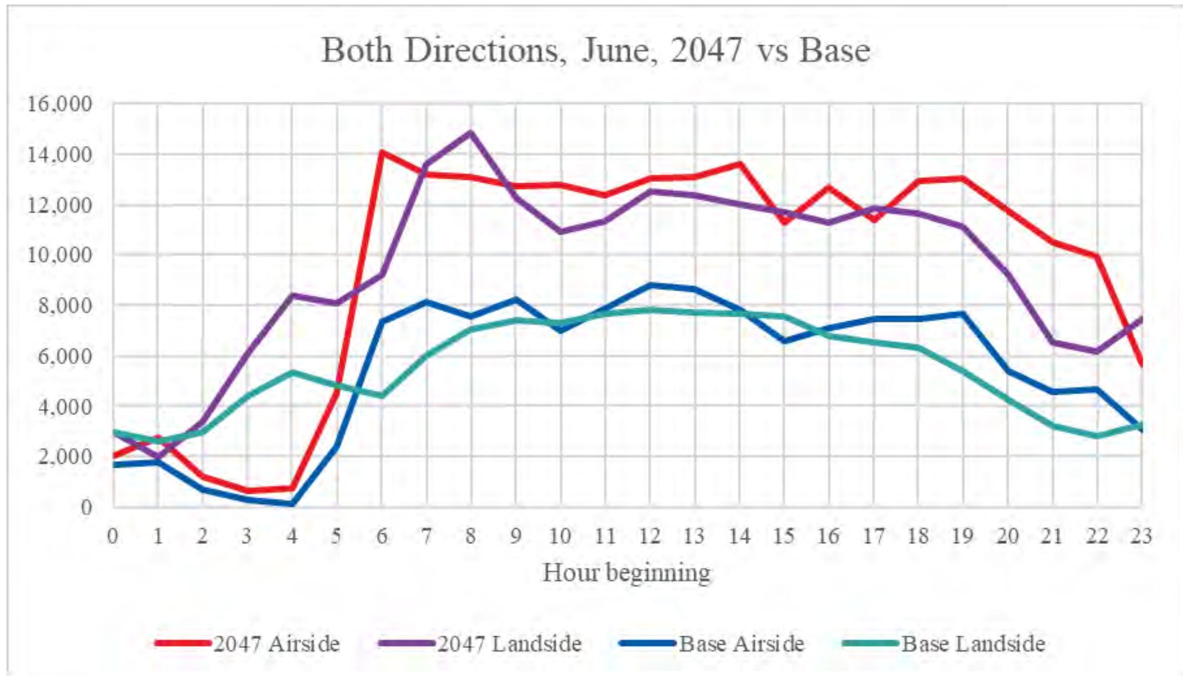


Figure 54: Two-direction profiles, Future baseline 2047

Figure 55: Two-direction profiles, With Project, 2047



10.3 Airport employee demand

10.3.1 The Base employee journey-to-work tour matrices are furnessed to future year scenarios based on employee growth forecasts provided by ICF. It is assumed that the zonal destinations for employees and the shift start and shift finish time distributions will remain the same as the Base year in all future year scenarios.

10.3.2 The figures below show the forecasts of airport employee trips in each time period for the Future Baseline and With Project cases for the home-to-work direction (Figure 56) and the work-to-home direction (Figure 57).

10.3.3 The base hourly arrival and departure profiles are shown in Figure 58 and Figure 59 respectively. These profiles are used in all future year scenarios.

Figure 56: Airport employees by shift start time

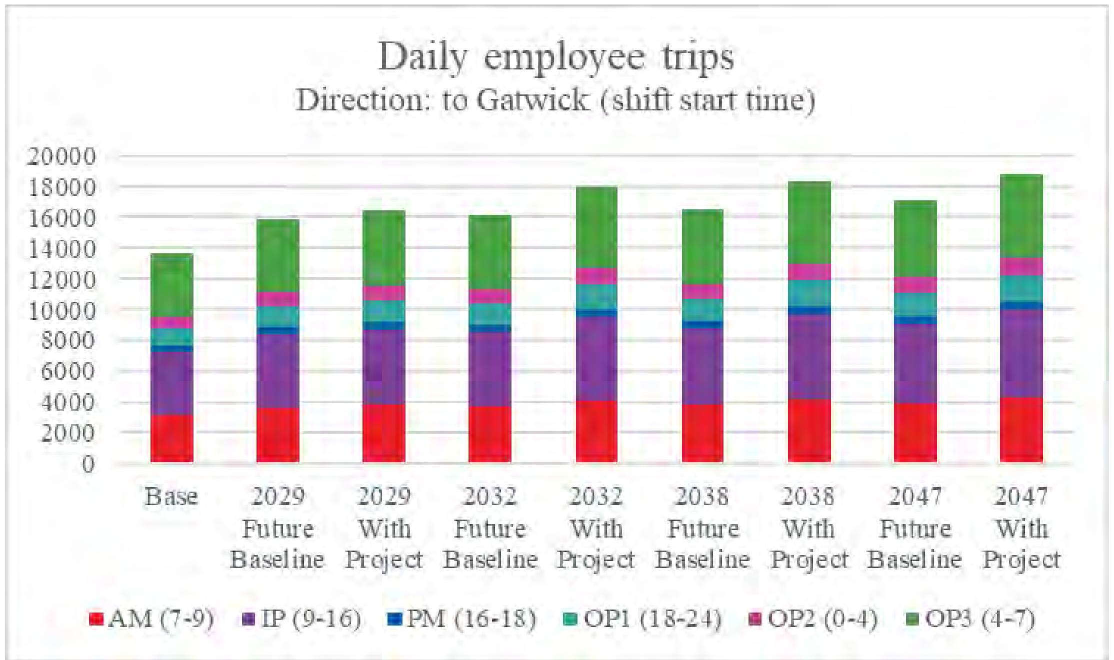


Figure 57: Airport employees by shift end time

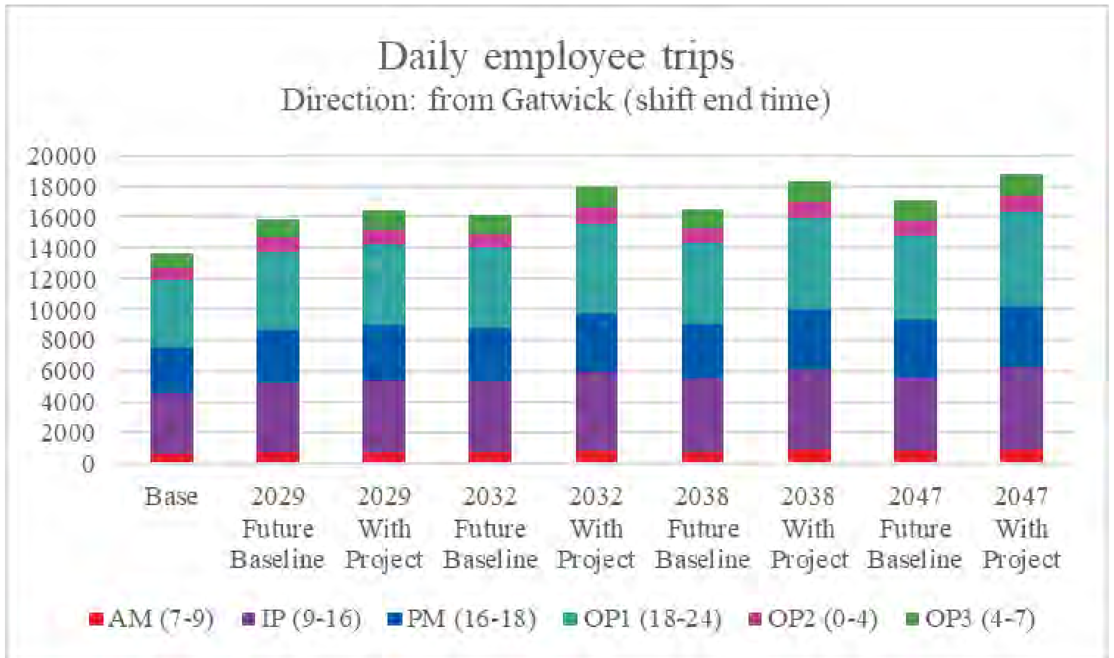
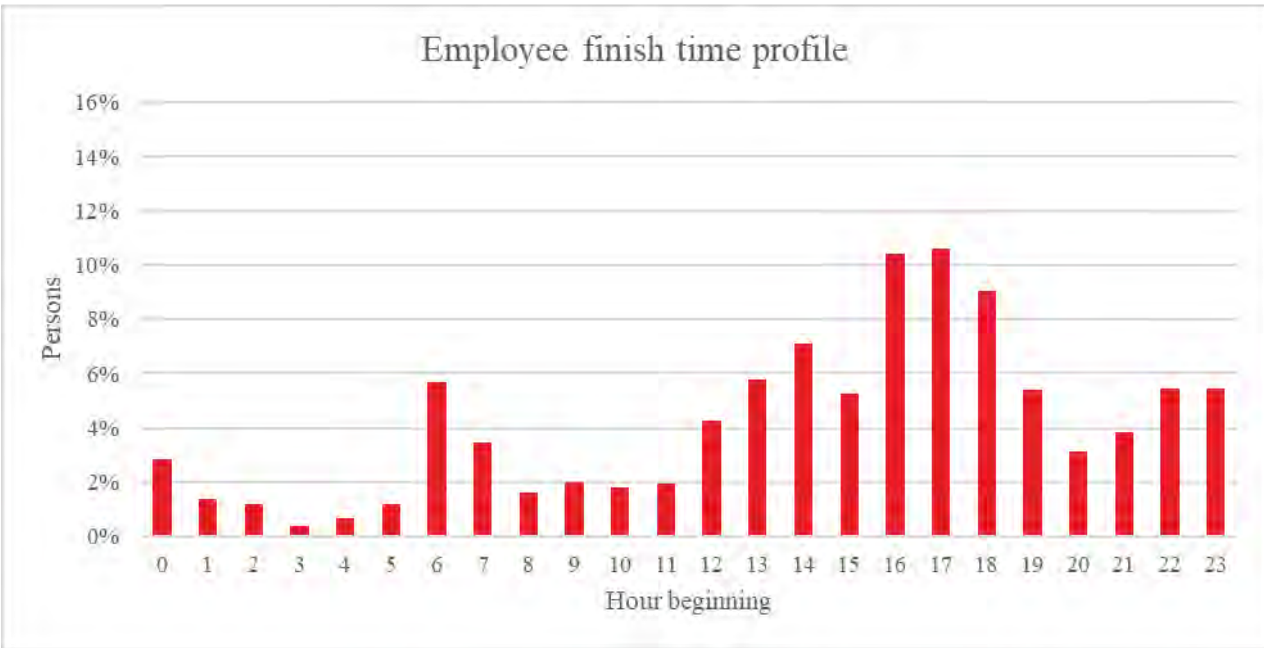


Figure 58: Employee start time distribution

Figure 59: Employee finish time distribution



10.4 Demand growth

Highway

10.4.1 The reference (pre-VDM) highway demand is created by applying growth to the base highway matrices for non-airport trips then adding development trips and reference airport trips from GSAM. The resulting reference case totals for each year, compared to base, are shown in Table 70 in units of PCUs at the 24hr level, further tables showing the time period breakdown can be found in Appendix E.

10.4.2 All four time periods display similar levels of growth in car business, commute and other trips. Between 2016 and 2047 there are 26% more business trips, 22% more commuting trips, and 34% for other trips. The largest growth in background demand is LGVs (46%) and the smallest if HGVs (8%). Overall highway trip growth from 2016 is 14% to 2029, 17% to 2032, 22% to 2038 and 30% to 2047.

10.4.3 Baseline air passenger trips that are car surface access rise by 33% and car mode airport employee trips rise by 25%. The highest air passenger growth is in the AM peak when it exceeds 60%, driven by changes in the schedule.

Public transport

10.4.4 The reference rail demands for the future baseline scenarios are shown in Table 69 at the 24hr level, and further time period based tables can be found in Appendix E. The results are shown separately for CA (Car Available) Rail and NCA (No Car Available) Rail, and well as the CA+NCA totals. The units are person trips.

10.4.5 The four time periods display similar levels of overall growth of 29% to 2047. Of the non-airport demand purposes, business is the fastest growing (35%). Air passengers with rail as surface access mode grow by 47% and employees by 24%.

10.4.6 CA growth is very much stronger than NCA in line with the increasing household car availability in future years inherent in the TEMPro forecasts:

Business:	CA 44%	NCA 8%
Commute:	CA 35%	NCA 1%
Other:	CA 44%	NCA 5%

10.4.7 **Table 68** summarises the overall daily reference rail demand growth.

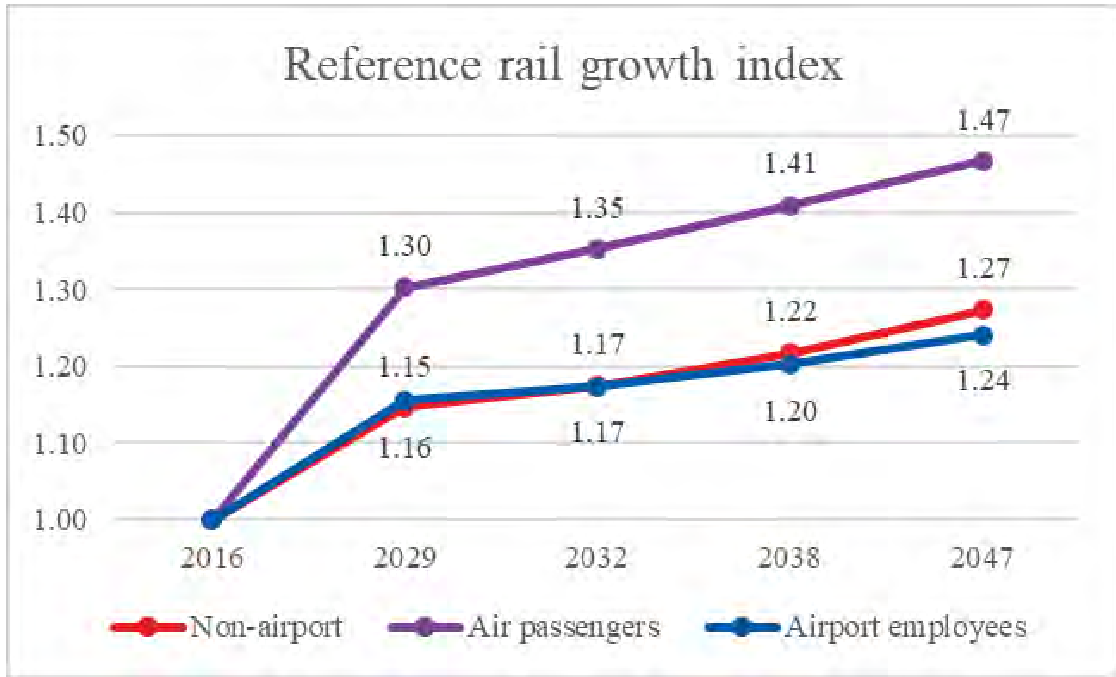
Table 68: 24hr reference highway demand (Future baseline)

	Demand (thousands PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	7,312	8,162	8,312	8,635	9,178	12%	14%	18%	26%
Commute	20,794	22,861	23,215	24,003	25,315	10%	12%	15%	22%
Other	44,494	51,718	53,099	55,710	59,565	16%	19%	25%	34%
Developments	0	95	109	113	122	-	-	-	-
LGV	10,801	12,847	13,346	14,430	15,782	19%	24%	34%	46%
HGV	5,291	5,352	5,407	5,540	5,714	1%	2%	5%	8%
Air Passengers (Baseline)	80	95	98	102	106	19%	23%	28%	33%
Airport employees (Baseline)	16	19	19	20	20	16%	18%	21%	25%
Total	88,787	101,149	103,605	108,552	115,801	14%	17%	22%	30%

Table 69: 24hr reference rail demand (Future baseline)

	Demand (trips)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	50,027	61,451	63,323	66,723	72,204	23%	27%	33%	44%
CA Commute	321,615	382,254	392,033	409,011	435,438	19%	22%	27%	35%
CA Other	87,946	107,628	111,761	118,563	126,983	22%	27%	35%	44%
NCA Business	17,917	18,986	19,277	19,433	19,425	6%	8%	8%	8%
NCA Commute	132,080	134,627	136,010	135,849	133,775	2%	3%	3%	1%
NCA Other	52,268	53,915	55,010	55,690	55,014	3%	5%	7%	5%
Total Business	67,944	80,437	82,600	86,156	91,629	18%	22%	27%	35%
Total Commute	453,695	516,881	528,043	544,860	569,213	14%	16%	20%	25%
Total Other	140,214	161,543	166,771	174,253	181,997	15%	19%	24%	30%
Air passengers	45,653	59,457	61,767	64,351	66,992	30%	35%	41%	47%
Airport employees	3,501	4,044	4,109	4,209	4,344	16%	17%	20%	24%
TOTAL	711,006	822,361	843,291	873,828	914,174	16%	19%	23%	29%

Figure 60: Reference rail growth index, daily, Future baseline



10.5 Summary

10.5.1 For reference case highway demand, between 2016 and the 2047 Future baseline, there is a 26% growth in business trips, 22% growth in commuting trips, and 34% extra other trips. LGV trips grow by 47% and HGV trips grow 8% over the period.

10.5.2 Baseline air passenger trips that are car surface access journeys rise by 33% and car mode airport employee trips rise by 25%.

10.5.3 For reference case air passengers, both rail and car access modes grow highest in the AM peak due to changes in the air schedule causing landside large growth in the AM peak. Growth is higher for rail than for car because growth is strong at times of high rail share. Employees grow by about 25% between 2016 and 2047, similar on both modes and in all time periods.

10.5.4 Overall growth to 2047 is 30% for highway and 29% for rail. This represents an annual average growth rate on both networks of around 0.8% per year.

11 Post VDM - core scenario – Future baseline results and analysis

11.1 Introduction

11.1.1 This section summarises the network in the Future baseline scenarios in terms of:

- Airport mode shares for passengers and employees across the assessment years;
- Airport road traffic – providing a summary of the scale of airport and non-airport related road traffic, pre and post VDM, on the network;
- Future highway network performance;
- Future rail trips (post VDM) and crowding levels on Brighton Main Line, Arun Valley and North Downs Line; and
- Future bus/coach demand.

11.2 Airport surface access mode shares – passengers

11.2.1 Table 70 and Table 71 show the forecast trips and mode shares, respectively, for air passengers for the Future baseline scenarios. Forecasts are compared to the base year position of 2016 and the interim calibration year of 2018/19 (outlined in Section 6.8).

11.2.2 To describe changes in mode share we use percentage point (pp) change. This is simply the difference between the two percentages being compared. For example, a change from 35% to 42% is a +7 pp change.

11.2.3 The tables show the increase in the volume of air passengers for each mode between 2016 and 2047. The car mode shares are generally decreasing or stable, and there is an increase in shares for the public transport modes. Some key points are:

- Car (park and fly) and car (kiss and fly) trips increase over time from 2016 to 2047, but the share falls by 5 and 4 pp respectively.
- Car rentals and taxi trips also increase over time but the mode shares between 2016 and 2047 remain broadly stable.
- Rail has the largest increase in trips (+33,000 per day) and in mode share (+7 pp) from 2016 to 2047. Rail is forecast to account for 42% of all air passenger surface access by 2047.
- Bus/coach has a more modest increase in trips (+6,100 per day) and mode share (+2 pp).

Table 70: Future baseline air passenger surface access trips (thousands per day, High June)

	Base 16	Base 18/19	Future baseline 29	Future baseline 32	Future baseline 38	Future baseline 47
Car (park & fly)	31.8	31.8	32.9	33.0	34.7	36.5
Car (kiss & fly)	22.3	22.6	22.7	23.3	23.6	23.7
Car rental	3.1	3.0	3.5	3.5	3.6	3.7
Taxi	22.3	25.4	26.7	27.9	29.5	31.4
Rail	45.7	54.0	69.6	73.0	75.8	78.7
Bus/coach	7.0	7.8	11.6	12.2	12.6	13.1
TOTAL	**132.1**	**144.6**	**167.0**	**172.8**	**179.8**	**187.1**

Table 71: Future baseline air passenger surface access mode shares (High June)

	Base 16	Base 18/19	Future baseline 29	Future baseline 32	Future baseline 38	Future baseline 47
Car (park & fly)	24%	22%	20%	19%	19%	19%
Car (kiss & fly)	17%	16%	14%	13%	13%	13%
Car rental	2%	2%	2%	2%	2%	2%
Taxi	17%	18%	16%	16%	16%	17%
Rail	35%	37%	42%	42%	42%	42%
Bus/coach	5%	5%	7%	7%	7%	7%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 72: Future baseline air passenger surface access mode shares (Annual average day)

	Base 16	Base 18/19	Future baseline 29	Future baseline 32	Future baseline 38	Future baseline 47
Car (park & fly)	23%	21%	19%	18%	19%	19%
Car (kiss & fly)	15%	14%	12%	12%	12%	12%
Car rental	3%	2%	2%	2%	2%	2%
Taxi	16%	16%	15%	15%	15%	16%
Rail	37%	40%	44%	45%	45%	44%
Bus/coach	6%	6%	7%	8%	8%	8%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

11.2.4 It should be noted that the reductions in car mode share and increases in public transport mode share are the result of escalation in real terms of car parking and forecourt access charges in the Future baseline, plus improvements to rail and bus/coach frequencies, while highway times generally deteriorate.

11.2.5 Table 70 and Table 71 show results for a busy day in the modelled month of June. Overall June public transport share is 40% in 2016 rising to 49% by 2047. However, it is more usual to quote mode shares for the annual average day. Expansion factors are used to convert June results to annual averages. This takes proper account of the varying market mix and mode choice decisions made in each of the 12 months.

11.2.6 Overall annual public transport share is 43% in 2016 rising to 52% by 2047. The annual rail mode shares are slightly higher than in June, and vice versa for car, because there are relatively few business trips made in June (which tend to have high rail share), and relatively many holiday/leisure trips (which tend to have high car share).

11.3 Airport mode shares - employees

11.3.1 Table 74 shows the forecast trips and mode shares, respectively, for airport employees for the Future baseline scenarios. The increased number of employees feeds through to an increase in trips for all modes between 2016 and 2047. Some key points are:

- Car driver (solo) has the highest share for airport employees but reducing over time.
- Car solo and car share trips are expected to increase from 2016 to 2047 by 2,200 and 100 trips per day, respectively; and their mode shares to reduce by 5 pp and 1 pp respectively. This is driven by increasing road congestion and improvements to the local bus network.
- Bus has the highest increase in trips (+2,100 per day), followed by rail (+1,800 trips per day). The mode shares for both are forecast to increase by 3pp by 2047.

11.3.2 Company car and active travel trips show minor increases of 200 and 300 trips respectively, by 2047; with mode shares expected to remain broadly unchanged.

11.3.3 The employee mode share forecasts are the same for High June and annual average days (there is no evidence available on employee mode shares in other months).

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Table 73: Future baseline airport employee surface access trips (thousands per day, High June)

	Base 16	Base 18/19	Future baseline 29	Future baseline 32	Future baseline 38	Future baseline 47
Car solo	15.0	14.8	16.4	16.6	16.9	17.2
Car share	2.1	2.1	2.2	2.2	2.2	2.2
Company	1.4	1.4	1.5	1.6	1.6	1.6
Rail	3.5	3.7	4.6	4.7	5.0	5.3
Bus/coach	4.3	4.4	5.7	5.8	6.0	6.4
Active	1.1	1.1	1.3	1.3	1.3	1.4
TOTAL	**27.4**	**27.6**	**31.7**	**32.2**	**33.0**	**34.1**

Table 74: Future baseline airport employee surface access mode shares (High June)

	Base	Base 18/19	Future baseline 29	Future baseline 32	Future baseline 38	Future baseline 47
Car solo	55%	54%	52%	52%	51%	50%
Car share	8%	8%	7%	7%	7%	7%
Company	5%	5%	5%	5%	5%	5%
Rail	13%	14%	14%	15%	15%	16%
Bus/coach	16%	16%	18%	18%	18%	19%
Active	4%	4%	4%	4%	4%	4%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

11.4 Impact of VDM - highway

11.4.1 The VDM predicts the change in the non-airport trip matrices (ie background traffic) from the Reference Case and the Gatwick Surface Access Model (GSAM) predicts the change in airport trips. Summary tables are provided in this section for pre- and post-VDM highway matrices by one hour period. These summaries are prepared from the SATURN assignments and exclude intra-zonal trips.

11.4.2 For all periods and assessment years, there is in an increase in background highway trips between pre-VDM and post-VDM, principally because of redistribution from intra-zonal trips (which cannot be assigned) in the 2016 Base and Future Year Reference Cases to inter-zonal trips in the Future Year baseline Cases (which are assigned). This is principally driven by real car operating costs reductions (as the values of time increase).

11.4.3 There is a reduction in airport employee and airport passenger highway trips because of mode switch from car to public transport, driven by increased parking and forecourt charges, improvements to rail (eg Crossrail, Thameslink and North Downs Line), more coaches and local buses, and increased highway congestion.

11.4.4 It should be noted that goods vehicles (ie LGV and HGV) are not subject to demand modelling therefore they remain unchanged.

11.4.5 Table 75 and Table 76 show reference case (pre VDM) and forecast (post VDM) highway demand for AM1. The changes from reference case are shown in brackets in the second table.

11.4.6 Table 77 and Table 78 show reference case (pre VDM) and forecast (post VDM) highway demand for AM2. The changes from reference case are shown in brackets in the second table.

11.4.7 Table 79 and Table 80 show reference case (pre VDM) and forecast (post VDM) highway demand for IP. The changes from reference case are shown in brackets in the second table.

11.4.8 Table 81 and Table 82 show reference case (pre VDM) and forecast (post VDM) highway demand for PM. The changes from reference case are shown in brackets in the second table.

Table 75: AM1 1hr reference highway demand (Future baseline, pre VDM)

	Demand (PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	338,513	379,593	386,724	402,069	428,023	12%	14%	19%	26%
Commute	974,674	1,068,711	1,084,816	1,120,599	1,181,165	10%	11%	15%	21%
Other	829,264	984,561	1,015,188	1,070,629	1,147,445	19%	22%	29%	38%
LGV	403,100	481,296	499,987	540,502	591,012	19%	24%	34%	47%
HGV	196,074	202,417	205,581	212,656	221,039	3%	5%	8%	13%
Airport Employees	1,127	1,310	1,333	1,366	1,413	16%	18%	21%	25%
Airport Passengers	3,859	5,468	5,764	6,219	6,328	42%	49%	61%	64%
Total	**2,746,611**	**3,123,356**	**3,199,393**	**3,354,040**	**3,576,425**	**14%**	**16%**	**22%**	**30%**

Table 76: AM1 1hr forecast highway demand (Future baseline, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	338,513	393,530	406,741	429,860	461,457	16% (+4 pp)	20% (+6 pp)	27% (+8 pp)	36% (+10 pp)
Commute	974,674	1,084,244	1,109,891	1,156,269	1,217,930	11% (+1 pp)	14% (+3 pp)	19% (+4 pp)	25% (+4 pp)
Other	829,264	1,022,973	1,070,401	1,150,709	1,242,714	23% (+4 pp)	29% (+7 pp)	39% (+10 pp)	50% (+12 pp)
LGV	403,100	481,296	499,987	540,502	591,012	19% (-)	24% (-)	34% (-)	47% (-)
HGV	196,074	202,417	205,581	212,656	221,039	3% (-)	5% (-)	8% (-)	13 (-)
Airport Employees	1,127	1,214	1,222	1,236	1,243	8% (-8 pp)	8% (-10 pp)	10% (-11 pp)	10% (-15 pp)
Airport Passengers	3,859	4,654	4,846	5,199	5,243	21% (-21 pp)	26% (-23 pp)	35% (-26 pp)	36% (-28 pp)
Total	**2,746,611**	**3,190,328**	**3,298,669**	**3,496,431**	**3,740,638**	**16% (+2 pp)**	**20% (+4 pp)**	**27% (+5 pp)**	**36% (+6 pp)**

Table 77: AM2 1hr reference highway demand (Future baseline, pre VDM)

	Demand (PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	370,093	415,311	423,182	440,030	468,499	12%	14%	19%	27%
Commute	1,067,400	1,171,317	1,189,117	1,228,452	1,295,002	10%	11%	15%	21%
Other	905,072	1,077,471	1,111,427	1,172,306	1,256,742	19%	23%	30%	39%
LGV	306,545	365,998	380,212	411,019	449,420	19%	24%	34%	47%
HGV	196,781	203,105	206,263	213,331	221,719	3%	5%	8%	13%
Airport Employees	1,090	1,263	1,285	1,316	1,361	16%	18%	21%	25%
Airport Passengers	3,877	5,228	5,476	5,743	5,866	35%	41%	48%	51%
Total	**2,850,858**	**3,239,693**	**3,316,962**	**3,472,197**	**3,698,609**	**14%**	**16%**	**22%**	**30%**

11.4.9 The results show some changes in the airport passenger and airport employee demand. The main drivers of the changes are the money charges: a new charge for car solo employee parking charge and substantially increased charges for air passenger car parking and for forecourt access (affecting taxis and 'kiss and fly').

Table 78: AM2 1hr forecast highway demand (Future baseline, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	370,093	430,688	445,272	470,742	505,544	16% (+4 pp)	20% (+6 pp)	27% (+8 pp)	37% (+10 pp)
Commute	1,067,400	1,188,532	1,216,897	1,268,012	1,335,957	11% (+1 pp)	14% (+3 pp)	19% (+4 pp)	25% (+4 pp)
Other	905,072	1,119,657	1,172,135	1,260,472	1,361,903	24% (+5 pp)	30% (+7 pp)	39% (+9 pp)	50% (+11 pp)
LGV	306,545	365,998	380,212	411,019	449,420	19% (-)	24% (-)	34% (-)	47% (-)
HGV	196,781	203,105	206,263	213,331	221,719	3% (-)	5% (-)	8% (-)	13 (-)
Airport Employees	1,090	1,178	1,187	1,198	1,204	8% (-8 pp)	9% (-9 pp)	10% (-11 pp)	10% (-15 pp)
Airport Passengers	3,877	4,444	4,598	4,796	4,853	15% (-20 pp)	19% (-22 pp)	24% (-24 pp)	25% (-26 pp)
Total	**2,850,858**	**3,313,602**	**3,426,564**	**3,629,570**	**3,880,600**	**16% (+2 pp)**	**20% (+4 pp)**	**27% (+5 pp)**	**36% (+6 pp)**

Table 79: IP 1hr reference highway demand (Future baseline, pre VDM)

	Demand (PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	284,813	318,871	324,919	337,593	358,787	12%	14%	19%	26%
Commute	443,737	489,823	497,759	514,764	543,371	10%	12%	16%	22%
Other	1,033,915	1,225,351	1,263,277	1,331,888	1,427,722	19%	22%	29%	38%
LGV	364,874	435,692	452,606	489,268	534,982	19%	24%	34%	47%
HGV	253,058	260,665	264,620	273,495	284,008	3%	5%	8%	12%
Airport Employees	680	791	804	824	851	16%	18%	21%	25%
Airport Passengers	4,198	4,422	4,538	4,656	4,830	5%	8%	11%	15%
Total	**2,385,275**	**2,735,615**	**2,808,523**	**2,952,488**	**3,154,551**	**15%**	**18%**	**24%**	**32%**

Table 80: IP 1hr forecast highway demand (Future baseline, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	284,813	332,839	344,444	364,443	391,748	17% (+5 pp)	21% (+7 pp)	28% (+9 pp)	38% (+12 pp)
Commute	443,737	493,493	505,325	526,404	554,564	11% (+1 pp)	14% (+2 pp)	19% (+3 pp)	25% (+3 pp)
Other	1,033,915	1,280,256	1,341,131	1,444,359	1,564,589	24% (+5 pp)	30% (+8 pp)	40% (+11 pp)	51% (+13 pp)
LGV	364,874	435,692	452,606	489,268	534,982	19% (-)	24% (-)	34% (-)	47% (-)
HGV	253,058	260,665	264,620	273,495	284,008	3% (-)	5% (-)	8% (-)	12% (-)
Airport Employees	680	752	763	776	791	11% (-5 pp)	12% (-6 pp)	14% (-7 pp)	16% (-9 pp)
Airport Passengers	4,198	3,751	3,822	3,927	4,083	-11% (-16 pp)	-9% (-17 pp)	-6% (-17 pp)	-3% (-18 pp)
Total	**2,385,275**	**2,807,448**	**2,912,711**	**3,102,672**	**3,334,765**	**18% (+3 pp)**	**22% (+4 pp)**	**30% (+6 pp)**	**40% (+8 pp)**

Table 81: PM 1hr reference highway demand (Future baseline, pre VDM)

	Demand (PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	367,347	412,475	420,429	437,294	465,717	12%	14%	19%	27%
Commute	962,809	1,058,572	1,075,018	1,110,652	1,170,855	10%	12%	15%	22%
Other	1,167,871	1,388,362	1,432,060	1,510,663	1,620,032	19%	23%	29%	39%
LGV	381,492	455,423	473,099	511,422	559,203	19%	24%	34%	47%
HGV	183,279	189,327	192,393	199,211	206,939	3%	5%	9%	13%
Airport Employees	952	1,083	1,099	1,123	1,156	14%	15%	18%	21%
Airport Passengers	3,611	3,982	4,061	4,271	4,668	10%	12%	18%	29%
Total	**3,067,361**	**3,509,224**	**3,598,159**	**3,774,636**	**4,028,570**	**14%**	**17%**	**23%**	**31%**

Table 82: PM 1hr forecast highway demand (Future baseline, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	367,347	427,449	441,741	466,936	501,911	16% (+4 pp)	20% (+6 pp)	27% (+8 pp)	37% (+10 pp)
Commute	962,809	1,073,481	1,099,517	1,145,917	1,206,906	11% (+1 pp)	14% (+2 pp)	19% (+4 pp)	25% (+3 pp)
Other	1,167,871	1,443,564	1,510,920	1,624,738	1,757,215	24% (+5 pp)	29% (+6 pp)	39% (+10 pp)	50% (+11 pp)
LGV	381,492	455,423	473,099	511,422	559,203	19% (-)	24% (-)	34% (-)	47% (-)
HGV	183,279	189,327	192,393	199,211	206,939	3% (-)	5% (-)	9% (-)	13% (-)
Airport Employees	952	1,018	1,025	1,033	1,033	7% (-7 pp)	8% (-7 pp)	9% (-9 pp)	9% (-12 pp)
Airport Passengers	3,611	3,430	3,472	3,652	3,987	-5% (-15 pp)	-4% (-16 pp)	1% (-17 pp)	10% (-19 pp)
Total	**3,067,361**	**3,593,692**	**3,722,167**	**3,952,909**	**4,237,194**	**17% (+3 pp)**	**21% (+4 pp)**	**29% (+6 pp)**	**38% (+7 pp)**

11.5 Impact of VDM – rail

11.5.1 For rail, the reference case (pre VDM) totals are provided in Section 10. The tables in this section show the rail demand matrices after VDM is applied for the AM, IP, PM, OP and 24-hour time periods. The number in brackets is the change from the reference case.

11.5.2 For example, 24-hour Car Available (CA) Business rail demand grows by 23% from 2016 to 2029 in the Reference Case (see Table 69), and by 29% post VDM (see Table 83) so the impact of applying the VDM in this case is +6 percentage points (pp).

Table 83: 24hr forecast rail demand (future baseline, post VDM)

	Demand (trips)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	50,027	64,410	66,223	69,914	76,587	29% (+6 pp)	32% (+6 pp)	40% (+6 pp)	53% (+9 pp)
CA Commute	321,615	408,141	421,685	446,792	487,341	27% (+8 pp)	31% (+9 pp)	39% (+12 pp)	52% (+16 pp)
CA Other	87,946	132,112	142,509	163,789	199,090	50% (+28 pp)	62% (+35 pp)	86% (+51 pp)	126% (+82 pp)
NCA Business	17,917	18,986	19,277	19,433	19,425	6% (-)	8% (-)	8% (-)	8% (-)
NCA Commute	132,080	134,627	136,010	135,849	133,775	2% (-)	3% (-)	3% (-)	1% (-)
NCA Other	52,268	53,915	55,010	55,690	55,014	3% (-)	5% (-)	7% (-)	5% (-)
Total Business	67,944	83,396	85,500	89,346	96,011	23% (+4 pp)	26% (+4 pp)	31% (+5 pp)	41% (+6 pp)
Total Commute	453,695	542,768	557,696	582,641	621,116	20% (+6 pp)	23% (+7 pp)	28% (+8 pp)	37% (+11 pp)
Total Other	140,214	186,027	197,519	219,479	254,104	33% (+17 pp)	41% (+22 pp)	57% (+32 pp)	81% (+51 pp)
Airport passengers	45,653	69,621	72,965	75,819	78669	53% (+22 pp)	60% (+25 pp)	66% (+25 pp)	72% (+26 pp)
Airport employees	3,501	4,579	4,721	4,967	5347	31% (+15 pp)	35% (+17 pp)	42% (+22 pp)	53% (+29 pp)
TOTAL	**711,006**	**886,392**	**918,400**	**972,253**	**105,5246**	**25% (+9 pp)**	**29% (+11 pp)**	**37% (+14 pp)**	**48% (+20 pp)**

Table 84: AM 07:00-09:00 forecast rail demand (Future baseline, post VDM)

	Demand (trips)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	8,640	11,204	11,544	12,219	13,434	30% (+6 pp)	34% (+6 pp)	41% (+7 pp)	55% (+10 pp)
CA Commute	102,533	130,350	134,680	142,637	155,466	27% (+8 pp)	31% (+9 pp)	39% (+11 pp)	52% (+15 pp)
CA Other	6,702	10,188	11,004	12,667	15,431	52% (+26 pp)	64% (+33 pp)	89% (+50 pp)	130% (+80 pp)
NCA Business	3,167	3,370	3,425	3,458	3,465	6% (-)	8% (-)	9% (-)	9% (-)
NCA Commute	42,424	43,340	43,797	43,760	43,116	2% (-)	3% (-)	3% (-)	2% (-)
NCA Other	4,145	4,317	4,405	4,460	4,404	4% (-1 pp)	6% (-2 pp)	8% (-2 pp)	6% (-3 pp)
Total Business	11,807	14,575	14,969	15,677	16,899	23% (+5 pp)	27% (+5 pp)	33% (+5 pp)	43% (+7 pp)
Total Commute	144,957	173,691	178,477	186,398	198,582	20% (+5 pp)	23% (+6 pp)	29% (+8 pp)	37% (+11 pp)
Total Other	10,847	14,505	15,409	17,126	19,836	34% (+16 pp)	42% (+20 pp)	58% (+30 pp)	83% (+48 pp)
Airport passengers	4,088	7,802	8,371	8,935	9,211	91% (+38 pp)	105% (+43 pp)	119% (+48 pp)	125% (+51 pp)
Airport employees	550	731	759	806	879	33% (+18 pp)	38% (+21 pp)	46% (+27 pp)	60% (+36 pp)
TOTAL	**172,250**	**211,304**	**217,985**	**228,942**	**245,406**	**23% (+7 pp)**	**27% (+8 pp)**	**33% (+10 pp)**	**42% (+14 pp)**

Table 85: IP 09:00-16:00 forecast rail demand (Future baseline, post VDM)

	Demand (trips)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	20,176	25,842	26,545	28,003	30,657	28% (+5 pp)	32% (+5 pp)	39% (+6 pp)	52% (+8 pp)
CA Commute	62,368	78,907	81,496	86,422	94,406	27% (+8 pp)	31% (+9 pp)	39% (+12 pp)	51% (+17 pp)
CA Other	41,663	61,932	66,735	76,595	92,952	49% (+27 pp)	60% (+34 pp)	84% (+50 pp)	123% (+80 pp)
NCA Business	7,083	7,496	7,608	7,670	7,670	6% (-)	7% (-)	8% (-)	8% (-)
NCA Commute	25,225	25,579	25,814	25,767	25,358	1% (-)	2% (-)	2% (-)	1% (-)
NCA Other	24,591	25,222	25,709	25,988	25,625	3% (-)	5% (-)	6% (-)	4% (-)
Total Business	27,259	33,338	34,153	35,673	38,326	22% (+4 pp)	25% (+4 pp)	31% (+4 pp)	41% (+6 pp)
Total Commute	87,593	104,487	107,309	112,189	119,764	19% (+6 pp)	23% (+7 pp)	28% (+9 pp)	37% (+12 pp)
Total Other	66,254	87,155	92,444	102,584	118,577	32% (+17 pp)	40% (+21 pp)	55% (+31 pp)	79% (+50 pp)
Airport passengers	21,253	29,800	30,901	31,716	32,877	40% (+21 pp)	45% (+23 pp)	49% (+23 pp)	55% (+23 pp)
Airport employees	991	1,281	1,318	1,385	1,486	29% (+13 pp)	33% (+15 pp)	40% (+19 pp)	50% (+25 pp)
TOTAL	**203,351**	**256,060**	**266,126**	**283,548**	**311,030**	**26% (+11 pp)**	**31% (+13 pp)**	**39% (+17 pp)**	**53% (+25 pp)**

Table 86: PM 16:00-18:00 forecast rail demand (Future baseline, post VDM)

	Demand (trips)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	9,589	12,410	12,779	13,504	14,800	29% (+6 pp)	33% (+6 pp)	41% (+7 pp)	54% (+9 pp)
CA Commute	70,671	89,478	92,445	97,692	106,183	27% (+7 pp)	31% (+8 pp)	38% (+11 pp)	50% (+14 pp)
CA Other	15,655	23,808	25,772	29,779	36,444	52% (+29 pp)	65% (+37 pp)	90% (+55 pp)	133% (+88 pp)
NCA Business	3,474	3,701	3,762	3,794	3,794	7% (-)	8% (-)	9% (-)	9% (-)
NCA Commute	29,672	30,349	30,691	30,629	30,130	2% (-)	3% (-)	3% (-)	2% (-)
NCA Other	9,210	9,530	9,728	9,844	9,713	3% (-)	6% (-)	7% (-)	5% (-)
Total Business	13,062	16,112	16,540	17,298	18,594	23% (+4 pp)	27% (+4 pp)	32% (+5 pp)	42% (+7 pp)
Total Commute	100,343	119,826	123,136	128,321	136,313	19% (+5 pp)	23% (+6 pp)	28% (+7 pp)	36% (+10 pp)
Total Other	24,865	33,338	35,501	39,623	46,156	34% (+19 pp)	43% (+23 pp)	59% (+35 pp)	86% (+55 pp)
Airport passengers	5,886	8,635	8,911	9,330	10,162	47% (+17 pp)	51% (+18 pp)	59% (+19 pp)	73% (+21 pp)
Airport employees	508	659	680	719	779	30% (+16 pp)	34% (+19 pp)	41% (+24 pp)	53% (+33 pp)
TOTAL	**144,664**	**178,570**	**184,769**	**195,291**	**212,005**	**23% (+8 pp)**	**28% (+9 pp)**	**35% (+12 pp)**	**47% (+18 pp)**

Table 87: OP 18:00-07:00 forecast rail demand (Future baseline, post VDM)

	Demand (trips)					Growth from 2016 (change from Reference Case in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	11,622	14,953	15,356	16,187	17,696	29% (+6 pp)	32% (+6 pp)	39% (+7 pp)	52% (+9 pp)
CA Commute	86,043	109,405	113,064	120,040	131,286	27% (+9 pp)	31% (+10 pp)	40% (+13 pp)	53% (+18 pp)
CA Other	23,927	36,184	38,998	44,748	54,262	51% (+29 pp)	63% (+36 pp)	87% (+52 pp)	127% (+82 pp)
NCA Business	4,193	4,419	4,482	4,510	4,496	5% (+1 pp)	7% (+1 pp)	8% (+1 pp)	7% (+1 pp)
NCA Commute	34,759	35,359	35,709	35,692	35,171	2% (-)	3% (-)	3% -)	1% (-)
NCA Other	14,321	14,846	15,167	15,398	15,272	4% (+1 pp)	6% (+1 pp)	8% (+1 pp)	7% (+2 pp)
Total Business	15,815	19,372	19,838	20,697	22,192	22% (+5 pp)	25% (+5 pp)	31% (+5 pp)	40% (+7 pp)
Total Commute	120,802	144,764	148,773	155,733	166,458	20% (+6 pp)	23% (+7 pp)	29% (+9 pp)	38% (+13 pp)
Total Other	38,248	51,029	54,165	60,146	69,534	33% (+18 pp)	42% (+23 pp)	57% (+33 pp)	82% (+52 pp)
Airport passengers	14,425	23,384	24,781	25,838	26,419	62% (+22 pp)	72% (+24 pp)	79% (+24 pp)	83% (+24 pp)
Airport employees	1,452	1,908	1,963	2,058	2,203	31% (+15 pp)	35% (+17 pp)	42% (+21 pp)	52% (+27 pp)
TOTAL	**190,742**	**240,458**	**249,520**	**264,472**	**286,805**	**26% (+10 pp)**	**31% (+12 pp)**	**39% (+15 pp)**	**50% (+21 pp)**

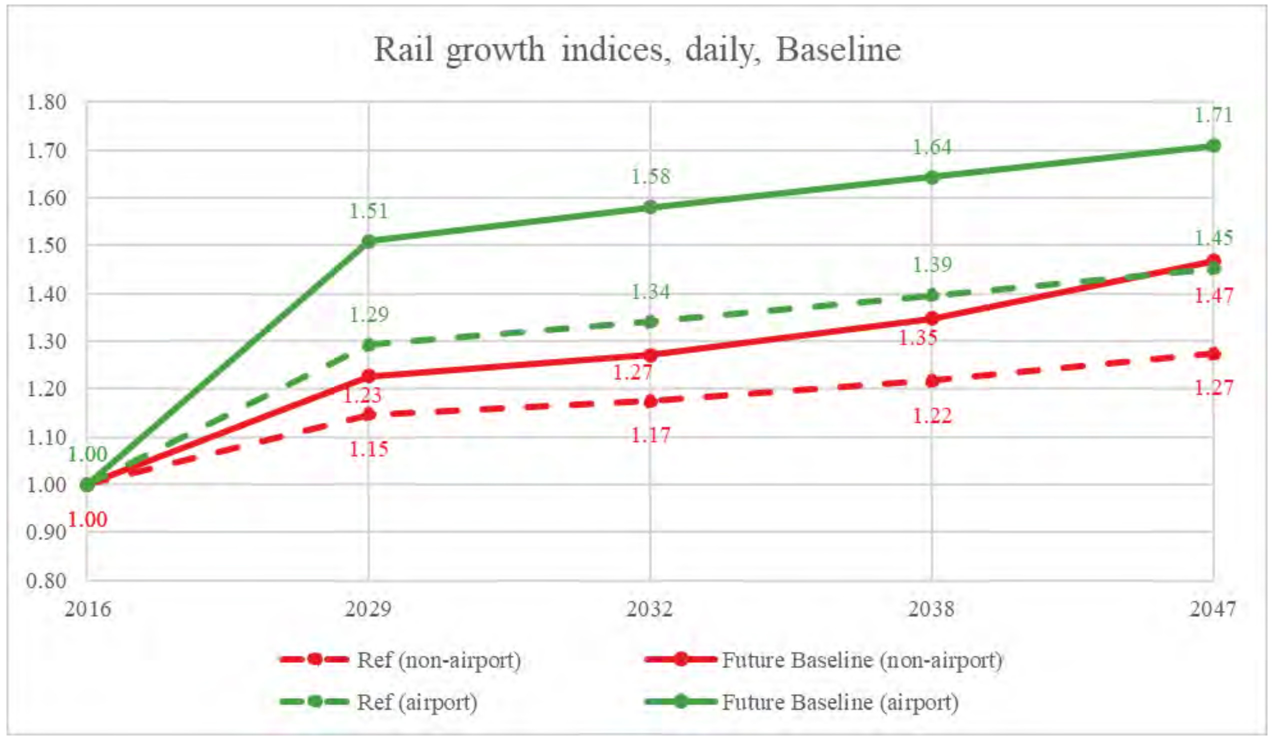
11.5.3 The tables show that the VDM increases the number of airport passengers and employees using the rail network because of the measures being implemented to encourage the use of sustainable transport causing mode switch from car. It should be noted that VDM does not change NCA rail demand because these trips are not subject to modal shift between car and public transport. The main impacts are increases in rail demand in CA purposes, particularly for the 'Other' trip purposes, due to modal shift from car to rail.

11.5.4 Daily rail demand growth for all trips combined are shown in the bottom rows of Table 69 (Reference) and Table 83 (Post VDM, Future baseline). However, it is more informative to look at airport and non-airport rail demand growth separately because airport rail demand is dwarfed by non-airport demand. Figure 61 shows rail growth indices for airport (Air Passengers and Airport Employees) and non-airport (Business, Commute and Other).

11.5.5 Figure 61 shows that Future baseline rail demand in 2047 is forecast to be:

- 47% higher than 2016 for non-airport – an Annual Average Growth Rate (AAGR) of 1.2%; and
- 71% higher than 2016 for airport – an AAGR of 1.7%.

Figure 61: Reference and Baseline rail growth indices



11.6 Airport road traffic

11.6.1 Daily airport road traffic in Future baseline 2047 is illustrated in Figure 62, and Figure 63 shows these as percentage of total road traffic. This is based on daily traffic volumes across the road network. These provide an overview of the routes used by travellers to/from the airport, including employees, passengers and freight.

11.6.2 The figures show that the airport road traffic is very concentrated along the M25, M23 and A23. Other significant routes include the A3 joining the M25 at Junction 10, the A21 joining the M25 at Junction 5, A264 to the west of Crawley joining the M23 and the A272 to the west of the A23 joining the road at Bolney. The percentage of road traffic that is airport related is 30-40% on the M23 and 10-20% on the M25.

11.6.3 Figure 63 shows two locations outside of the immediate airport area shown as red, which suggests a large proportion of airport road traffic. One is a short section to the north of Horsham and although Figure 62 shows no noticeable airport road traffic volume but as a proportion of the small volume of traffic that does use the road most of it is airport.

Figure 62: Airport road traffic in Future baseline 2047 (vehicles per day)

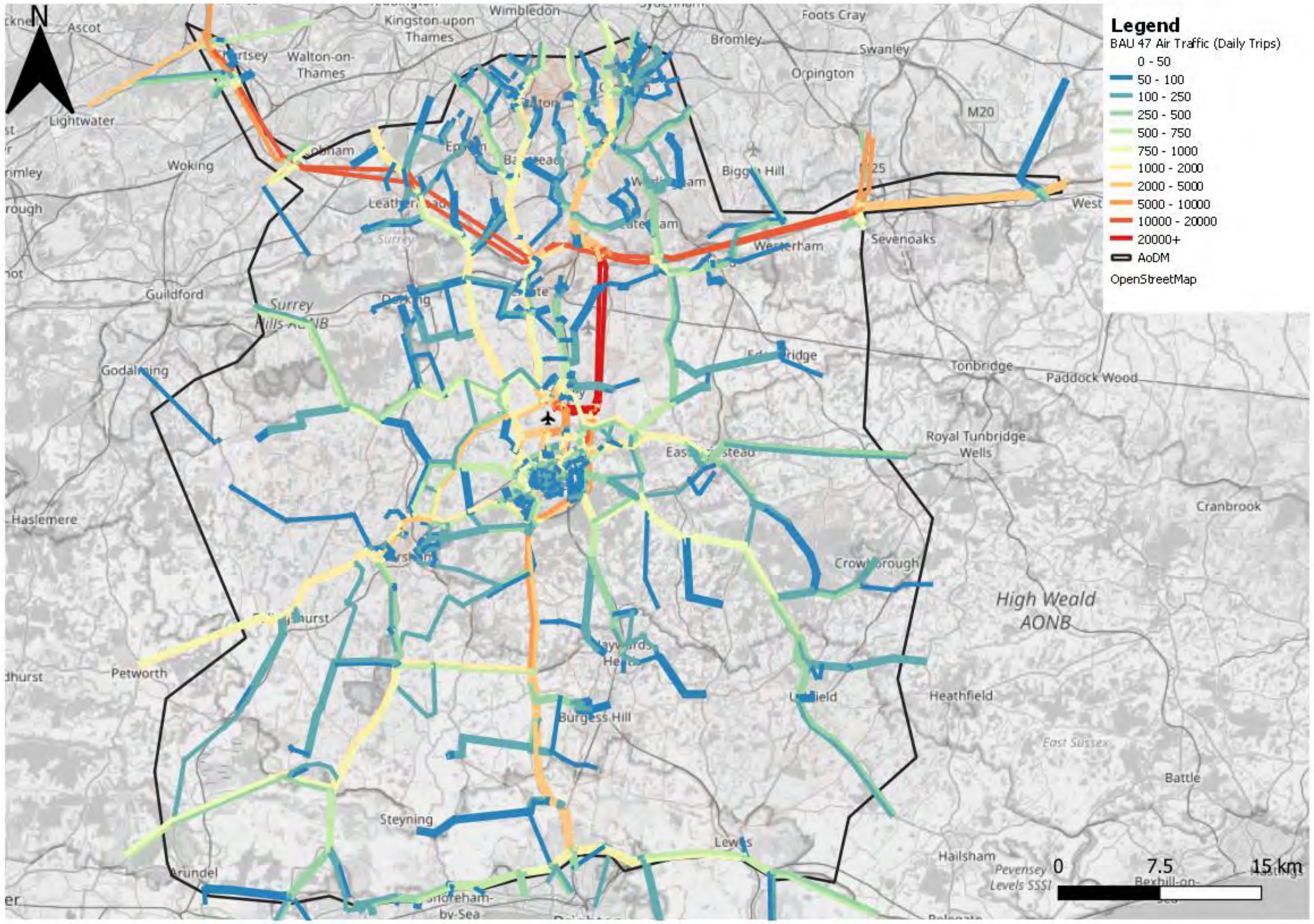
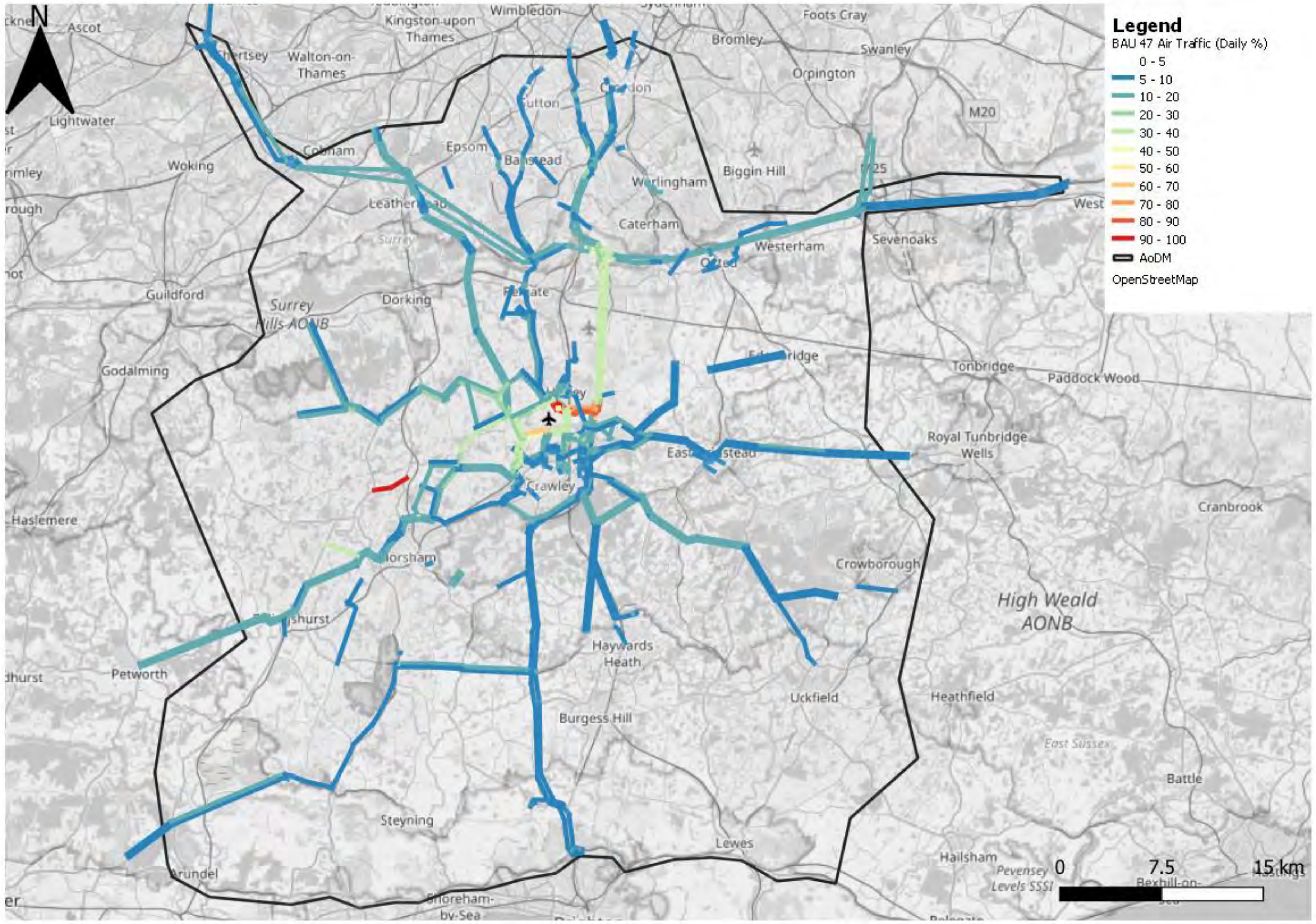


Figure 63: Proportion of airport road traffic in Future baseline 2047 (% of total traffic)



11.7 Key junction and link flows

11.7.1 This section outlines the impact in the Future baseline operation on key junction and link flows within the vicinity of the airport.

M23 Gatwick growth

11.7.2 In order to understand the impact of the growth of the airport in the Future baseline Table 88 presents a summary of M23 Spur AADT over the modelled years split by airport and non-airport road traffic.

11.7.3 The table shows that on the M23 Spur there is an initial reduction in the proportion of airport road traffic, owing to increasing background traffic but this increases over time as airport traffic increases. Airport road traffic is less elastic in its route choice ability so the increasing proportion would be expected as the airport grows.

North and South Terminal Roundabouts

11.7.4 There are generally decreases in road traffic flows from 2016 Baseline to 2029 Future baseline expected at the North Terminal and South Terminal roundabouts. This is due to forecourt charges, higher parking charges, schedule changes/shifts between North Terminal and South Terminal implemented in 2018.

11.7.5 Beyond 2029, there are generally increases in road traffic flows in the Future baselines due to background traffic and airport traffic growth (without Project).

11.7.6 In 2029 at North Terminal roundabout there is a small reduction in AADT inbound into the North Terminal, driven by reductions in actual flow in the IP and PM (AM1 flow change +110, AM2 flow change +25, IP flow change -76, PM flow change -42). A similar pattern is seen in the outbound vehicle flows: AM1 +172, AM2 +103, IP -63, PM -61.

11.7.7 In 2029 at South Terminal roundabout there is an overall decrease in AADT inbound driven by reductions in actual flow in the IP and PM (Inbound flow changes: AM1 +92, AM2 +73, IP -189, PM -174 vehicles). The outbound flow numbers also show a similar pattern: AM1 +215, AM2 + 151, IP -183, PM -66 vehicles. Note the changes here are not solely the product of airport road traffic as there is also the business park off this roundabout.

11.7.8 In 2029 in the AM1 and AM2 there is a significant delay in the model for road traffic exiting South Terminal with queuing back into the car park and forecourt of the airport. In the IP and PM most delay in observed on the circulatory itself. Whilst the VISSIM does not model 2029 the 2032 and 2047 models available will allow a more detailed understanding of likely operation of this roundabout in the Future baseline.

11.7.9 Beyond 2029 both terminals see increases in all years of varying magnitudes, with AADT changes show in Table 88.

Longbridge Roundabout

11.7.10 Longbridge Roundabout sees increases in road traffic for all Future baseline years due to the increase in background traffic and airport traffic (without Project).

11.7.11 The largest increases are seen on London Road East arm in both directions, which are due to the road traffic growth and, dependent on destination, the need to U turn at Longbridge Roundabout. Vehicles travelling from North Terminal to A23 South have to U turn at Longbridge Roundabout in the Future baseline. There are also large flow changes on Brighton Road in large part due to general background growth.

11.7.12 Table 90 sets out the change in AADT flow on London Road and Brighton Road between the different Future baseline years.

11.7.13 Between 2038 and 2047 there is a reduction in traffic on the London Road West arm of 162 entry and 486 exit movements. At a time period level the number of entries to Longbridge Roundabout from London Road West changes by +3, -33, - 18, and +7 in the AM1, AM2, IP and PM respectively between 2038 and 2047. The number of exits to London Road West changes by +36, - 77, - 47, and -38 for the AM1, AM2, IP and PM respectively between 2038 and 2047.

M23 Junction 9 (J9)

11.7.14 In the Future baselines, increases in road traffic flows are expected on all approaches and the mainline of the junction, particularly from 2016 Base to 2029 Future baseline. This is driven primarily by the completion of M23 J8 to J10 Smart Motorway programme, which reduces journey times and makes this route more attractive, relieving congestion on parallel routes through towns such as Reigate.

11.7.15 The performance of M23 J9 was discussed with National Highways at Stakeholder Workshops. In particular, the modelling results shows that in the Future baselines, there is a reduction in the volumes of road traffic using the southbound on-slip compared to the 2016 Base. Table 91 presents the change on each of the on and off slips at Junction 9 between 2016 and 2032. It can be seen that the other movements see up to 603 vehicle increases.

11.7.16 Given the improvements to the M23 with the Smart Motorway Programme this was not expected and therefore has been further investigated through sensitivity testing.

M23 Junction 10 (J10)

11.7.17 In the Future baseline, there are modest increases in flows across the motorway on and off slips across the 4 modelled years (maximum increase in traffic flow of 14% between 2038 and 2047 on the southbound on-slip). There are also increases on the mainline, particularly from 2016 Base to 2029 Future baseline with the northbound mainline flow increasing from 3,580 PCUs in 2016 to 4,350 PCUs in 2029 Future baseline in the AM1 peak. Much of this will be driven by the Smart Motorway Programme. From a V/C perspective the northbound on-slip at this junction generally around 30-40% across all years and time periods, the southbound off-slip V/C is around 50-80% across all years and time periods, and the southbound on-slip has a V/C of 20-40% across all years and time periods. However, the northbound off-slip has higher V/C ratios from 50-100% across all years and time periods. The northbound off-slip in the AM2 is at or approaching capacity (90%+) from 2029.

11.7.18 As such the performance of M23 J10 was discussed with National Highways at Stakeholder Workshops. In particular, the high Volume to Capacity (V/C) ratios model on the northbound off-slip in the AM2 were noted by National Highways. The performance of this junction was also considered further as part of investigation into M23 J9.

M23 Junction 8 (J8)/M25 Junction 7 (J7)

11.7.19 Road traffic flows are expected to increase to and from the south of the junction, with the highest increase observed from 2016 Base to 2029 Future baseline, where the M23 northbound to M25 movement increases by over 9110 vehicles at the AADT level. This is driven by the completion of the J8 to J10 Smart Motorway scheme and background traffic growth. Modest changes in traffic flows and V/C over the years and the operation of the slip roads north of the M25 are expected in the Future baseline years. Table 92 provides a sense of the changes seen at this junction through M23 flows just south of the junction at an AADT level.

11.7.20 The magnitude of impact analysis for nodes shows that there are a number of locations where this junction would have ‘High’ or ‘Medium’ impact, particularly in the 2047 Future baseline. These locations are merges/diverges of the junction, where strategic models may not be able to provide practical results. Therefore, a further assessment has been undertaken at these merges and diverges using the Design Manual for Roads and Bridges

(DMRB) criteria. This assessment is contained in the **Transport Assessment**.

Table 88: Airport and non-airport growth on M23 Spur, Future baseline - rounded to nearest 10 (AADT, Vehs)

	2016	2029	2032	2038	2047
Non-Airport Traffic	16,050	19,090	19,430	19,930	20,460
Airport Traffic	67,020	70,280	71,630	73,820	77,650
Non-Airport Traffic growth from 2016		19%	21%	24%	27%
Airport Traffic growth from 2016		5%	7%	10%	16%
Airport Traffic as a proportion of Total	80.7%	78.6%	78.7%	78.7%	79.1%

Table 89: Change to North and South Terminal In/Out roads (AADT, Vehs)

	2016	2016-2029	2029-2032	2032-2038	2038-2047
North Terminal Roundabout In	20,559	-40	+666	+960	+665
North Terminal Roundabout Exit	20,652	303	+933	+1,423	+1,134
South Terminal In	23,426	-1,981	+236	+487	+1,719
South Terminal Exit	22,291	-1,222	+413	+775	+2,411

Table 90: Key changes to/from Longbridge Roundabout (AADT, Vehs)

	2016	2016-2029	2029-2032	2032-2038	2038-2047
London Road East westbound (to Longbridge Roundabout)	19,880	+8,131	+869	+1,470	+2,114
London Road East eastbound (from Longbridge Roundabout)	20,350	+6,514	+1,040	+1,602	+1,635
Brighton Road Northbound	14,637	+4,189	+228	+541	+744
Brighton Road Southbound	15,492	+4,862	+578	+613	+388

Table 91: M23 Junction 9 Analysis, 2032 Future baseline – 2016 Base, Core Results (Vehs)

	AM1				AM2				IP				PM			
	2016	2032BAU	Diff	% Diff	2016	2032BAU	Diff	% Diff	2016	2032 BAU	Diff	% Diff	2016	2032 BAU	Diff	% Diff
NB On-slip	1,171	1,774	603	51%	1,307	1,927	620	47%	1,440	1,660	220	15%	1,552	2,050	498	32%
NB Off-slip	1,205	1,254	50	4%	1,204	1,146	-59	-5%	789	834	45	6%	612	676	64	10%
SB On-slip	724	542	-181	-25%	685	555	-130	-19%	748	522	-226	-30%	1,241	599	-643	-52%
SB Off-slip	1,670	2,181	510	31%	1,731	2,222	491	28%	1,436	1,529	93	6%	1,141	1,397	256	22%

Table 92: Changes in Future baseline flows on M23 South of J8 (AADT, Vehs)

	2016	2016-2029	2029-2032	2032-2038	2038-2047
M23 Northbound	65,944	+17,275	+3,282	+4,586	+5,035
M23 Southbound	69,075	+13,488	+2,259	+4,044	+4,454

11.8 Future baseline highway network performance

Network summary statistics

11.8.1 The following Network summary statistics have been extracted for each Future baseline:
- Transient Queues (PCU-Hrs);
- Over Capacity Queues (PCU-Hrs);
- Link Cruise Times (PCU-Hrs);
- Total Travel Times (PCU-Hrs);
- Travel Distance (PCU-kms); and
- Average speed (kph).

11.8.2 These statistics are presented in Appendix H. The statistics demonstrate a number of logical and sensible model responses, which can be reasonably expected as growth continues and the road network becomes more congested. As expected, transient and over capacity queues, link cruise times, total travel times and total travel distance all increase over time. Meanwhile, the average speed decreases over time.

Assessment

11.8.3 The performance of the highway network is assessed by considering the changes in operation for each assessment year. This includes examining:
- Actual traffic flow changes by time period;
- Annual Average Daily Traffic (AADT) changes;
- Impact on Journey Times across the SRN and the Performance Areas (as defined in Section 6.12);
- Impact on Operational Performance across the SRN and the Performance Areas (as defined in Section 6.12); and
- Magnitude of Impact across the Performance Areas (as defined in Section 6.12).

Actual flow by time period

11.8.4 This section discusses the growth in hourly road traffic volumes within the study area for the modelled years of 2016 Base and Future baseline scenarios. This provides an understanding of the changes in background road traffic. The forecasts represent an average weekday in June for background traffic and peak June traffic for airport flows.

11.8.5 The changes in traffic flows are illustrated by figures contained in this section. Increases in road traffic flows are shown by variable bandwidths in shades of green, and decreases in traffic flows are shown in blue. Small changes in flows of between -50 and 50 (ie less than one vehicle a minute) are shown as grey links, to help more clearly highlight where there are greater changes in modelled flows across the network. There are some sections of road where the network is not consistent between the two scenarios. In this case, a comparison list has been used to calculate (and thus display) flow changes; links without an appropriate comparison are not shown.

11.8.6 Alongside road traffic flow changes at a link level, the impact of the forecasts can also be considered by looking at changes across screenlines. Appendix F presents the change across screenlines for the Future baselines across all years. The conclusions from the screenlines are consistent with looking at the road traffic flow changes set out in this section, and therefore no further detailed analysis is undertaken specifically on screenlines.

2016 Base to 2029 Future baseline

11.8.7 The modelled flow differences between 2016 Base and 2029 Future baseline are presented in Figure 64 to Figure 67 for AM1, AM2, IP and PM respectively. The key points are:
- The largest hourly increases in road traffic volumes are seen on the SRN including on the M25 (particularly between Junction 5 and Junction 16) and M23 north of Junction 9. This aligns with where Smart Motorway improvements have been introduced between 2016 and 2029 on both the M23 and M25.
- Within the AoDM, the increases in traffic flow on the M25 are between 500 and 2,500 vehicles per hour per direction for all time periods. Both AM peaks in particular showing increases between 1,000 and 2,500 on all sections of the M25 between Junction 5 and Junction 12.
- On the M23 (north of Junction 9), increases of 1,000 to 2,500 vehicles per hour per directions are shown for all time periods, except IP where a lower increase of 500 to 1,000 vehicles is expected. This is likely to be the result of the M23 Junction 8-10 Smart Motorway improvements.
- There are also increases in road traffic expected on the A23. The exact increase varies depending on the exact section of road and time period but in the Crawley area increases on the A23 are generally of between 250 and 500 per direction, with some increases above 500 such as on the A23 past the airport southbound in AM1 and PM.
- In the Crawley area, there are increases on most roads in the town across all time periods. These increases are generally in the range 50 to 200 vehicles.
- Some reductions in road traffic are observed, including on the westbound approach to Hazelwick Roundabout, as well as eastbound heading towards Junction 10 and on Crawley Avenue between Southgate Avenue and Horsham Road. Hazelwick Roundabout is subject to an improvement scheme. There is also a reconfiguration of the access to/from the B2036, and the introduction of a new set of signals in the baseline which will lead to localised route changes and consequent impact on this section of Crawley Avenue.

2029 to 2032 Future baseline

11.8.8 Figure 68 to Figure 71 show the change in traffic volumes between 2029 and 2032 Future baseline scenarios for AM1, AM2, IP and PM respectively. The key points are:
- As would be expected for 3 years of growth, the changes are modest;
- The road traffic flow increases are generally on motorways and major A roads, the highest increases being between 200 and 500 vehicles in AM2, IP and PM on sections of the A23, M23 and M25;
- In the immediate vicinity of the airport, road traffic volumes are expected to increase between 50 and 200 vehicles across various time periods; and
- Within Crawley there are small increases, in the range of 50 to 200 vehicles on roads such as Crawley Avenue.

2032 to 2038 Future baseline

11.8.9 Figure 72 to Figure 75 show the change in road traffic volumes between 2032 and 2038 Future baseline scenarios for AM1, AM2, IP and PM respectively. It should be noted that no network improvements between 2032 and 2038 are in the model. Therefore, all changes in flows are the product of demand growth or reassignment impacts. The changes shown are larger than the 2029 to 2032 comparison because 2032 to 2038 represents a wider range of years. The key points are:
- Road traffic flow increases by between 50 to 500 vehicles on the SRN and most of the key A roads for all time periods It should be noted that for some sections of the M25, such as clockwise between Junction 7 and 10 the model suggests traffic flows will increase by less than 50 vehicles in the AM1, although roughly 200 in each of the other time periods. This small increase is indicative of the congested state of the M25 by this time;
- Road traffic flow on the M23 (north of Junction 9) increases by 200 to 500 vehicles in both directions for all time periods; and
- In the immediate vicinity of the airport and on the main roads within Crawley, road traffic volumes are expected to increase between 50 and 200 vehicles, with most

roads within Crawley itself seeing changes of less than 50 vehicles in this time period.

2038 to 2047 Future baseline

11.8.10 Figure 76 to Figure 79 show the change in road traffic volumes between 2038 and 2047 Future baseline scenarios for AM1, AM2, IP and PM respectively. There are no network improvements between 2038 and 2047 in the model and all road traffic flow changes are the product of demand growth or reassignment impacts. The key points are:

- Road traffic flow increases by 50 to 500 vehicles on the M23 and M25 in all time periods with the smallest increases in AM1;
- In the immediate vicinity of the airport, road traffic volumes are expected to increase between 50 and 200 vehicles; and
- In AM2 the model shows a decrease in road traffic between Partridge Green and West Grinstead. From reviewing results across multiple scenarios, this is the product of road traffic switching between routes via Henfield and Steyning because of similar journey times, which is not considered likely to occur in practice.

11.8.11 In summary, road traffic flows are expected to increase with background growth through all the Future baseline assessment years, with the most increase on the SRN. Some anomalies have been identified and reviewed, and they are considered to be due to specific local issues, eg junction performance or model noise.

Figure 64: Road traffic flow change (veh) 2016 Base to 2029 Future baseline, AM1

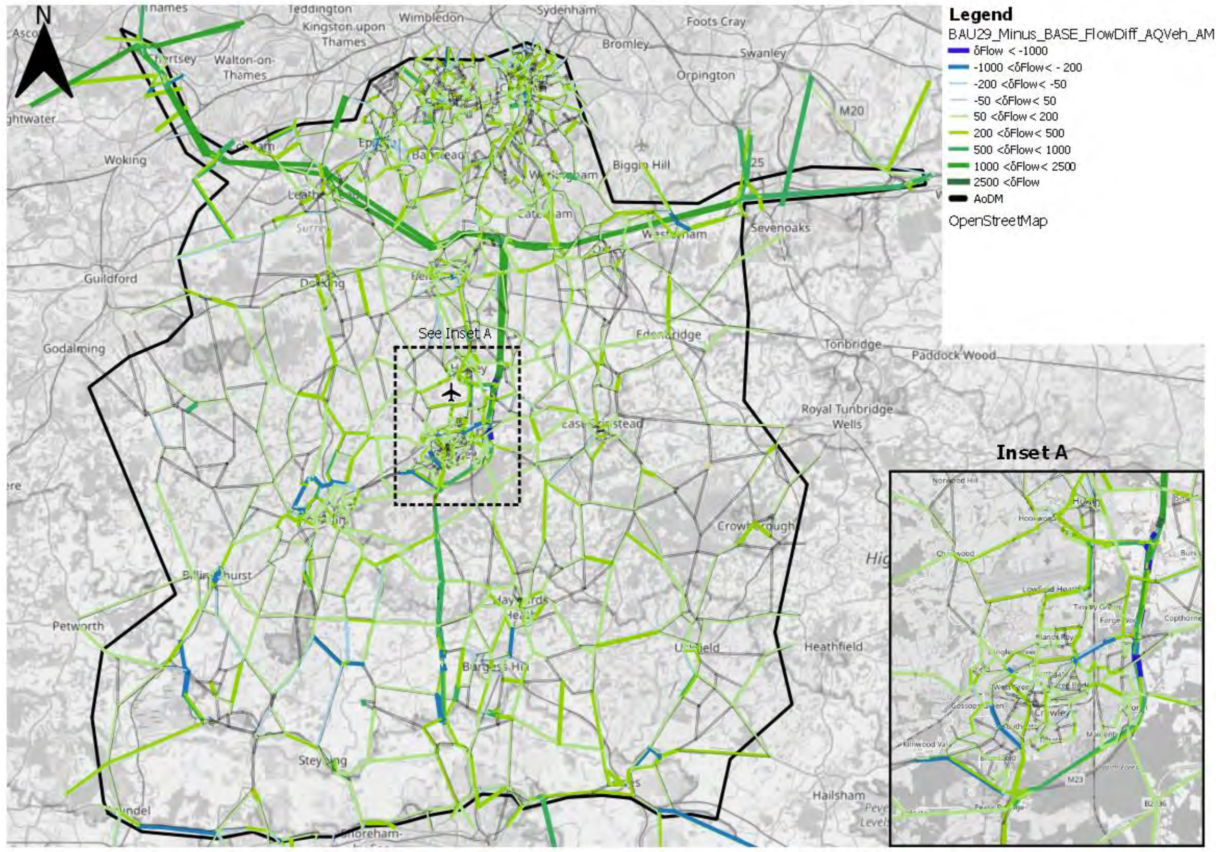


Figure 66: Road traffic flow change (veh) 2016 Base to 2029 Future baseline, IP

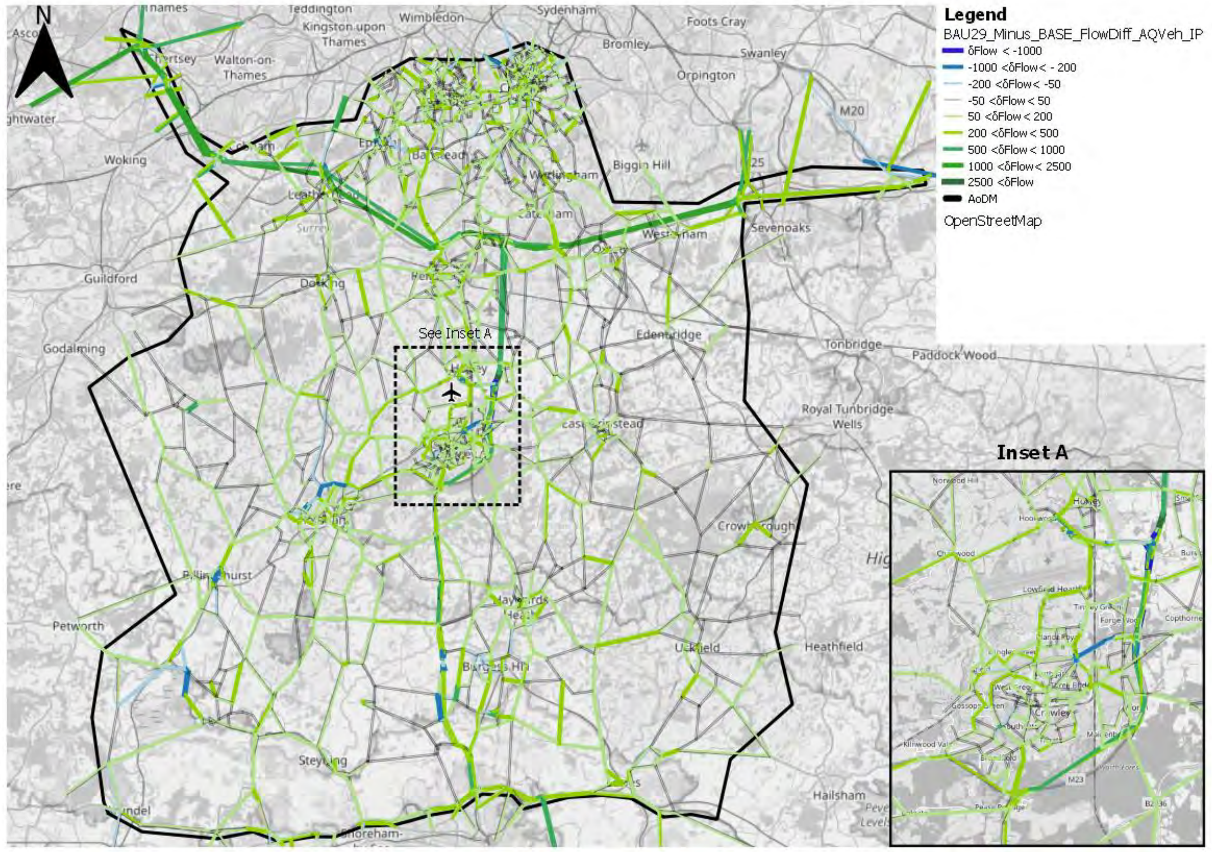


Figure 65: Road traffic flow change (veh) 2016 Base to 2029 Future baseline, AM2

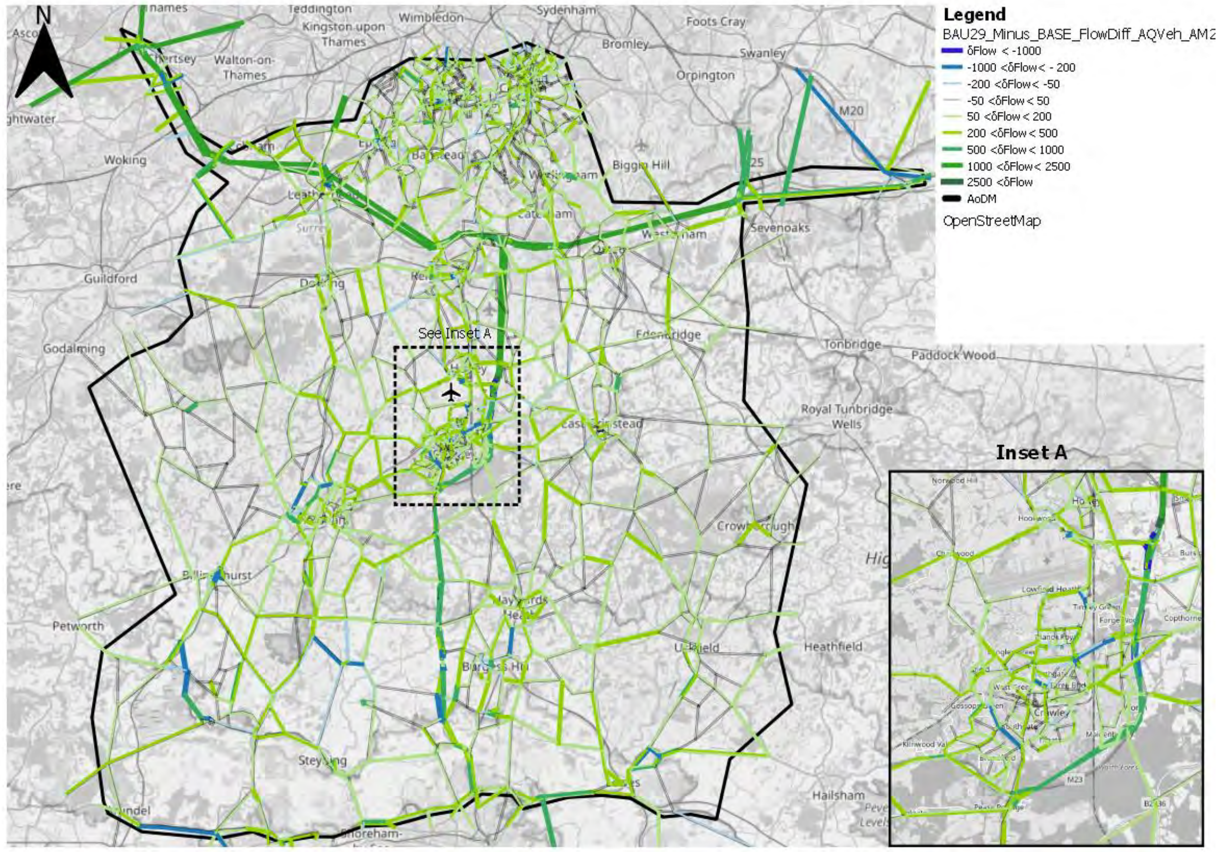


Figure 67: Road traffic flow change (veh) 2016 Base to 2029 Future baseline, PM

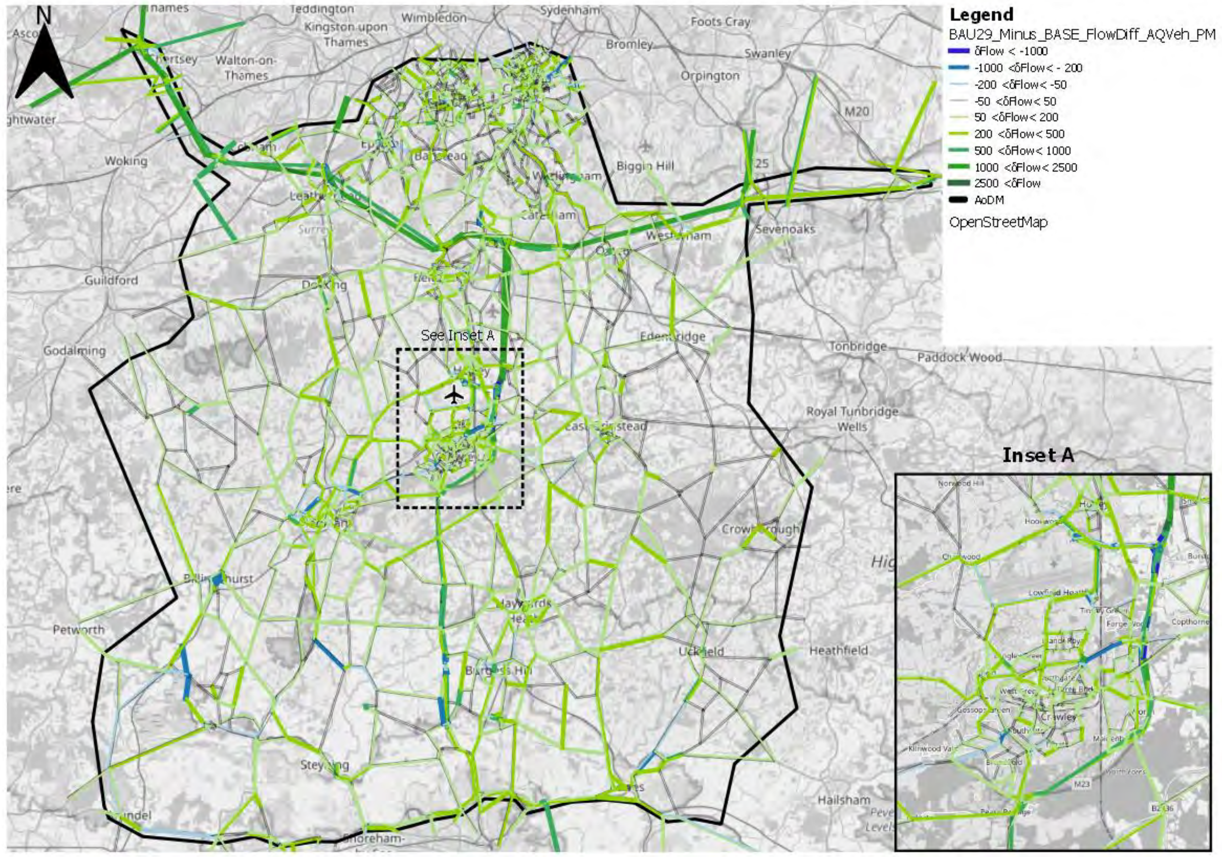


Figure 68: Road traffic flow change (veh) 2029 to 2032 Future baseline, AM1

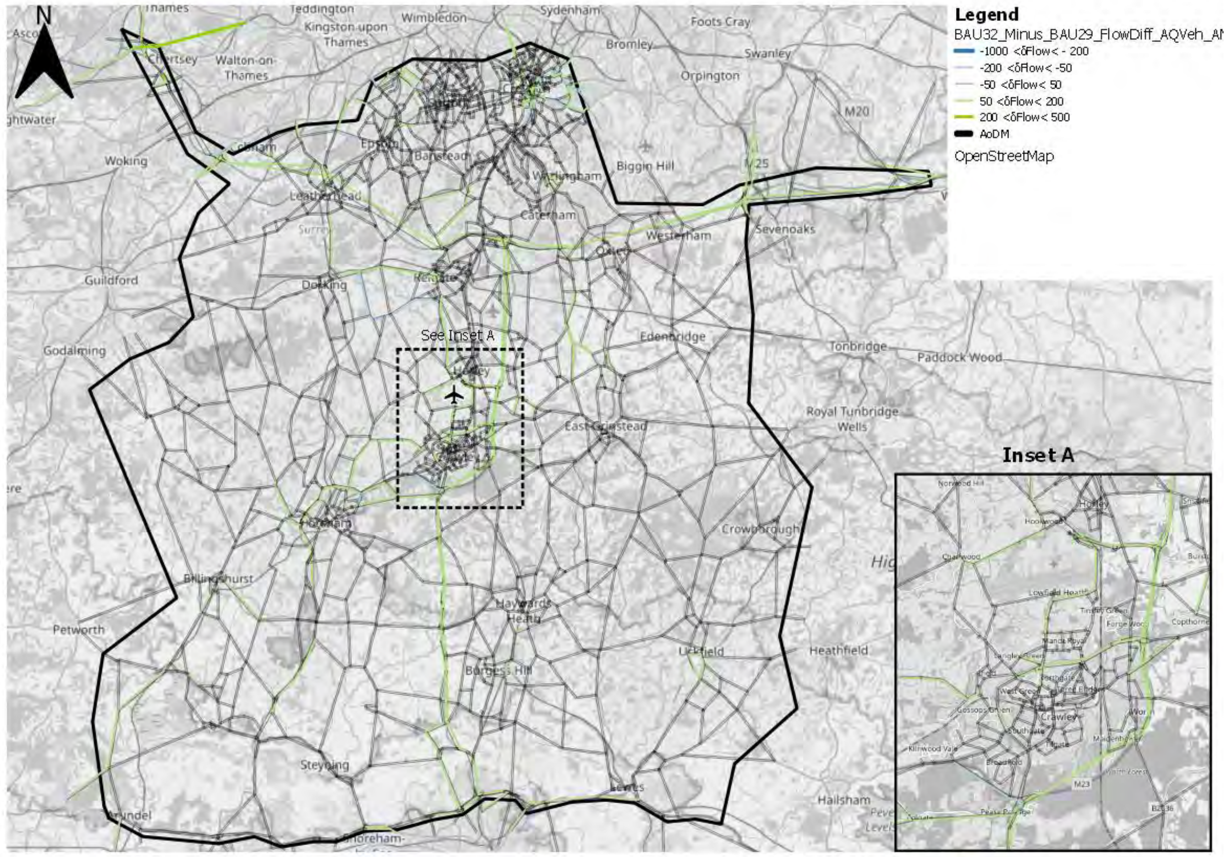


Figure 69: Road traffic flow change (veh) 2029 to 2032 Future baseline, AM2

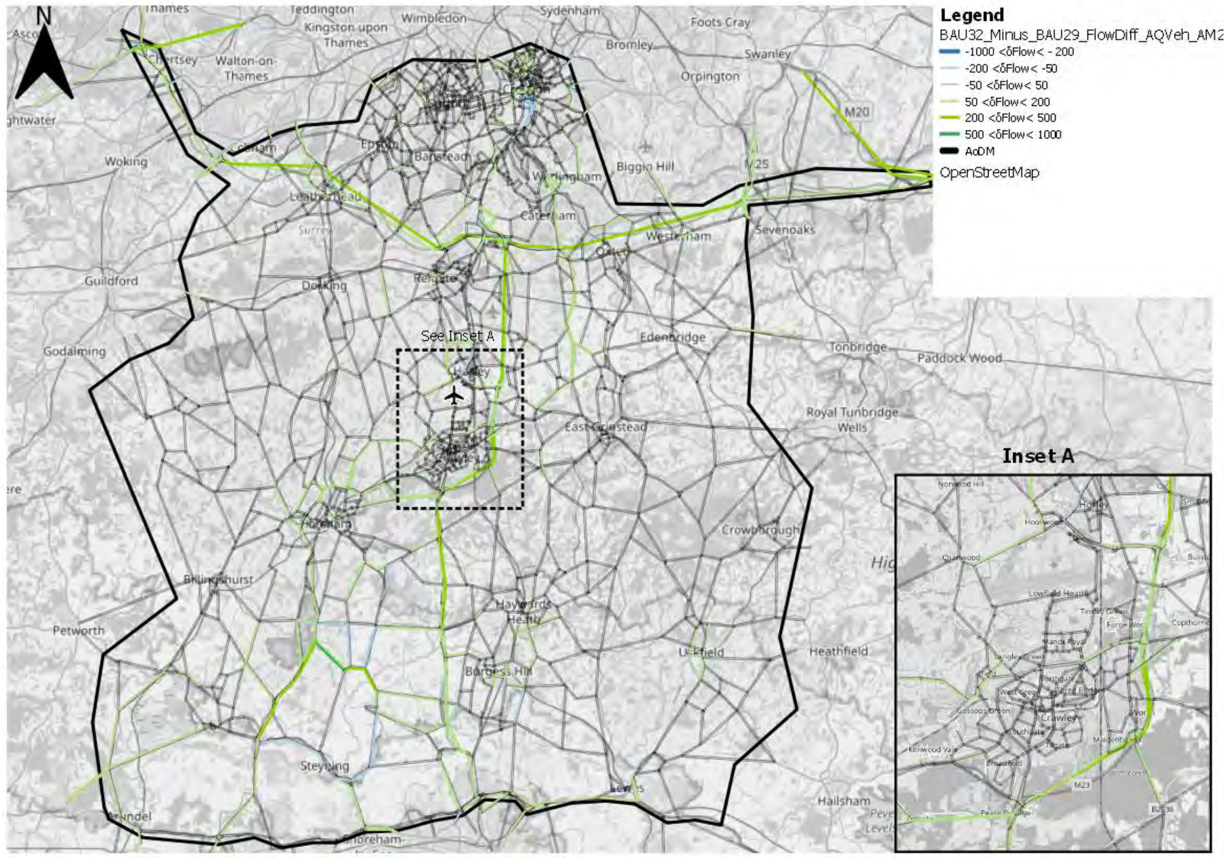


Figure 70: Road traffic flow change (veh) 2029 to 2032 Future baseline, IP

Figure 71: Road traffic flow change (veh) 2029 to 2032 Future baseline, PM

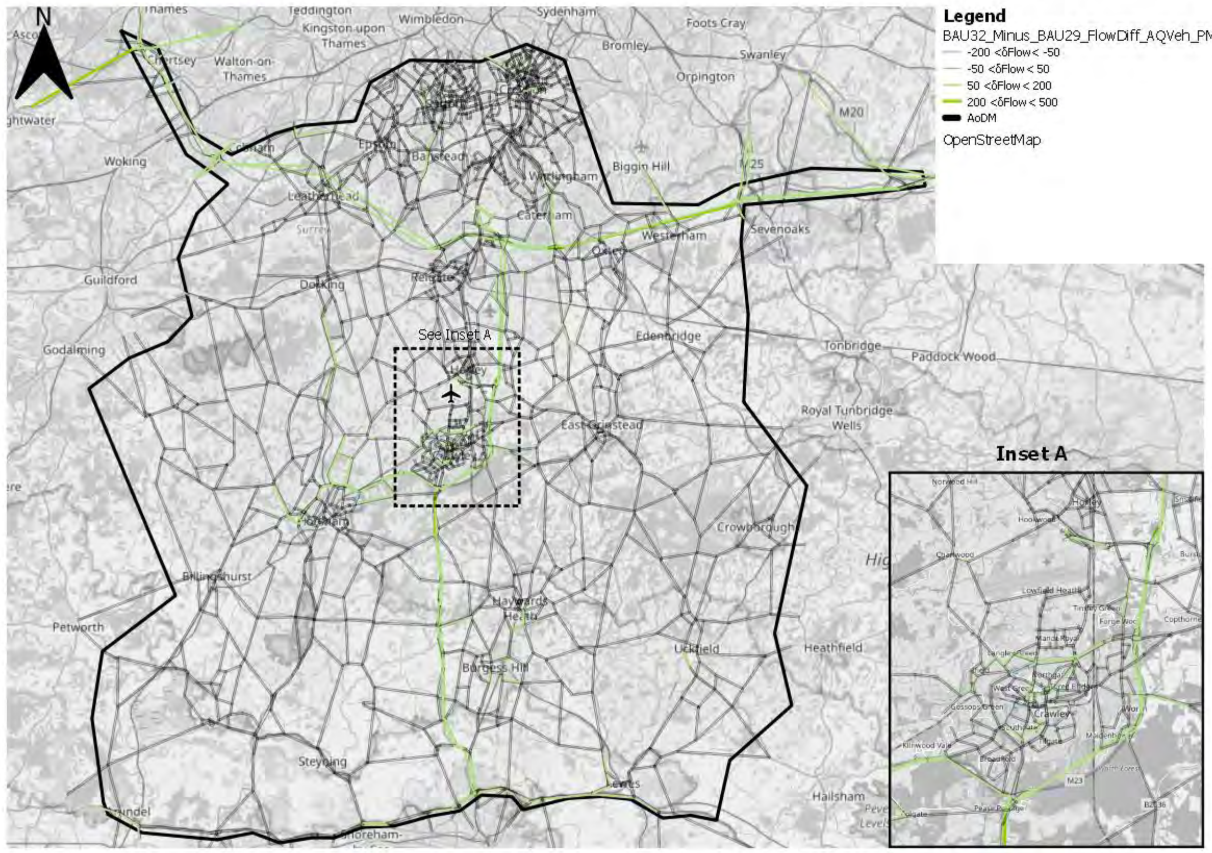


Figure 72: Road traffic flow change (veh) 2032 to 2038 Future baseline, AM1

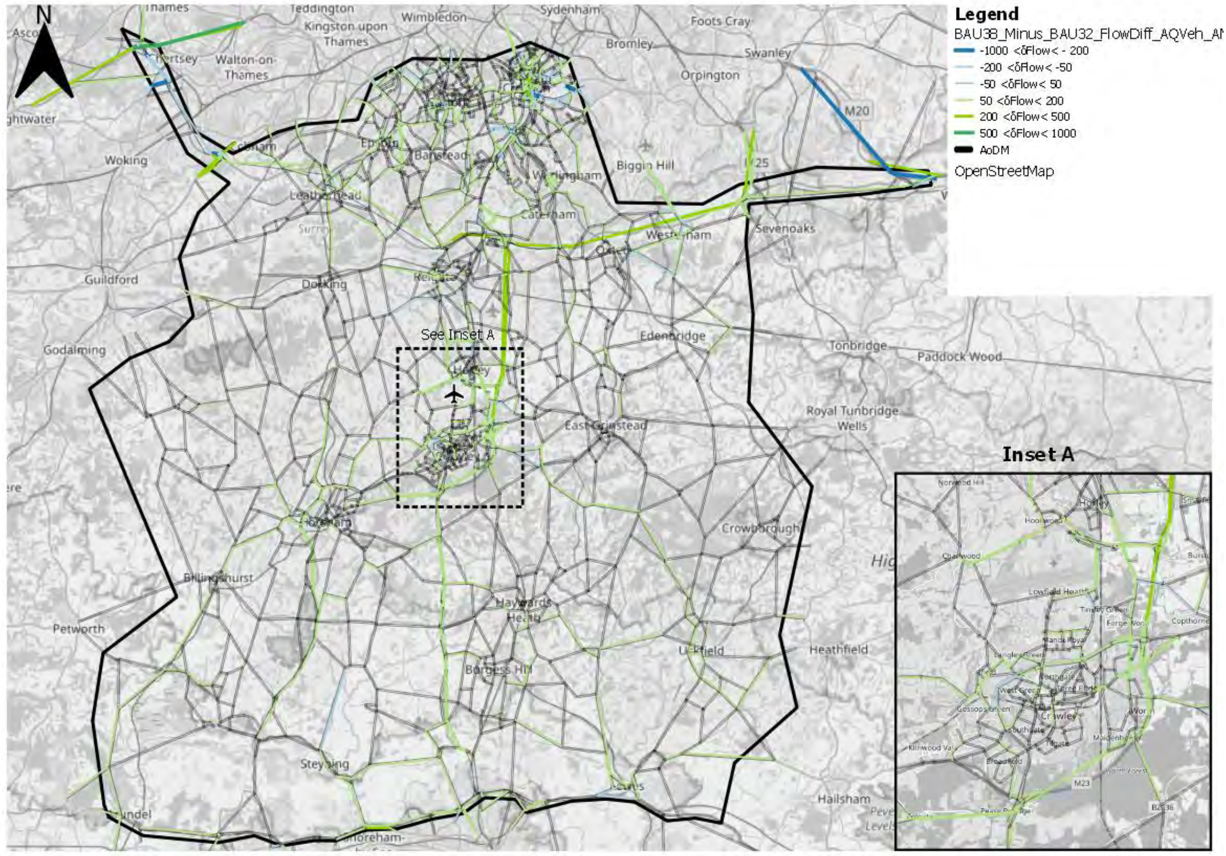


Figure 73: Road traffic flow change (veh) 2032 to 2038 Future baseline, AM2

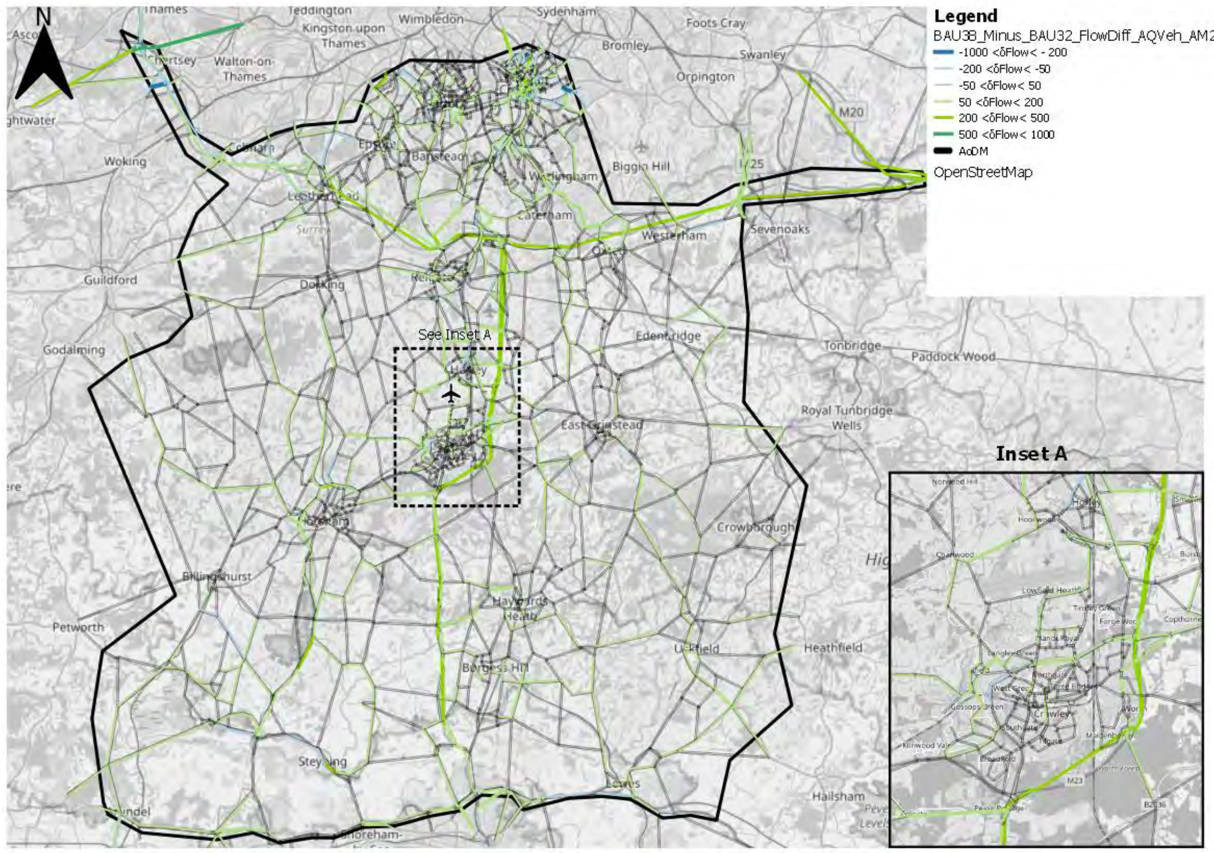


Figure 74: Road traffic flow change (veh) 2032 to 2038 Future baseline, IP

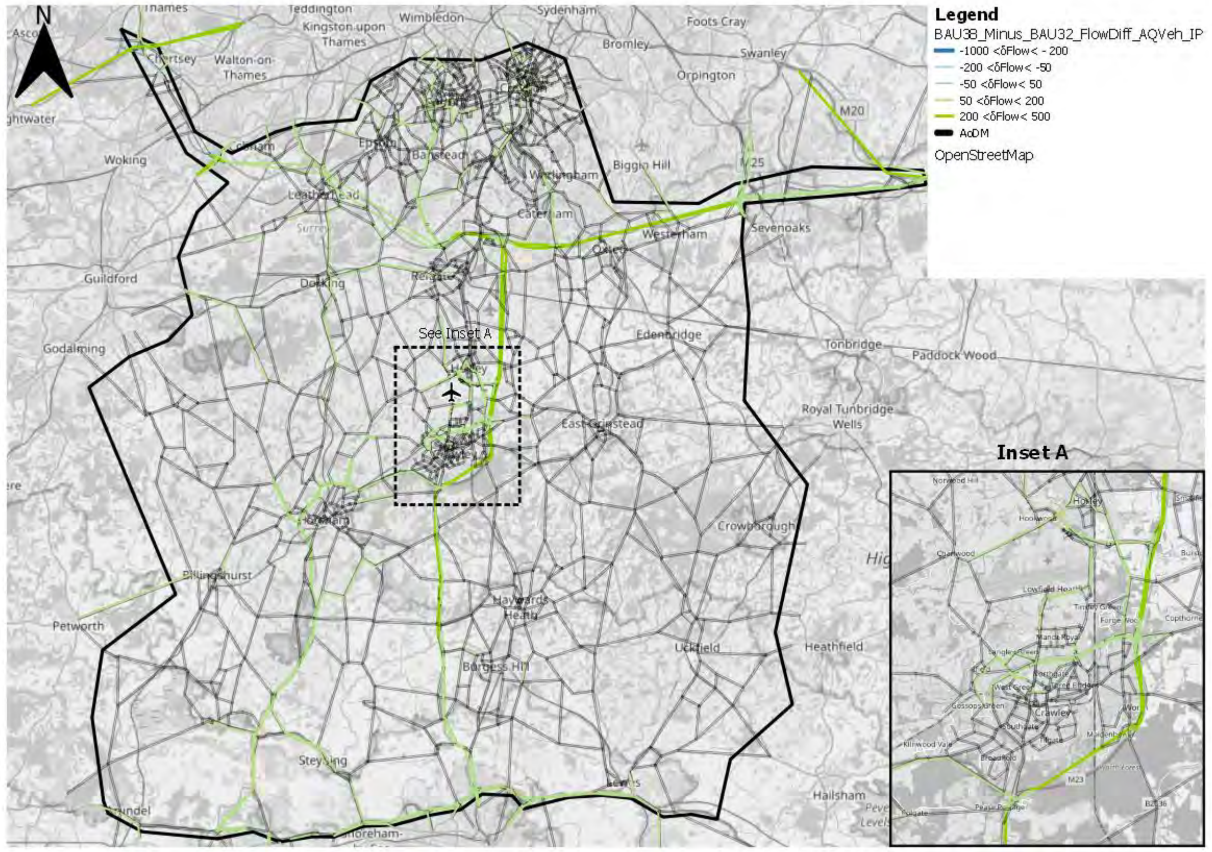


Figure 75: Road traffic flow change (veh) 2032 to 2038 Future baseline, PM

Figure 76: Road traffic flow change (veh) 2038 to 2047 Future baseline, AM1

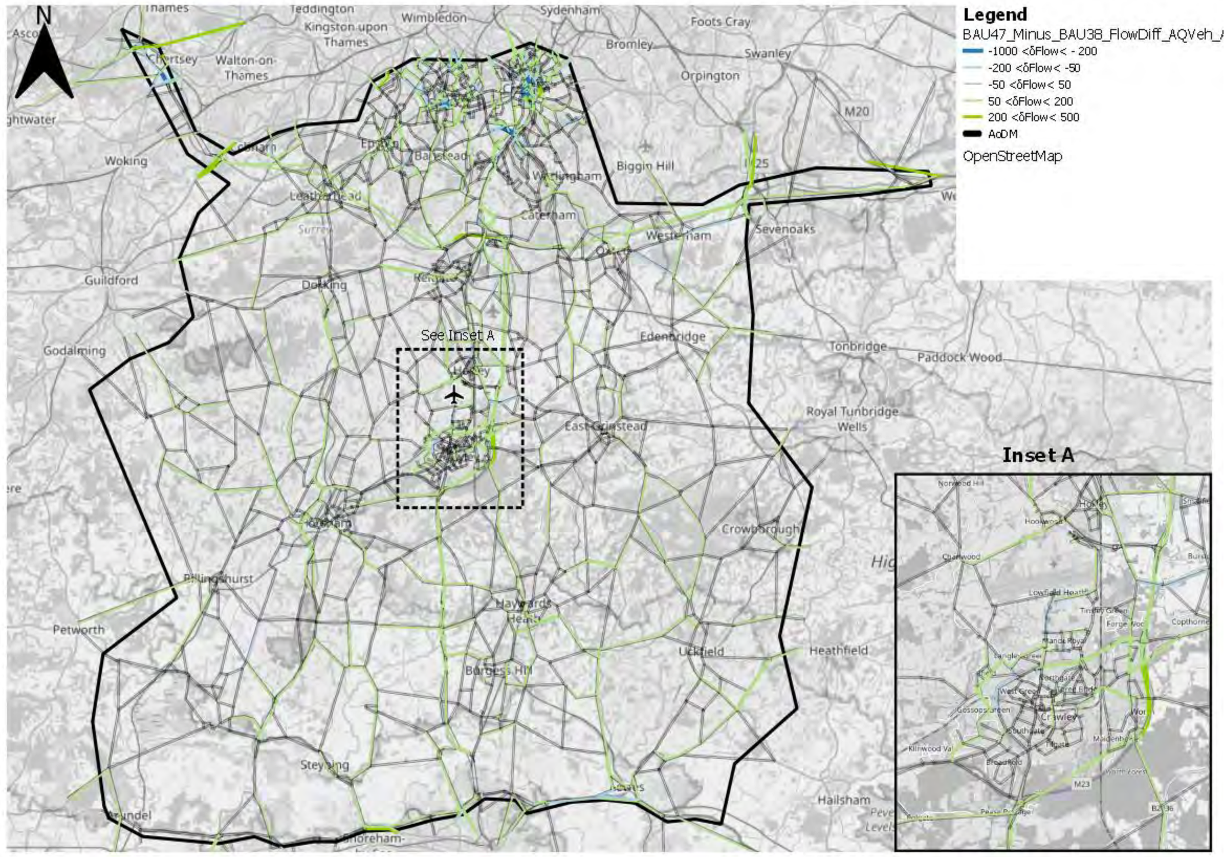


Figure 77: Road traffic flow change (veh) 2038 to 2047 Future baseline, AM2

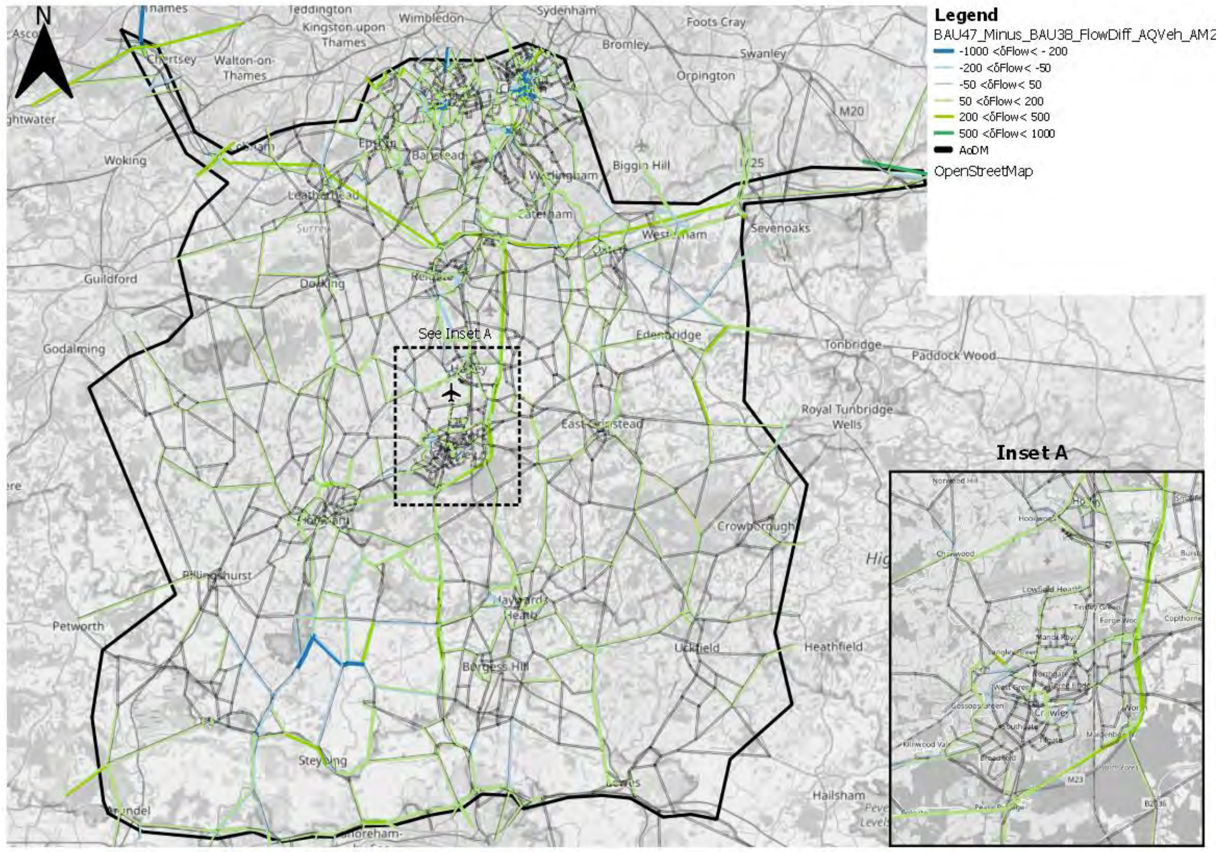


Figure 78: Road traffic flow change (veh) 2038 to 2047 Future baseline, IP

Figure 79: Road traffic flow change (veh) 2038 to 2047 Future baseline, PM

Annual Average Daily Traffic (AADT)

11.8.12 Road traffic volumes extracted for the four modelled time periods are combined and expanded to represent AADT. These road traffic flows represent average daily (Monday to Sunday) traffic flows for 24 hours. Details underpinning the process of calculating these are provided in Section 6.9.

11.8.13 The changes in AADT are illustrated in the figures in this section. Banding for the change in AADT (labelled as *δAADT* in the figures) are defined in consideration of guidance from the Design Manual for Road and Bridges, LA 105 – Air Quality Section 2[13]. It should be noted that thresholds from the guidance are for two-way flows, whereas the modelled flows shown are for one-way links.

11.8.14 The AADT plots provide an indication on the overall changes in road traffic flows. Some key points:

- Smart Motorway schemes between M25 J10 and J16, and M23 J8 and J10 have contributed to the changes at these locations in AADT.
- Changes in AADT at M23 J9 are, in part, a product of the signal configuration at the circulatory/southbound off-slip.
- There are reductions in AADT on Crawley Avenue between M23 Junction 10 and Hazelwick Roundabout, consistent with the changes observed within the individual time periods models outlined above.
- Changes in AADT on the A264/A24 around Horsham are the result of changes in the road layout and schemes introduced, such as the Great Daux Roundabout.
- There are some reductions in AADT in the Burgess Hill, Billingshurst and Pulborough areas. In Burgess Hill there have been adjustments to centroid connectors to account for new development. In Billingshurst and Pulborough to ensure the forecast road traffic loads onto the network, there have been additional connectors coded. This does have the effect of causing localised reductions in road traffic (due to changes in local routing) but ensures all traffic loads onto the network in the forecasts.
- There are some reductions in AADT at the M25 J11 Chertsey Interchange. This is driven by a reduction in the flow in the interpeak and small changes in routing to the M25.
- M25 J10 Wisley Interchange (which forms part of the Thames Basin Heaths SPA) changes are the product of very localised changes in routing within the model, and given the overall magnitude of the flows in this location these reductions could largely be considered model noise.
- In 2047, there is an increase in AADT around Partridge Green and Henfield which are countered by reductions through Steyning. Analysis of the model shows that there is some localised model noise in this area, and so the changes are not considered likely to occur in practice.

[13] LA 105 - Air quality - DMRB (standardsforhighways.co.uk)

Figure 80: AADT Delta, 2029 Future baseline (-) 2016 Base

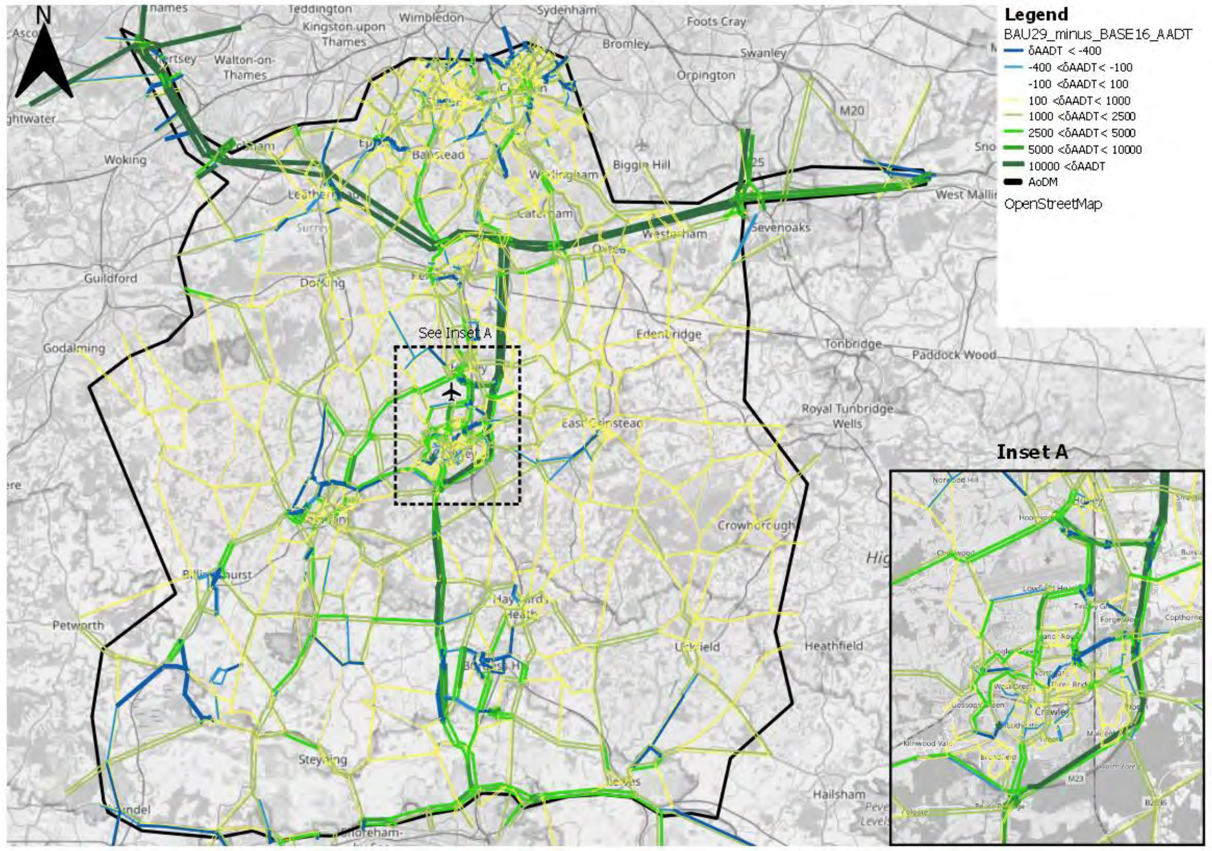


Figure 81: AADT Delta, 2032 Future baseline (-) 2029 Future baseline

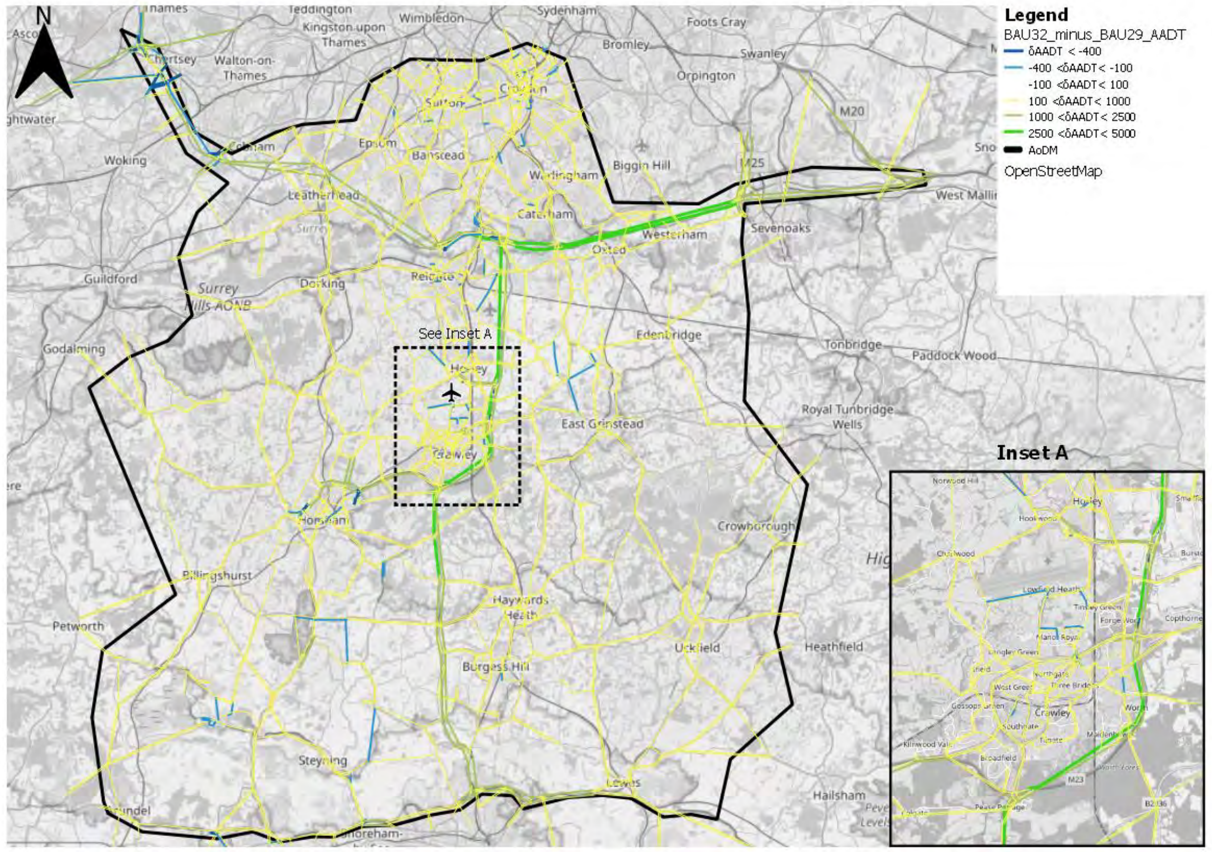


Figure 82: AADT Delta, 2038 Future baseline (-) 2032 Future baseline

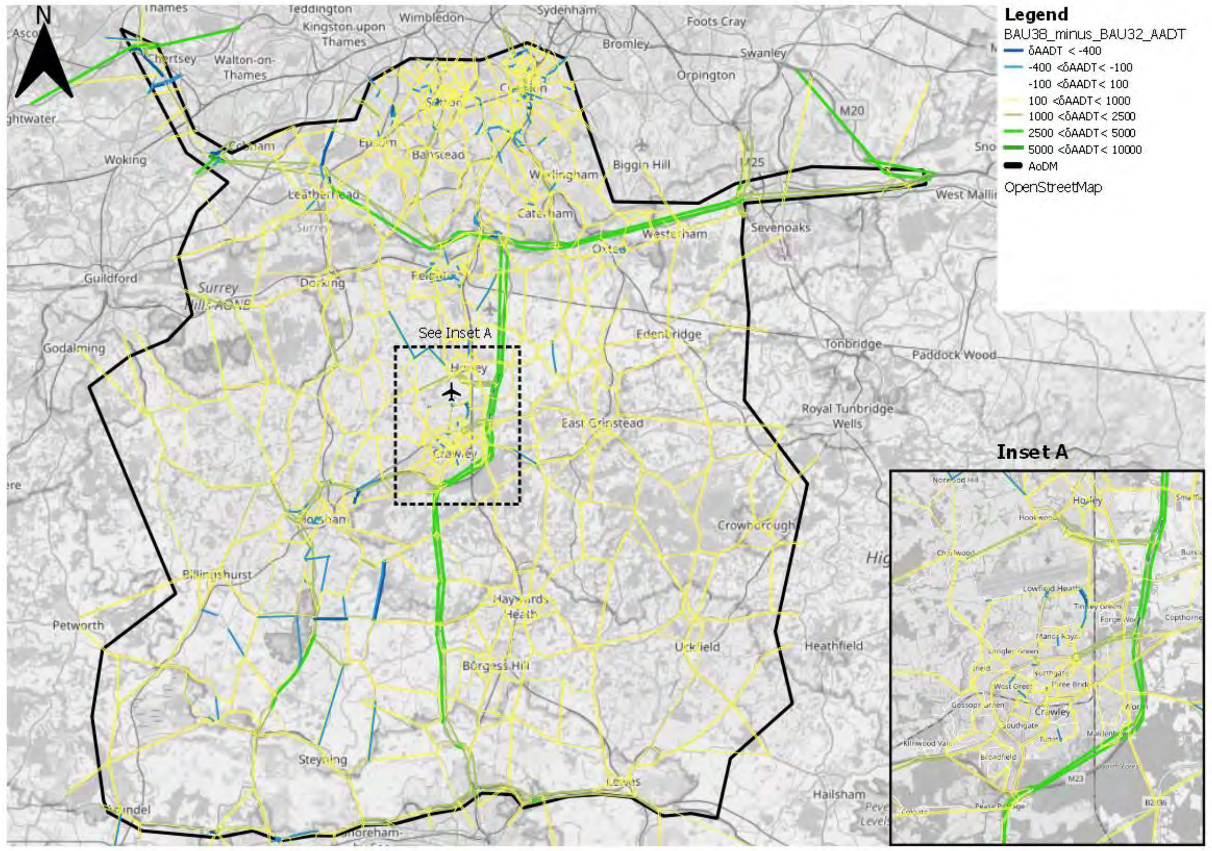
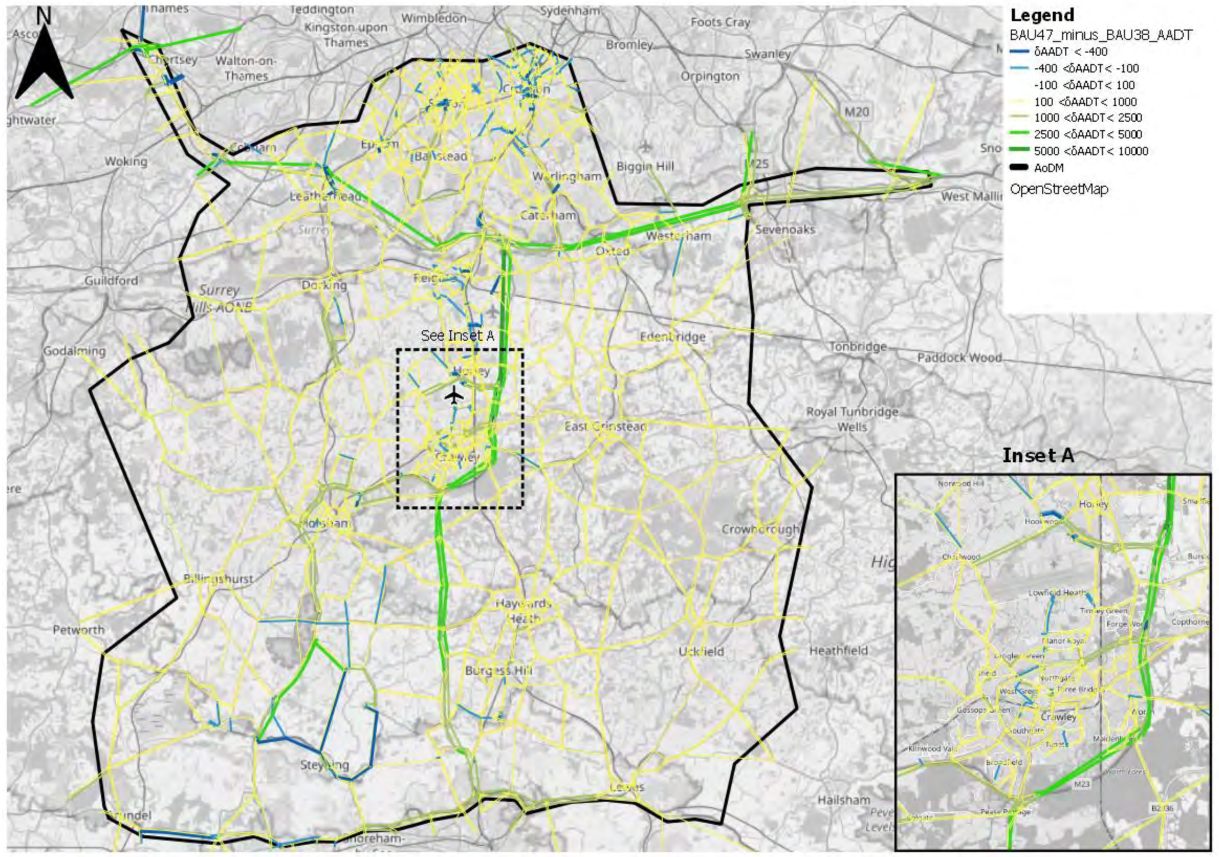


Figure 83: AADT Delta, 2047 Future baseline (-) 2038 Future baseline



11.9 Performance areas

11.9.1 The network was divided into five performance areas to consider the impacts in more detail, as set out in Section 6.12. For each of these areas, journey times, Volume/Capacity (V/C) ratios for highway links and magnitude of impact of nodes are examined.

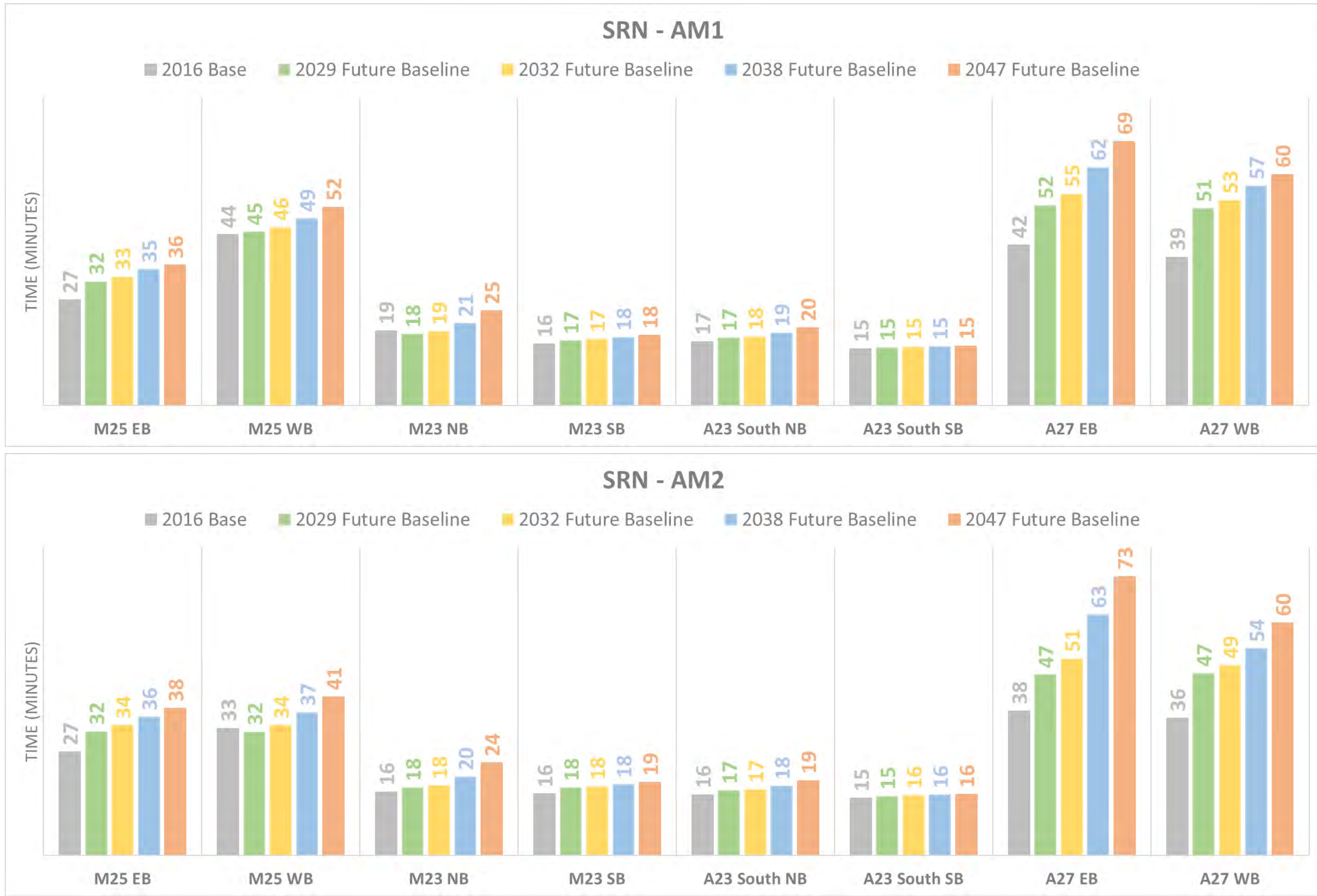
Strategic Road Network

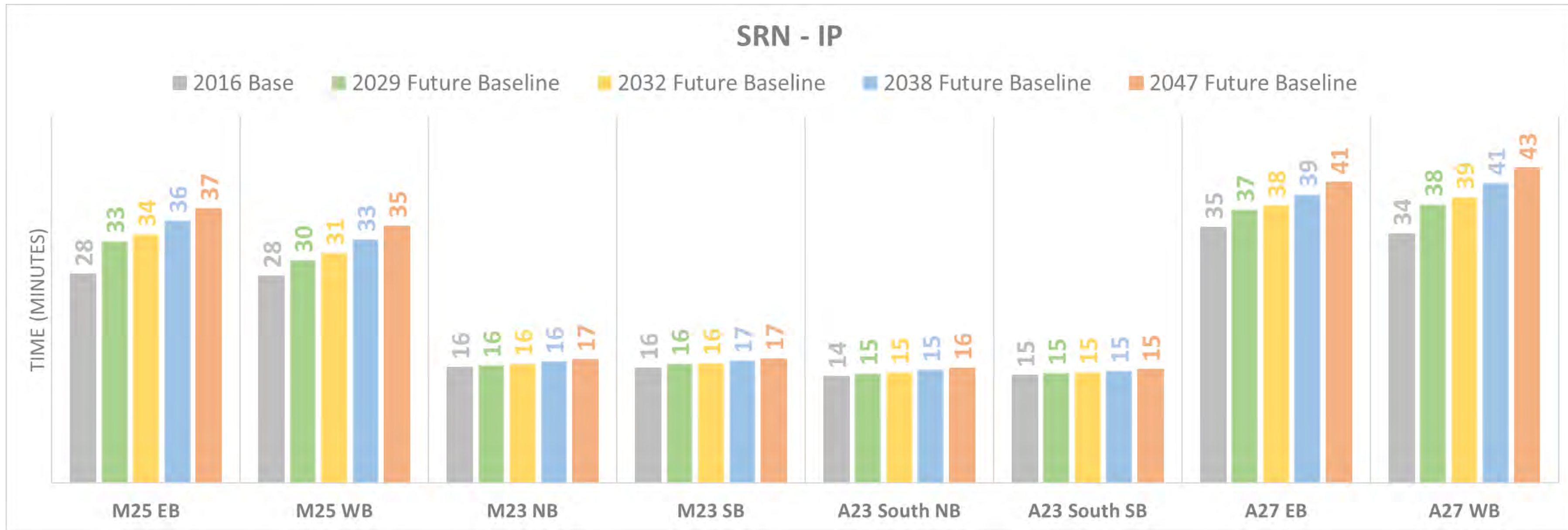
Journey times

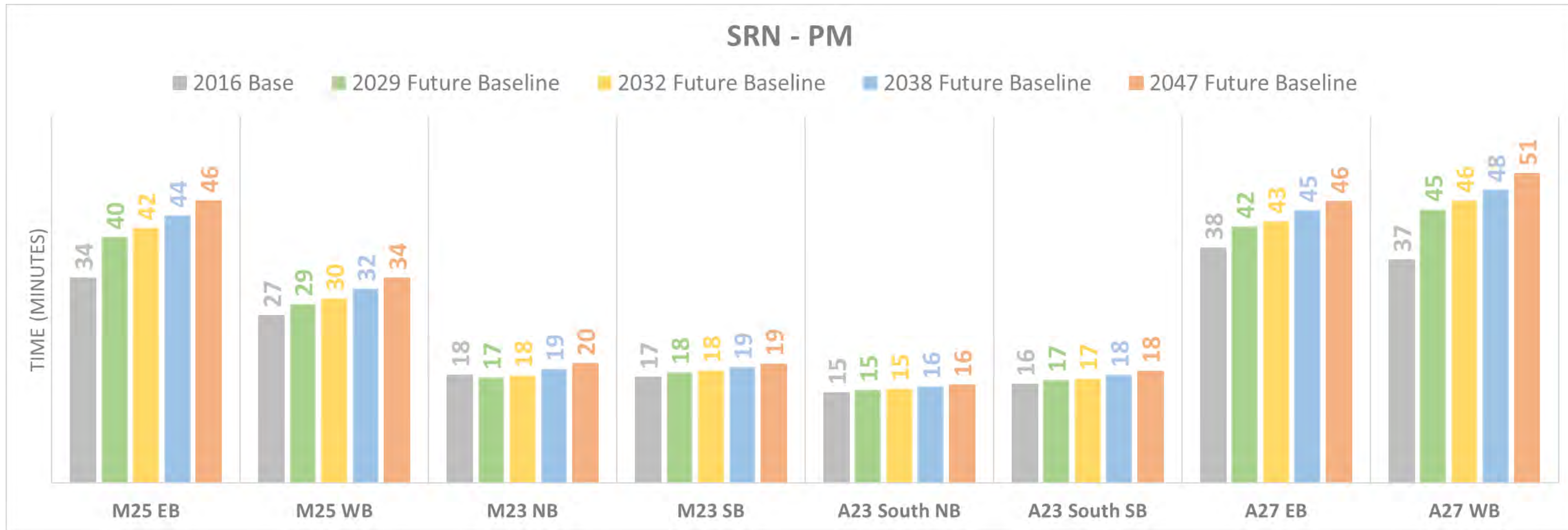
11.9.2 The first performance area is the SRN, and the journey times for the assessment years along the key routes are shown in Figure 84. The key points by routes are:

- M25 (J5 to J10) – Figure 84 shows that there is generally an increase in journey times (up to 6-minutes) from 2016 Base to 2029 Future baseline. There are increases in delays across multiple sections of the route but particularly on the anticlockwise approach to Junction 8, with most delay being speed flow curve delay and perhaps to a level which is unrealistic. Over the following years journey times continue to increase such that by 2047 they have increased by up to 12-minutes.
- M23 - Figure 84 shows that there is a minimal change of 1 or 2-minutes from 2016 to 2029 Future baseline. There is a limited increase in journey time in subsequent years, particularly by 2038 and 2047 such that in the AM2 journey times northbound are some 8 minutes longer than in 2016.
- A23 - Figure 84 shows no change or 1-minute increase in journey times from 2016 to 2029 Future baseline, and minimal changes over subsequent years such that journeys are up to 3-minutes longer by 2047 than they are in 2016.
- A27 Lewes to Arundel – This section is expected to experience the largest increases in journey times for each assessment year. Between 2016 and 2029, the largest increase of 12-minutes westbound on the A27 is in the AM1 peak. This increase is caused by an increase in delay at the Sompting Road signals at the intersection with Busticle Lane and Hazelwick Lane at Lancing. Between 2032 and 2038 there is a large increase of twelve minutes on the A27 eastbound in the AM2 and a further increase of 10-minutes between 2038 and 2047, caused by delays on the Lewes Bypass on approach to Southerham Roundabout.

Figure 84: Highway journey times - primary SRN




SRN - IP
2016 Base
2029 Future Baseline
2032 Future Baseline
2038 Future Baseline
2047 Future Baseline
TIME (MINUTES)
28 33 34 36 37
28 30 31 33 35
16 16 16 16 17
16 16 16 17 17
14 15 15 15 16
15 15 15 15 15
35 37 38 39 41
34 38 39 41 43
M25 EB
M25 WB
M23 NB
M23 SB
A23 South NB
A23 South SB
A27 EB
A27 WB


SRN - PM
2016 Base
2029 Future Baseline
2032 Future Baseline
2038 Future Baseline
2047 Future Baseline
TIME (MINUTES)
34 40 42 44 46
27 29 30 32 34
18 17 18 19 20
17 18 18 19 19
15 15 15 16 16
16 17 17 18 18
38 42 43 45 46
37 45 46 48 51
M25 EB
M25 WB
M23 NB
M23 SB
A23 South NB
A23 South SB
A27 EB
A27 WB

Volume/Capacity ratios for highway links

11.9.3 Volume/Capacity (V/C) ratios for highway links were extracted from the model for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value was selected from the four time periods. These are illustrated for each modelled year, 2016 for reference, and then 2029, 2032, 2038, and 2047, across Figure 85 to Figure 89.

2029 Future baseline

11.9.4 Figure 85 shows the maximum V/C for 2016 Base, and Figure 86 shows the maximum V/C for 2029 Future baseline. The key points are:

- The V/C for the M25 increases from 2016 Base to 2029 Future baseline, with the V/C being above 80% (dark green) to the east and approaching capacity (90%<V/C<100%) on the section to the west of J6, compared to being below or just above 80% in 2016. The clockwise off-slip at this junction is also operating at over 100% in both years. Capacity issues are identified on the clockwise off-slip at M25 J8 which is caused by delay at the signals at this junction.
- The V/C on the M23 between M23 J10a – M23 J11 and M23 J11 – A23/A272 northbound increases from <70% (grey) to 70-80% (light green), highlighting the traffic increase on M23/A23.
- The V/C on the A27 will increase, particularly in the Worthing/Lancing and Arundel areas. The proposed Arundel Bypass is not modelled within this scenario. However, a separate test has been undertaken with the Arundel Bypass which shows a positive benefit in reducing high V/C ratios at this location. Links on the A27 around Lewes operate with a V/C of over 100%, which is the same as the 2016 Base.

2032 Future baseline

11.9.5 Figure 87 shows the maximum V/C for 2032 Future baseline. In addition to the key V/C performances observed for 2029 Future baseline, additional V/C increases are expected to affect performance at the following key locations:

- Increases in road traffic flows on the eastbound links from M25 J9 to M25 J5 means these links are expected to be approaching capacity with a V/C of 90% to 100%. The western approach to M25 J6 continues to operate at between 90% and 100% with the mainline through the junction and the westbound off-slip at over 100%, demonstrating congestion in this location.
- The V/C for the M23 J11-A23/A272 increases to above 70% in the southbound direction, so is now at or above 70% in both directions.

2038 Future baseline

11.9.6 Figure 88 shows the maximum V/C for 2038 Future baseline. In addition to the key V/C performances observed for 2032 Future baseline, additional V/C increases are expected to affect performance at the following key locations:

- The M25 J6 mainline operates with a V/C of over 100% in the westbound direction. By 2038, the congestion on the J6 westbound off-slip is such that queueing would extend back to the diverge. This results in capacity issues on the M25 between J5 and J6, with a V/C of 90% to 100% in the westbound direction.
- The A23 near Burgess Hill is expected to experience capacity issues. The northbound link has been operating with a V/C of 90% to 100% between 2016 and 2032, but by 2038 it is expected to be operating with a V/C of over 100%. This is because of additional demand accessing the network from Burgess Hill Northern Arc development, as well as background growth over the past years.

2047 Future baseline

11.9.7 Figure 89 shows the maximum V/C for 2047 Future baseline. In addition to the key V/C performances observed for 2038 Future baseline, additional V/C increases are expected to affect performance at the following key locations:

- The V/C on the M25 generally increases to operate closer to or exceed capacity due to background traffic growth, including clockwise between J5 to J6. Between J10 and J9 anti-clockwise the V/C increases above 90% and in the clockwise direction it moves above 100%. The M23 Junction 8/M25 Junction 7 interchange is shown to have multiple elements (merges/diverges) which move up a band in terms of link V/C owing to the increasing congestion through the interchange. This junction is subject to further analysis looking at the merges and diverges in the **Transport Assessment**.
- Sections of the A23 south of M23 J11 have increased a V/C banding, and in particular, the section near Burgess Hill is operating closer to capacity in the southbound section, with the northbound direction still exceeding capacity.

11.9.8 The magnitude of impact for nodes on the SRN are covered within the assessments for Performance Areas A, B, C and D.

Figure 85: Maximum V/C – 2016 Base – SRN

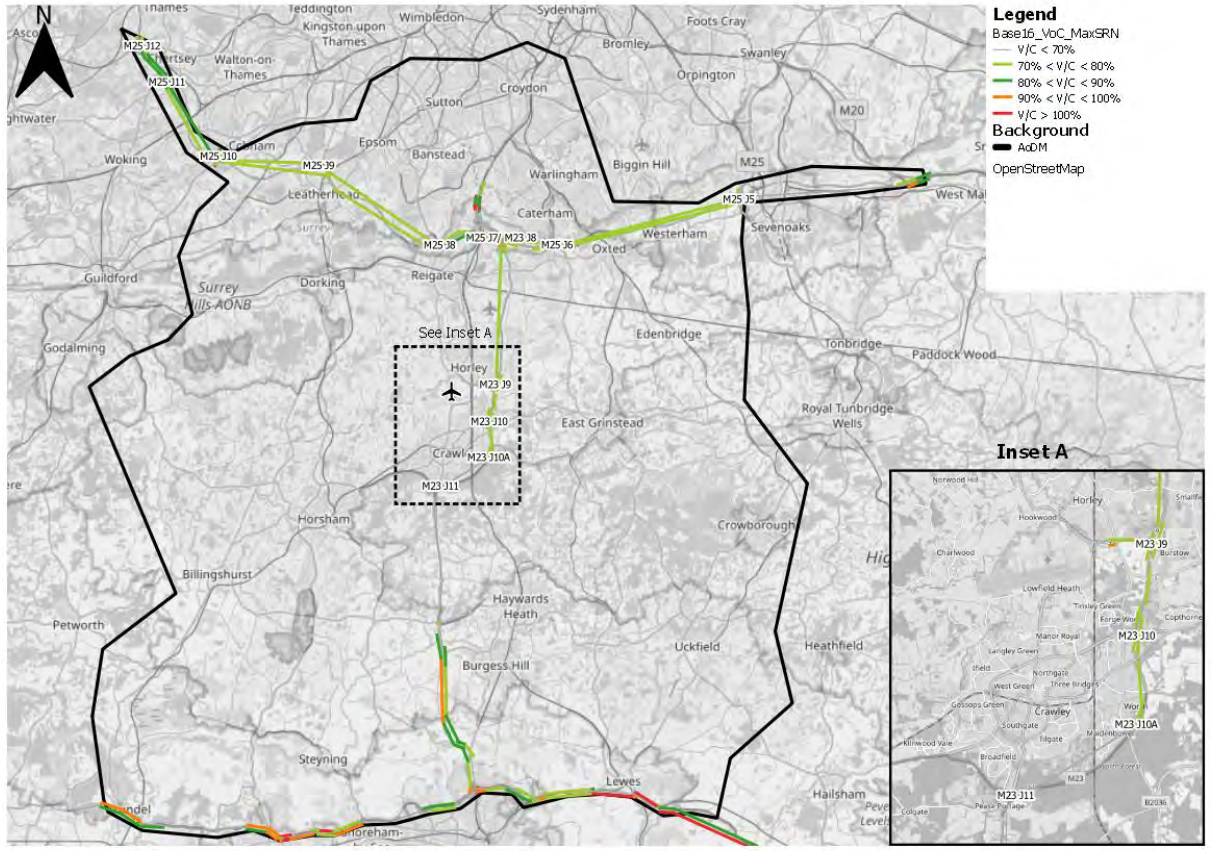


Figure 86: Maximum V/C - 2029 Future baseline – SRN

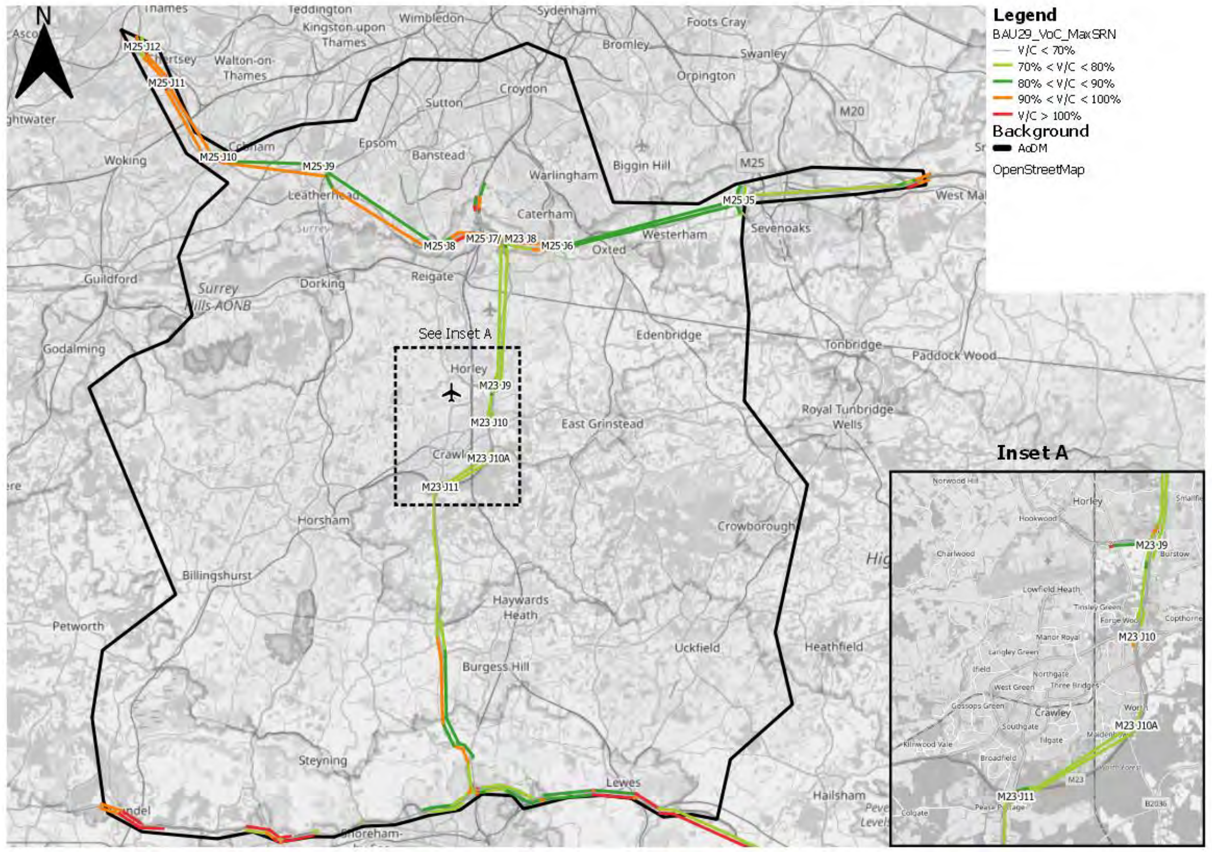


Figure 87: Maximum V/C - 2032 Future baseline – SRN

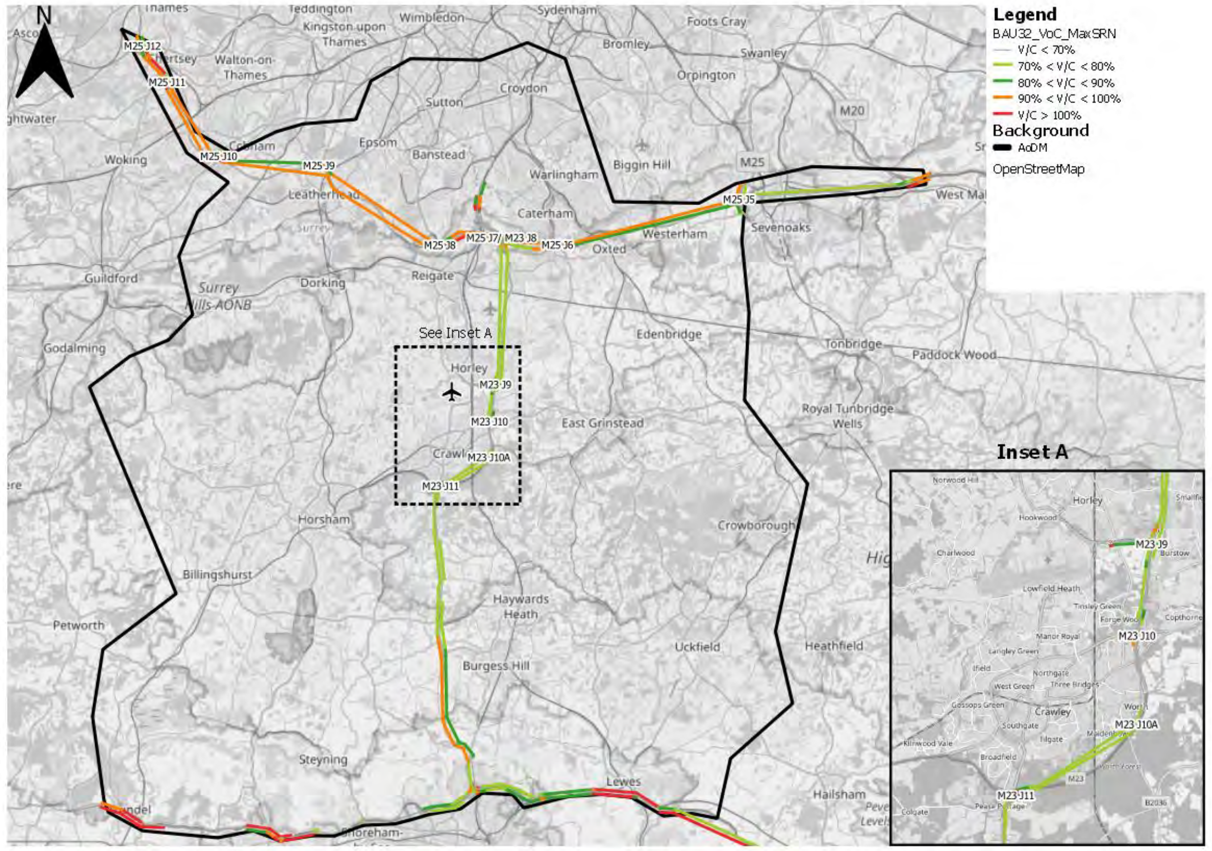


Figure 88: Maximum V/C - 2038 Future baseline – SRN

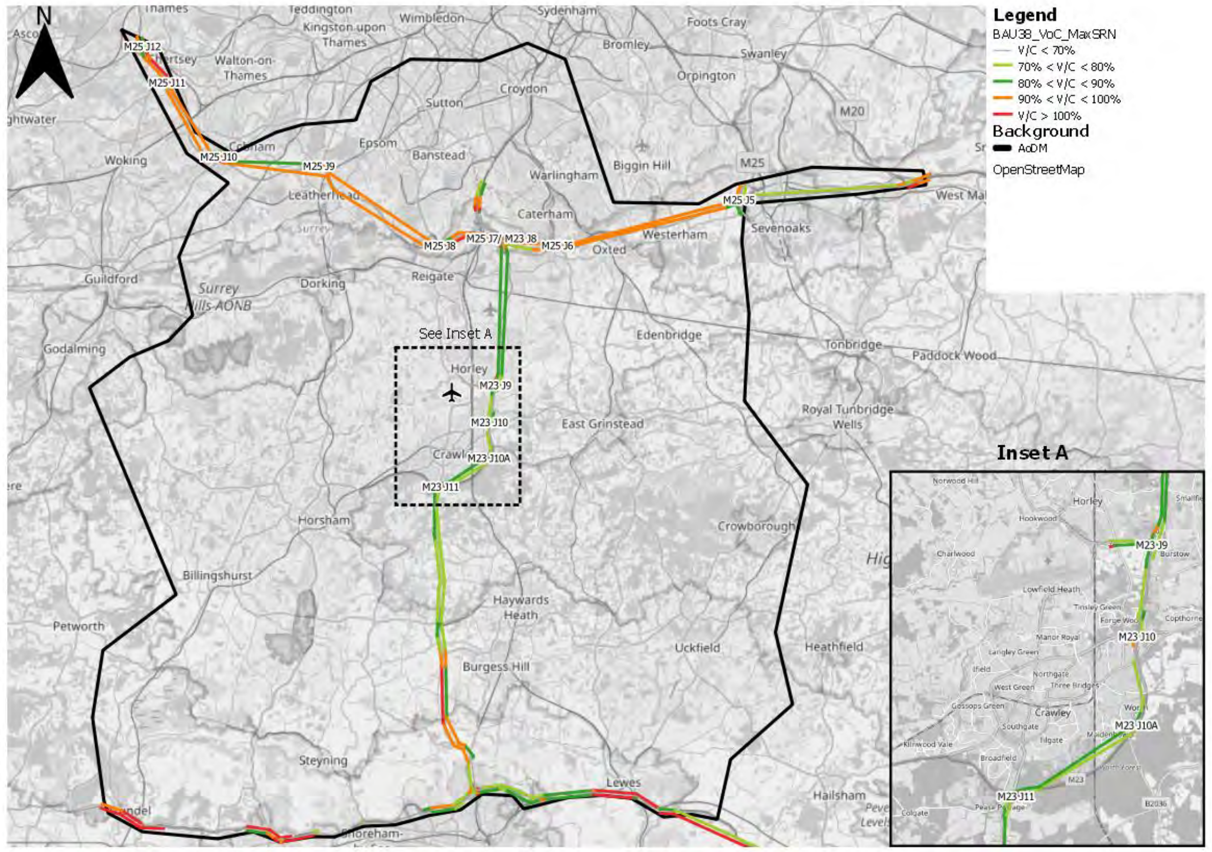
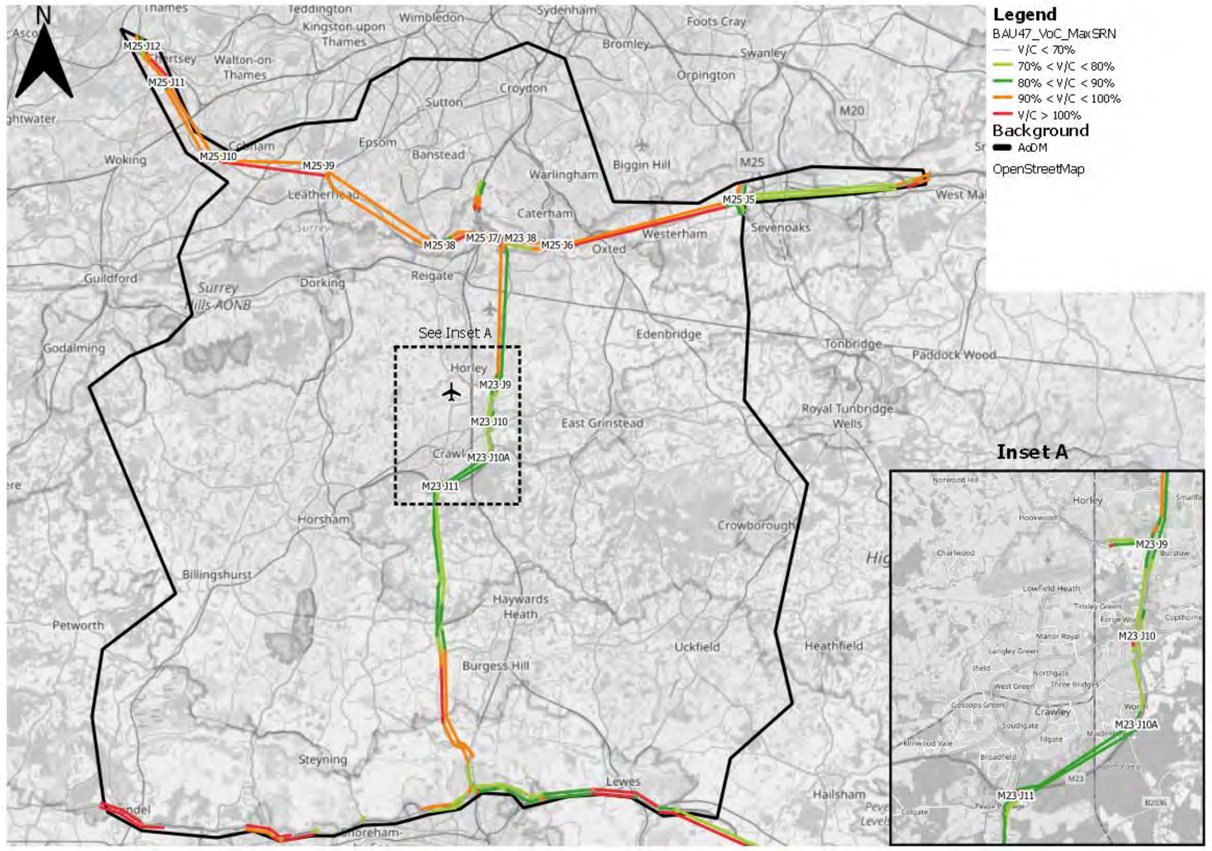


Figure 89: Maximum V/C - 2047 Future baseline – SRN



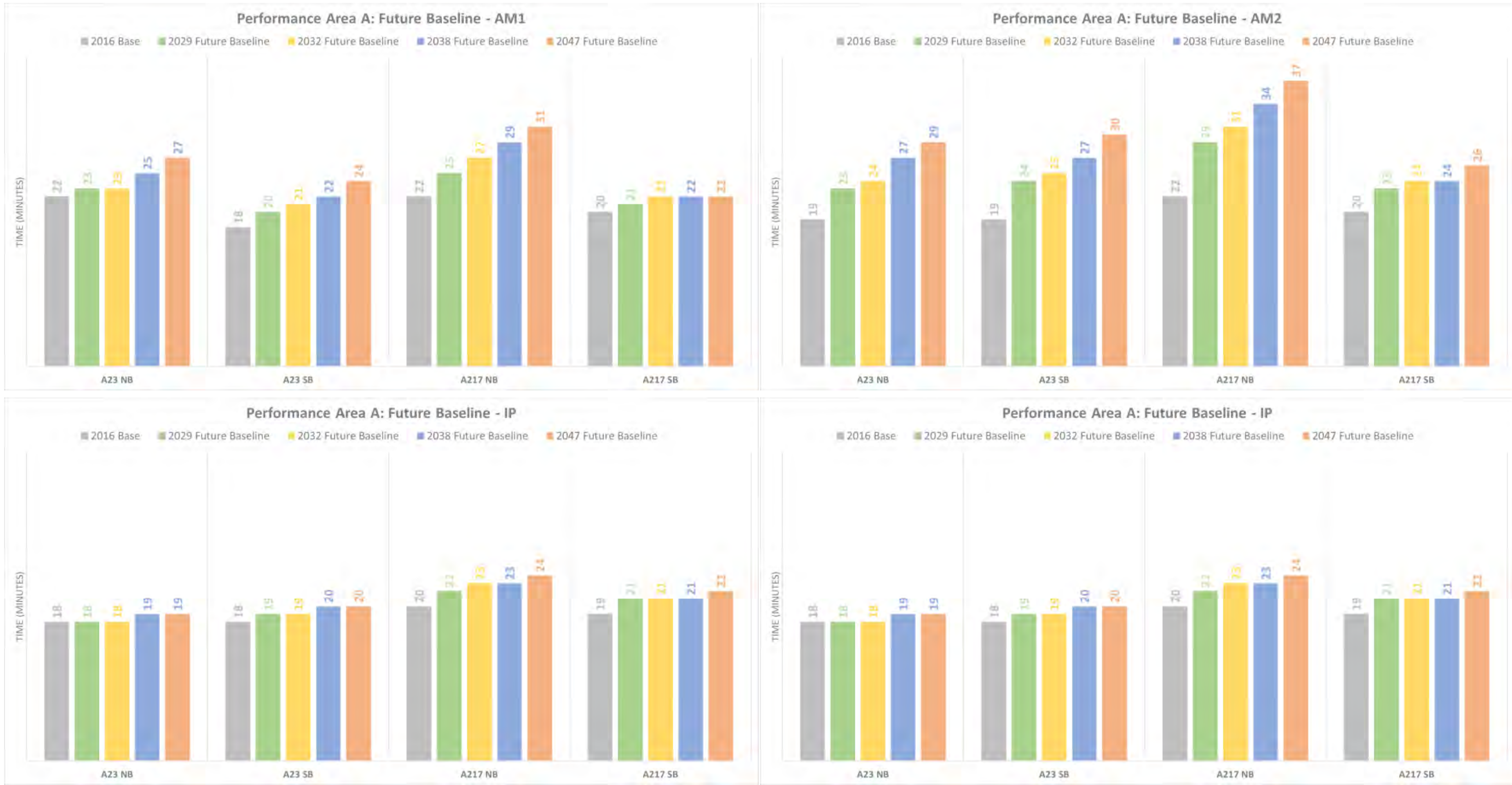
Performance Area A (Gatwick, Crawley and Horley)

Journey times

11.9.9 For Performance Area A, journey times along the key routes are shown in Figure 90. The key points by routes are:

- A23 (Longbridge Roundabout to A23) - Figure 90 shows that there is generally an increase in journey time (up to 5-minutes) from 2016 Base to 2029 Future baseline. There is a slight increase in journey time (no change or up to 1-minute) from 2029 Future baseline to 2032 Future baseline. There is a general increase in journey time of up to 3-minutes in each of the periods 2032 to 2038, and then again 2038 to 2047.
- A217 (M23 Spur via A217 to M25 J8) – Figure 90 shows that there is generally an increase in journey time (up to 7-minutes) from 2016 Base to 2029 Future baseline. There is an increase in journey time (up to 2-minute) from 2029 Future baseline to 2032 Future baseline. There is a general increase in journey time of up to 3-minutes from 2032 Future baseline to 2038 Future baseline and an increase of up to 3-minutes in from 2038 Future baseline to 2047 Future baseline. A review has been undertaken and there are two key locations contributing to this increase through excessive queuing: the approach to South Terminal Roundabout, South Terminal Roundabout circulatory, and the approach to Brighton Road/Hooley Lane junction in Redhill. The operation of the South Terminal Roundabout and route to the A217 via Longbridge Roundabout is considered in detail in the VISSIM modelling.

Figure 90: Highway journey times - Performance Area A Future baselines



Volume/Capacity ratios for highway links

11.9.10 Modelled Volume to Capacity ratios were extracted for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value was selected from the four time periods. These are illustrated for each modelled year, 2016 for reference, and then 2029, 2032, 2038, and 2047, in Figure 91 to Figure 95 across Performance Area A.

11.9.11 Because of background traffic growth, V/C have increased on highway links over time and the key points are:

- From 2016 Base to 2029, more links are identified with a V/C of above 70%, especially in the immediate vicinity of Gatwick, M23 J9 Spur, local road networks in Crawley and Horley, with several links operating beyond capacity. South Terminal roundabout on the circulatory and on the westbound approach exceed capacity.
- A handful of links that are operating with a V/C between 90% and 100% in 2029 exceeds capacity in the following future years, including Lowfield Heath Road to the west of the airport, London Road south of the Airport Way and several urban roads in Crawley, eg Barnfield Road and some sections of Horsham Road.
- From 2029 onwards, the M23 J10 northbound off-slip has a V/C of over 90% in the Future baselines. This was flagged by stakeholders and has been investigated as part of other sensitivity testing conducted with respect to M23 J9.

Figure 91: Maximum V/C, Base 2016 - Performance Area A

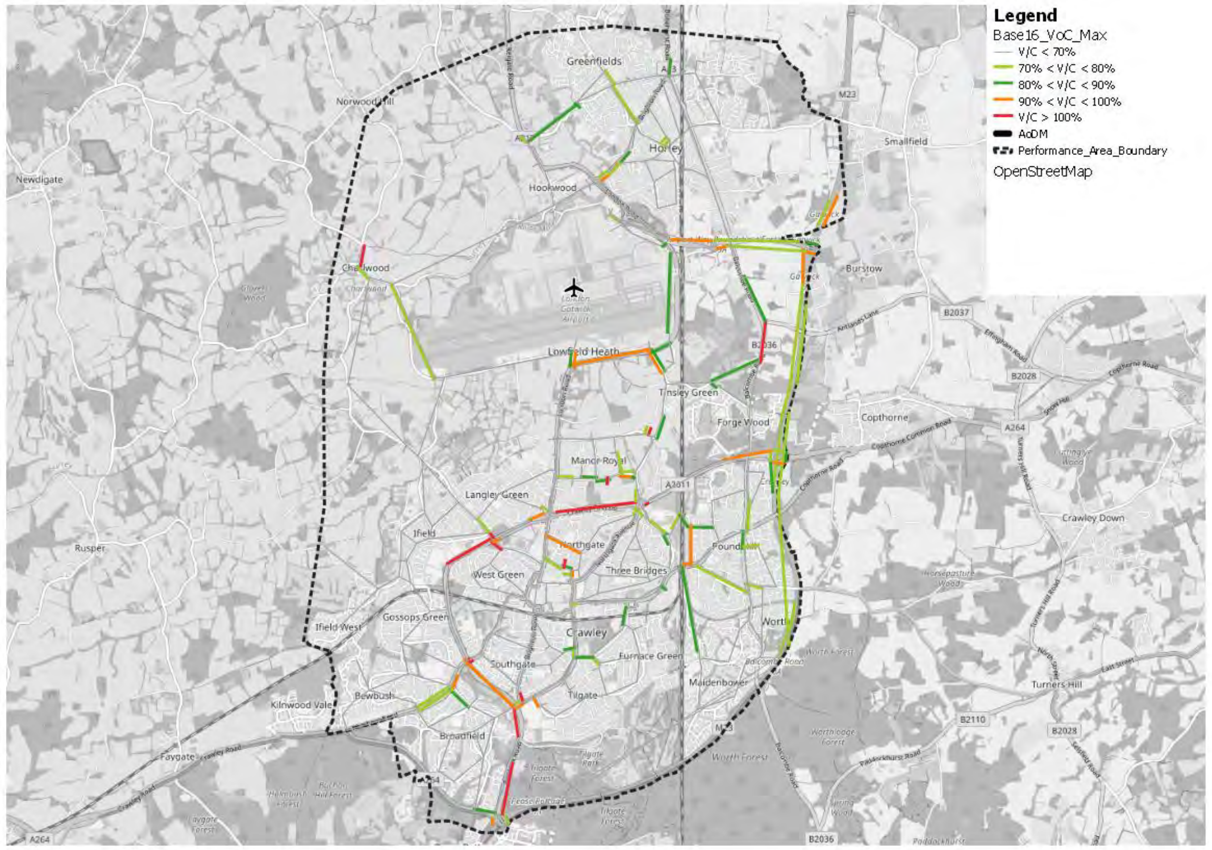


Figure 92: Maximum V/C, Future baseline 2029 - Performance Area A

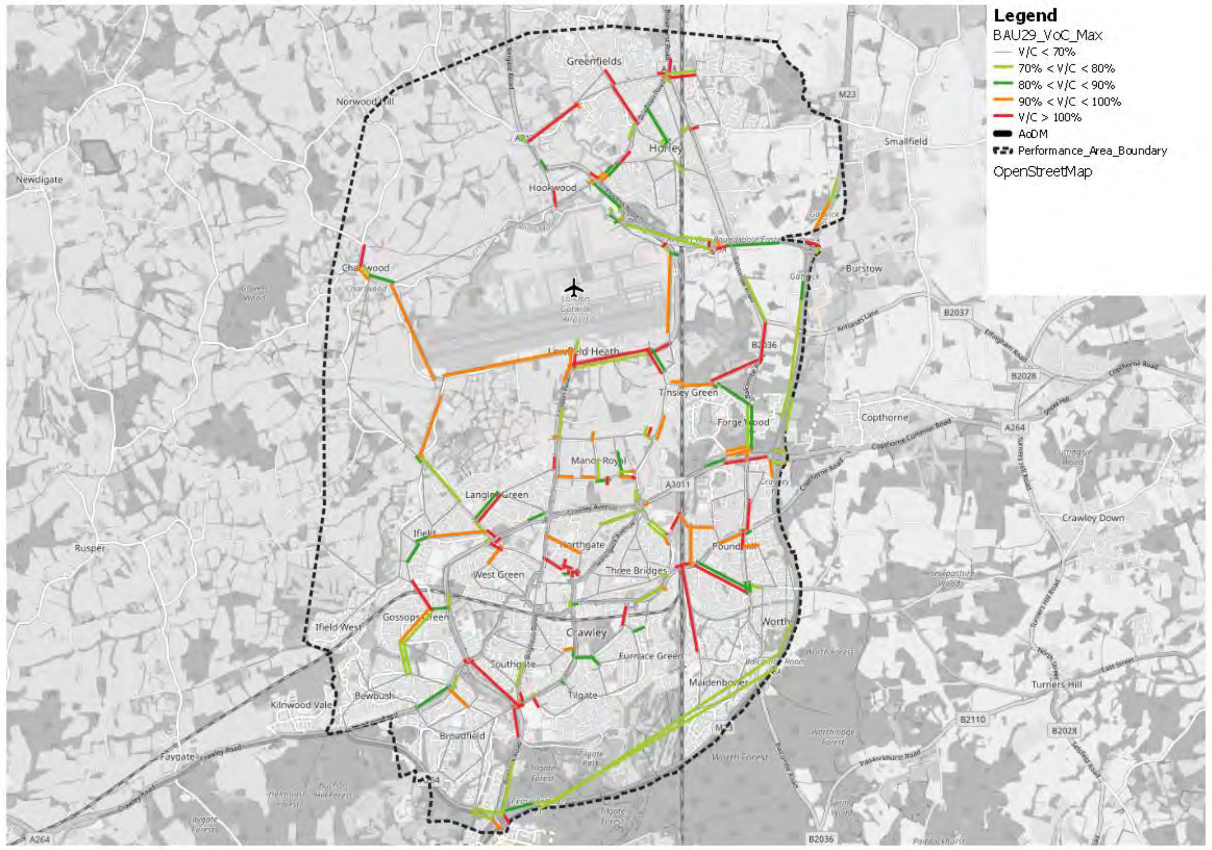


Figure 93: Maximum V/C, Future baseline 2032 - Performance Area A

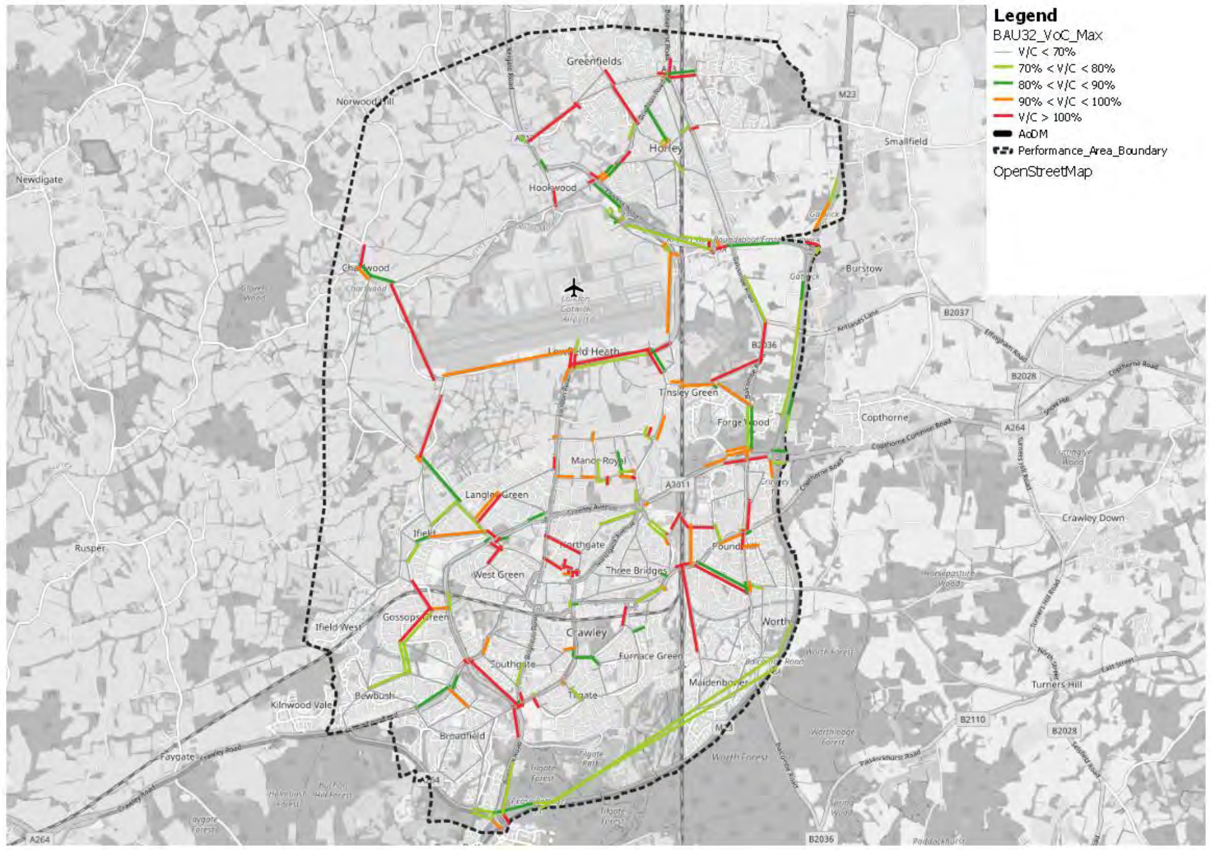


Figure 94: Maximum V/C, Future baseline 2038 - Performance Area A

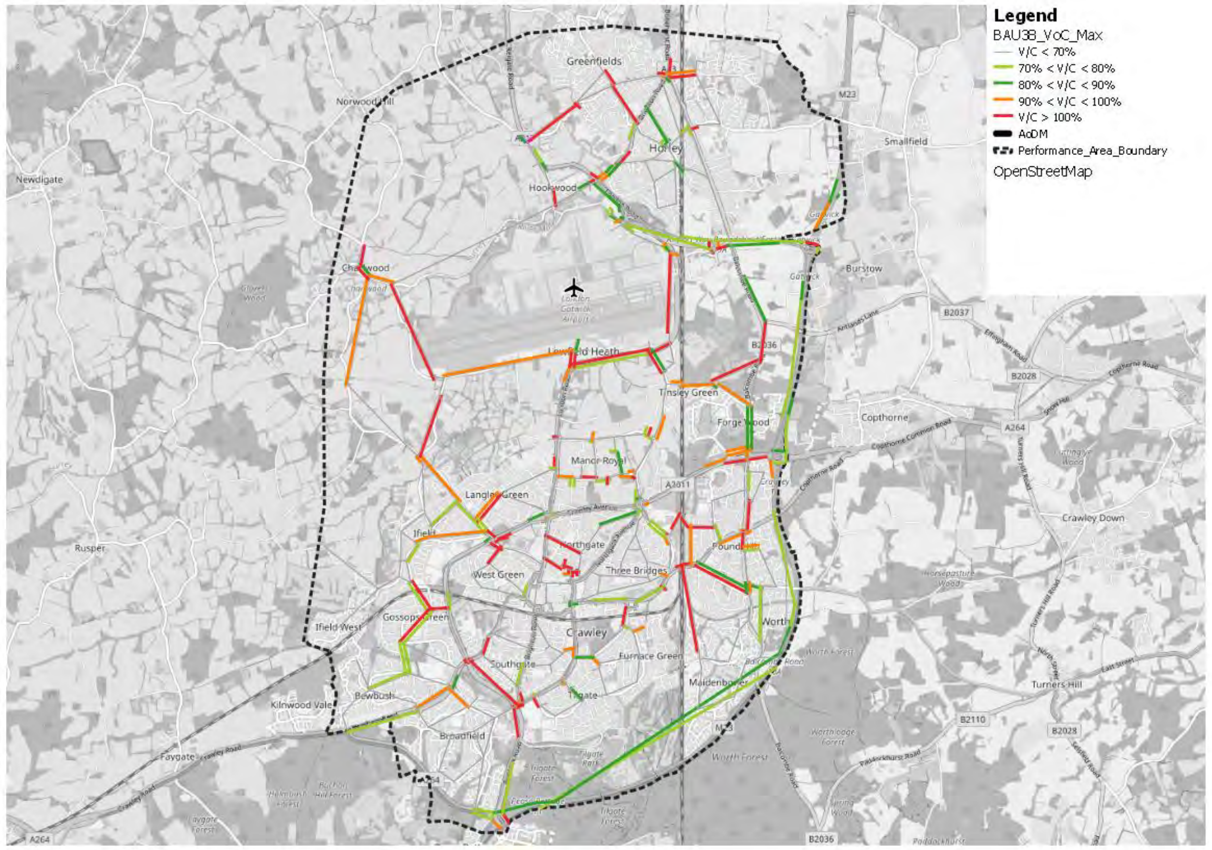
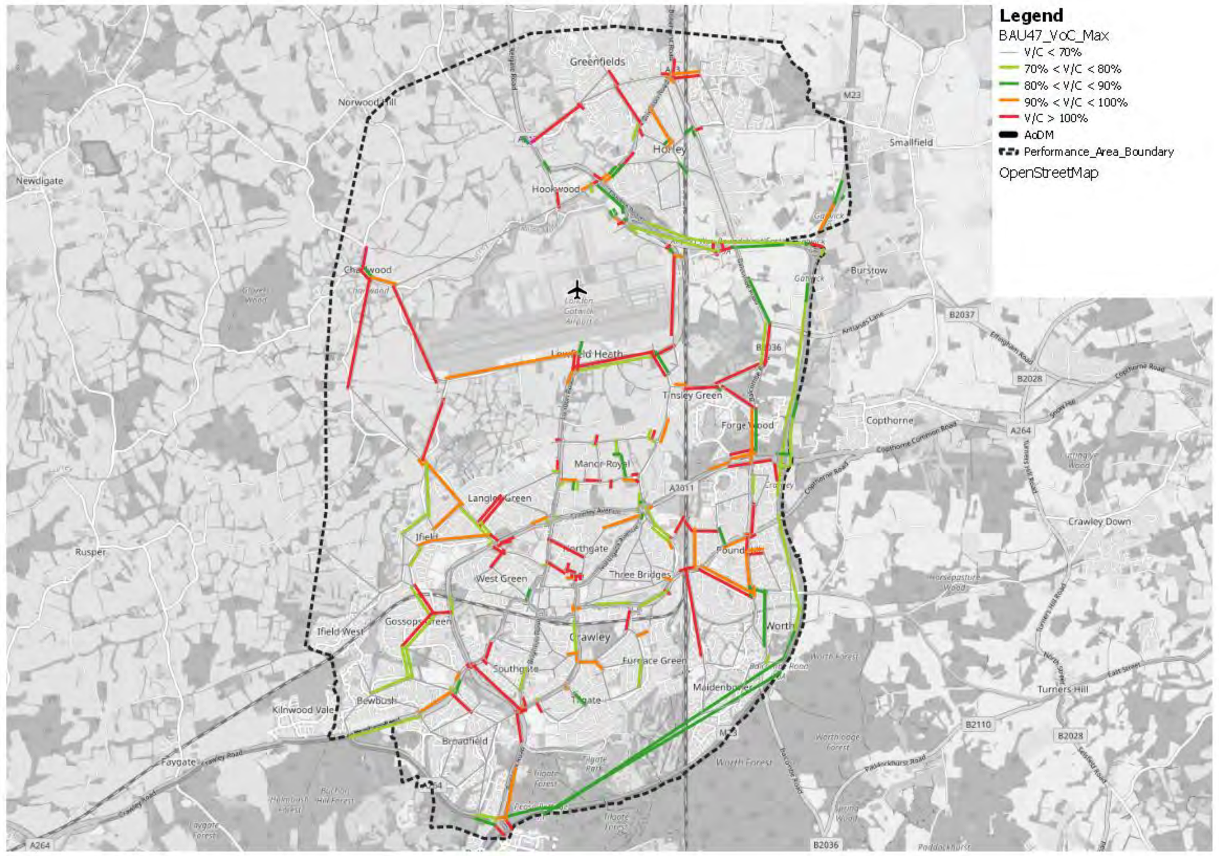


Figure 95: Maximum V/C, Future baseline 2047 - Performance Area A



Magnitude of Impact - nodes

11.9.12 This section identifies the magnitude of impact identified for nodes for each assessment year. The magnitude of impact is in accordance with the criteria specified in Section 6.12, and is shown as 'High', 'Medium' and 'Low'. It should be noted that the impacts identified here are not related to the Project, they arise as the result of the growth that is expected in background and airport road traffic if the Project did not proceed.

2016 to 2029 Future baseline

11.9.13 Table 93 shows the magnitude of impacts on nodes from 2016 Base to 2029 Future baseline within Performance Area A. The table indicates that there are three 'High' and two 'Medium' magnitude impacts in the PM peak as well as 2 'High' magnitude impacts in AM2.

11.9.14 Figure 96 shows the location of the impacts for all peak periods, which are at South Terminal Roundabout, Longbridge Roundabout, Gatwick Road Roundabout, and Southgate Roundabout. The key points are:

- South Terminal is at the M23 Spur approach and the impacts are identified in the AM1 and AM2 peak periods. The assumptions around the future operation of the roundabout lead to this being flagged due to congestion on the circulatory carriageway. Further review has been undertaken which suggest that more capacity could exist than assumed in the model and therefore the impact is not considered to be likely in practice.
- The Gatwick Road Roundabout has high V/C on the southern and western approaches as the result of background growth, which contribute to the high impacts shown in the IP and PM models.
- Southgate Roundabout flags in the AM2 and PM models. In the PM the modelling shows blocking back along Southgate Avenue. In both time periods the junction V/C increases from under 80% in 2016 to over 90% in 2029. Increases in the V/C ratio on the A23 in both time periods is a large contributor to this change.

Table 93: Magnitude of Impacts: Performance Area A – Base 2016 to Future baseline 2029

2029	Performance Area A – Nodes			
MoI	AM1	AM2	IP	PM
Negligible	53	454	464	454
Low	0	0	0	0
Medium	1	1	0	2
High	1	2	1	3

2029 to 2032 Future baseline

11.9.15 Table 94 shows the magnitude of impacts on nodes from 2029 to 2032 Future baseline within Performance Area A. The table shows no 'Medium' or 'High' magnitude impacts are identified. Figure 97 shows the locations of the 'Low' impact occurrences across all peak periods.

Table 94: Magnitude of Impacts: Performance Area A – Future baseline 2029 to Future baseline 2032

2032	Performance Area A – Nodes			
MoI	AM1	AM2	IP	PM
Negligible	10	264	334	338
Low	1	0	1	1
Medium	0	0	0	0
High	0	0	0	0

2032 to 2038 Future baseline

11.9.16 Table 95 shows the magnitude of impacts on nodes from 2032 to 2038 Future baseline within Performance Area A. The table shows there is a maximum of one 'High' impact and one 'Medium' across all modelled periods. Figure 98 shows the location of these impacts across all peak periods.

11.9.17 The 'High' impact is at Gatwick Road roundabout, the same location as the impact shown in the 2016 to 2029 Future baseline comparison, the impact shown here is in the AM1 model, whereas for 2016 – 2029 this was in the IP and PM models. In this model high V/Cs are predicted on the southern and western arms as well as the eastern arm.

Table 95: Magnitude of Impacts: Performance Area A - Future baseline 2032 to Future baseline 2038

2038	Performance Area A - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	18	358	426	397
Low	1	1	0	1
Medium	0	0	1	1
High	1	0	0	0

2038 to 2047 Future baseline

11.9.18 Table 96 shows the magnitude of impacts on nodes from 2038 to 2047 Future baseline within Performance Area A. The table shows that there is a maximum of two 'Medium' magnitude impacts across all modelled periods, occurring in all peaks except AM1 which has one 'Medium' impact. Figure 99 shows the location of these across all peak periods.

11.9.19 The 'Medium' instances are at Gatwick Road Roundabout, North Terminal Roundabout and at the A23/Balcombe Road junction in Horley.

Table 96: Magnitude of Impacts: Performance Area A - Future baseline 2038 to Future baseline 2047

2047	Performance Area A - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	29	361	437	375
Low	1	1	2	1
Medium	1	2	2	2
High	0	0	0	0

Figure 96: Magnitude of Impacts: Performance Area A – Base 2016 to Future baseline 2029

Figure 97: Magnitude of Impacts: Performance Area A – Future baseline 2029 to Future baseline 2032

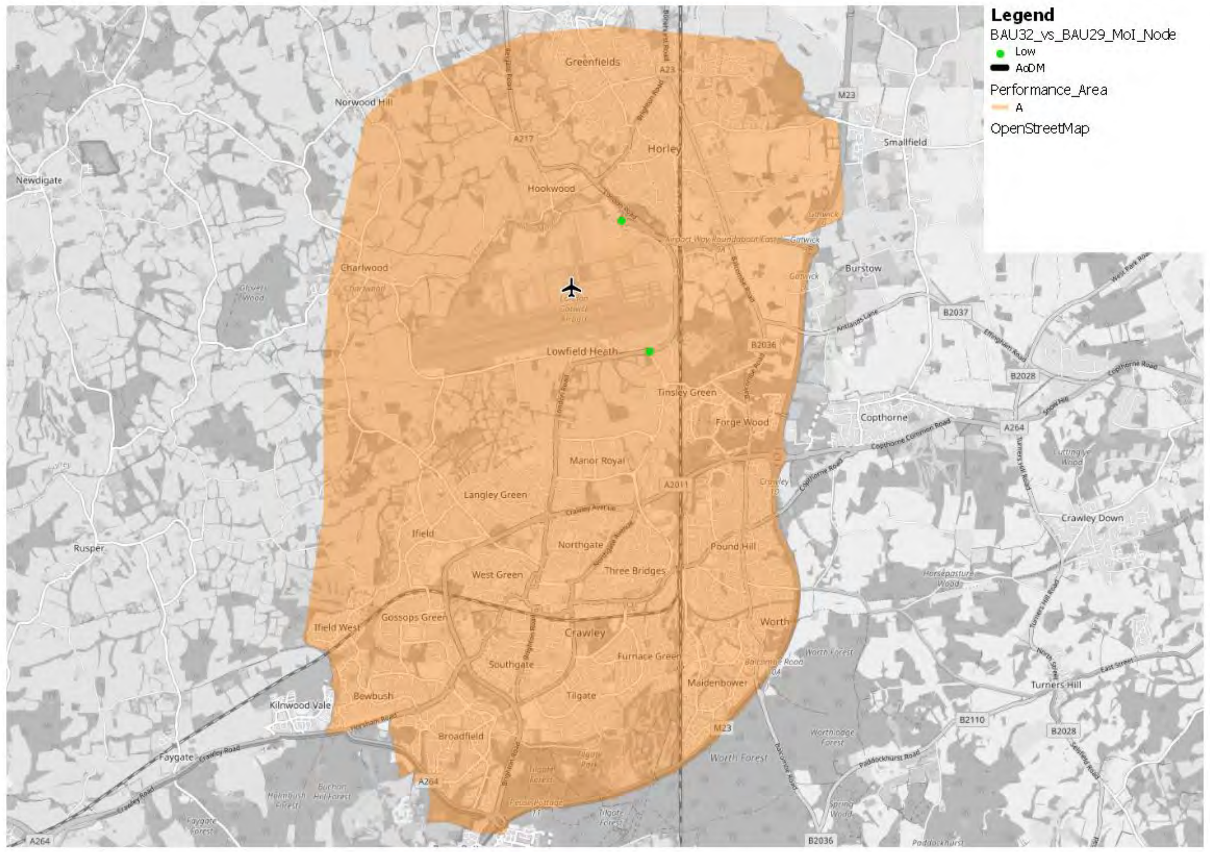


Figure 98: Magnitude of Impacts: Performance Area A - Future baseline 2032 to Future baseline 2038

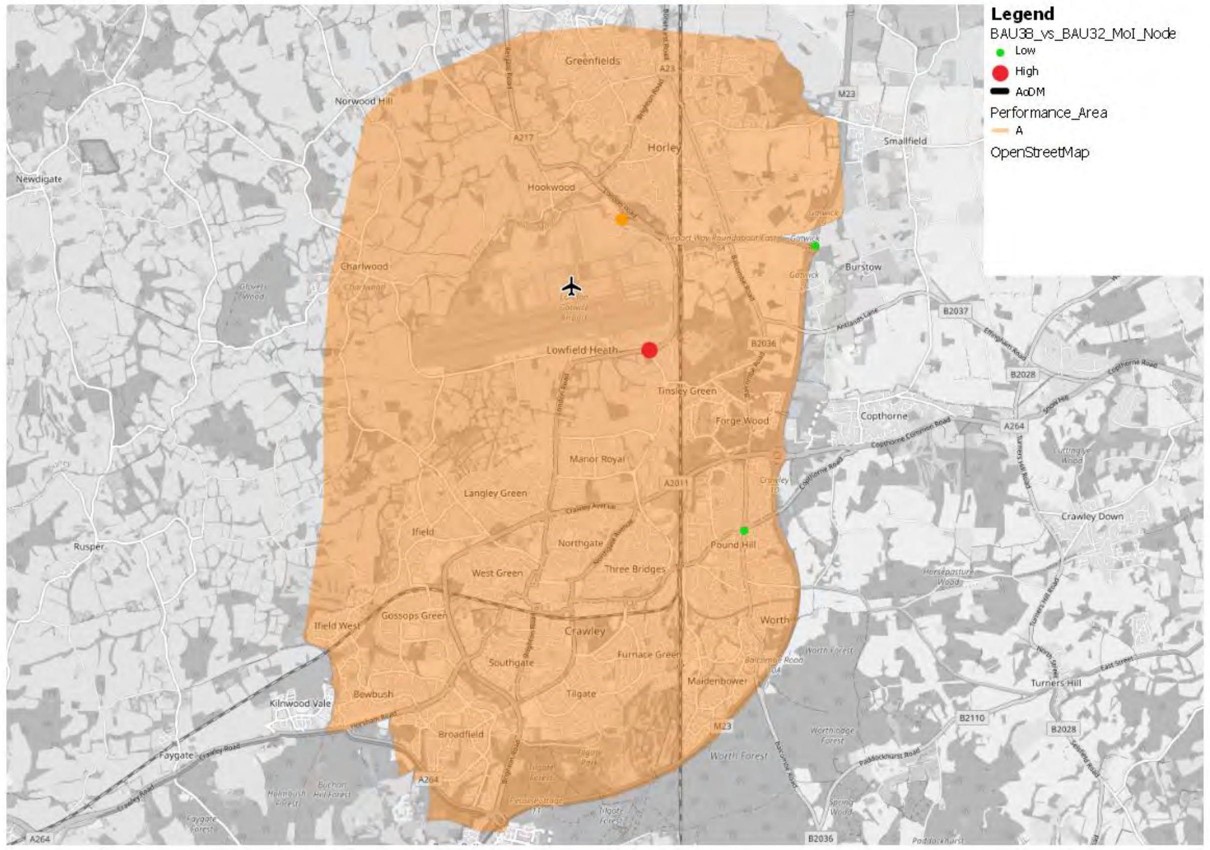
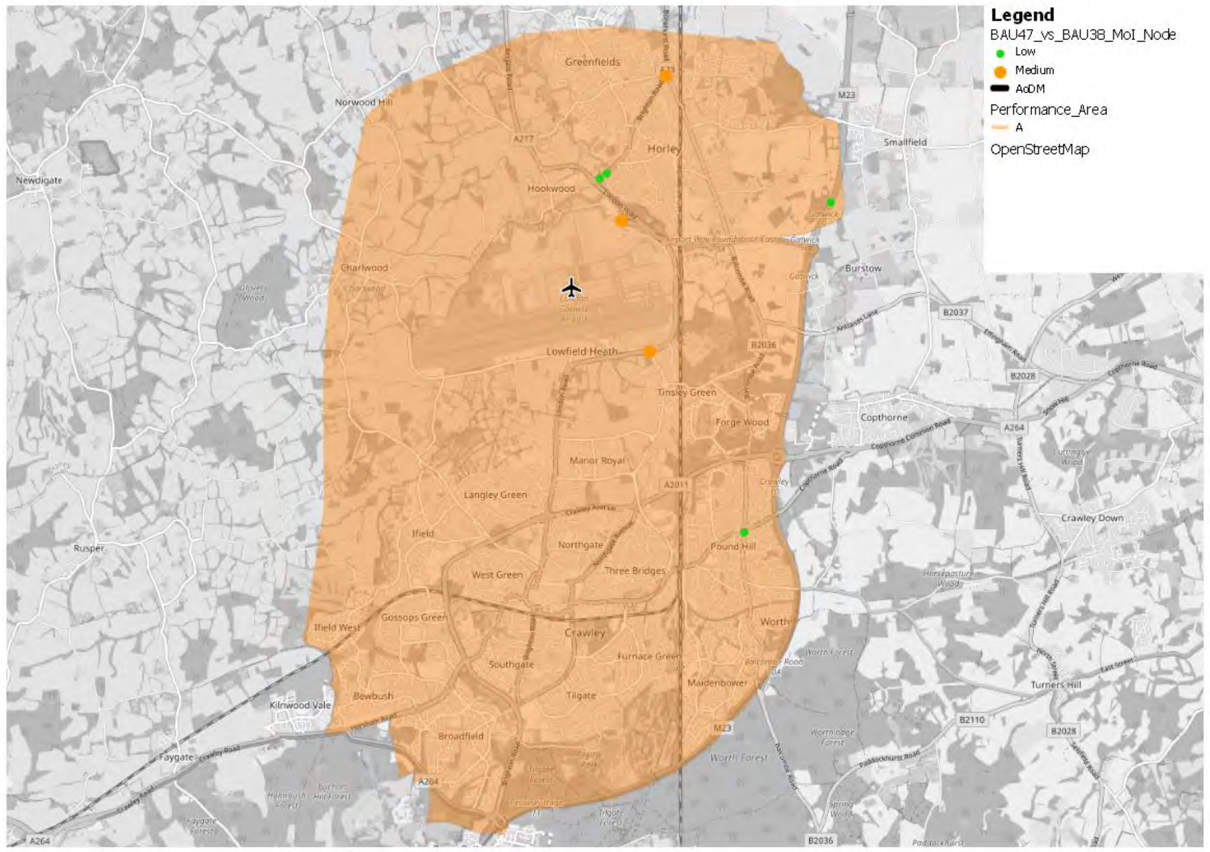


Figure 99: Magnitude of Impacts: Performance Area A - Future baseline 2038 to Future baseline 2047



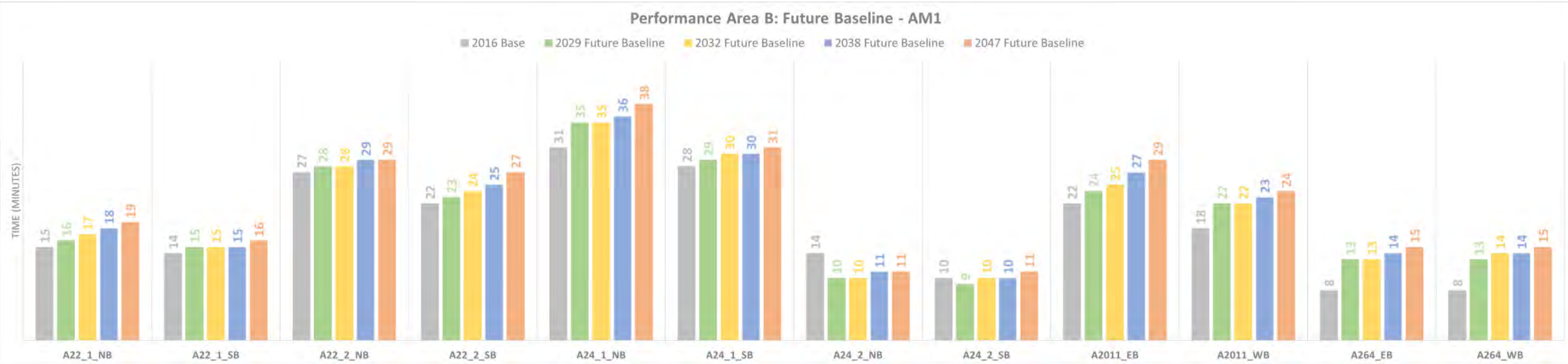
Performance Area B (M25 to A272)

Journey times

11.9.20 For Performance Area B, journey times along the key routes are shown in Figure 100. The key points by routes are:

- A22 (Section 1) from M25 J6 to East Grinstead - Figure 100 shows that there is generally an increase in journey times (up to 2-minutes) from 2016 Base to 2029 Future baseline. In subsequent years the increases are up to 1-minute, 2-minutes and 3-minutes between 2029-2032, 2032-2038 and 2038-2047 respectively;
- A22 (Section 2) from East Grinstead to Maresfield - Figure 100 shows that there is generally an increase in journey times (up to 3-minutes) from 2016 Base to 2029 Future baseline. Between 2029-2032 and 2032-2038 increases are generally up to 1-minute, whilst between 2038-2047 further increases of up to 3-minutes are predicted;
- A2011 from M23 J11 to East Grinstead via Crawley - Figure 100 shows that there is generally an increase in journey times (up to 5-minutes) from 2016 Base to 2029 Future baseline. Between 2029-2032, 2032-2038, 2038-2047 the model predicts further increases of up to 1-minute, up to 2-minutes and up to 5-minutes respectively;
- A24 (Section 1) from near M25 J9 (Leatherhead) to north Horsham - Figure 100 shows that there is generally an increase in journey times (up to 4-minutes) from 2016 Base to 2029 Future baseline. There is slight increase of up to 1-minute from 2029 Future baseline to 2032 Future baseline during AM peaks and no change in journey times at IP and PM peaks. There is slight increase of up to 2-minutes from 2032 Future baseline to 2038 Future baseline. There is an increase of journey time of up to 2-minutes from Future baseline 2038 to Future baseline 2047;
- A24 (Section 2) from north Horsham to A272/A24 near West Grinstead - Figure 100 shows that there is generally a decrease in journey times (up to 4-minutes) from 2016 Base to 2029 Future baseline, except for the PM peak, there is a slight increase of journey time of 1-minute in the southbound direction. This reduction is due to delay reductions attributed to the reconfiguration of the Great Daux Roundabout. There is a slight increase of up to 1-minute from 2029 Future baseline to 2032 Future baseline during AM peaks and no change in journey times at IP and PM peaks. There is slight increase of up to 1-minute at AM1 peak in the northbound direction and no change in journey time at other peaks from 2032 Future baseline to 2038 Future baseline. There is a slight increase of journey time of 1-minute from Future baseline 2038 to Future baseline 2047; and
- A264 from north Horsham to M23 J11 - Figure 100 shows that there is generally an increase in journey times (up to 6-minutes) from 2016 Base to 2029 Future baseline, with small increases of up to 2-minutes in subsequent years. In the eastbound direction, this is due to delay on Crawley Road between Horsham and Faygate which totals nearly 3-minutes in the AM1 peak. In the westbound direction, there is an increase in delay/congestion along various sections of the route which lead to a combined increase in journey time on a par with the eastbound direction but that is not concentrated in one location. Between the Base and 2029 Future baseline there is a change in the coding of the roundabouts along this corridor to account for schemes which bring with them changes in the operation of this corridor.

Figure 100: Highway journey times - Performance Area B, Future baselines




Performance Area B: Future Baseline - AM2
2016 Base
2029 Future Baseline
2032 Future Baseline
2038 Future Baseline
2047 Future Baseline
TIME (MINUTES)
A22_1_NB
A22_1_SB
A22_2_NB
A22_2_SB
A24_1_NB
A24_1_SB
A24_2_NB
A24_2_SB
A2011_EB
A2011_WB
A264_EB
A264_WB


Performance Area B: Future Baseline - IP
2016 Base
2029 Future Baseline
2032 Future Baseline
2038 Future Baseline
2047 Future Baseline
TIME (MINUTES)
A22_1_NB
A22_1_SB
A22_2_NB
A22_2_SB
A24_1_NB
A24_1_SB
A24_2_NB
A24_2_SB
A2011_EB
A2011_WB
A264_EB
A264_WB


Performance Area B: Future Baseline - PM
2016 Base
2029 Future Baseline
2032 Future Baseline
2038 Future Baseline
2047 Future Baseline
TIME (MINUTES)
A22_1_NB
A22_1_SB
A22_2_NB
A22_2_SB
A24_1_NB
A24_1_SB
A24_2_NB
A24_2_SB
A2011_EB
A2011_WB
A264_EB
A264_WB

Volume/Capacity ratios for highway links

11.9.21 Modelled Volume to Capacity ratios were extracted for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value have been selected from the four time periods. These are illustrated for each modelled year, 2016 for reference, and then 2029, 2032, 2038, and 2047, Figure 101 to Figure 105 across Performance Area B.

11.9.22 Because of background traffic growth, V/C have increased on highway links over time and the key points are:

- The links accessing Reigate from the south, local roads accessing Horsham and Broadbridge Heath, A23 south of Crawley and A264 in Copthorne east of M23 J9, are observed to have significant increases in V/C moving up one or two V/C bands by 2047. The A23 shows has V/C ratios below 70% in 2016 but these increase to over 80% on some sections by 2047; and
- There are some links which operate with a V/C of between 90% to 100% in 2029 and exceeds capacity in the future years, namely A272 east of Billingshurst, B2110 near Handcross, road networks around Redhill to the south of M25.

Figure 101: Maximum V/C, Base 2016 - Performance Area B

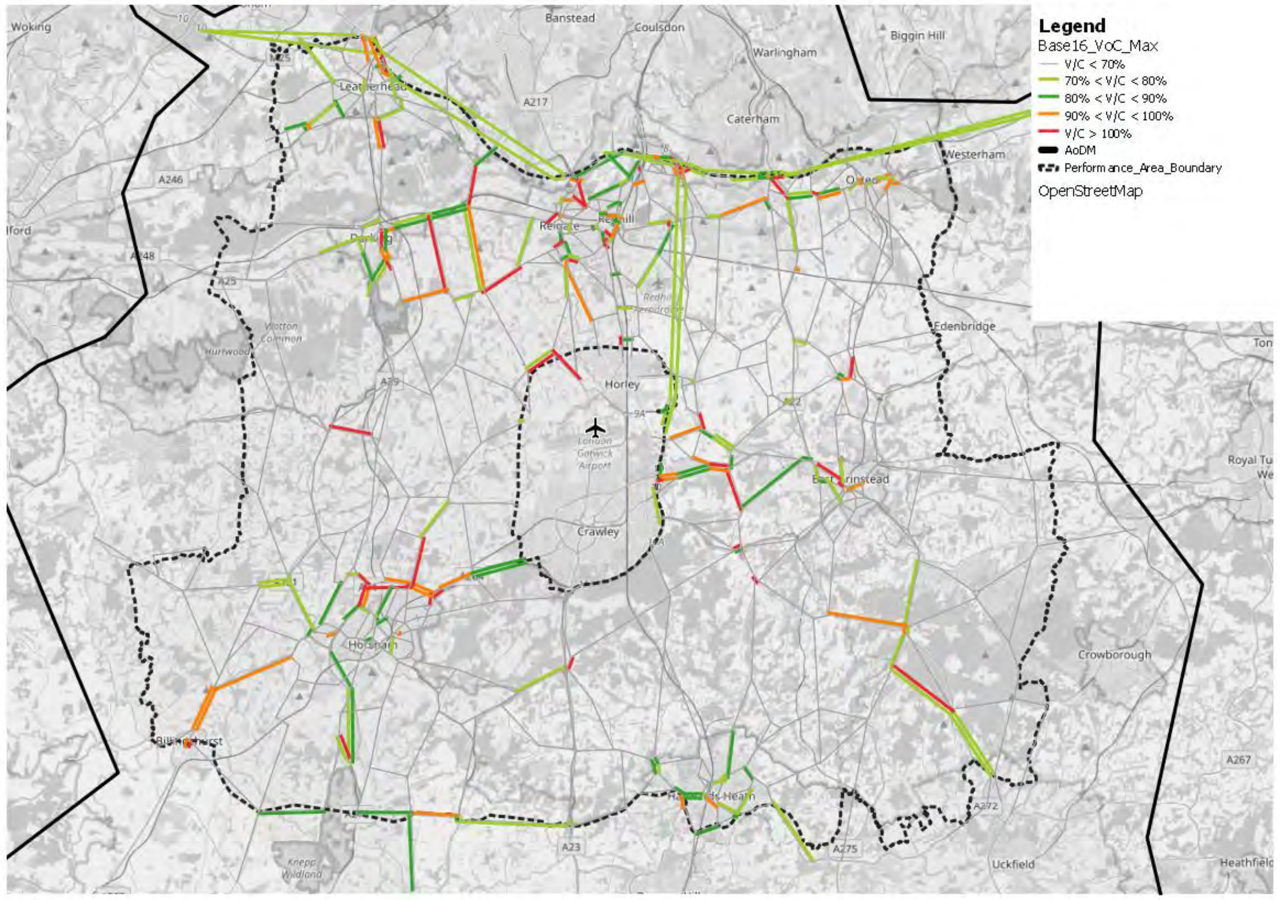


Figure 102: Maximum V/C, Future baseline 2029 - Performance Area B

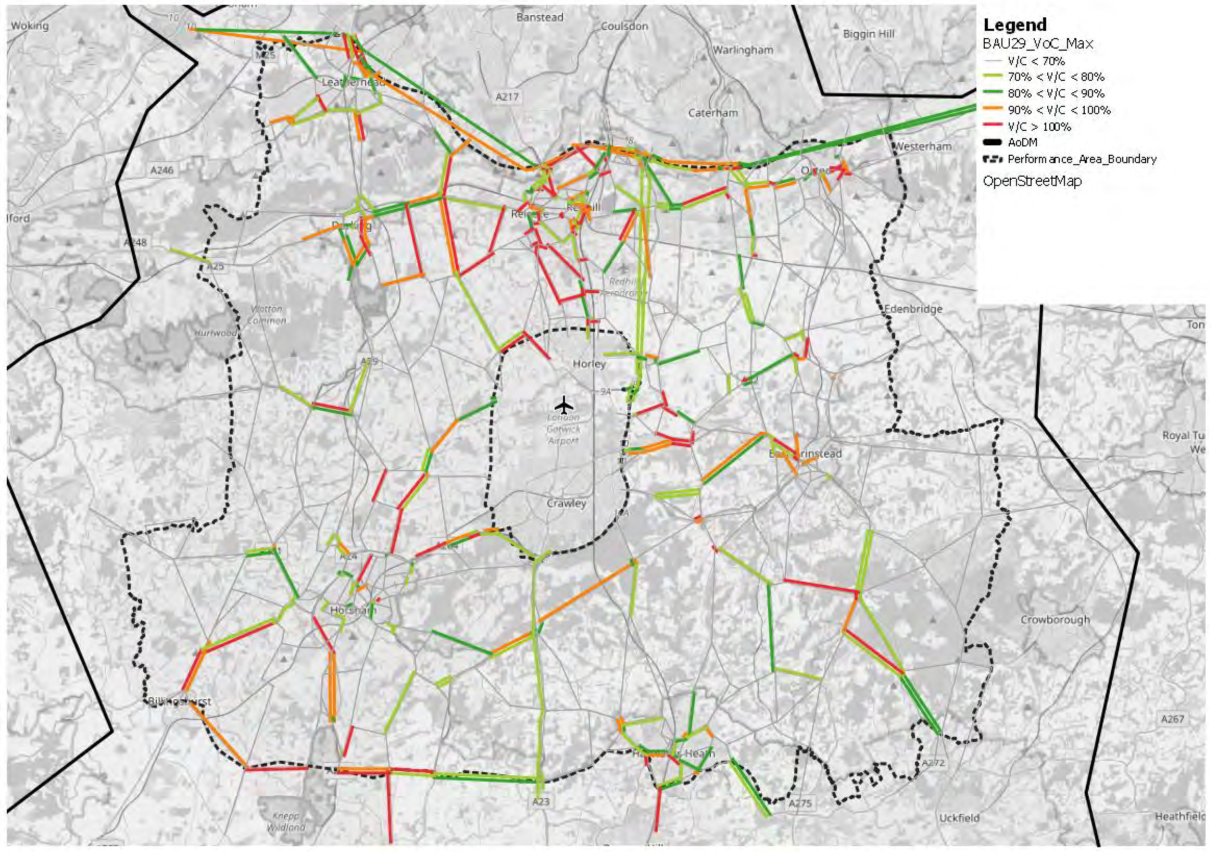


Figure 103: Maximum V/C, Future baseline 2032 - Performance Area B

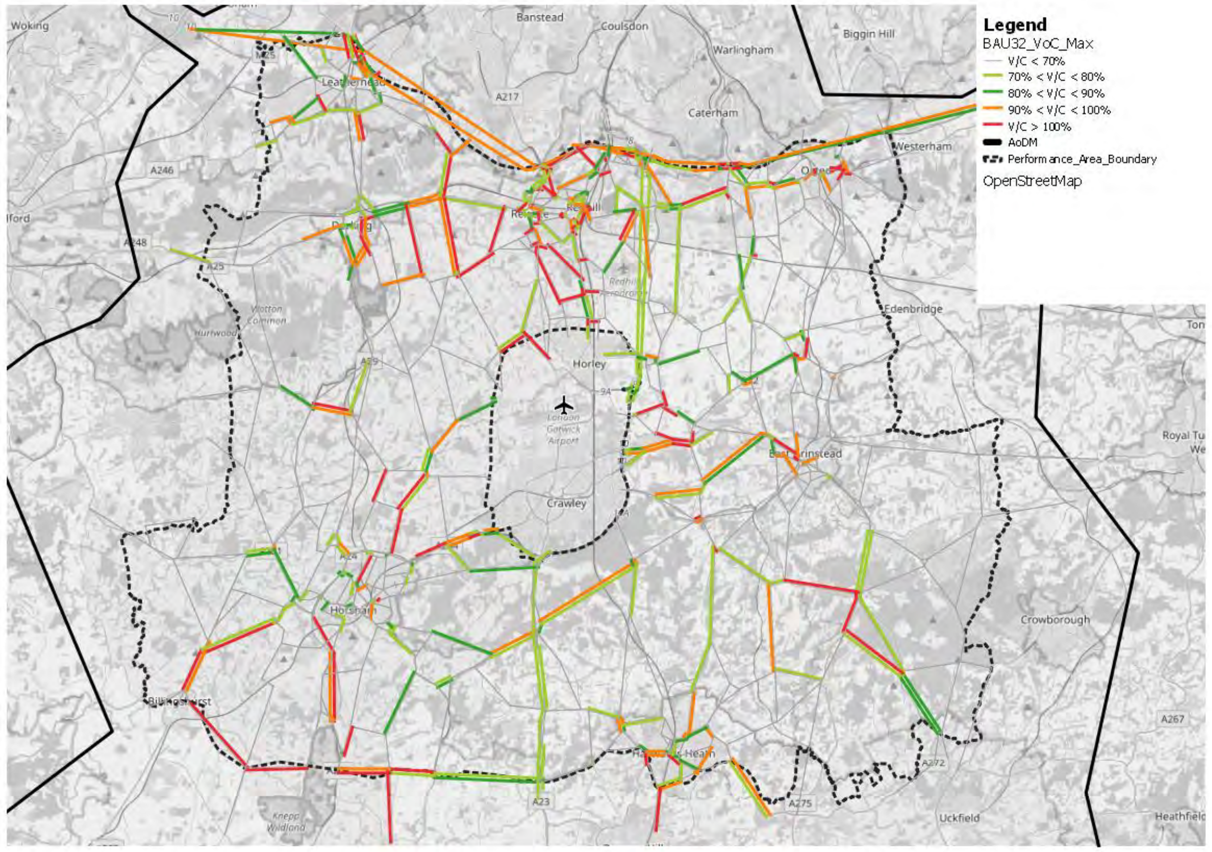


Figure 104: Maximum V/C, Future baseline 2038 - Performance Area B

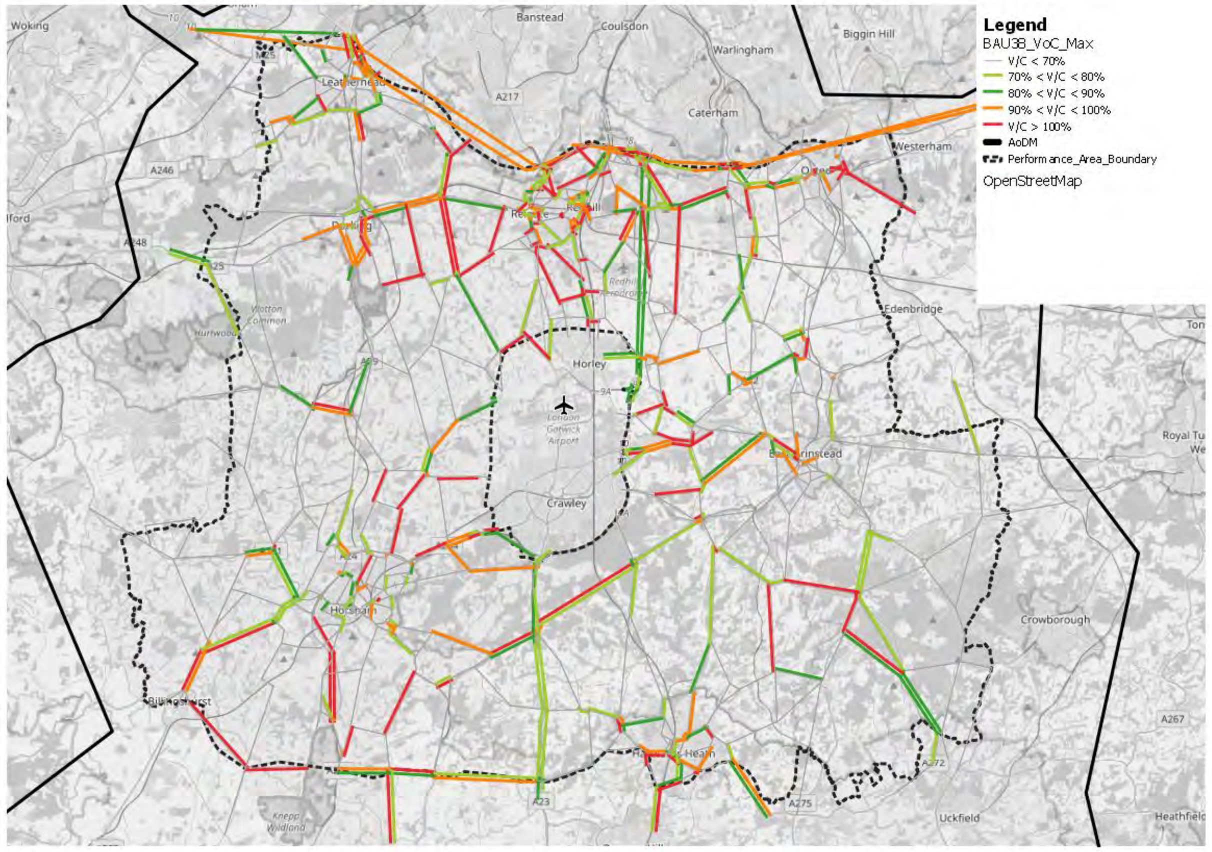
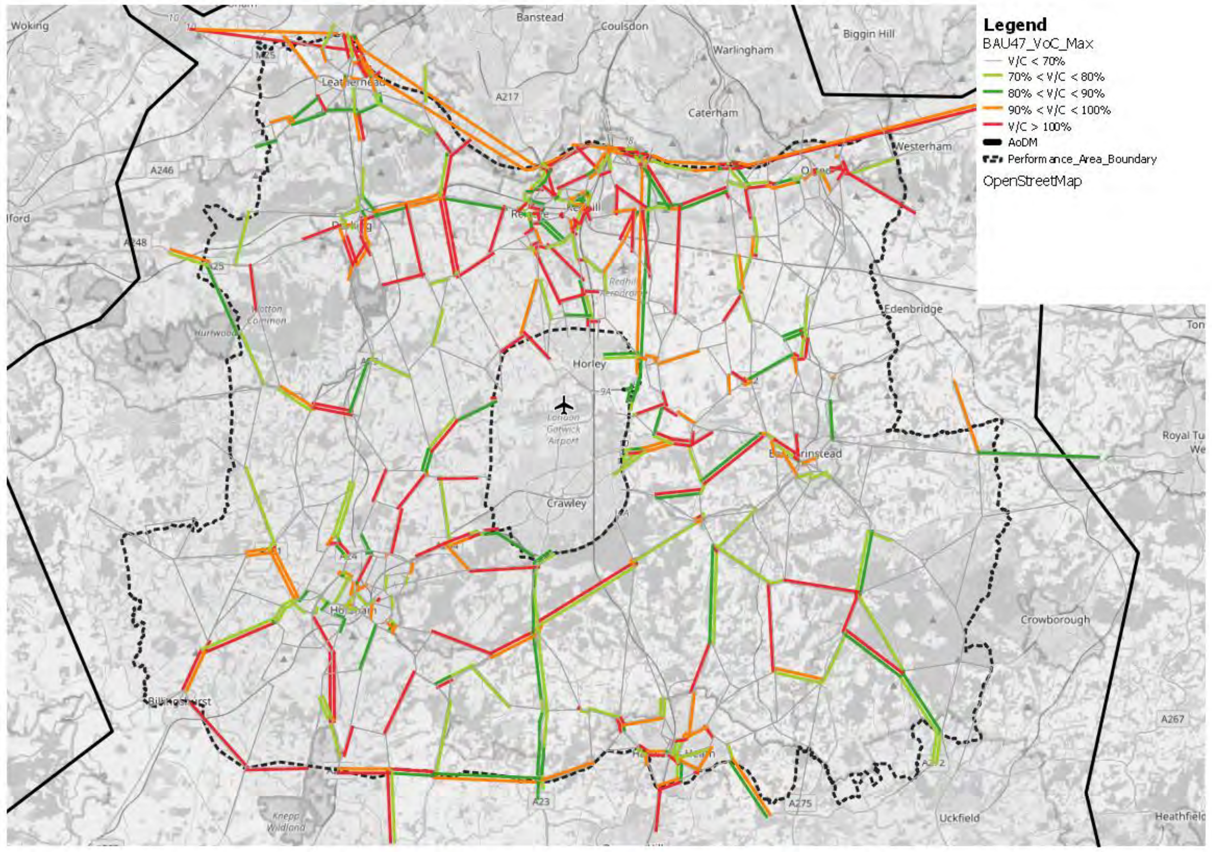


Figure 105: Maximum V/C, Future baseline 2047 - Performance Area B



Magnitude of Impact – nodes

11.9.23 This section identifies the magnitude of impact identified for nodes for each assessment year. The magnitude of impact is in accordance with the criteria specified in Section 6.12, and is shown as 'High', 'Medium' and 'Low'. It should be noted that the impacts identified here are related to the Project, they arise as the result of the growth that is expected in background and airport road traffic if the Project did not proceed.

2016 to 2029 Future baseline

11.9.24 Table 97 shows the magnitude of impacts on nodes from 2016 Base to 2029 Future baseline within Performance Area B. There is a maximum of 16 'High' magnitude impacts and nine 'Medium' magnitude impacts across all time periods with both occurring in the AM2 peak. Figure 106 shows the location of the impacts for all peak periods.

- Many of these nodes are on the M25 in both directions between J6 and J8. A number of these are the product of the way the model handles weaves, merges and diverges and may need reviewing further in locations of concern.
- There are also 'High' impact nodes on the A22 in South Godstone, A25 in Redhill and on the A264 at Copthorne and East Grinstead which all have connectors associated with them, so the impacts are overstated by the model.

Table 97: Magnitude of Impacts: Performance Area B - Base 2016 to Future baseline 2029

2029	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	59	671	697	683
Low	1	2	1	1
Medium	6	9	6	2
High	14	16	0	10

2029 to 2032 Future baseline

11.9.25 Table 98 shows the magnitude of impacts on nodes from 2029 to 2032 Future baseline within Performance Area B. The table outlines that there is a maximum of one 'High' magnitude impact and three 'Medium' instances across all modelled periods.

11.9.26 Figure 107 shows the location of the impacts for all peak periods. In the AM2 peak, the high impact node is on the A22 at South Godstone and in the PM peak, on the A25 in Redhill. These are the same nodes are identified with a 'High' magnitude of impact from 2016 Base to 2029 Future baseline.

Table 98: Magnitude of Impacts: Performance Area B - Future baseline 2029 to Future baseline 2032

2032	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	23	497	522	542
Low	11	18	9	10
Medium	2	3	0	1
High	0	1	0	1

2032 to 2038 Future baseline

11.9.27 Table 99 shows the magnitude of impacts on nodes from 2032 to 2038 Future baseline within Performance Area B. The table shows that there is up to six 'High' and 13 'Medium' magnitude of impacts across all modelled time periods. AM2 had the greatest number of 'High' and 'Medium' nodes identified.

11.9.28 Figure 108 shows the location of the impacts for all peak periods. The key points:

- There are 'High' and 'Medium' impact nodes in both directions on approach and exit to the M25 J6 as well as on the northbound exit slip of the M23 J8.
- As highlighted previously, nodes on the A22 at South Godstone and on the A25 at Redhill are also identified as 'High' impact but are considered non real impacts due to the connector.
- Five Oaks Roundabout (A29 Stane Street/A264 Five Oaks Road) is one of the High impact nodes in AM2, and a medium impact node in the PM. This area is predicted to experience general increases in road traffic due to background growth.

Table 99: Magnitude of Impacts: Performance Area B - Future baseline 2032 to Future baseline 2038

2038	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	32	609	635	574
Low	11	14	17	19
Medium	6	13	1	7
High	1	6	1	1

2038 to 2047 Future baseline

11.9.29 Table 100 shows the magnitude of impacts on nodes from 2038 to 2047 Future baseline within Performance Area B. The table outlines that there is up to three 'High' and 14 'Medium' magnitude of impacts across all modelled time periods. AM2 had the most number of 'High' and 'Medium' nodes identified.

11.9.30 Figure 109 shows the location of the impacts for all peak periods. The key points:

- Additional nodes on the M25 have been identified as the result of background growth.
- One of the 'High 'junctions in Redhill is a signalised junction with a centroid connecting. The 'High' impact junction in South Godstone is a priority junction zone connector. Both of these can be ignored as a zone connector will have a higher concentration of traffic than would actually be expected in real life.

Table 100: Magnitude of Impacts: Performance Area B - Future baseline 2038 to Future baseline 2047

2047	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	28	610	677	619
Low	9	17	7	15
Medium	1	14	4	7
High	3	3	1	3

Figure 106: Magnitude of Impacts: Performance Area B - Base 2016 to Future baseline 2029

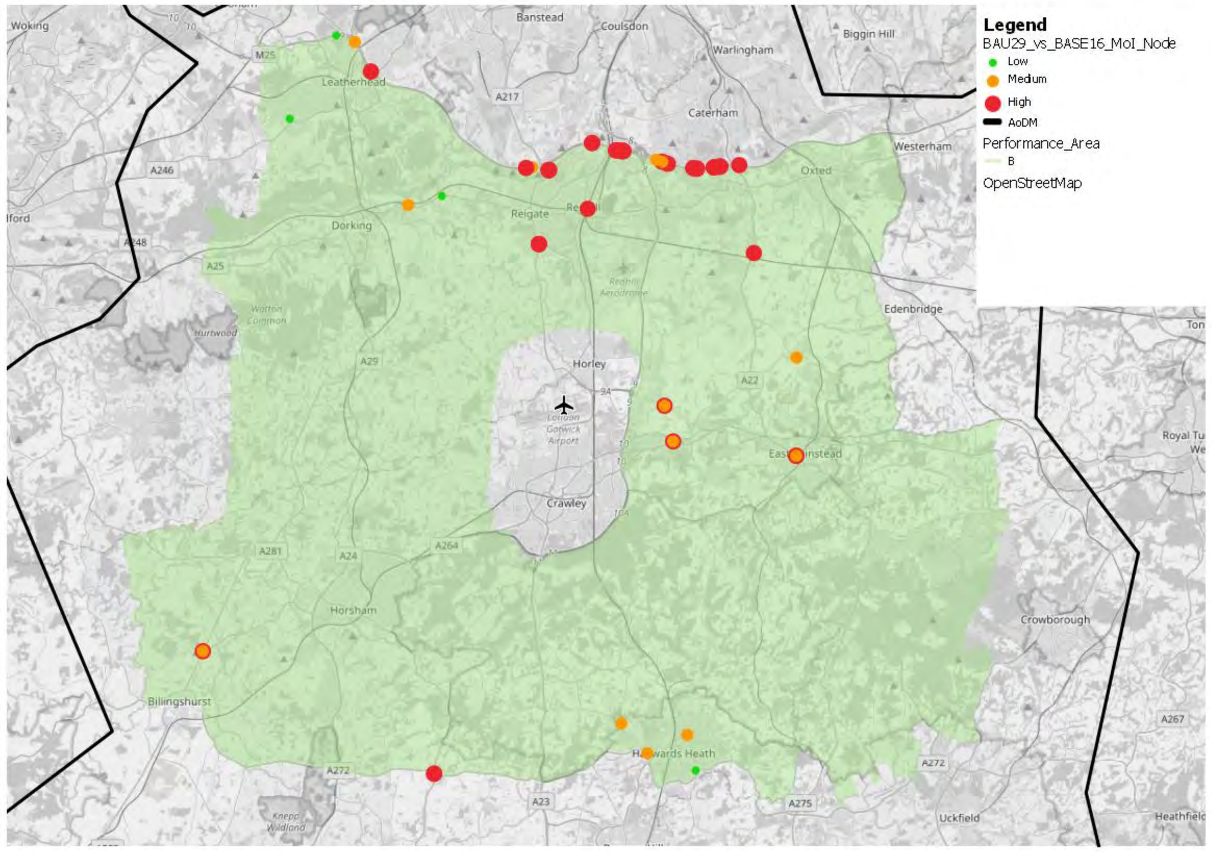


Figure 107: Magnitude of Impacts: Performance Area B - Future baseline 2029 to Future baseline 2032

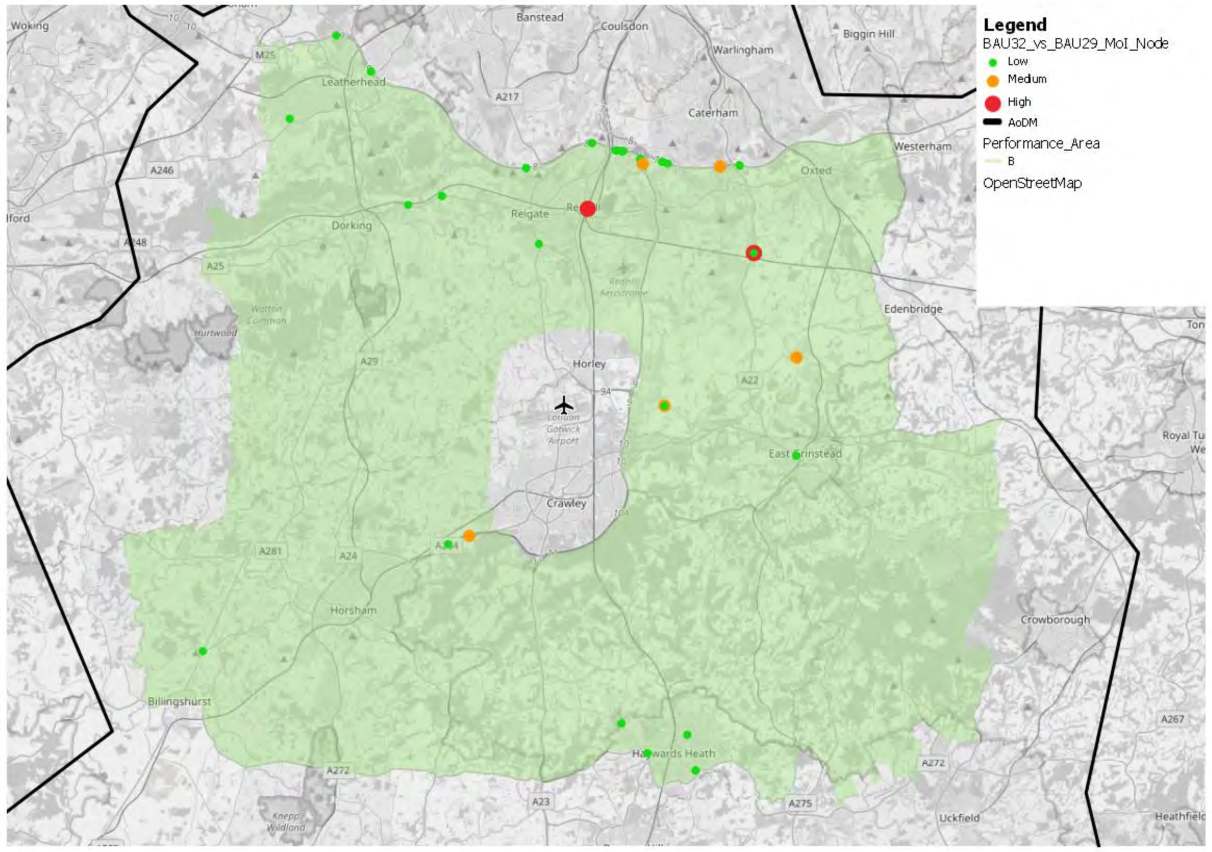


Figure 108: Magnitude of Impacts: Performance Area B - Future baseline 2032 to Future baseline 2038

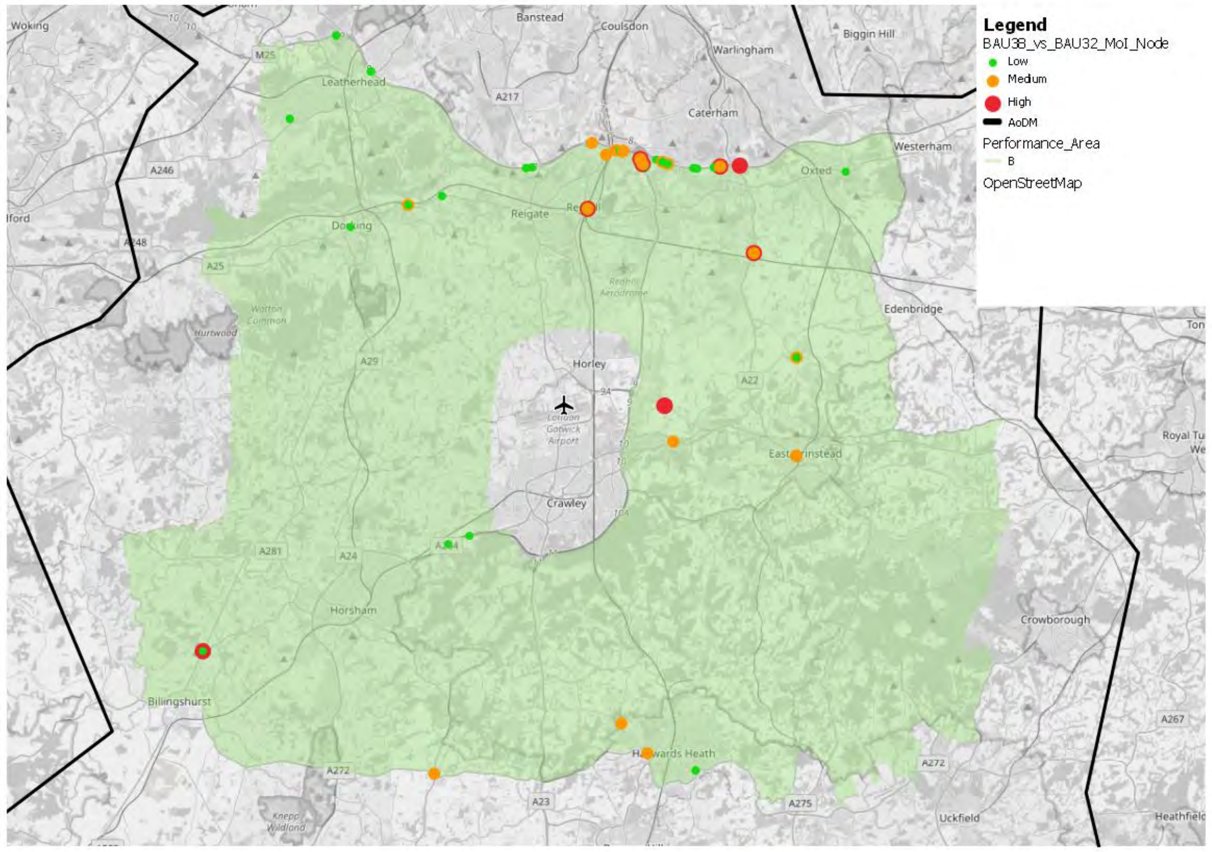
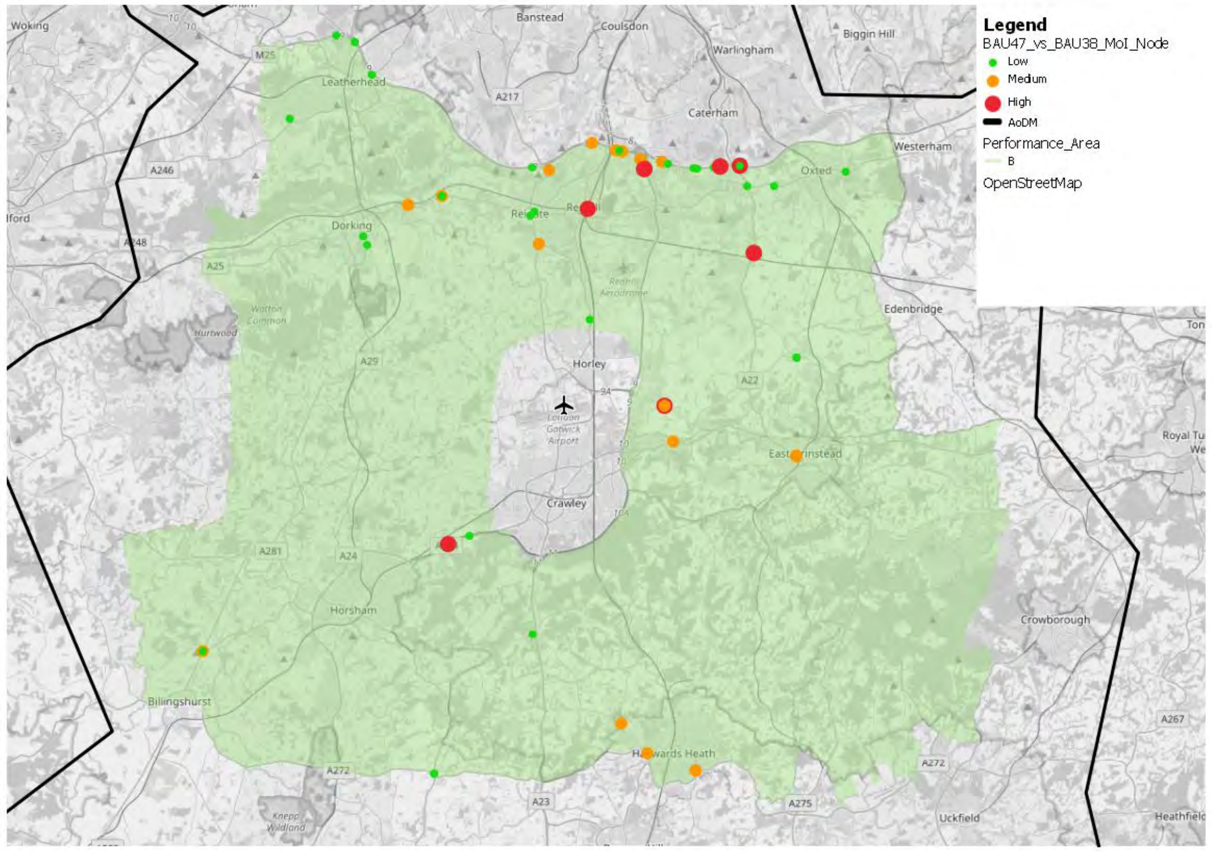


Figure 109: Magnitude of Impacts: Performance Area B - Future baseline 2038 to Future baseline 2047



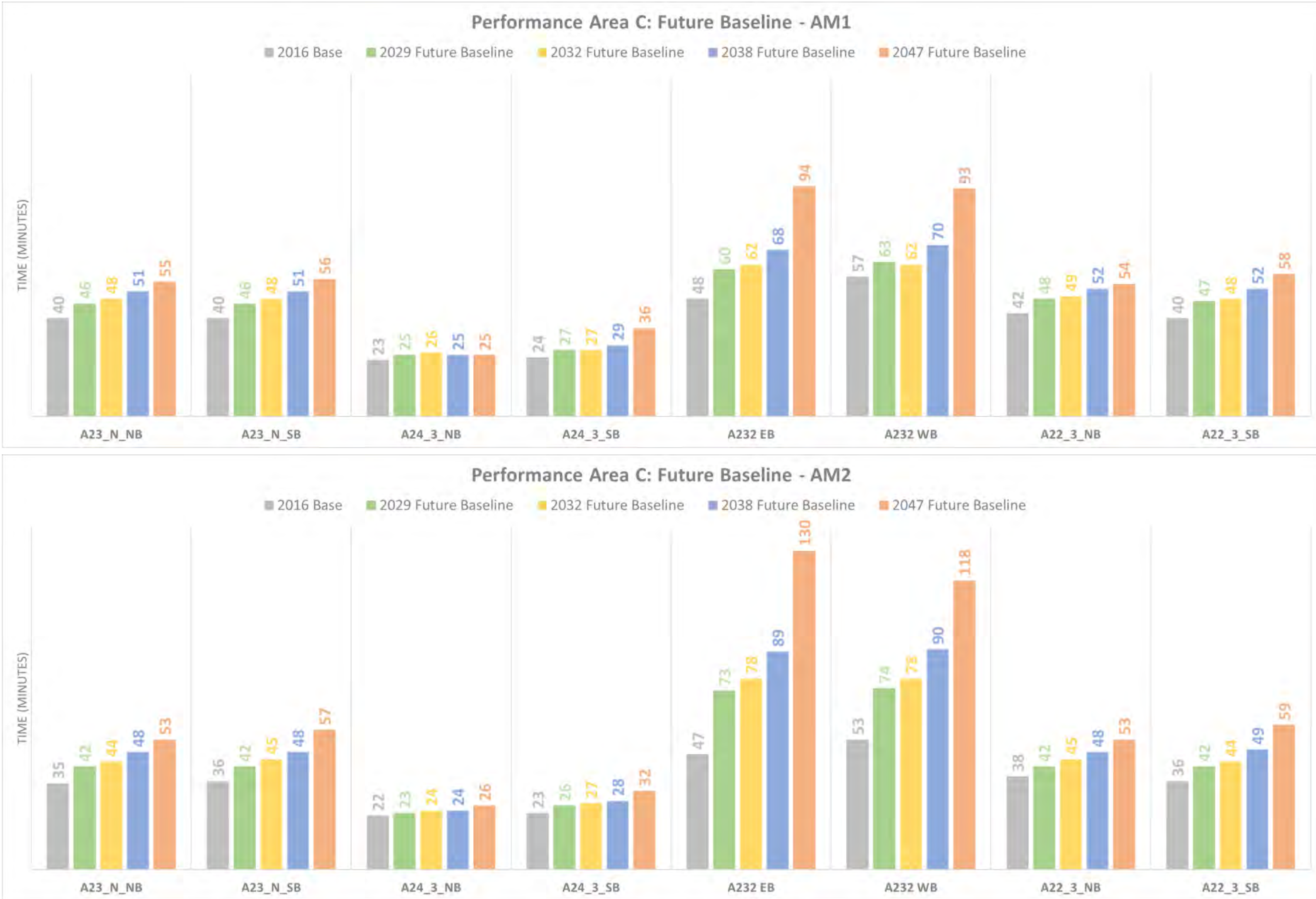
Performance Area C (Inter-London)

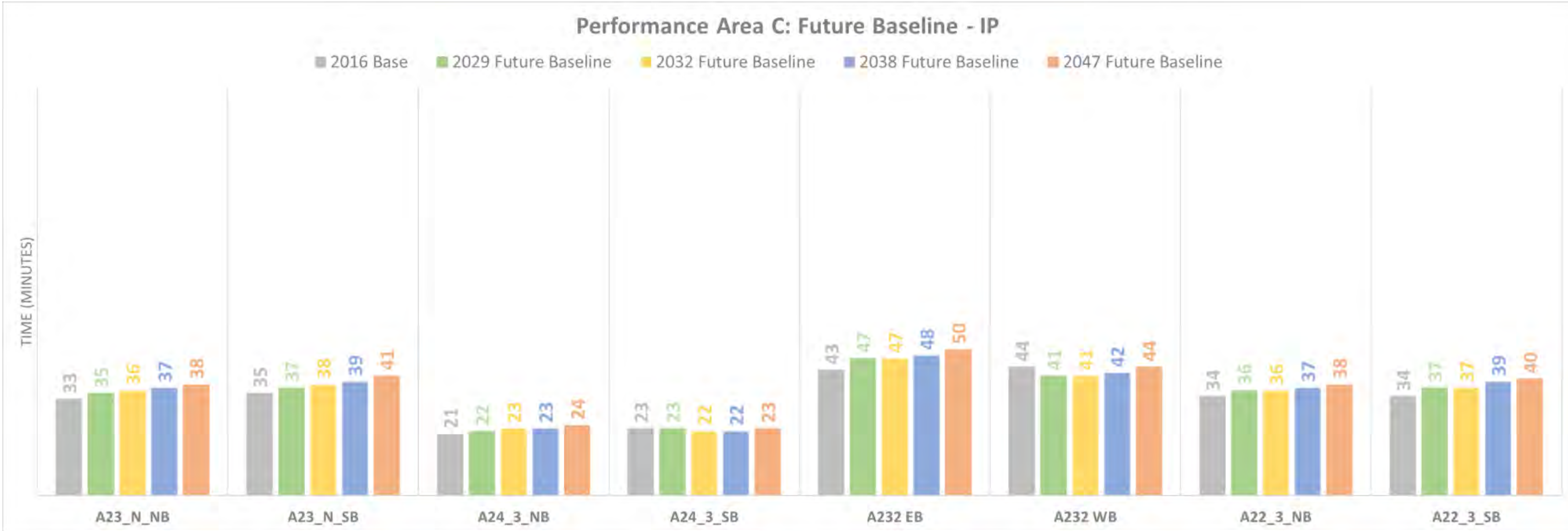
Journey times

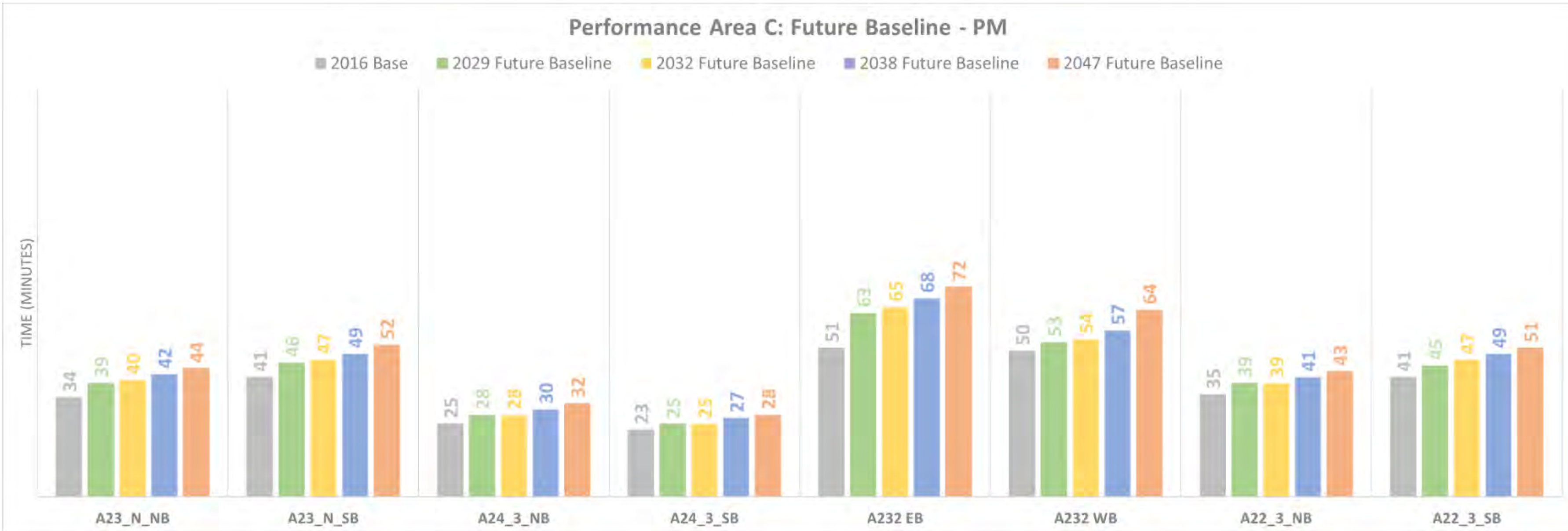
11.9.31 For Performance Area C, journey times along the key routes are shown in Figure 110. The key points by routes are:

- A22 from M25 J6 to B273 Norbury - Figure 110 shows that there is generally an increase in journey times (up to 7-minutes) from 2016 Base to 2029 Future baseline. There is an increase of up to 3-minutes from 2029 Future baseline to 2032 Future baseline. There is an increase of up to 5-minutes from 2032 Future baseline to 2038 Future baseline. There is an increase of journey time of up to 10-minutes at AM2 peak in the southbound direction from Future baseline 2038 to Future baseline 2047.
- A23 from M25 J7 to B273 Norbury – Figure 110 shows that there is generally an increase in journey times (up to 7-minutes) from 2016 Base to 2029 Future baseline. Between 2029 and 2032, and 2032 and 2038 there are further increases of up to 3-minutes. There is an increase of journey time of up to 9-minutes from Future baseline 2038 to Future baseline 2047 given the congestion the further growth over this period causes.
- A24 from Leatherhead to A217 crossroads in Sutton - Figure 110 shows that there is generally an increase in journey times (up to 3-minutes) from 2016 Base to 2029 Future baseline. Between 2029-2032 and 2032-2038 there are small increases of up to 1-minute to 2-minutes respectively. Between 2032 and 2038 there is a slight decrease of 1-minute in journey time at the AM1 peak in the northbound direction. There is an increase of journey time of up to 7-minutes at AM1 peak in the southbound direction from Future baseline 2038 to Future baseline 2047.
- A232 from A217 crossroads in Sutton to West Wickham - Figure 110 shows that there is generally an increase in journey times (up to 26-minutes at the AM2 peak in the eastbound direction) from 2016 Base to 2029 Future baseline. There is a slight increase of up to 5-minutes from 2029 Future baseline to 2032 Future baseline due to an increase in delay on Cheam Road. There is an increase of up to 12-minutes from 2032 Future baseline to 2038 Future baseline at the AM2 peak in the westbound direction with Cheam Road contributing to this significantly. There is an increase of journey time of up to 41-minutes at AM2 peak in the eastbound direction from Future baseline 2038 to Future baseline. There are multiple links on the route where journey time increases contribute to this but the most significant is again the delay on Cheam Road that causes such a significant increase in journey time. This is on the periphery of the AoDM and likely impacted by model noise.

Figure 110: Highway journey times - Performance Area C, Future baselines







Volume/Capacity ratios for highway links

11.9.32 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value have been selected from the four time periods. These are illustrated for each modelled year, 2016 for reference, and then 2029, 2032, 2038, and 2047, in Figure 111 to Figure 115 across Performance Area C.

11.9.33 Because of background traffic growth, V/Cs have increased on highway links over time and the key points are:

- An increase in V/C ratios in Sutton and Croydon town centres, and on the A22 and A217 corridor are observed, particular from 2016 Base to 2029 Future baseline.
- Most links remain within the same V/C banding between the 2029 and 2047 Future baselines.

Figure 111: Maximum V/C, Base 2016 - Performance Area C

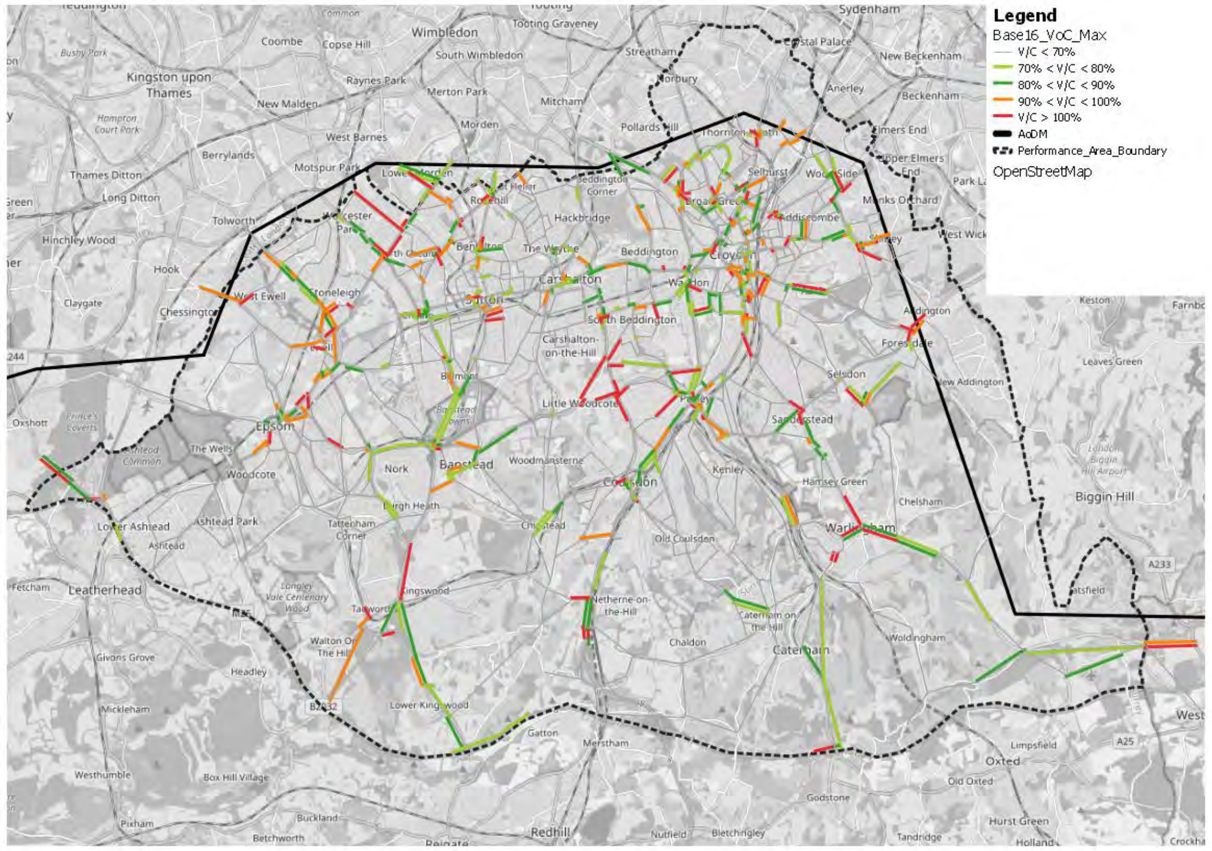


Figure 112: Maximum V/C, Future baseline 2029 - Performance Area C

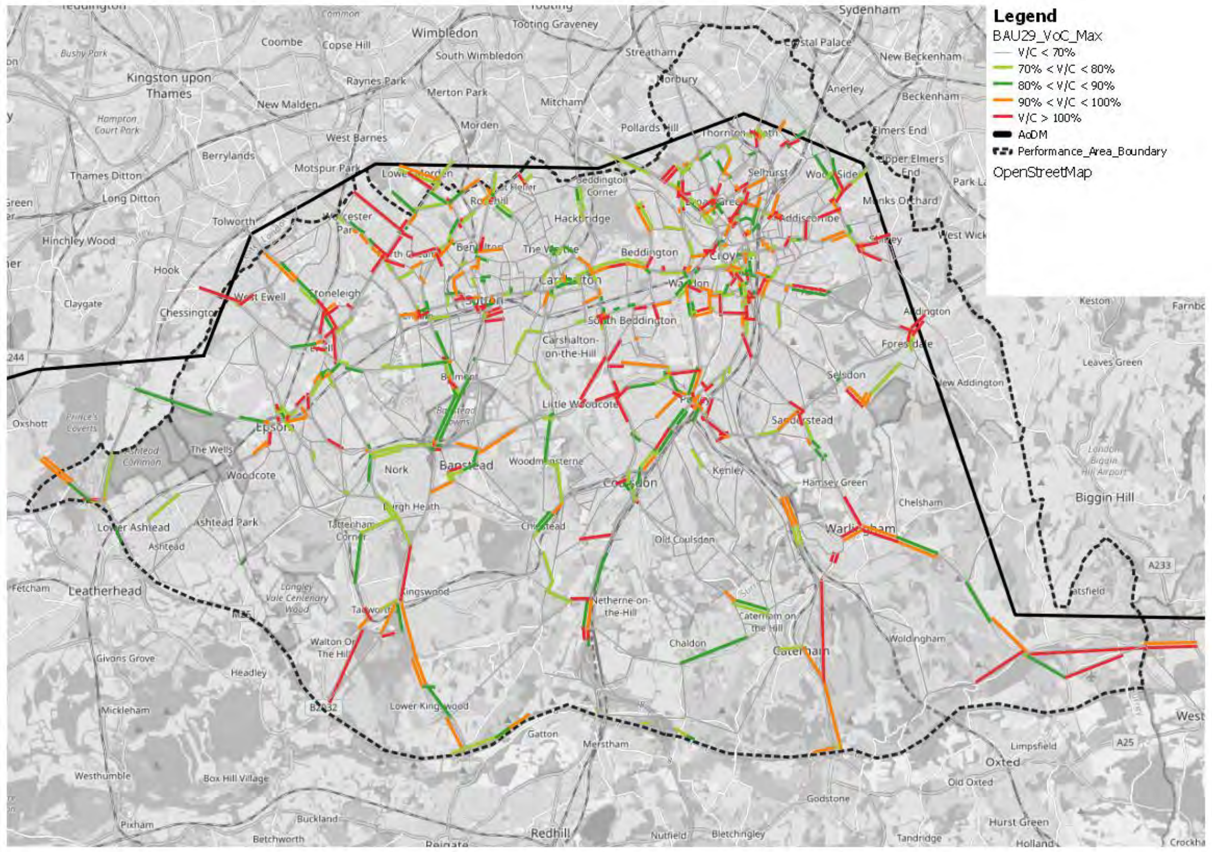


Figure 113: Maximum V/C, Future baseline 2032 - Performance Area C

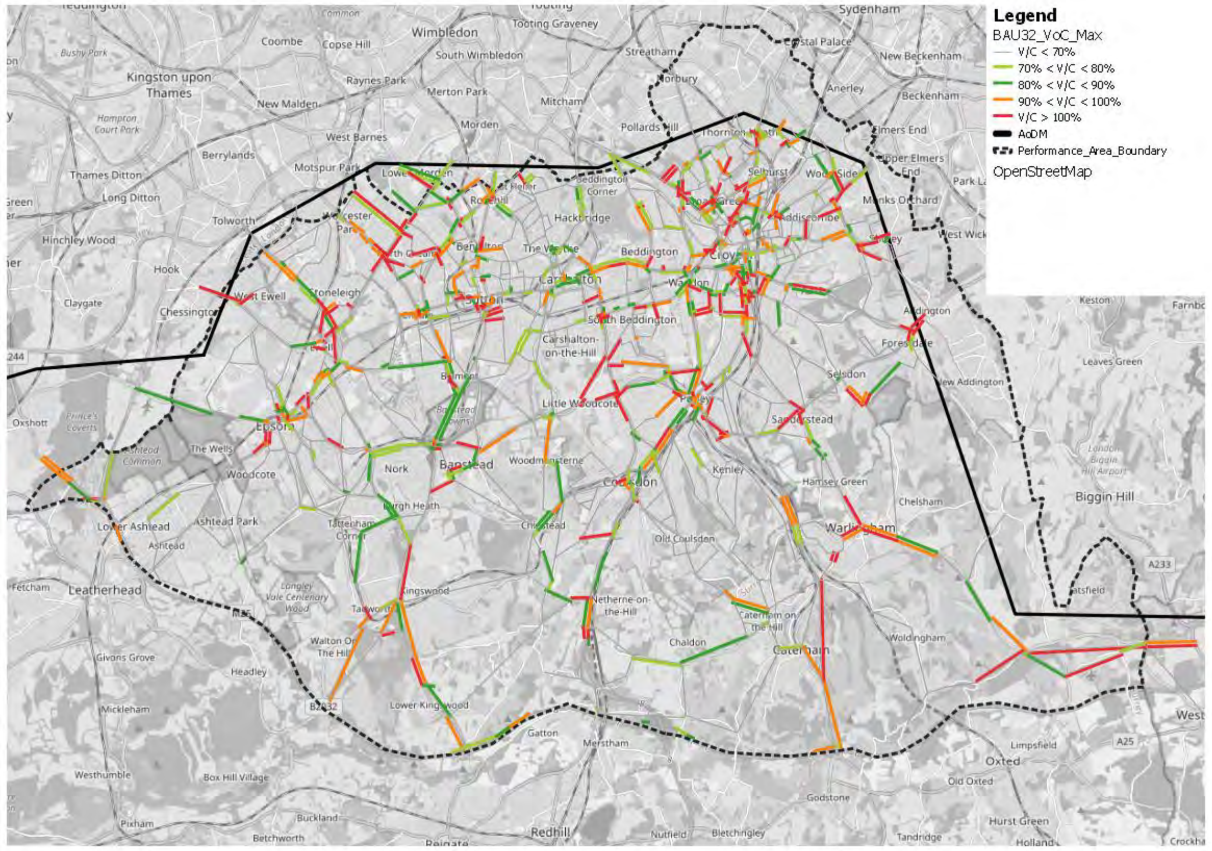


Figure 114: Maximum V/C, Future baseline 2038 - Performance Area C

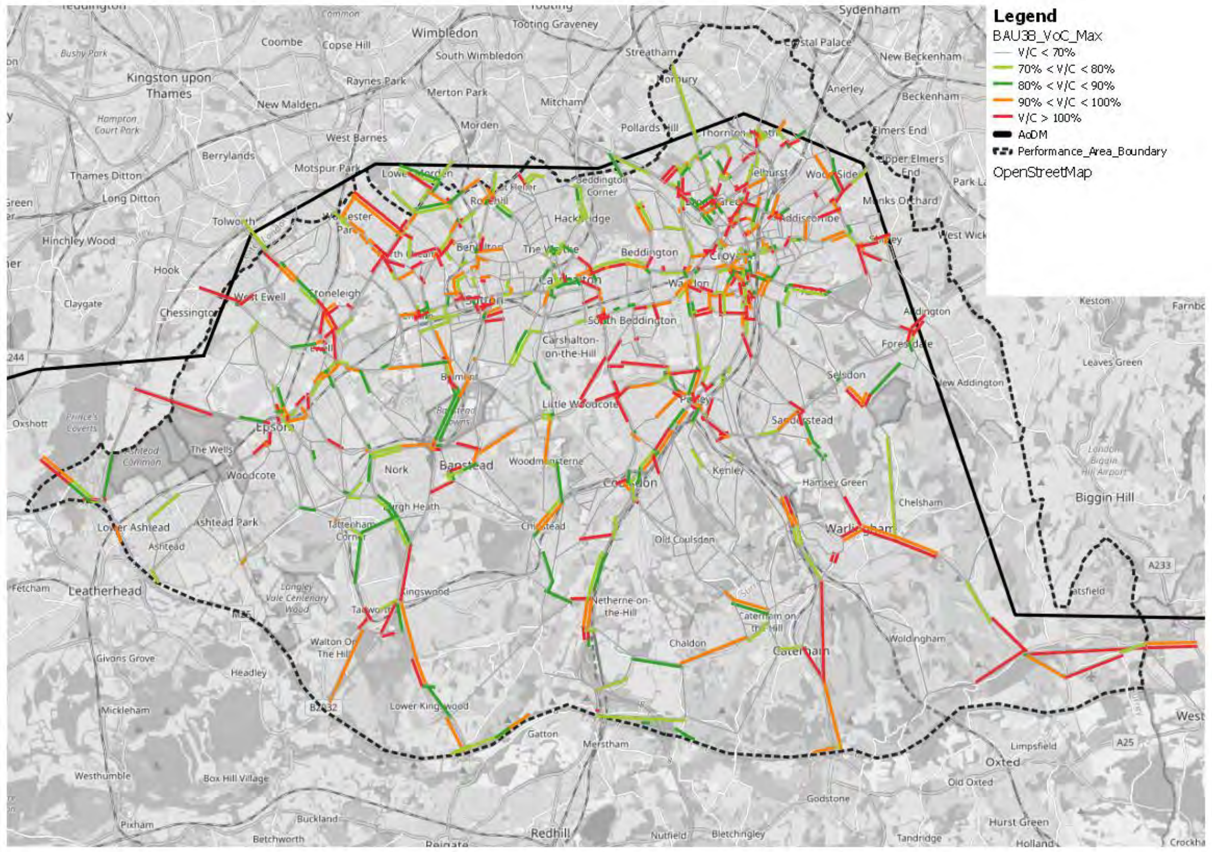
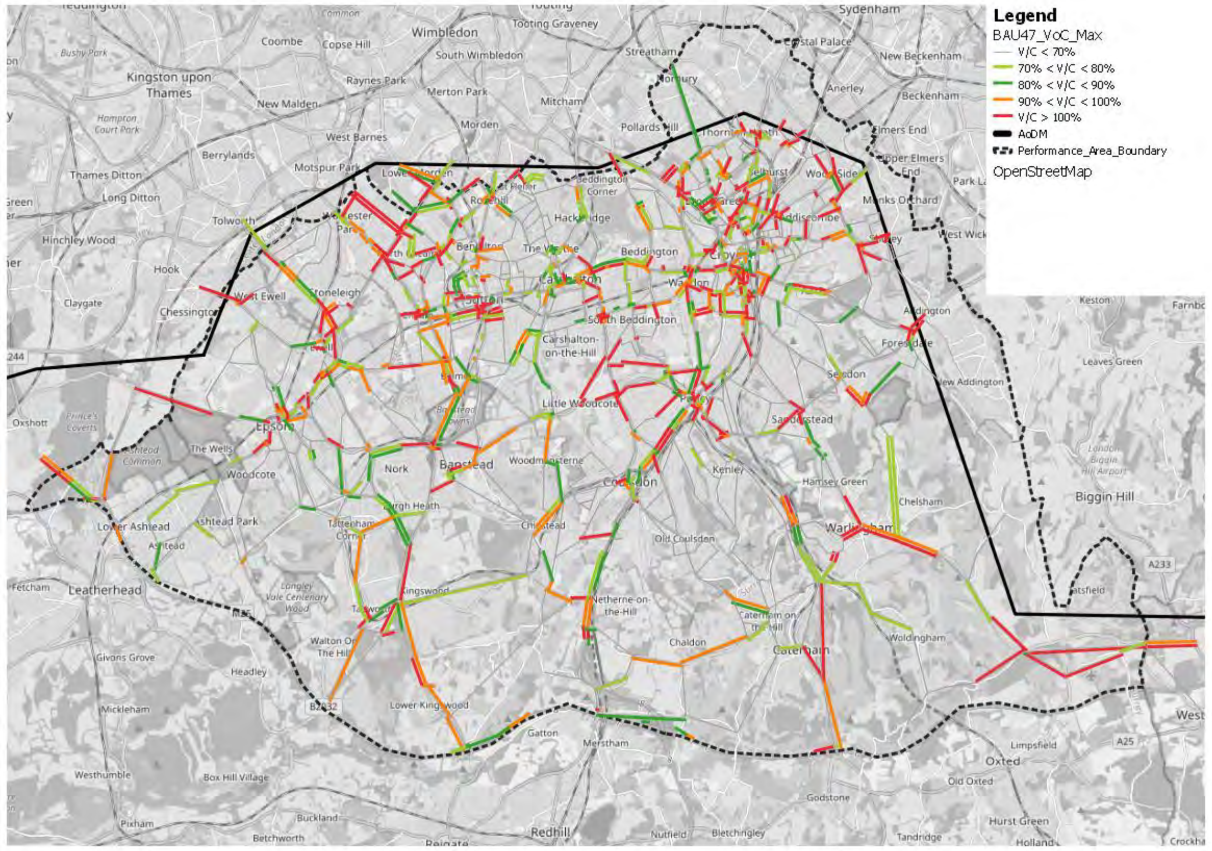


Figure 115: Maximum V/C, Future baseline 2047 - Performance Area C



Magnitude of Impact – nodes

11.9.34 This section identifies the magnitude of impact identified for nodes for each assessment year. The magnitude of impact is in accordance with the criteria specified in Section 6.12, and is shown as 'High', 'Medium' and 'Low'. It should be noted that the impacts identified here are related to the Project, they arise as the result of the growth that is expected in background and airport road traffic if the Project did not proceed.

2016 Base to 2029 Future baseline

11.9.35 Table 101 shows the magnitude of impacts on nodes from 2016 Base to 2029 Future baseline within Performance Area C. The table shows that there is up to 19 'High' and 18 'Medium' magnitude impacts across all modelled time periods. The PM peak had the highest number of nodes with 'High' and 'Medium' magnitudes of impact.

11.9.36 Figure 116 shows the location of these across all peak periods. The key points:

- The 'High' impacts are concentrated along the southern edge of the Performance Area along the M25 because of significant background growth.
- Many of the nodes are identified in the Croydon and Sutton area. A review of these has been undertaken and whilst there is significant growth in this part of London, some of the impacts are identified as model noise or as a product of the relatively simple nature of the network compared to reality which makes any problem areas more acute. These areas are also at the most northern part of the AoDM, and a long way from the airport itself. This area also has a high density of signalised nodes which are demand actuated in real life, however, the strategic model is not able to simulate this on demand optimisation so could be overestimating delays at these junctions.

Table 101: Magnitude of Impacts: Performance Area C - Base 2016 to Future baseline 2029

2029	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	150	1,232	1,313	1,217
Low	16	8	7	17
Medium	13	18	6	18
High	13	11	2	19

2029 Base to 2032 Future baseline

11.9.37 Table 102 shows the magnitude of impacts on nodes from 2029 to 2032 Future baselines within Performance Area C. The table shows that there is up to one 'High' and six 'Medium' magnitude impacts across all modelled time periods. AM2 has the highest number of nodes with 'High' and 'Medium' magnitudes of impact. Figure 117 shows the location of these across all peak periods.

11.9.38 The low number of nodes flagged is expected given the increment only relates to 3 years of growth. In common with 2029 there are nodes in the Croydon area which show impacts between these three years.

Table 102: Magnitude of Impacts: Performance Area C – Future baseline 2029 to Future baseline 2032

2032	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	111	784	743	661
Low	11	7	1	5
Medium	4	6	0	3
High	1	1	0	0

2032 to 2038 Future baseline

11.9.39 Table 103 shows the magnitude of impacts on nodes from 2032 to 2038 Future baselines within Performance Area C. The table shows that there is up to ten 'High' and nine 'Medium' magnitude impacts across all modelled periods. The AM1 peak had the highest number of nodes with 'High' and 'Medium' magnitudes of impact.

11.9.40 Figure 118 shows the location of these across all peak periods. The key points are:

- Croydon/Sutton see a significant number of nodes with impacts at all levels, similar to those seen in earlier years. This indicates that conditions will deteriorate in these areas given the growth predicted without intervention in the Future baseline. Some of these impacts are also likely to be model noise, given the periphery to the edge of the AoDM, and the high levels of existing congestion.

Table 103: Magnitude of Impacts: Performance Area C – Future baseline 2032 to Future baseline 2038

2038	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	195	955	1,130	908
Low	24	23	19	16
Medium	9	5	1	8
High	7	10	0	2

2038 to 2047 Future baseline

11.9.41 Table 104 shows the magnitude of impacts on nodes from 2038 to 2047 Future baselines within Performance Area C. The table outlines that there is a maximum of five 'High' and 18 'Medium' magnitude impacts across all modelled periods. The AM2 peak has the highest number of nodes with 'High' and 'Medium' magnitudes of impact.

11.9.42 Figure 119 shows the location of these across all peak periods. The key points are:

- As in earlier years the areas with high and medium impacts are similar, concentrated around central Croydon and Sutton. Where there are high impacts, these show a particular deterioration in conditions between the 2038 Future baseline and 2047 Future baseline unless mitigated. Some of the impacts will be overstated as a product of the model noise this area of the network is known to experience between the scenarios. A number of these impacts are experienced at signalised junctions which have not been optimised for the conditions in these forecast years but would in reality be more optimal given they are demand actuated signals.

Table 104: Magnitude of Impacts: Performance Area C – Future baseline 2038 to Future baseline 2047

2047	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	275	930	1,134	922
Low	23	22	26	19
Medium	9	18	5	11
High	5	5	0	3

Figure 116: Magnitude of Impacts: Performance Area C - Base 2016 to Future baseline 2029

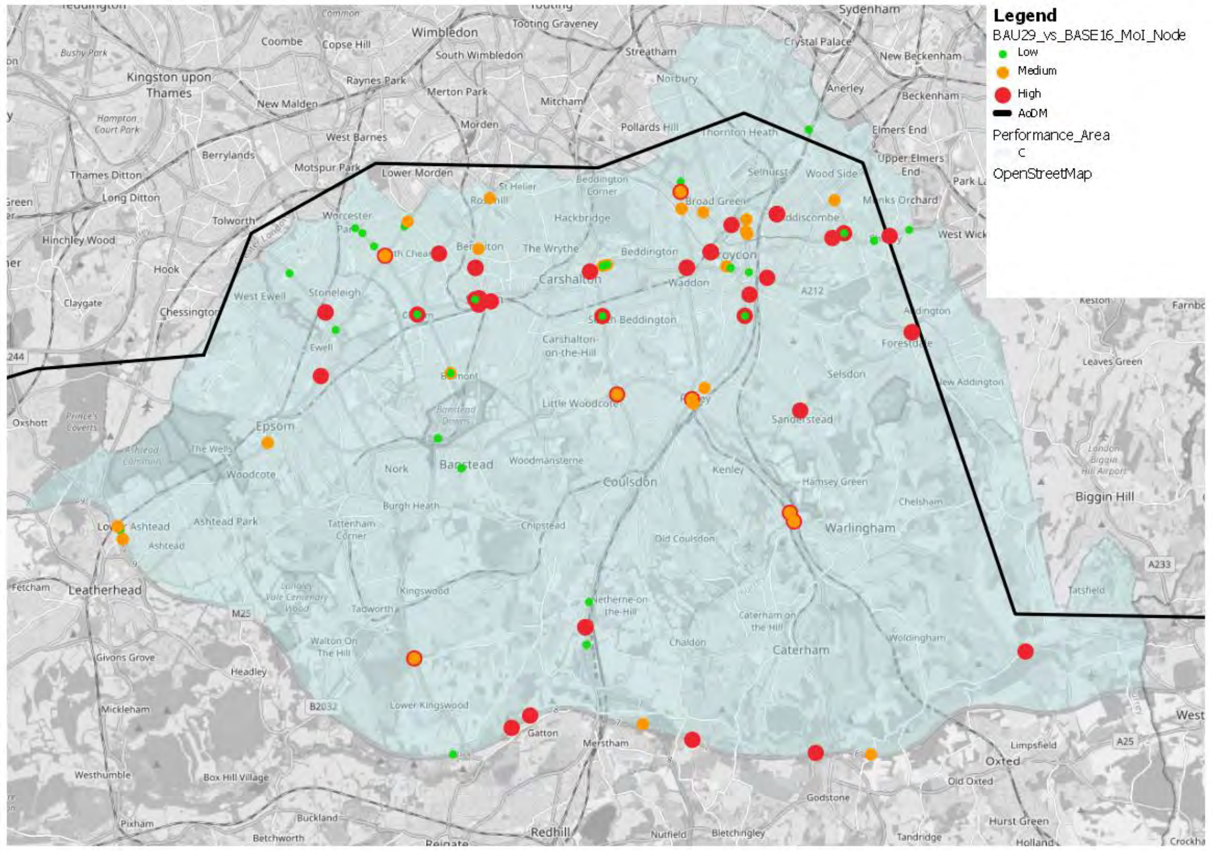


Figure 117: Magnitude of Impacts: Performance Area C – Future baseline 2029 to Future baseline 2032

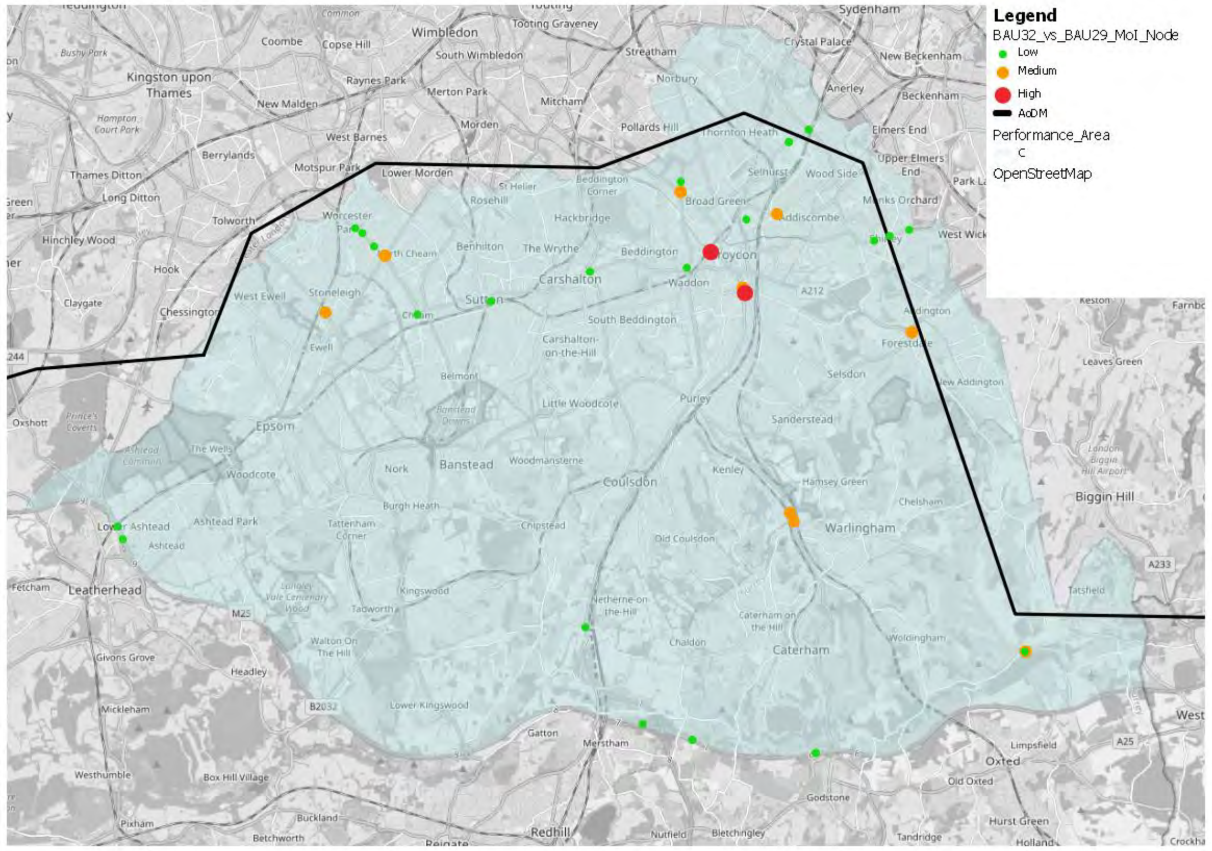


Figure 118: Magnitude of Impacts: Performance Area C – Future baseline 2032 to Future baseline 2038

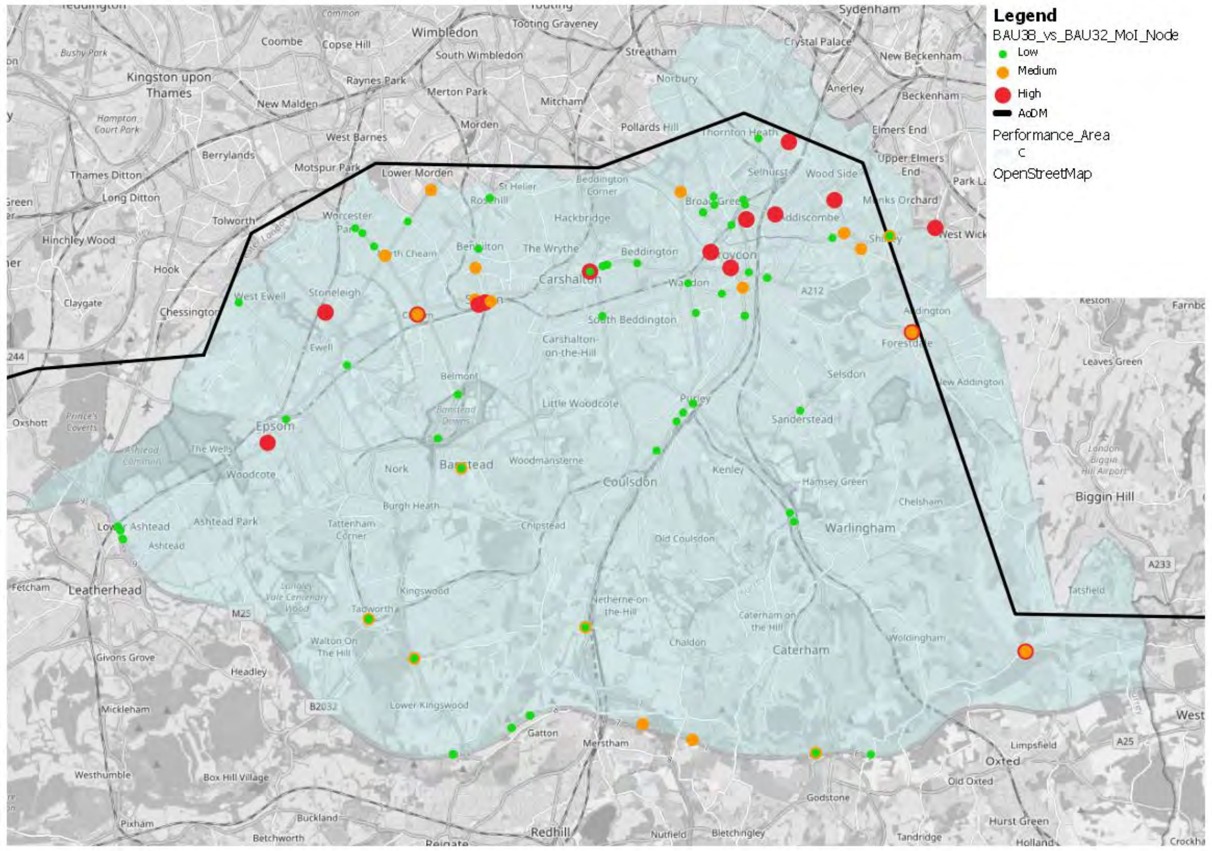
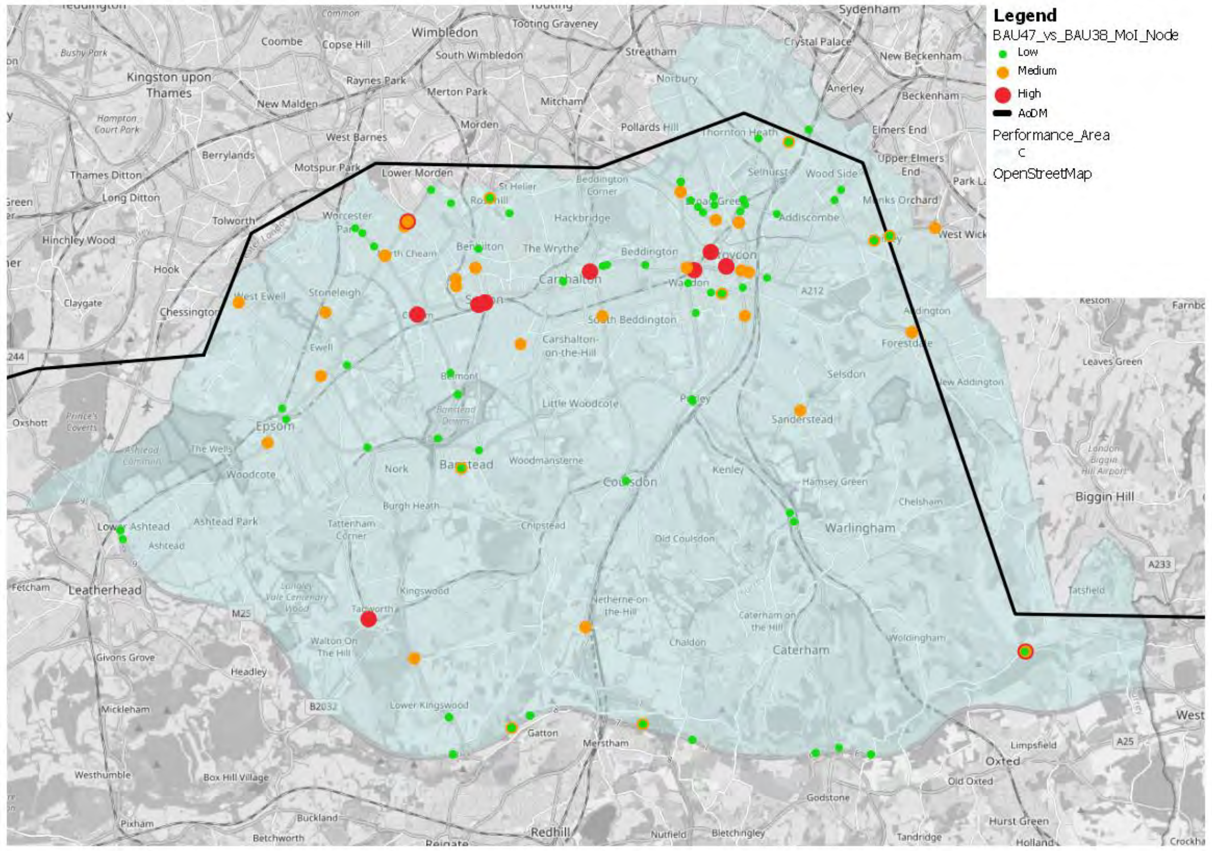


Figure 119: Magnitude of Impacts: Performance Area C – Future baseline 2038 to Future baseline 2047



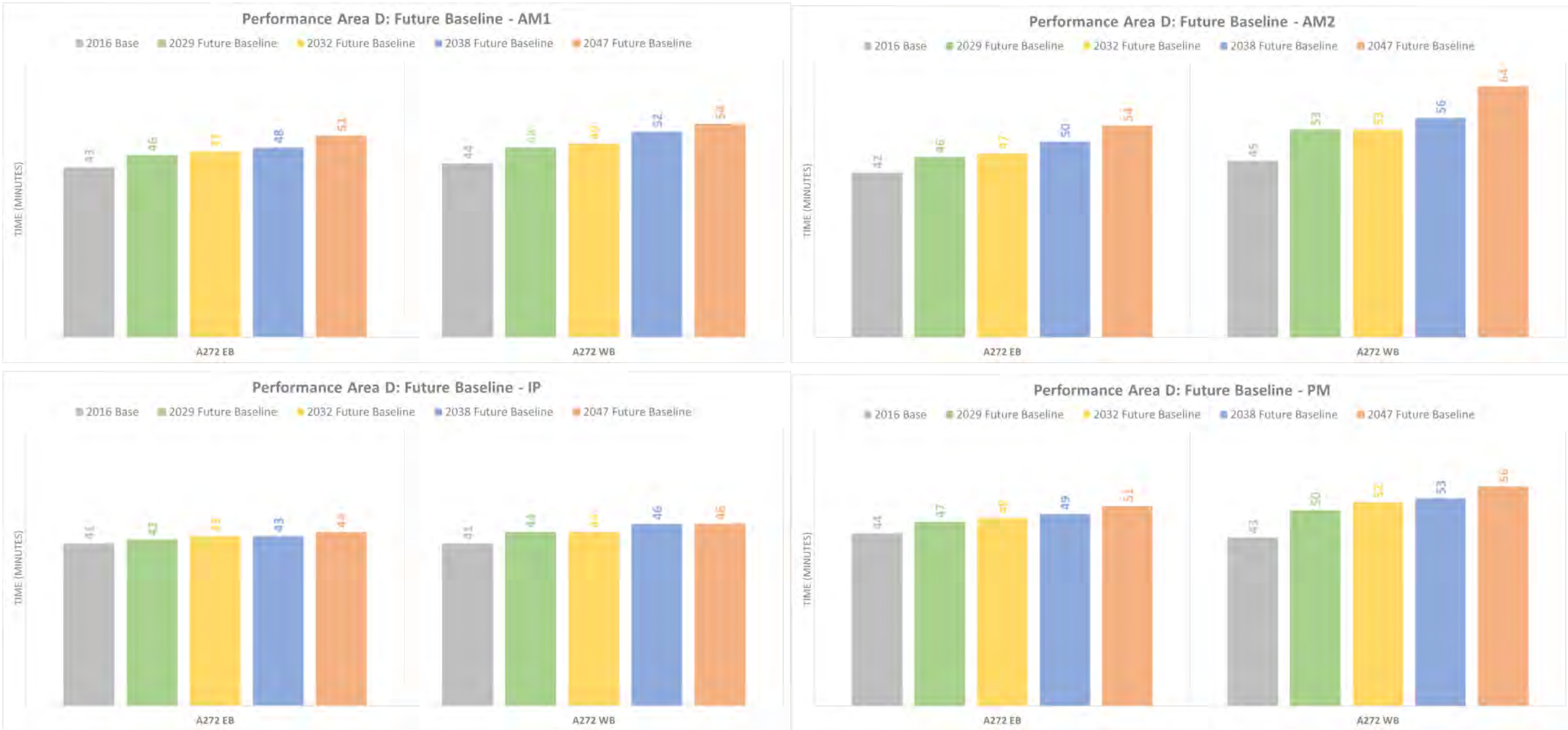
Performance Area D (A272 – A27)

Journey times

11.9.43 For Performance Area D, there is only one journey time route identified, which is the A272 between Coolham to near Uckfield. The journey times are shown in in Figure 120, and there is generally minor incremental increases to journey time by assessment year as the result of background traffic growth.

- A272 between Coolham to near Uckfield - Figure 120 shows that there is generally an increase in journey times (up to 7-minutes at the AM2 peak in the westbound direction) from 2016 Base to 2029 Future baseline. Between 2029 and 2032, and 2032 and 2038, the increases are up to 2-minutes and 3-minutes respectively. There is an increase of journey time of up to 8 minutes at the AM2 peak in the westbound direction from Future baseline 2038 to Future baseline 2047.

Figure 120: Highway journey times - Performance Area D, Future baselines



Volume/Capacity ratios for highway links

11.9.44 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value have been selected from the four time periods. These are illustrated for each modelled year, 2016 for reference, and then 2029, 2032, 2038, and 2047, in Figure 121 to Figure 125 across Performance Area D.

11.9.45 Because of background traffic growth, V/C have increased on highway links over time and the key points are:

- On the local road network, around Offham Road, Lewes and the B2112 (south of Ditchling) the road network is expected to operate above 100% V/C in the Future baseline from 2029 onwards.
- In the Future baseline numerous links see increasing V/C ratios over the years, for instance A29 eastbound between Fontwell and Adversane, B2139 between Storrington and the A29/A284, and A23 west of Burgess Hill. All of these areas have links at or approaching 100% by 2047.
- In Burgess Hill in 2016 there are no links at or above capacity but by 2047 there are a number of links with high V/Cs.
- The A283 between Pulborough and Storrington experiences a reduction in V/C ratio between 2016 and 2029 in the modelling. This impact is deemed unrealistic given the demand growth over time, and more likely a product of subtle changes to zone connectors to accommodate some of this growth resulting in model routing changes.
- The A280, connecting the A27 and A24, which northbound is at 90% plus in 2016 is at or near capacity by 2047 in both directions following flow increases over the period.
- The A27, particularly near Arundel, shows an increasing number of links over the years at or approaching capacity. The Arundel Bypass is not included in this modelling, if it was it is anticipated some of these impacts would be less severe.

Figure 121: Maximum V/C, Base 2016- Performance Area D

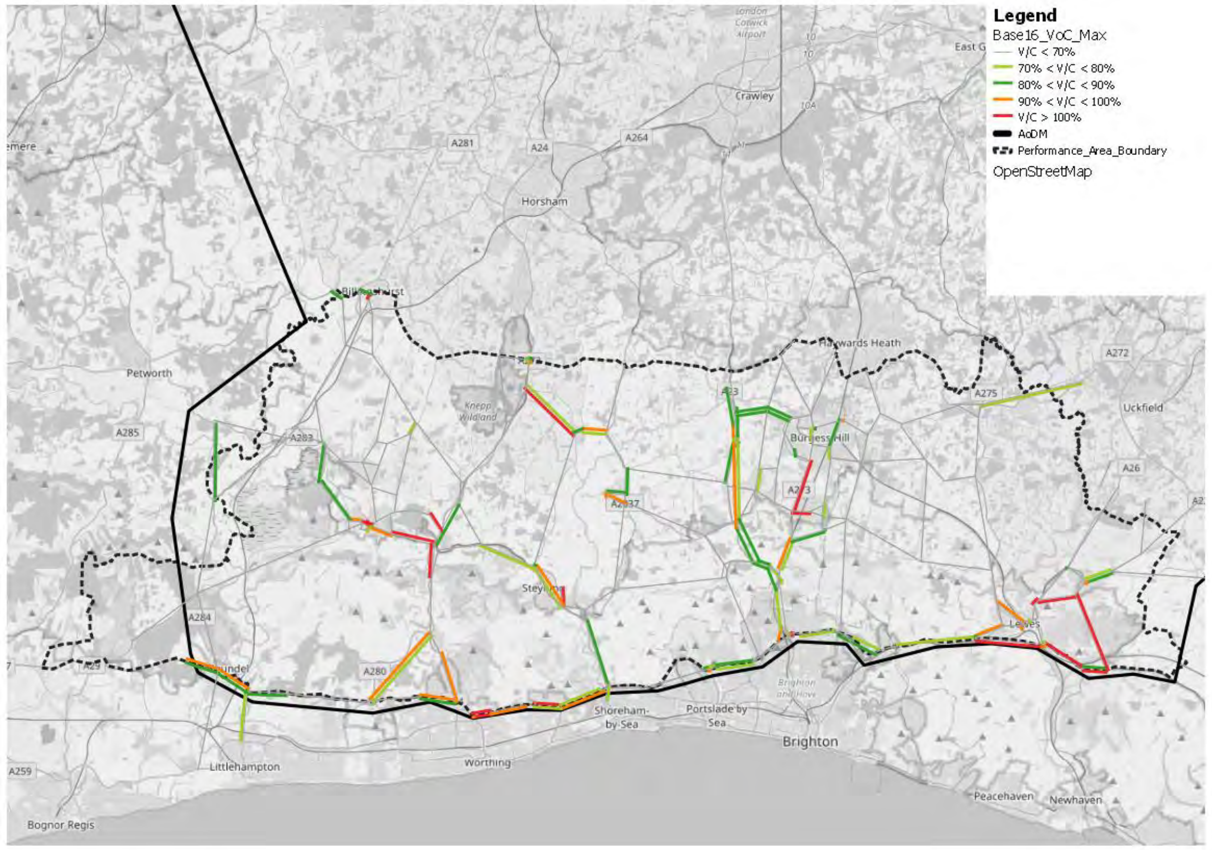


Figure 122: Maximum V/C, Future baseline 2029 - Performance Area D

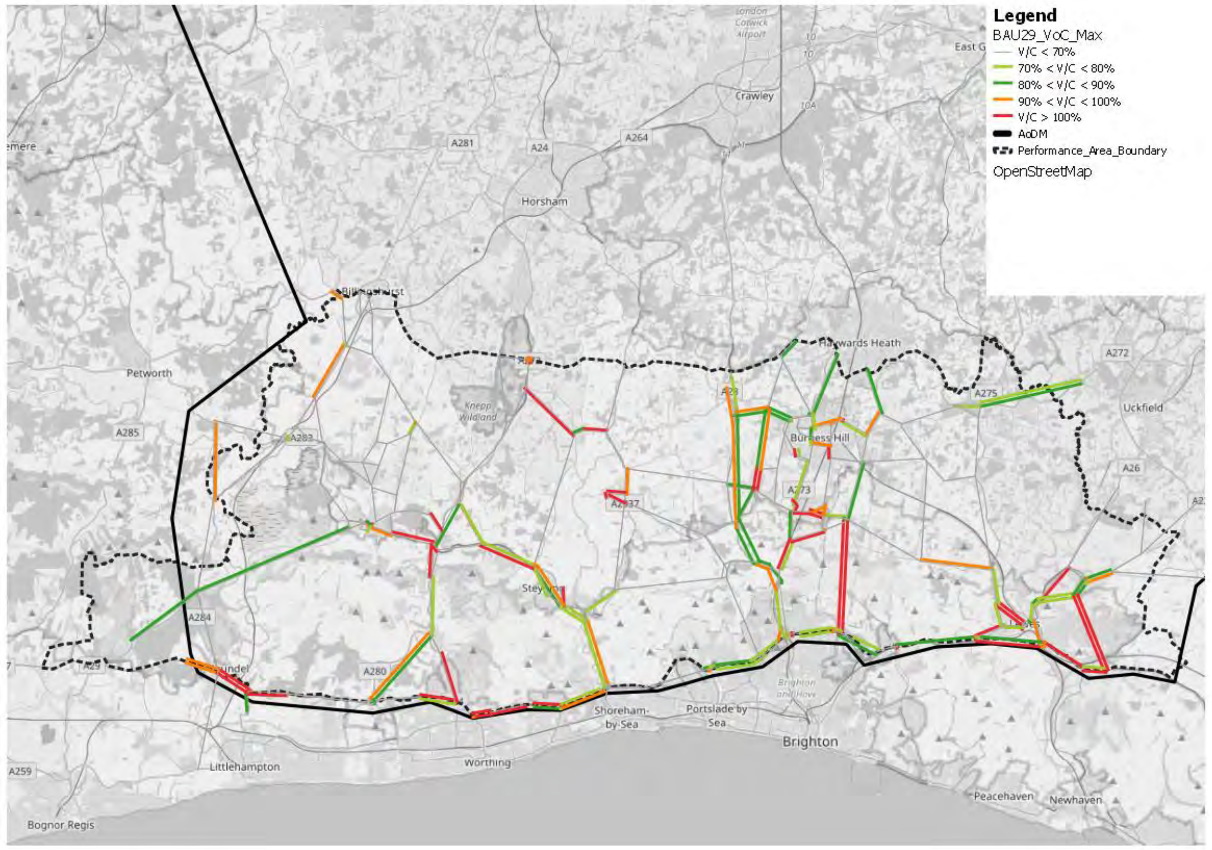


Figure 123: Maximum V/C, Future baseline 2032 - Performance Area D

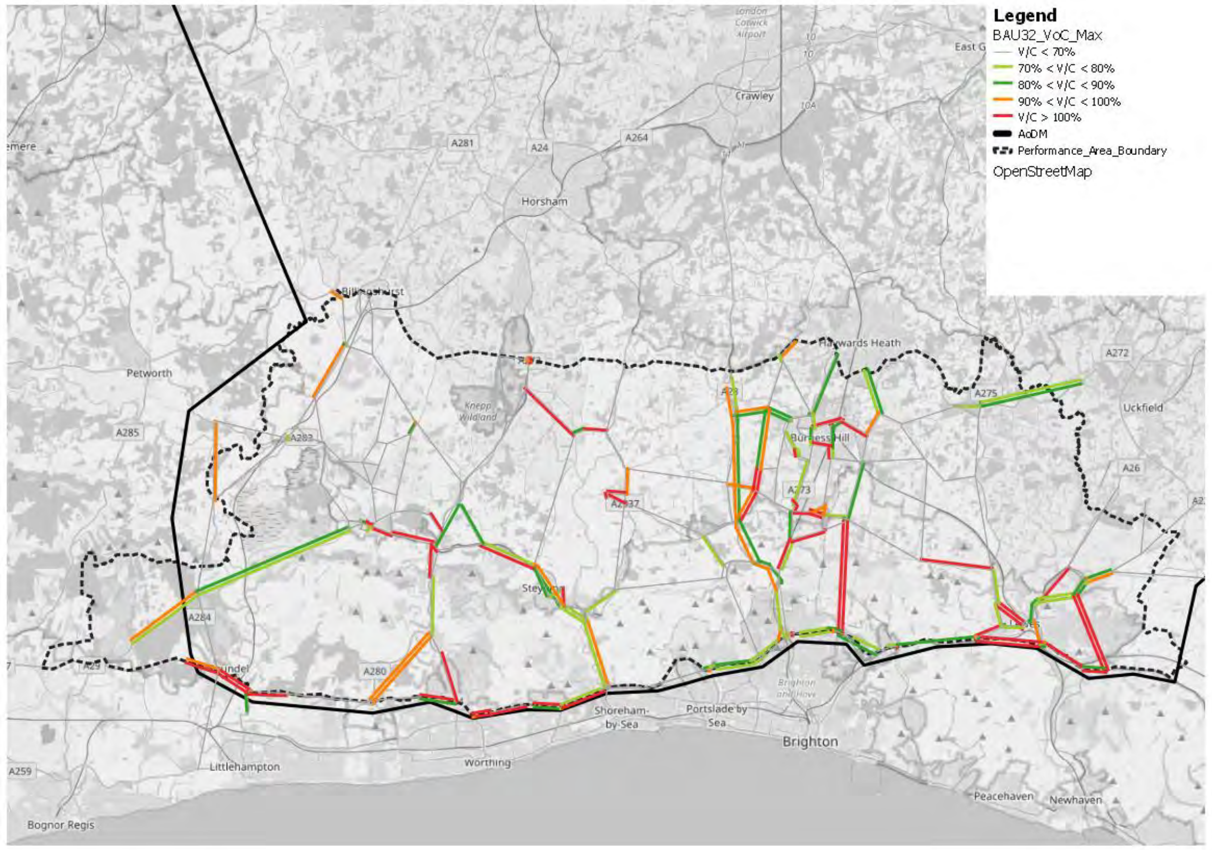


Figure 124: Maximum V/C, Future baseline 2038 - Performance Area D

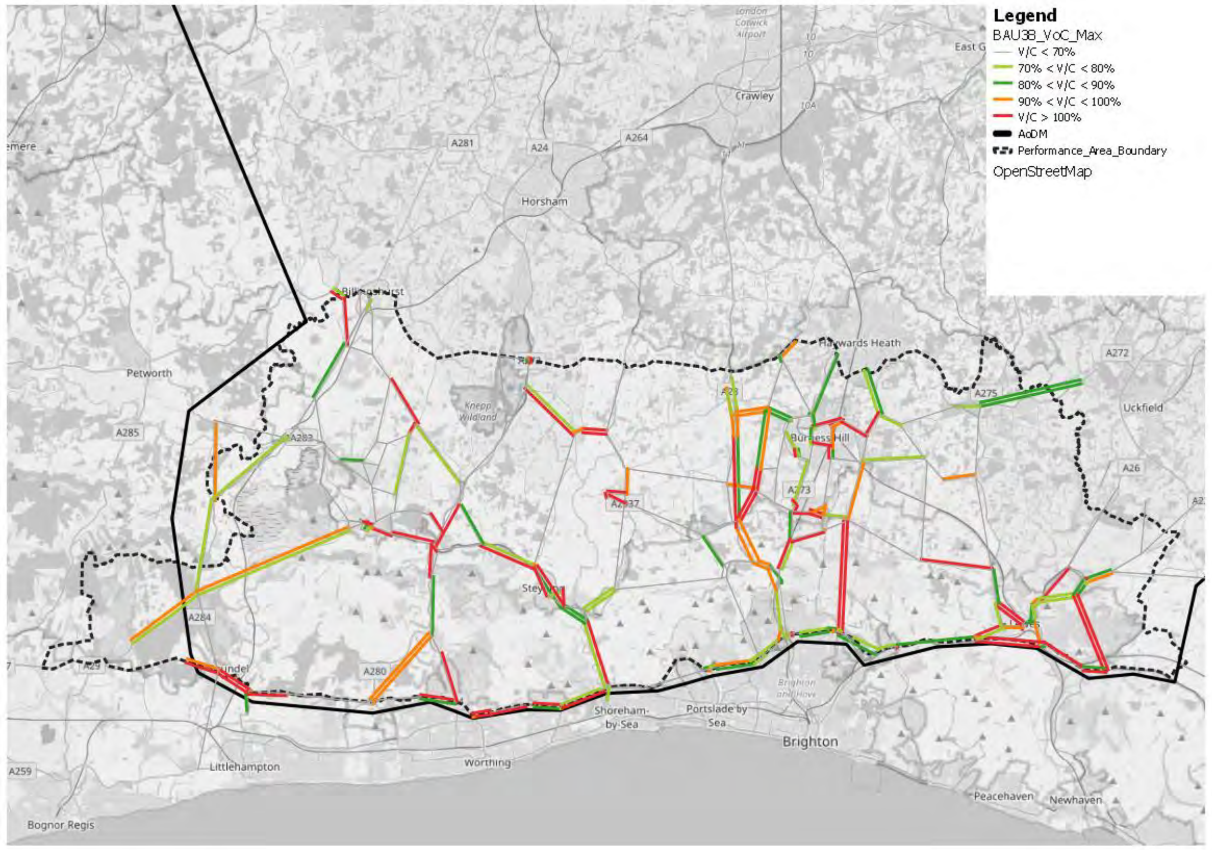
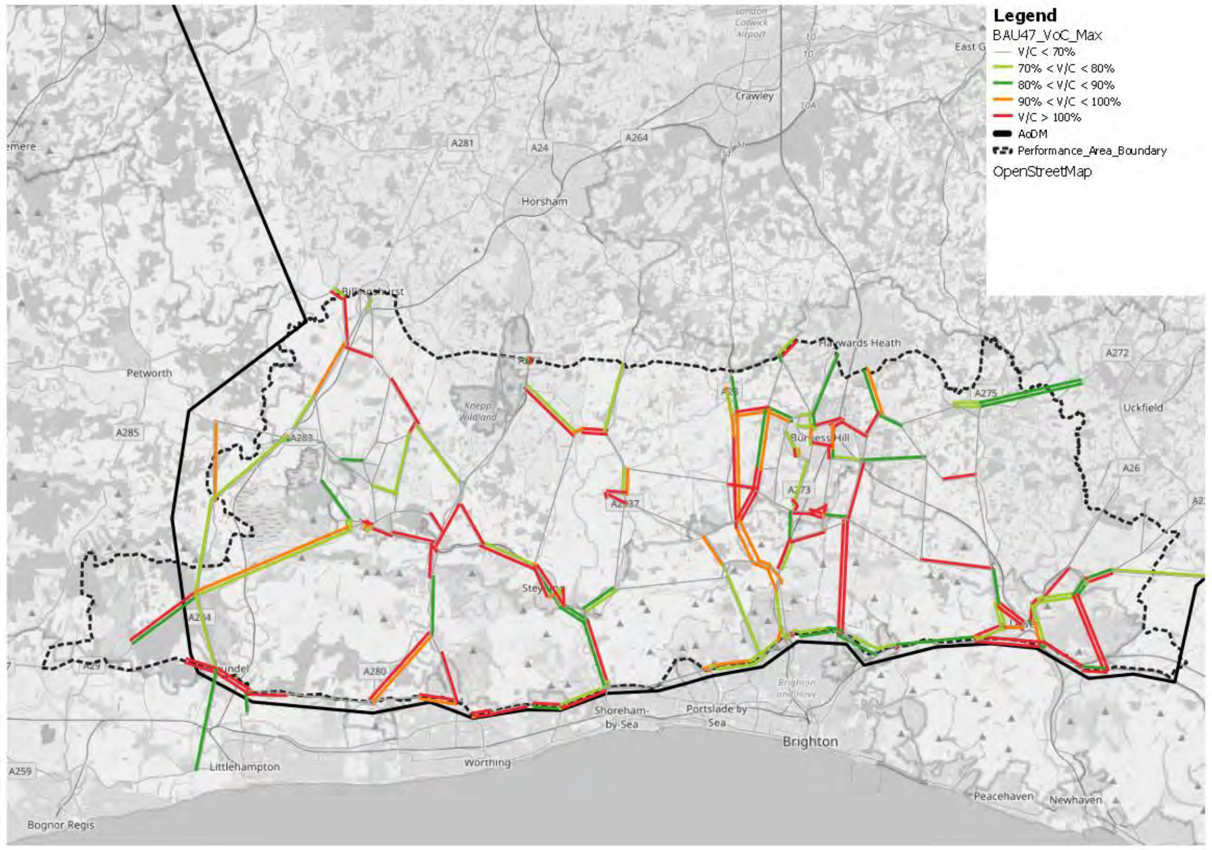


Figure 125: Maximum V/C, Future baseline 2047 - Performance Area D



Magnitude of Impact – nodes

11.9.46 This section identifies the magnitude of impact identified for nodes for each assessment year. The magnitude of impact is in accordance with the criteria specified in Section 6.12, and is shown as 'High', 'Medium' and 'Low'. It should be noted that the impacts identified here are related to the Project, they arise as the result of the growth that is expected in background and airport road traffic if the Project did not proceed.

2016 Base to 2029 Future baseline

11.9.47 Table 105 shows the magnitude of impacts on nodes from 2016 Base to 2029 Future baseline within Performance Area D. The table shows that there are up to five 'High' and three 'Medium' magnitude of impacts across all modelled time periods. The AM2 peak has the highest number of nodes with 'High' and 'Medium' magnitudes of impact.

11.9.48 Figure 126 shows the location of these across all peak periods. The key points are:

- Most of the 'Medium' and 'High' impact junctions are clustered in the Burgess Hill area of the network. This is consistent with the changes seen in the link V/Cs in this area.
- There are no or limited impacts in the rest of the Performance Area.

Table 105: Magnitude of Impacts: Performance Area D – Base 2016 to Future baseline 2029

2029	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	38	219	235	209
Low	4	1	0	2
Medium	1	3	1	2
High	1	5	1	2

2029 to 2032 Future baseline

11.9.49 Table 106 shows the magnitude of impacts on nodes from 2029 to 2032 Future baselines within Performance Area D. The table shows that there are no 'High' and up to three 'Medium' magnitude of impacts across all modelled time periods. The AM2 peak has the highest number of nodes with 'High' and 'Medium' magnitudes of impact. Figure 127 shows the location of these across all peak periods.

Table 106: Magnitude of Impacts: Performance Area D – Future baseline 2029 to Future baseline 2032

2032	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	14	184	189	173
Low	2	5	0	5
Medium	1	3	0	1
High	0	0	0	0

2032 to 2038 Future baseline

11.9.50 Table 107 shows the magnitude of impacts on nodes from 2032 to 2038 Future baselines within Performance Area D. The table outlines that there is one 'High' and up to three 'Medium' magnitude impacts across all modelled periods, with the maximum occurring in the AM2 time period. Figure 128 shows the location of these across all peak periods.

11.9.51 The locations being flagged with impacts at any level are similar to those in 2029 and 2032 Future baselines, mainly clustered around Burgess Hill which sees increases in link V/Cs over time also.

11.9.52 This year sees some new locations flagging impacts, such as in High Street/Littleworth Lane in Partridge Green which is flagged in the PM model. A review of the model indicates that this is likely due to model noise in this location, whereby there is an increase east-west through Partridge Green rather than through Steyning to the south.

Table 107: Magnitude of Impacts: Performance Area D – Future baseline 2032 to Future baseline 2038

2038	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	22	195	236	212
Low	8	9	0	1
Medium	1	3	0	6
High	0	1	0	0

2038 to 2047 Future baseline

11.9.53 Table 108 shows the magnitude of impacts on nodes from 2038 to 2047 Future baselines within Performance Area D. The table shows that there are five 'High' and a maximum of seven 'Medium' magnitude of impacts across all modelled time periods. The AM2 peak has the highest number of nodes with 'High' and 'Medium' magnitudes of impact. Figure 129 shows the location of these across all peak periods.

Table 108: Magnitude of Impacts: Performance Area D – Future baseline 2038 to Future baseline 2047

2047	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	26	170	216	213
Low	7	7	2	6
Medium	1	5	0	7
High	1	5	0	0

Figure 126: Magnitude of Impacts: Performance Area D – Base 2016 to Future baseline 2029

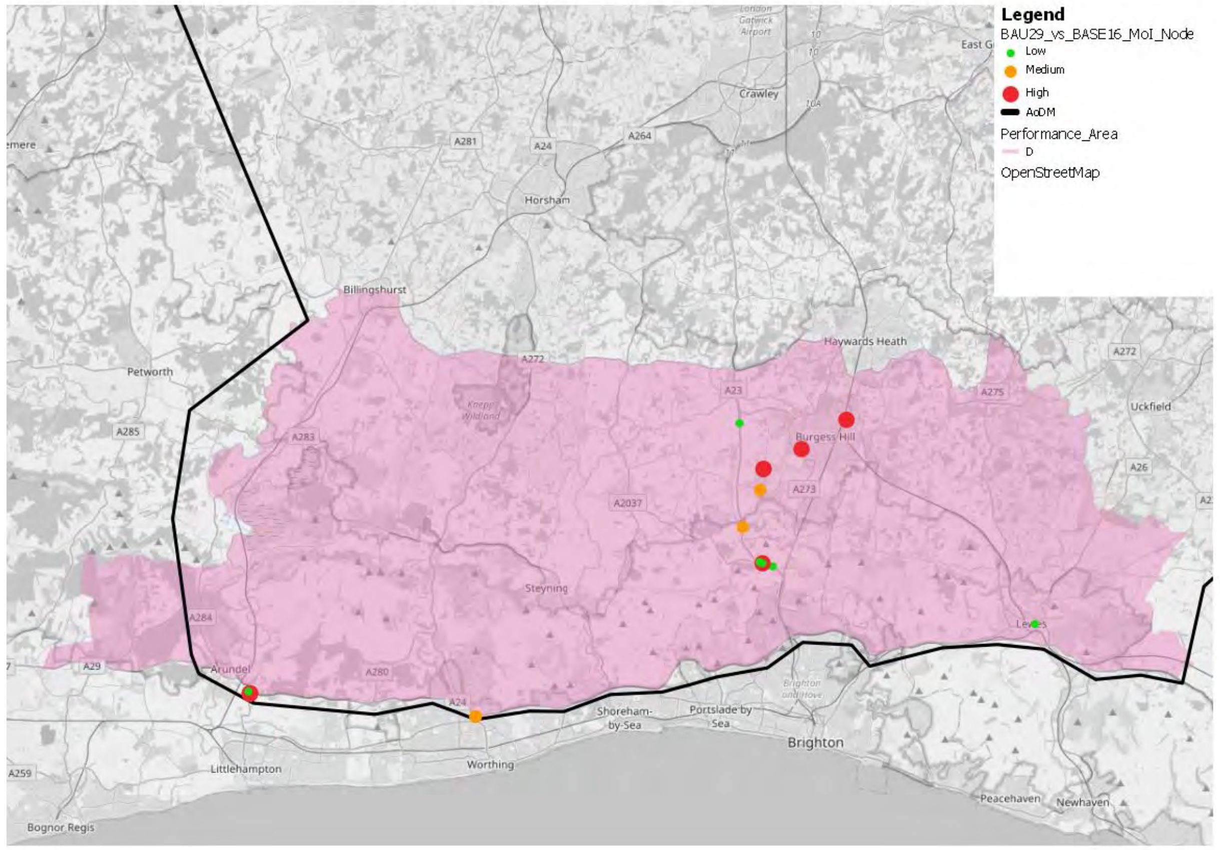


Figure 127: Magnitude of Impacts: Performance Area D – Future baseline 2029 to Future baseline 2032

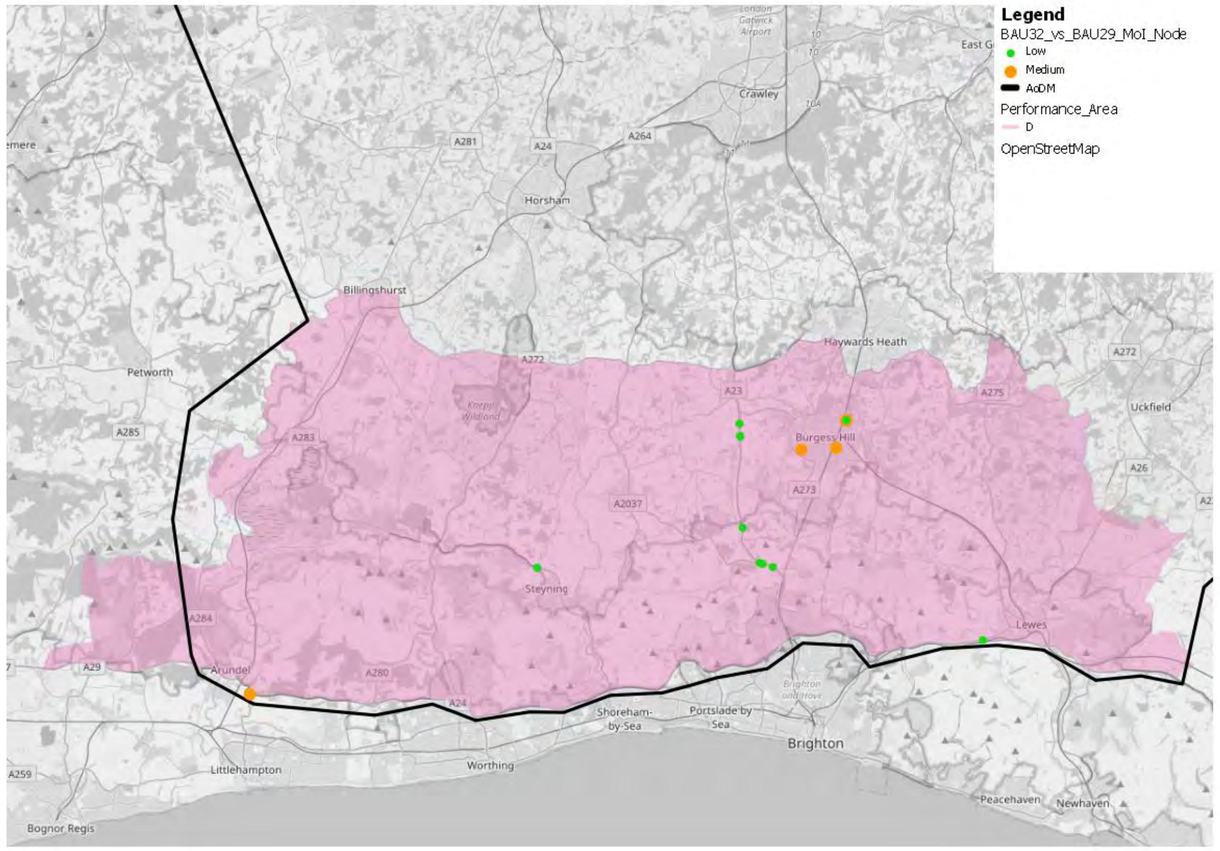


Figure 128: Magnitude of Impacts: Performance Area D – Future baseline 2032 to Future baseline 2038

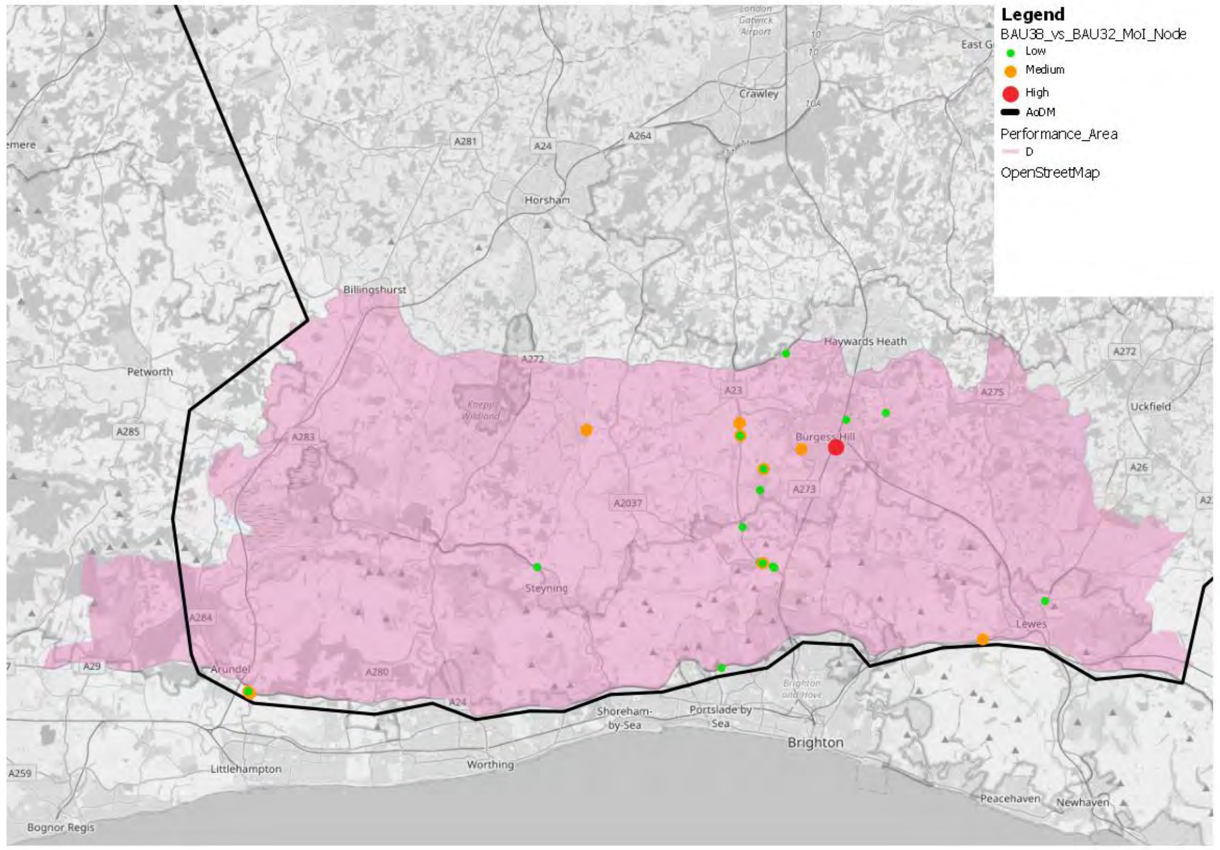
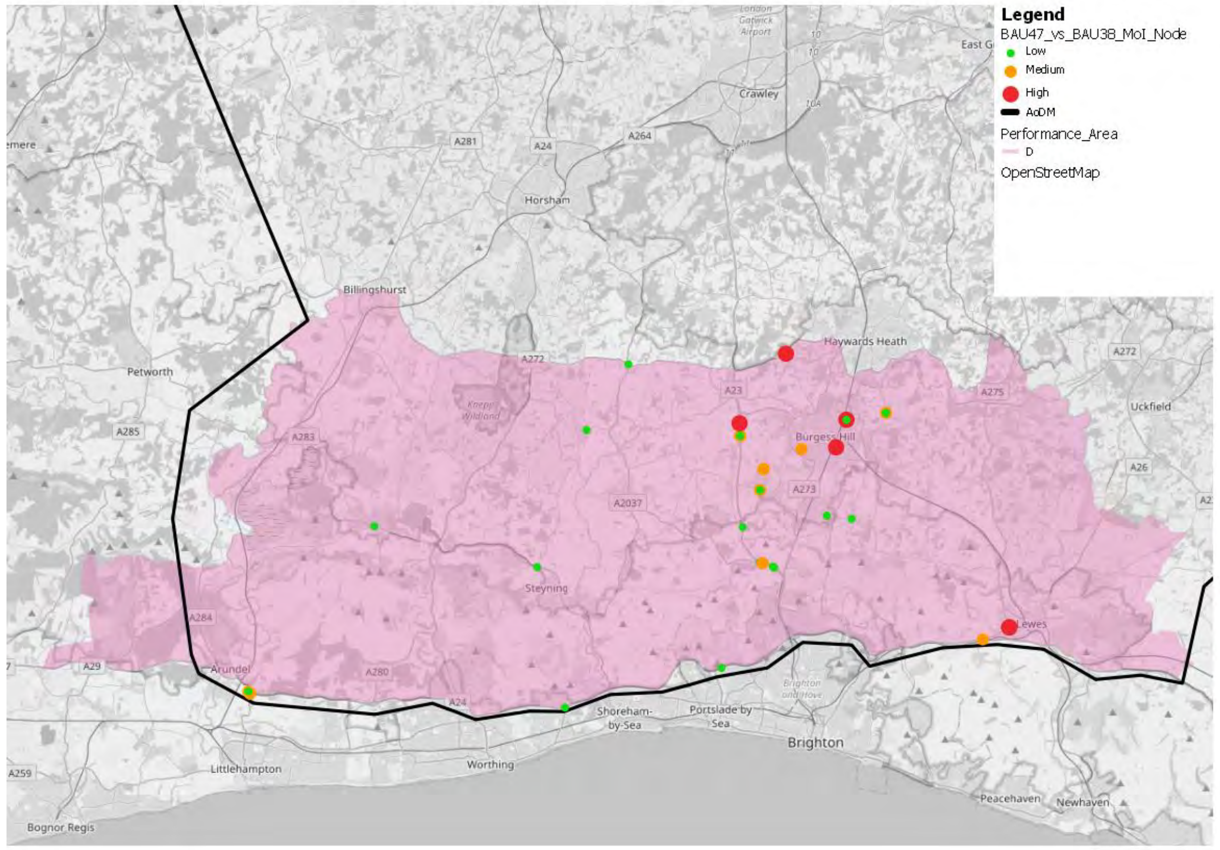


Figure 129: Magnitude of Impacts: Performance Area D – Future baseline 2038 to Future baseline 2047



11.10 Future baseline rail network performance

Assignment statistics

11.10.1 Table 109 shows network statistics for the Baseline (post-VDM) rail assignments. The three off peak assignment periods (OP1, OP2, OP3) are aggregated to a single OP period, and all assignment periods are combined for the 24-hour results. These statistics include all demand (airport and non-airport).

11.10.2 A summary of the table is:

- There are 6.6m trips per day in 2016 model rising to 9.67m in the 2047 model (47% growth);
- Average trip speed rises from 52 km/h in 2016 to 56 km/h in 2047;
- Average trip length rises from 26 km in 2016 to 31 km in 2047; and
- Average trip time rises from 30 mins in 2016 to 33 mins in 2047.

Table 109: Rail assignment network statistics, Baseline

Period	Metric	2016	2018/19	2029	2032	2038	2047
AM	Pax Trips (m)	1.66	1.74	2.01	2.08	2.18	2.34
	Pax Km (m)	36.60	39.58	45.41	47.04	50.38	55.98
	Pax Hr (m)	0.78	0.84	0.96	0.99	1.05	1.15
	Avg speed km/h	46.7	47.1	47.4	47.5	47.8	48.5
	Avg km/trip	22.0	22.7	22.5	22.7	23.1	24.0
	Avg mins/trip	28.3	29.0	28.6	28.7	29.0	29.6
IP	Pax Trips (m)	1.81	1.90	2.24	2.33	2.50	2.75
	Pax Km (m)	52.95	57.95	69.55	73.75	83.01	99.50
	Pax Hr (m)	0.95	1.03	1.22	1.29	1.41	1.63
	Avg speed km/h	55.9	56.1	56.9	57.4	58.7	61.0
	Avg km/trip	29.3	30.5	31.0	31.6	33.2	36.1
	Avg mins/trip	31	33	33	33	34	36
PM	Pax Trips (m)	1.37	1.43	1.68	1.74	1.84	1.99
	Pax Km (m)	30.78	33.63	39.68	41.67	45.89	53.22
	Pax Hr (m)	0.61	0.67	0.78	0.82	0.89	1.00
	Avg speed km/h	50.2	50.3	50.7	51.0	51.8	53.2
	Avg km/trip	22.5	23.5	23.7	24.0	25.0	26.7
	Avg mins/trip	27	28	28	28	29	30
OP	Pax Trips (m)	1.75	1.84	2.16	2.23	2.37	2.58
	Pax Km (m)	50.08	54.32	64.60	67.92	75.03	87.29
	Pax Hr (m)	0.97	1.04	1.21	1.27	1.37	1.55
	Avg speed km/h	51.9	52.4	53.2	53.6	54.7	56.5
	Avg km/trip	28.6	29.6	30.0	30.4	31.7	33.8
	Avg mins/trip	33	34	34	34	35	36
24hr	Pax Trips (m)	6.59	6.91	8.09	8.38	8.88	9.67
	Pax Km (m)	170.41	185.48	219.24	230.37	254.31	295.98
	Pax Hr (m)	3.31	3.58	4.18	4.36	4.72	5.33
	Avg speed km/h	51.5	51.8	52.4	52.8	53.8	55.5
	Avg km/trip	25.9	26.9	27.1	27.5	28.6	30.6
	Avg mins/trip	30	31	31	31	32	33

Fast services, morning peak, northbound

11.10.3 In this section, Brighton Main Line train load factors are provided for the morning peak and shoulder hours (06:00-11:00).

11.10.4 A value less than 1 means there are unoccupied seats; a value of 1 means all seats are taken; a value greater than 1 means all seats are taken and there are standing passengers. It should be noted that this assumes even loading across the train whereas, in reality, some carriages may be busier than others due to passenger behaviour / station configuration.

- Green shading: Up to 85% of seats occupied, no passengers standing;
- Yellow shading: 85-100% of seats occupied, no passengers standing; and
- Red shading: All seats occupied plus passengers standing.

11.10.5 Table 110 to Table 115 show train load factors for fast trains in the morning peak and shoulder hours (0600-1100) for the peak (northbound) direction for the 2016 Base and Future baseline scenarios. The fast trains are the services that run non-stop between Gatwick and East Croydon via the Quarry Line (bypassing Redhill) and either run non-stop to London or call at just one or two stations between Gatwick and London (East Croydon, Clapham Junction). These are the services that are attractive to Gatwick air passengers.

11.10.6 The considerable change in load factors seen between 2016 and 2018/19 is because there was a reduced/altered timetable in 2016 due to the Thameslink Programme including closure of the Thameslink platforms at London Bridge station.

11.10.7 In all cases the forecast volumes are well within the train total capacity (when both seating and standing are included). There are some periods when standing is expected. In the Future baselines, standing is forecast between Gatwick and East Croydon for one hour in 2038 (09:00-10:00) and for two hours in 2047 (08:00-10:00).

Table 110: Load factors: Morning peak northbound, fast trains, Base 2016

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.31	0.36	0.48	0.37	0.28
07:00	AM	0.50	0.67	0.75	0.70	0.97
08:00	AM	0.57	0.76	0.86	0.81	1.11
09:00	IP	0.35	0.66	0.76	0.63	0.60
10:00	IP	0.22	0.41	0.48	0.39	0.38

Table 111: Load factors: Morning peak northbound, fast trains, Base 2018/19

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.49	0.54	0.48	0.34	0.81
07:00	AM	0.54	0.66	0.83	0.77	1.07
08:00	AM	0.62	0.75	0.95	0.88	1.22
09:00	IP	0.36	0.70	0.75	0.58	1.10
10:00	IP	0.23	0.44	0.47	0.37	0.69

Table 112: Load factors: Morning peak northbound, fast trains, Future baseline 2029

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.53	0.61	0.35	0.31	1.07
07:00	AM	0.61	0.76	0.92	0.84	1.20
08:00	AM	0.70	0.87	1.05	0.96	1.37
09:00	IP	0.44	0.85	0.85	0.66	1.31
10:00	IP	0.28	0.53	0.54	0.42	0.82

Table 113: Load factors: Morning peak northbound, fast trains, Future baseline 2032

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.56	0.65	0.37	0.33	1.12
07:00	AM	0.64	0.80	0.95	0.86	1.24
08:00	AM	0.73	0.91	1.09	0.99	1.41
09:00	IP	0.47	0.90	0.90	0.69	1.38
10:00	IP	0.30	0.57	0.57	0.44	0.87

11.10.8 Table 116 shows supply and demand metrics in the 'worst' forecast hour, meaning the hour when the seated load factor peaks. This is in the 'shoulder peak', 09:00-10:00 northbound, rather than in the 'high peak' because, although demand is lower than in the high peak, the train capacity is starting to tail off. This is assuming the timetable (supply profile) of December 2019 is the same in 2047. This could be mitigated by increasing the frequency (capacity is available).

Table 114: Load factors: Morning peak northbound, fast trains, Future baseline 2038

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.62	0.72	0.39	0.35	1.22
07:00	AM	0.70	0.87	1.00	0.91	1.32
08:00	AM	0.81	1.00	1.15	1.04	1.51
09:00	IP	0.54	1.01	0.98	0.76	1.51
10:00	IP	0.34	0.64	0.61	0.48	0.95

Table 115: Load factors: Morning peak northbound, fast trains, Future baseline 2047

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.71	0.82	0.43	0.38	1.37
07:00	AM	0.80	0.98	1.08	0.97	1.44
08:00	AM	0.92	1.12	1.24	1.11	1.65
09:00	IP	0.67	1.19	1.11	0.86	1.74
10:00	IP	0.42	0.75	0.70	0.54	1.10

Table 116: Most crowded hour, 2047

	Northbound AM	
	Future baseline	With Project
Worst hour (highest seated load factor)	09:00-10:00	09:00-10:00
Passengers in worst hour	4,733	4,926
Seated capacity in worst hour	2,717	2,717
Seated Load Factor in worst hour	1.74	1.81
Standers in worst hour	2,015	2,209
Standing capacity in worst hour	3,917	3,917
% of standing space occupied in worst hour	51%	56%

Fast services, evening peak, southbound

11.10.9 The tables right show the train load factors in the evening peak and shoulder hours (15:00-20:00) for the peak (southbound) direction for the 2016 Base and Future baseline scenarios.

11.10.10 In the Future baselines, standing is forecast between East Croydon and Gatwick for one hour in 2038 (18:00-19:00) and for two hours in 2047 (17:00-19:00).

11.10.11 Table 123 shows supply and demand metrics in the 'worst' forecast hour, meaning the hour when the seated load factor peaks. This is in the 'shoulder peak', 18:00-19:00 southbound, rather than in the 'high peak' because, although demand is lower than in the high peak, the train capacity is starting to tail off. This is assuming the timetable (supply profile) of December 2019 is the same in 2047. This could be mitigated by increasing the frequency (capacity is available).

11.10.12 The highest crowding is between London Bridge and East Croydon 18:00-19:00 when about three-quarters of the available standing space on the Fast Thameslink services is taken up (75% in Baseline, 77% With Project).

11.10.13 The highest load factors in the busiest hour are in 2047, shown in Table 122, which are:

- between East Croydon and Gatwick: 1.22
- between London Bridge and East Croydon: 2.09

11.10.14 The services into London Bridge from the Brighton Main Line are operated using Class 700 trains, mostly 12 car sets. These have 664 seats. A load factor of 2.09 means there are 664 seated passengers and 724 standing passengers; a total of 1,388 passengers on the train. The official standing capacity of these trains is 1,081. Therefore, two-thirds of the standing space is taken up at a load factor of 2.09. The travel time between London Bridge and East Croydon is within the 20-minute threshold that DfT use as guidance for acceptable standing, as long as the standing capacity is not exceeded, which it isn't.

11.10.15 Between East Croydon and Gatwick most travellers in this section will be going to/from London and this is more than a 20-minute journey; DfT guidance is that the operator should endeavour to seat these passengers. With the maximum load factor of 1.22 however there is some low density standing predicted (approximately 15% of standing capacity being taken up).

Table 117: Load factors: Evening peak southbound, fast trains, Base 2016

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.45	0.51	0.17	0.43	0.18
16:00	PM	0.73	0.83	0.63	0.51	0.36
17:00	PM	0.90	1.02	0.77	0.63	0.44
18:00	OP1	0.79	0.84	0.25	0.67	0.51
19:00	OP1	0.61	0.65	0.19	0.51	0.39

Table 118: Load factors: Evening peak southbound, fast trains, Base 2018/19

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.36	0.44	0.54	0.44	0.20
16:00	PM	0.68	0.77	0.93	0.54	0.36
17:00	PM	0.83	0.95	1.13	0.66	0.44
18:00	OP1	0.74	0.76	0.85	0.69	0.58
19:00	OP1	0.57	0.58	0.65	0.53	0.44

Table 119: Load factors: Evening peak southbound, fast trains, Future baseline 2029

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.34	0.45	0.68	0.44	0.22
16:00	PM	0.75	0.87	1.06	0.64	0.42
17:00	PM	0.92	1.06	1.30	0.79	0.51
18:00	OP1	0.81	0.86	1.63	0.86	0.70
19:00	OP1	0.62	0.66	1.25	0.66	0.54

Table 120: Load factors: Evening peak southbound, fast trains, Future baseline 2032

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.35	0.48	0.71	0.47	0.24
16:00	PM	0.78	0.90	1.09	0.68	0.44
17:00	PM	0.96	1.11	1.34	0.84	0.54
18:00	OP1	0.84	0.91	1.70	0.92	0.75
19:00	OP1	0.65	0.70	1.31	0.71	0.57

Table 121: Load factors: Evening peak southbound, fast trains, Future baseline 2038

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.37	0.51	0.77	0.52	0.29
16:00	PM	0.84	0.97	1.15	0.76	0.50
17:00	PM	1.03	1.19	1.41	0.92	0.62
18:00	OP1	0.91	0.99	1.85	1.04	0.85
19:00	OP1	0.70	0.76	1.42	0.80	0.65

11.10.16 Table 117 to Table 123 show the key information. Full details of loadings for all 24 hours of the day are provided in Appendix G.

11.10.17 Train loading and crowding analyses have also been undertaken for the Arun Valley Line (between Billingshurst and Gatwick) and the North Downs Line (between Guildford and Gatwick). A summary of the results from the 2047 Future baseline analysis is shown in Table 124 (other modelled years have lower load factors). In summary:

- there is sufficient capacity in all years on the Arun Valley Line in the baseline scenarios; and
- there is sufficient capacity in all years on the North Downs Line except between Reigate and Redhill where load factors rise just above 1 indicating low density standing associated with the short hop between Redhill and Reigate made by Reigate commuters who interchange to/from mainline services at Redhill. The load factors exceed 1 only on this one link and only for one hour.

Table 122: Load factors: Evening peak southbound, fast trains, Future baseline 2047

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.41	0.57	0.87	0.61	0.37
16:00	PM	0.91	1.06	1.26	0.87	0.60
17:00	PM	1.12	1.30	1.54	1.07	0.74
18:00	OP1	1.02	1.12	2.09	1.22	1.01
19:00	OP1	0.78	0.86	1.60	0.93	0.78

Table 123: Most crowded hour, 2047

	Southbound PM	
	Future baseline	With Project
Worst hour (highest seated load factor)	18:00-19:00	18:00-19:00
Passengers in worst hour	7,852	7,931
Seated capacity in worst hour	3,763	3,763
Seated Load Factor in worst hour	2.09	2.11
Standers in worst hour	4,089	4,168
Standing capacity in worst hour	5,423	5,423
% of standing space occupied in worst hour	75%	77%

Table 124: Summary of Peak Load factors for Arun Valley and North Downs Lines, Future baseline 2047

	Peak load factor	Hour	On departure from
Arun Valley NB Fasts	1.00	08:00-09:00	Crawley
Arun Valley SB Fasts	0.79	18:00-19:00	Horsham
Arun Valley NB Stoppers	0.64	08:00-09:00	Crawley
Arun Valley SB Stoppers	0.75	18:00-19:00	Three Bridges
North Downs Line EB	1.10	07:00-08:00	Reigate
North Downs Line WB	0.99	16:00-17:00	Redhill

11.11 Future bus/coach airport service performance

11.11.1 For bus and coach, operators can adjust frequencies and capacity as Gatwick demand grows to manage loadings far more readily than can be done with rail. Coach and bus loadings are therefore not assessed against a fixed capacity plan.

11.11.2 To calculate times and costs for the choice models, it was assumed that the frequency of existing coach routes operated by National Express and Megabus to/from Gatwick will rise proportionally with Gatwick demand. For example, if there are 6 buses/day on a particular route in the base this is assumed to rise to around 8 a day (+33%) in the 2029 Future baseline. Where possible the additional services are inserted into the schedule at times when there is a gap in service. The frequency uplifts for the Future baseline scenarios are shown in Table 125.

Table 125: Future baseline coach frequency uplift assumptions – existing routes

	2029	2032	2038	2047
Future baseline	+33%	+37%	+44%	+56%

11.11.3 In addition, the following new coach routes are assumed in the Future baseline:

- Chatham – Maidstone – Sevenoaks – Gatwick (two-hourly);
- Uckfield – East Grinstead – Gatwick (hourly in peaks, two-hourly at other times); and
- Romford – Hornchurch – Upminster – Dartford – Gatwick (hourly).

11.11.4 The Romford service is a partial reinstatement of the Chingford route operated by Airport Express before its liquidation in 2019; other routes operated by this company – to Southend and Rayleigh – are not reinstated.

11.11.5 The baseline coach routes and daily services are summarised in Table 126.

Table 126: Daily coaches serving Gatwick in each direction, Baseline

Terminus	via LHR?	Base 2016	Base 2029	Base 2032	Base 2038	Base 2047
Bexley		0	0	0	0	0
Bognor Regis		2	2	2	2	2
Brighton		16	22	23	24	26
Bristol	via LHR	6	8	8	8	9
Cardiff	via LHR	7	10	10	10	11
Chatham		0	12	12	12	12
Chingford/Romford		12	24	24	24	24
Derby	via LHR	8	12	12	13	14
Heathrow	via LHR	5	7	7	7	8
Northampton	via LHR	7	9	10	10	11
Norwich	via LHR	9	12	12	13	14
Nottingham	via LHR	2	4	4	4	4
Oxford		20	27	27	29	31
Park Royal		9	12	13	13	14
Poole		8	11	11	11	13
Rayleigh		12	0	0	0	0
Reading	via LHR	1	1	1	1	1
Southend		12	0	0	0	0
Swansea	via LHR	10	13	14	14	16
Tunbridge Wells		0	0	0	0	0
Uckfield		0	14	14	14	14
Victoria		45	62	64	67	73
Wolverhampton	via LHR	6	8	8	9	9
Worthing		3	3	4	4	4
TOTAL		**197**	**271**	**278**	**289**	**310**
LGW-LHR total	*via LHR*	*58*	*83*	*86*	*89*	*97*

11.11.6 It is assumed that local buses will operate at the same frequencies in future years as in the Base, with the following exceptions:

- Metrobus 4/5 (Pound Hill): increase from 4 to 6 buses per hour (bph) daytime; from 2 to 4 bph early and late;
- Metrobus 10 (Bewbush): increase from 8 to 10 bph daytime; from 4 to 6 bph early and late;
- Metrobus 20 (Pease Pottage, Horley): increase from 4 to 6 bph daytime; from 2 to 4 bph early and late;
- Metrobus 22 (Holmbury St Mary): increase from ½ to 2 bph peak; from ½ to 1 bph off-peak; and
- Metrobus 100 (Maidenbower, Redhill): increase from 4 to 6 bph daytime; from 2 to 4 bph early and late.

11.11.7 The frequency of local bus services at Gatwick South Terminal are summarised in Table 127.

Table 127: Local bus frequencies per direction, all routes combined, Gatwick South

Period	Base 2016	Future baseline
AM (07:00-09:00) per hr	27	38
IP (09:00-16:00) per hr	29	36
PM (16:00-18:00) per hr	30	39
OP1 (18:00-00:00) per hr	16	23
OP2 (00:00-04:00) per hr	7	15
OP3 (04:00-0700) per hr	17	25
Daily total per 24hr	485	674

11.12 Future bus/coach demand

11.12.1 Table 128 and Table 129 show the daily forecast bus/coach demand by area for the baseline scenarios for air passengers and airport employees respectively.

11.12.2 The local bus network principally serves the airport employees, while coach is principally used by air passengers. Air passenger demand is forecast to grow at a higher rate than airport employees hence the growth for coach use is higher than for local bus.

Table 128: Gatwick bus/coach air passenger tours, Baseline, 24hr

		Base	2029 Future baseline	2032 Future baseline	2038 Future baseline	2047 Future baseline
Local Bus	Crawley	151	215	223	231	237
	Mole Valley	5	20	21	21	21
	Reigate and Banstead	51	78	81	84	86
	Tandridge	2	3	3	3	3
	Mid Sussex	15	24	25	26	27
	Horsham	16	23	24	25	25
Long distance bus and coach	Brighton and Hove	156	275	293	312	338
	Rest of West Sussex	39	67	72	76	82
	Rest of Surrey	15	38	40	41	42
	East Sussex	39	89	93	96	100
	Kent	60	371	391	400	409
	London	1,194	1,649	1,724	1,796	1,876
	Hampshire	191	387	414	430	464
	Ox, Bucks, Berks	481	731	773	806	840
	REST OF UK	1,095	1,805	1,905	1,961	2,024
	TOTAL	**3,509**	**5,776**	**6,083**	**6,307**	**6,574**

Table 129: Gatwick Bus/coach airport employee tours, Baseline, 24hr

		Base	2029 Future baseline	2032 Future baseline	2038 Future baseline	2047 Future baseline
Local Bus	Crawley	1,772	2,255	2,304	2,378	2,494
	Mole Valley	2	3	3	3	3
	Reigate and Banstead	132	215	221	230	243
	Tandridge	9	12	13	13	14
	Mid Sussex	28	61	63	65	69
	Horsham	51	61	62	63	65
Long distance bus and coach	Brighton and Hove	59	103	111	122	142
	Rest of West Sussex	3	5	5	6	7
	Rest of Surrey	0	0	0	0	0
	East Sussex	8	11	11	12	14
	Kent	0	0	0	0	0
	London	49	62	64	67	71
	Hampshire	0	0	0	0	0
	Ox, Bucks, Berks	8	12	13	14	16
	REST OF UK	16	23	25	27	30
	TOTAL	**2,137**	**2,823**	**2,893**	**2,999**	**3,168**

11.13 Convergence

Variable Demand Model

11.13.1 The VDM is run for a fixed 6 cycles. The target convergence criterion from DfTs TAG is to achieve a percentage Gap below 0.1%. The convergence details for the Baseline scenarios are shown in Table 130.

Table 130: VDM convergence - Baseline

Scenario	% Gap at completion	Converged (Gap <0.1%)?
Future baseline 2029	0.04%	Yes
Future baseline 2032	0.05%	Yes
Future baseline 2038	0.08%	Yes
Future baseline 2047	0.09%	Yes

Highway assignment model

11.13.2 Table 131 lists out the highway assignment model convergence statistics for the Future baseline models. This shows in all instances that the models meet the acceptable values set out within TAG Unit M3.1.

Table 131: Highway Assignment model convergence (last four iterations) - Baseline

Scenario	Measure of convergence	Model acceptable values	AM1	AM2	IP	PM
2029 Future baseline	Delta and %GAP	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.0096 0.011 0.010 0.011	0.0080 0.0059 0.0093 0.0082	0.0095 0.010 0.0089 0.0073	0.0092 0.011 0.0084 0.0095
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	96.3 97.5 98.2 97.5	97.7 97.8 98.1 97.7	97.7 97.6 97.6 97.5	98.0 97.7 97.5 98.2
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	97.8 98.3 98.2 98.1	97.9 98.3 98.4 98.2	98.8 98.8 98.8 98.8	97.9 97.7 97.8 98.0
2032 Future baseline	Delta and %GAP	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.013 0.011 0.012 0.013	0.0062 0.0093 0.0062 0.0089	0.0084 0.0077 0.010 0.0077	0.010 0.011 0.010 0.0089
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	96.8 97.8 98.0 98.0	97.5 97.8 97.6 97.8	97.7 97.8 98.1 97.6	97.5 97.8 97.7 97.7
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	97.8 98.2 98.4 97.9	98.4 98.4 98.3 98.4	98.7 98.8 98.9 98.8	97.8 97.9 97.7 97.8
2038 Future baseline	Delta and %GAP	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.013 0.013 0.013 0.012	0.0082 0.012 0.0080 0.012	0.010 0.0076 0.0080 0.0063	0.012 0.012 0.012 0.011
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	97.8 97.7 97.9 97.9	97.4 97.7 97.5 97.8	98.1 98.0 98.7 98.6	97.7 97.8 97.6 97.7
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	98.0 98.0 98.0 98.1	98.0 98.3 98.2 98.2	98.6 98.7 98.9 98.9	97.4 97.4 97.5 97.6

Scenario	Measure of convergence	Model acceptable values	AM1	AM2	IP	PM
2047 Future baseline	**Delta and %GAP**	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.020 0.018 0.016 0.016	0.012 0.011 0.012 0.017	0.0092 0.0066 0.0087 0.0081	0.010 0.0092 0.010 0.0077
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	97.0 97.6 97.8 97.7	98.2 97.9 98.3 97.8	98.4 98.3 98.8 98.3	97.5 98.1 98.5 98.4
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	97.4 97.9 98.0 97.8	97.8 98.0 98.1 97.8	98.7 98.8 98.9 98.7	97.7 98.1 98.1 98.3

Rail assignment model

11.13.3 Table 132 shows the crowded rail assignment model convergence statistics for AM and PM periods for the Future baseline models. There is no criterion given in TAG so we have assumed the same as for the demand model: that the percentage gap in the measure of total weighted time is less than 0.1%. In all instances the models meet the criterion by the final iteration.

Table 132: Rail assignment model convergence - Baseline

Iteration 12 (final)	2029 Future baseline	2032 Future baseline	2038 Future baseline	2047 Future baseline
Gap AM Peak	0.06%	0.06%	0.07%	0.09%
Gap PM Peak	0.04%	0.04%	0.05%	0.07%

11.14 Summary and conclusions

11.14.1 This chapter sets out the highway and public transport analysis for the Future baseline. The impacts are a consequence of the background growth projected across the study area, in the absence of further mitigation schemes, particularly in the latter part of the assessment period. The analysis shows that over the period between 2016 and 2047, there would be increases in traffic flows (and consequently congestion and increases in travel times), and in rail passengers (and consequently some reduction in spare seating and standing capacity).

Mode shares

11.14.2 In the Future baseline scenarios, airport passenger surface access mode shares are forecast to continue to move away from car and towards public transport modes. This is as congestion/journey times increase on the highway network, parking and forecourt charges are raised, and improvements are made to bus and rail provision. The key points to note regarding annual average surface access mode shares for air passengers are:

- Public transport shares increasing from 43% in 2016 to 52% in 2047;
- Car (parked) share falling from 23% to 19%;
- Car kiss & fly share falling from 15% to 12%; and
- Car rental (2%) and taxi (16%) remaining broadly stable.

11.14.3 Gatwick employee public transport mode shares are forecast to rise, from 29% in 2016 to 35% in 2047, as congestion increases on the highway network and as bus and coach services are enhanced. The key points are:

- Car solo share falling from 55% to 50%;
- Public transport share rising from 29% to 35%; and
- Car share (7%), company transport (5%), and active (4%) remaining broadly stable.

Highway impacts

11.14.4 The VDM causes highway trips to grow by a further 6 percentage points over the reference case. This is principally the result of trip lengthening due to the increase in the value of time in real terms. This means that trips which were intra-zonals in the 2016 Base, and therefore uncounted in the SATURN assignment, becomes inter-zonals in the Future baseline years. Overall growth in daily road traffic between 2016 to 2047 post-VDM is 38%, an average annual growth rate of 1% per year, with the lowest growth in the AM peak (36%) and the highest in the IP (40%).

11.14.5 There is an increase in road traffic flows across the highway network over the period between 2016 and 2047 within the Future baseline scenarios, due to the background growth projected across the study area.

11.14.6 The most significant increase in road traffic is on the SRN, resulting in increased congestion and journey times over the modelled period. Additionally, the majority of the M25 within the AoDM has a V/C of over 90% from 2032 onwards and there are sections of both the M23 and A27 with V/C over 90%.

11.14.7 In Performance Area A, the model shows a number of impacts in the vicinity of the airport as a consequence of baseline growth. The Future baseline scheme at South Terminal and North Terminal plays a role in helping to mitigate these impacts but further mitigation is still needed as detailed in Section 1. The microsimulation model also provides useful insights on the operation of the network in this area, see **Transport Assessment**.

11.14.8 In Performance Area B, the model shows that the majority of affected nodes are on the M25 in both directions between J6 and J8, which is again due to significant forecast growth. There are also impacts shown in the model such as A25 in Redhill and on the A264 at Copthorne and East Grinstead.

11.14.9 In Performance Area C, the model shows a large number of impacts in the Croydon and Sutton, with a small number also on the M25, area due to the significant background growth in these areas. Reviews of the model in this area suggest that much of this is due to the resultant model noise in the area that results from the additional growth to an area that is already congested. This growth has also contributed to increased congestion in the area which has resulted in increased journey times on routes though the area over the modelled period. However, there are limited instances of V/C changing significantly on any links in the area between 2029 and 2047.

11.14.10 In Performance Area D, the model highlights potential impacts of the Future baseline growth ambitions at junctions in the Burgess Hill area, this is alongside increases in the number of links at or over capacity in this area. Other roads such as the A27 and A280 see increasing V/C ratios over the period to 2047.

11.14.11 Convergence results have been reviewed for each Future baseline scenario which show the models converged to a reasonable level and in line with guidance. The network summary statistics show the model is providing logical responses over the modelled years.

Public transport impacts

11.14.12 The VDM causes combined rail trips to grow by a further 19 percentage points over the reference case. This is mainly due to increasing highway congestion and improvements to rail network (eg Crossrail, Thameslink). Overall rail growth between 2016 and 2047 post-VDM is 48%, an annual average growth rate of 1.013% per year.

11.14.13 On the Brighton Main Line, there will be standing in all years in increasing numbers in the peaks between east Croydon and London Bridge. This is a section that takes less than 20-minutes. DfT guidance normally allows for standing in the peaks for 20-minutes or less. It is also noted that the Class 700 trains used on Thameslink services have large open floor areas designed to accommodate large amounts of peak standing.

11.14.14 Between East Croydon and Gatwick there is no standing forecast in the early years but by 2047 there will be some passengers standing 08:00-10:00 northbound and 17:00-19:00 southbound.

11.14.15 There are sufficient seats to accommodate all passengers on Arun Valley and North Downs lines except the short hop between Reigate and Redhill, where all seats may be full for an hour by 2047, with some standing.

11.14.16 National Express and Megabus coach services are assumed to increase frequencies, adjusting capacity to match airport-related coach demand. Additional local bus services part funded by Gatwick will provided extra capacity on buses for employees.

12 Post VDM - core scenario – With Project - results and analysis

12.1 Introduction

12.1.1 This section outlines the results for the With Project scenarios. These are assessed against the Future baseline for 2029, 2032, 2038 and 2047. This section sets out:

- Airport mode shares for both passengers and employees;
- Airport road traffic – providing a summary of the scale of Gatwick related traffic on the network;
- Future highway network performance;
- Future rail trips and crowding levels on Brighton Main Line, Arun Valley and North Downs Line; and
- Future bus/coach demand.

12.2 Airport surface access mode shares - passengers

12.2.1 Table 133 and Table 134 show the forecasts air passenger surface access trips by mode and mode shares respectively for the With Project cases. The key points are:

- There is a reduction in percentage from 24% and 17% in 2016 to 16% and 13% in 2047 for Car (park & fly) and Car (kiss & fly) respectively over the period as a consequence of measures to reduce car use (improved bus and coach options, as well as the introduction of forecourt charging in 2021 and subsequent increases in parking and forecourt charges).
- Between 2016 and 2047 there is a 10-percentage point increase in passengers arriving by rail, and a 3-percentage point increase in passengers arriving by bus or coach.

12.2.2 Table 133 and Table 134 show results for a busy day in the modelled month of June. However, it is more usual to quote mode shares for the annual average day. Expansion factors are used to convert June results to annual averages. This takes proper account of the varying market mix and mode choice decisions made in each of the 12 months. Overall, June public transport share is 40% in 2016 rising to 53% by 2047.

12.2.3 Overall, annual public transport share is 43% in 2016 rising to 56% by 2047. The annual rail mode shares are slightly higher than in June, and vice versa for car, because there are relatively few business trips in June (which tend to have high rail share), and relatively many holiday/leisure trips (which tend to have high car share).

Table 133: With Project air passenger surface access trips (thousands per day, High June)

	Base 16	Base 18/19	With Project 29	With Project 32	With Project 38	With Project 47
Car (park & fly)	31.8	31.8	31.0	34.5	35.7	36.3
Car (kiss & fly)	22.3	22.6	23.7	27.3	28.2	28.5
Car rental	3.1	3.0	3.6	4.2	4.4	4.4
Taxi	22.3	25.4	27.8	32.5	35.0	37.4
Rail	45.7	54.0	76.2	90.7	96.7	101.2
Bus/coach	7.0	7.8	14.2	17.0	18.2	19.0
TOTAL	**132.1**	**144.7**	**176.4**	**206.2**	**218.1**	**226.9**

Table 134: With Project air passenger surface access mode shares, High June (percentage point change from Baseline in brackets)

	Base	Base 18/19	With Project 29	With Project 32	With Project 38	With Project 47
Car (park & fly)	24%	22%	18% (-2.1)	17% (-2.4)	16% (-2.9)	16% (-3.5)
Car (kiss & fly)	17%	16%	13% (-0.2)	13% (-0.2)	13% (-0.2)	13% (-0.1)
Car rental	2%	2%	2% (-0.0)	2% (-0.1)	2% (-0.1)	2% (-0.1)
Taxi	17%	18%	16% (-0.3)	16% (-0.4)	16% (-0.4)	17% (-0.3)
Rail	35%	37%	43% (+1.5)	44% (+1.8)	44% (+2.2)	45% (+2.6)
Bus/coach	5%	5%	8% (+1.1)	8% (+1.2)	8% (+1.3)	8% (+1.4)
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 135: With Project air passenger surface access mode shares, Annual average day

	Base 16	Base 18/19	Future baseline 29	Future baseline 32	Future baseline 38	Future baseline 47
Car (park & fly)	23%	21%	17%	16%	16%	15%
Car (kiss & fly)	15%	14%	12%	12%	12%	11%
Car rental	3%	2%	2%	2%	2%	2%
Taxi	16%	16%	15%	15%	15%	15%
Rail	37%	40%	46%	46%	47%	47%
Bus/coach	6%	6%	9%	9%	9%	9%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

12.3 Airport mode shares – airport employees

12.3.1 Table 136 and Table 137 show the forecasts for airport employee commute trips by mode and mode shares respectively for the With Project cases. The key points are:

- For employees, there is a 10% reduction in car solo between 2016 and 2032/2038/2047.
- Car share and company percentage remains constant over the period, whilst rail increases from 13% to 17% by 2047 and bus share increases from 16% to 21% over the period.

12.3.2 Active mode share remains roughly constant at around 4% throughout owing to the short distance nature of these trips.

12.4 Impact of VDM - highway

12.4.1 Table 138 to Table 141 show the highway matrix totals after the VDM is applied for With Project cases. The number in brackets is the change from Future baseline forecast. The tables illustrate that:

- The non-airport demand changes by a very small proportion relative to the baseline but there are more noticeable changes for the airport employees and passengers.
- This is as a result of the highway mitigation and the surface access strategy impacting highway travel costs.

Table 136: With Project airport employee surface access trips (thousands per day)

	Base 16	Base 18/19	With Project 29	With Project 32	With Project 38	With Project 47
Car solo	15.0	14.8	14.5	16.1	16.5	17.0
Car share	2.1	2.1	2.8	3.0	3.0	2.9
Company	1.4	1.4	1.8	1.9	1.9	1.9
Rail	3.5	3.7	5.4	5.8	6.0	6.3
Bus/coach	4.3	4.4	6.9	7.4	7.6	7.8
Active	1.1	1.1	1.5	1.6	1.6	1.6
TOTAL	**27.4**	**27.6**	**32.8**	**35.8**	**36.7**	**37.6**

Table 137: With Project airport employee surface access mode shares (percentage point change from Baseline in brackets)

	Base	Base 18/19	With Project 29	With Project 32	With Project 38	With Project 47
Car solo	55%	54%	44% (-7.5)	45% (-6.6)	45% (-6.1)	45% (-5.1)
Car share	8%	8%	8% (+1.5)	8% (+1.5)	8% (+1.3)	8% (+1.2)
Company	5%	5%	5% (+0.5)	5% (+0.5)	5% (+0.4)	5% (+0.3)
Rail	13%	14%	16% (+1.9)	16% (+1.5)	16% (+1.3)	17% (+1.1)
Bus/coach	16%	16%	21% (+3.0)	21% (+2.8)	21% (+2.6)	21% (+2.2)
Active	4%	4%	5% (+0.6)	4% (+0.5)	4% (+0.4)	4% (+0.3)
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 138: AM1 1hr forecast highway demand (With Project, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	338,513	393,533	406,766	429,957	461,470	1.16 (0)	1.2 (0)	1.27 (0)	1.36 (0)
Commute	974,674	1,084,262	1,110,017	1,156,584	1,218,152	1.11 (0)	1.14 (0)	1.19 (0)	1.25 (0)
Other	829,264	1,022,982	1,070,582	1,151,235	1,243,014	1.23 (0)	1.29 (0)	1.39 (0)	1.5 (0)
LGV	403,100	481,343	500,134	540,649	591,147	1.19 (0)	1.24 (0)	1.34 (0)	1.47 (0)
HGV	196,074	202,447	205,673	212,746	221,119	1.03 (0)	1.05 (0)	1.09 (0.01)	1.13 (0)
Employees	1,127	1,102	1,236	1,260	1,283	0.98 (-0.1)	1.1 (+0.02)	1.12 (+0.02)	1.14 (+0.04)
Passengers	3,859	4,976	5,891	6,295	6,448	1.29 (+0.08)	1.53 (+0.27)	1.63 (+0.28)	1.67 (+0.31)
Total	2,746,611	3,190,645	3,300,299	3,498,726	3,742,633	1.16 (0)	1.2 (0)	1.27 (0)	1.36 (0)

Table 139: AM2 1hr forecast highway demand (With Project, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	370,093	430,691	445,313	470,872	505,579	1.16 (+0.04)	1.2 (+0.06)	1.27 (+0.08)	1.37 (+0.1)
Commute	1,067,400	1,188,549	1,217,058	1,268,419	1,336,257	1.11 (+0.01)	1.14 (+0.03)	1.19 (+0.04)	1.25 (+0.04)
Other	905,072	1,119,666	1,172,410	1,261,227	1,362,402	1.24 (+0.05)	1.3 (+0.07)	1.39 (+0.09)	1.51 (+0.12)
LGV	306,545	366,033	380,324	411,131	449,524	1.19 (0)	1.24 (0)	1.34 (0)	1.47 (0)
HGV	196,781	203,140	206,371	213,437	221,817	1.03 (0)	1.05 (0)	1.08 (0)	1.13 (0)
Employees	1,090	1,072	1,188	1,208	1,230	0.98 (-0.18)	1.09 (-0.09)	1.11 (-0.1)	1.13 (-0.12)
Passengers	3,877	4,616	5,453	5,788	5,897	1.19 (-0.16)	1.41 (0)	1.49 (+0.01)	1.52 (+0.01)
Total	2,850,858	3,313,767	3,428,117	3,632,082	3,882,706	1.16 (+0.02)	1.2 (+0.04)	1.27 (+0.05)	1.36 (+0.06)

Table 140: IP 1hr forecast highway demand (With Project, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	284,813	332,842	344,483	364,541	391,822	1.17 (+0.05)	1.21 (+0.07)	1.28 (+0.09)	1.38 (+0.11)
Commute	443,737	493,500	505,426	526,667	554,769	1.11 (+0.01)	1.14 (+0.03)	1.19 (+0.04)	1.25 (+0.04)
Other	1,033,915	1,280,268	1,341,488	1,445,274	1,565,347	1.24 (+0.05)	1.3 (+0.07)	1.4 (+0.1)	1.51 (+0.12)
LGV	364,874	435,752	452,794	489,457	535,157	1.19 (0)	1.24 (0)	1.34 (0)	1.47 (0)
HGV	253,058	260,715	264,773	273,648	284,148	1.03 (0)	1.05 (0)	1.08 (0)	1.12 (-0.01)
Employees	680	687	758	777	798	1.01 (-0.15)	1.11 (-0.07)	1.14 (-0.07)	1.17 (-0.08)
Passengers	4,198	3,844	4,281	4,501	4,659	0.92 (-0.43)	1.02 (-0.39)	1.07 (-0.41)	1.11 (-0.4)
Total	2,385,275	2,807,608	2,914,003	3,104,865	3,336,700	1.18 (+0.04)	1.22 (+0.06)	1.3 (+0.08)	1.4 (+0.1)

Table 141: PM 1hr forecast highway demand (With Project, post VDM)

	Demand (PCUs)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	367,347	427,451	441,774	467,031	501,955	1.16 (+0.04)	1.2 (+0.06)	1.27 (+0.08)	1.37 (+0.1)
Commute	962,809	1,073,502	1,099,683	1,146,338	1,207,209	1.11 (+0.01)	1.14 (+0.02)	1.19 (+0.04)	1.25 (+0.03)
Other	1,167,871	1,443,577	1,511,261	1,625,591	1,757,939	1.24 (+0.05)	1.29 (+0.06)	1.39 (+0.1)	1.51 (+0.12)
LGV	381,492	455,468	473,243	511,566	559,338	1.19 (0)	1.24 (0)	1.34 (0)	1.47 (0)
HGV	183,279	189,345	192,453	199,270	206,994	1.03 (0)	1.05 (0)	1.09 (0)	1.13 (0)
Employees	952	926	1,006	1,023	1,042	0.97 (-0.17)	1.06 (-0.09)	1.07 (-0.11)	1.09 (-0.12)
Passengers	3,611	3,411	4,092	4,255	4,428	0.94 (-0.16)	1.13 (+0.01)	1.18 (0)	1.23 (-0.06)
Total	3,067,361	3,593,680	3,723,512	3,955,074	4,238,905	1.17 (+0.03)	1.21 (+0.04)	1.29 (+0.06)	1.38 (+0.07)

12.5 Impact of VDM - rail

12.5.1 Table 142 to Table 146 show the rail matrix totals after the VDM is applied for Future baseline cases. The number in brackets is the change from post-VDM Baseline, for example CA Business Rail AM grows 1.30 times to 2029 in the Baseline Case (from Table 84) and 1.30 times in the 2029 With Project (Table 143) so there in no impact of the VDM in this case.

Table 142: 24hr forecast rail demand (With Project, post VDM)

	Demand (trips)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	50,027	64,409	66,225	69,928	76,588	1.29 (-0)	1.32 (+0)	1.4 (+0)	1.53 (+0)
CA Commute	321,615	408,136	421,702	446,878	487,322	1.27 (-0)	1.31 (+0)	1.39 (+0)	1.52 (-0)
CA Other	87,946	132,112	142,524	163,856	199,127	1.5 (+0)	1.62 (+0)	1.86 (+0.001)	2.26 (+0)
NCA Business	17,917	18,986	19,277	19,433	19,425	1.06 (-0)	1.08 (+0)	1.08 (+0)	1.08 (+0)
NCA Commute	132,080	134,627	136,011	135,849	133,775	1.02 (+0)	1.03 (+0)	1.03 (-0)	1.01 (-0)
NCA Other	52,268	53,915	55,011	55,692	55,015	1.03 (+0)	1.05 (+0)	1.07 (+0)	1.05 (+0)
Total Business	67,944	83,395	85,502	89,361	96,013	1.23 (-0)	1.26 (+0)	1.32 (+0)	1.41 (+0)
Total Commute	453,695	542,764	557,712	582,727	621,096	1.2 (-0)	1.23 (+0)	1.28 (+0)	1.37 (-0)
Total Other	140,214	186,027	197,535	219,547	254,142	1.33 (+0)	1.41 (+0)	1.57 (+0)	1.81 (+0)
Air passengers (With project)	45,653	76,201	90,699	96,662	101,223	1.67 (+0.144)	1.99 (+0.388)	2.12 (+0.457)	2.22 (+0.494)
Airport emps (With project)	3,501	5,354	5,782	6,008	6,309	1.53 (+0.221)	1.65 (+0.303)	1.72 (+0.297)	1.8 (+0.275)
TOTAL	**711,006**	**893,741**	**937,230**	**994,305**	**1,078,784**	**1.26 (+0.01)**	**1.32 (+0.026)**	**1.4 (+0.031)**	**1.52 (+0.033)**

Table 143: AM 07:00-09:00 forecast rail demand (With Project, post VDM)

	Demand (trips)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	8,640	11,204	11,544	12,223	13,432	1.3 (-0)	1.34 (+0)	1.41 (+0)	1.55 (-0)
CA Commute	102,533	130,349	134,686	142,666	155,461	1.27 (-0)	1.31 (+0)	1.39 (+0)	1.52 (-0)
CA Other	6,702	10,188	11,004	12,674	15,428	1.52 (-0)	1.64 (+0)	1.89 (+0.001)	2.3 (-0.001)
NCA Business	3,167	3,370	3,425	3,458	3,465	1.06 (-0)	1.08 (+0)	1.09 (+0)	1.09 (+0)
NCA Commute	42,424	43,340	43,797	43,760	43,116	1.02 (-0)	1.03 (-0)	1.03 (-0)	1.02 (-0)
NCA Other	4,145	4,317	4,405	4,459	4,404	1.04 (+0)	1.06 (-0)	1.08 (-0)	1.06 (-0)
Total Business	11,807	14,574	14,969	15,681	16,897	1.23 (-0)	1.27 (+0)	1.33 (+0)	1.43 (-0)
Total Commute	144,957	173,689	178,483	186,427	198,577	1.2 (-0)	1.23 (+0)	1.29 (+0)	1.37 (-0)
Total Other	10,847	14,505	15,409	17,134	19,832	1.34 (-0)	1.42 (+0)	1.58 (+0.001)	1.83 (-0)
Air passengers (With Project)	4,088	8,866	10,450	11,487	12,134	2.17 (+0.26)	2.56 (+0.508)	2.81 (+0.624)	2.97 (+0.715)
Airport emps (With Project)	550	846	904	949	1,008	1.54 (+0.208)	1.64 (+0.264)	1.73 (+0.262)	1.83 (+0.235)
TOTAL	**172,250**	**212,480**	**220,215**	**231,678**	**248,448**	**1.23 (+0.007)**	**1.28 (+0.013)**	**1.35 (+0.016)**	**1.44 (+0.018)**

Table 144: IP 09:00-16:00 forecast rail demand (With Project, post VDM)

	Demand (trips)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	20,176	25,842	26,546	28,008	30,658	1.28 (-0)	1.32 (+0)	1.39 (+0)	1.52 (+0)
CA Commute	62,368	78,907	81,497	86,434	94,398	1.27 (-0)	1.31 (+0)	1.39 (+0)	1.51 (-0)
CA Other	41,663	61,933	66,744	76,630	92,977	1.49 (+0)	1.6 (+0)	1.84 (+0.001)	2.23 (+0.001)
NCA Business	7,083	7,496	7,608	7,671	7,670	1.06 (-0)	1.07 (+0)	1.08 (+0)	1.08 (+0)
NCA Commute	25,225	25,579	25,813	25,767	25,357	1.01 (+0)	1.02 (-0)	1.02 (-0)	1.01 (-0)
NCA Other	24,591	25,222	25,710	25,989	25,626	1.03 (+0)	1.05 (+0)	1.06 (+0)	1.04 (+0)
Total Business	27,259	33,337	34,154	35,679	38,328	1.22 (-0)	1.25 (+0)	1.31 (+0)	1.41 (+0)
Total Commute	87,593	104,486	107,311	112,201	119,755	1.19 (-0)	1.23 (+0)	1.28 (+0)	1.37 (-0)
Total Other	66,254	87,155	92,454	102,619	118,602	1.32 (+0)	1.4 (+0)	1.55 (+0.001)	1.79 (+0)
Air passengers (With project)	21,253	33,096	37,610	39,881	41,720	1.56 (+0.155)	1.77 (+0.316)	1.88 (+0.384)	1.96 (+0.416)
Airport emps (With project)	991	1,506	1,634	1,694	1,775	1.52 (+0.227)	1.65 (+0.319)	1.71 (+0.311)	1.79 (+0.292)
TOTAL	**203,351**	**259,580**	**273,163**	**292,074**	**320,180**	**1.28 (+0.017)**	**1.34 (+0.035)**	**1.44 (+0.042)**	**1.57 (+0.045)**

Table 145: PM 16:00-18:00 forecast rail demand (With Project, post VDM)

	Demand (trips)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	9,589	12,410	12,779	13,507	14,801	1.29 (-0)	1.33 (+0)	1.41 (+0)	1.54 (+0)
CA Commute	70,671	89,478	92,458	97,730	106,200	1.27 (+0)	1.31 (+0)	1.38 (+0.001)	1.5 (+0)
CA Other	15,655	23,808	25,774	29,790	36,452	1.52 (-0)	1.65 (+0)	1.9 (+0.001)	2.33 (+0.001)
NCA Business	3,474	3,701	3,762	3,794	3,794	1.07 (+0)	1.08 (+0)	1.09 (+0)	1.09 (+0)
NCA Commute	29,672	30,349	30,692	30,631	30,131	1.02 (+0)	1.03 (+0)	1.03 (+0)	1.02 (+0)
NCA Other	9,210	9,530	9,729	9,844	9,713	1.03 (+0)	1.06 (+0)	1.07 (+0)	1.05 (+0)
Total Business	13,062	16,111	16,541	17,301	18,595	1.23 (-0)	1.27 (+0)	1.32 (+0)	1.42 (+0)
Total Commute	100,343	119,827	123,150	128,361	136,331	1.19 (+0)	1.23 (+0)	1.28 (+0)	1.36 (+0)
Total Other	24,865	33,338	35,503	39,634	46,165	1.34 (-0)	1.43 (+0)	1.59 (+0)	1.86 (+0)
Air passengers (With project)	5,886	9,171	11,179	11,770	12,364	1.56 (+0.091)	1.9 (+0.385)	2 (+0.415)	2.1 (+0.374)
Airport emps (With project)	508	757	814	849	893	1.49 (+0.193)	1.6 (+0.263)	1.67 (+0.255)	1.76 (+0.224)
TOTAL	**144,664**	**179,204**	**187,186**	**197,914**	**214,349**	**1.24 (+0.004)**	**1.29 (+0.017)**	**1.37 (+0.018)**	**1.48 (+0.016)**

Table 146: OP 18:00-07:00 forecast rail demand (With Project, post VDM)

	Demand (trips)					Growth from 2016 (change from Baseline in brackets)			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	11,622	14,953	15,356	16,190	17,696	1.29 (-0)	1.32 (+0)	1.39 (+0)	1.52 (+0)
CA Commute	86,043	109,403	113,060	120,047	131,262	1.27 (-0)	1.31 (-0)	1.4 (+0)	1.53 (-0)
CA Other	23,927	36,184	39,001	44,762	54,270	1.51 (+0)	1.63 (+0)	1.87 (+0.001)	2.27 (+0)
NCA Business	4,193	4,419	4,482	4,510	4,496	1.05 (-0)	1.07 (+0)	1.08 (+0)	1.07 (+0)
NCA Commute	34,759	35,359	35,709	35,691	35,170	1.02 (-0)	1.03 (-0)	1.03 (-0)	1.01 (-0)
NCA Other	14,321	14,846	15,167	15,399	15,272	1.04 (-0)	1.06 (+0)	1.08 (+0)	1.07 (+0)
Total Business	15,815	19,372	19,838	20,700	22,193	1.22 (-0)	1.25 (+0)	1.31 (+0)	1.4 (+0)
Total Commute	120,802	144,762	148,769	155,738	166,433	1.2 (-0)	1.23 (-0)	1.29 (+0)	1.38 (-0)
Total Other	38,248	5,1029	54,168	60,161	69,543	1.33 (+0)	1.42 (+0)	1.57 (+0)	1.82 (+0)
Air passengers (With Project)	14,425	25,067	31,460	33,524	35,006	1.74 (+0.117)	2.18 (+0.463)	2.32 (+0.533)	2.43 (+0.595)
Airport emps (With Project)	1,452	2,246	2,430	2,516	2,632	1.55 (+0.233)	1.67 (+0.322)	1.73 (+0.316)	1.81 (+0.296)
TOTAL	**190,742**	**242,477**	**256,666**	**272,639**	**295,807**	**1.27 (+0.011)**	**1.35 (+0.037)**	**1.43 (+0.043)**	**1.55 (+0.047)**

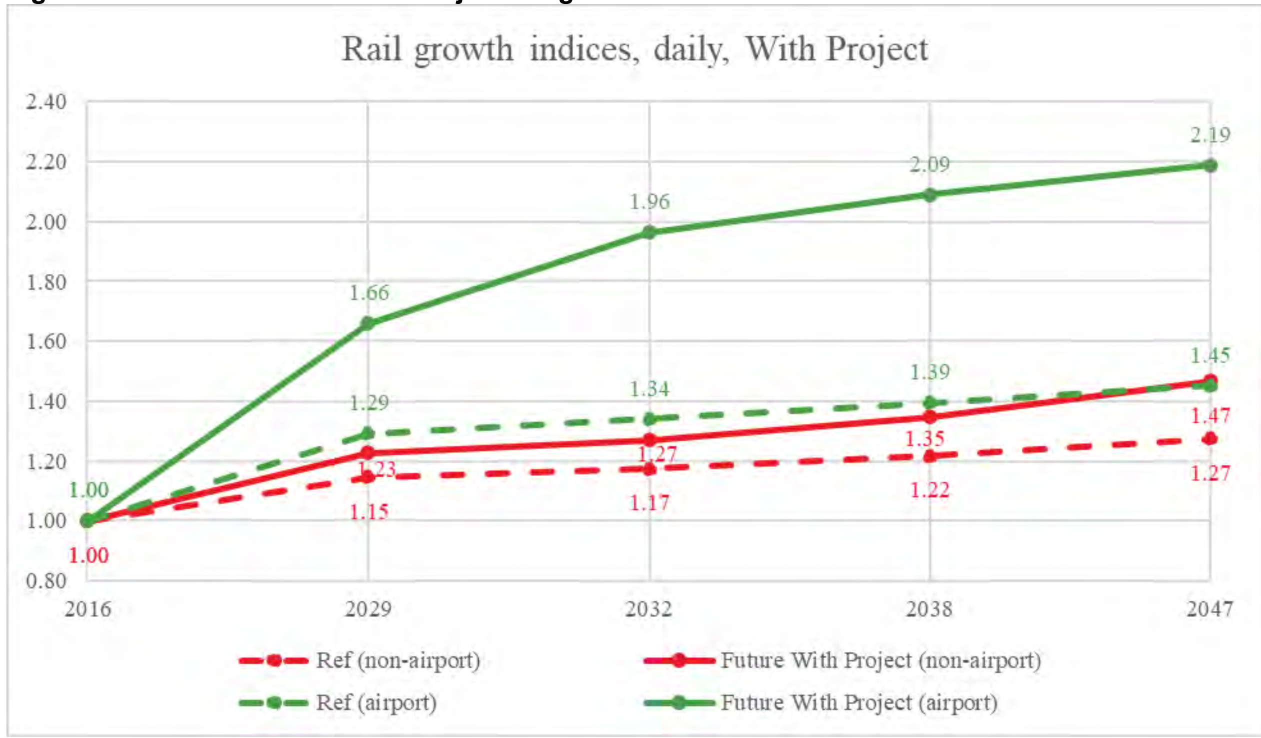
12.5.2 The numbers in the With Project tables above are almost unchanged from the Baseline tables shown in the previous chapter, indicating that the Project itself has negligible impact on background rail demand.

12.5.3 Daily rail demand growth for all trips combined are shown in the bottom rows of Table 69 (Reference) and Table 142 (Post VDM, With Project). However, it is more informative to look at airport and non-airport rail demand growth separately because airport rail demand is dwarfed by non-airport demand. Figure 130 shows rail growth indices for airport (Air Passengers and Airport Employees) and non-airport (Business, Commute and Other).

12.5.4 Figure 130 shows that Future baseline rail demand in 2047 is forecast to be:

- 47% higher than 2016 for non-airport – an annual average growth rate (AAGR) of 1.2%; and
- 119% higher than 2016 for airport – an AAGR of 2.6% (much of this growth is linked to the project).

Figure 130: Reference and With Project rail growth indices



12.6 Airport road traffic

12.6.1 The proportion of airport traffic on roads in the With Project is shown in Figure 131 and Figure 132, which present the absolute change and percentage change in the volume of airport road traffic. These provide on overall impression of the routes used by travellers to and from the airport. Additionally, Figure 133 and Figure 134 show the absolute and percentage changes in airport road traffic for Future baseline with Project minus Future baseline.

12.6.2 The figures show that the airport traffic is very concentrated along the M25, M23 and A23. Other significant routes include the A3 joining the M25 at Junction 10, the A21 joining the M25 at Junction 5, A264 to the west of Crawley joining the M23 and the A272 to the west of the A23 joining the road at Bolney. The percentage of road traffic that is airport related is between 30-40% on the M23 and between 10-20% on the M25. The percentage change plots show that a limited geographical area sees the main increases - this is predominantly concentrated around Crawley and the M23.

12.6.3 There are a couple of links with a very high proportion of airport road traffic away from the airport. North of Horsham there is a link with very low flow (less than 10) where most of the vehicles are airport road traffic.

Figure 131: Airport road traffic in With Project 2047 (absolute values)

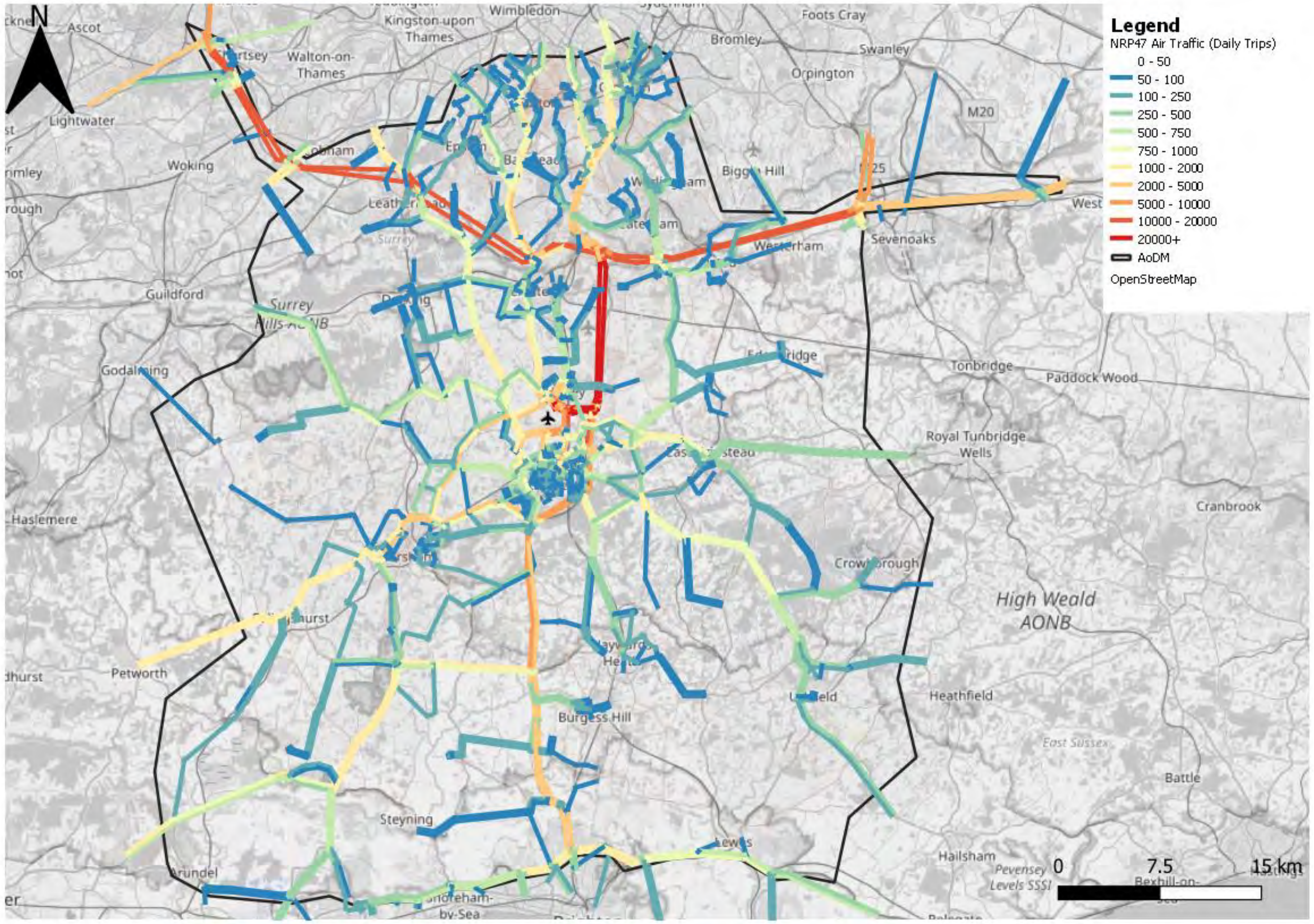


Figure 132: Airport road traffic in With Project 2047 as proportion of total traffic (%)

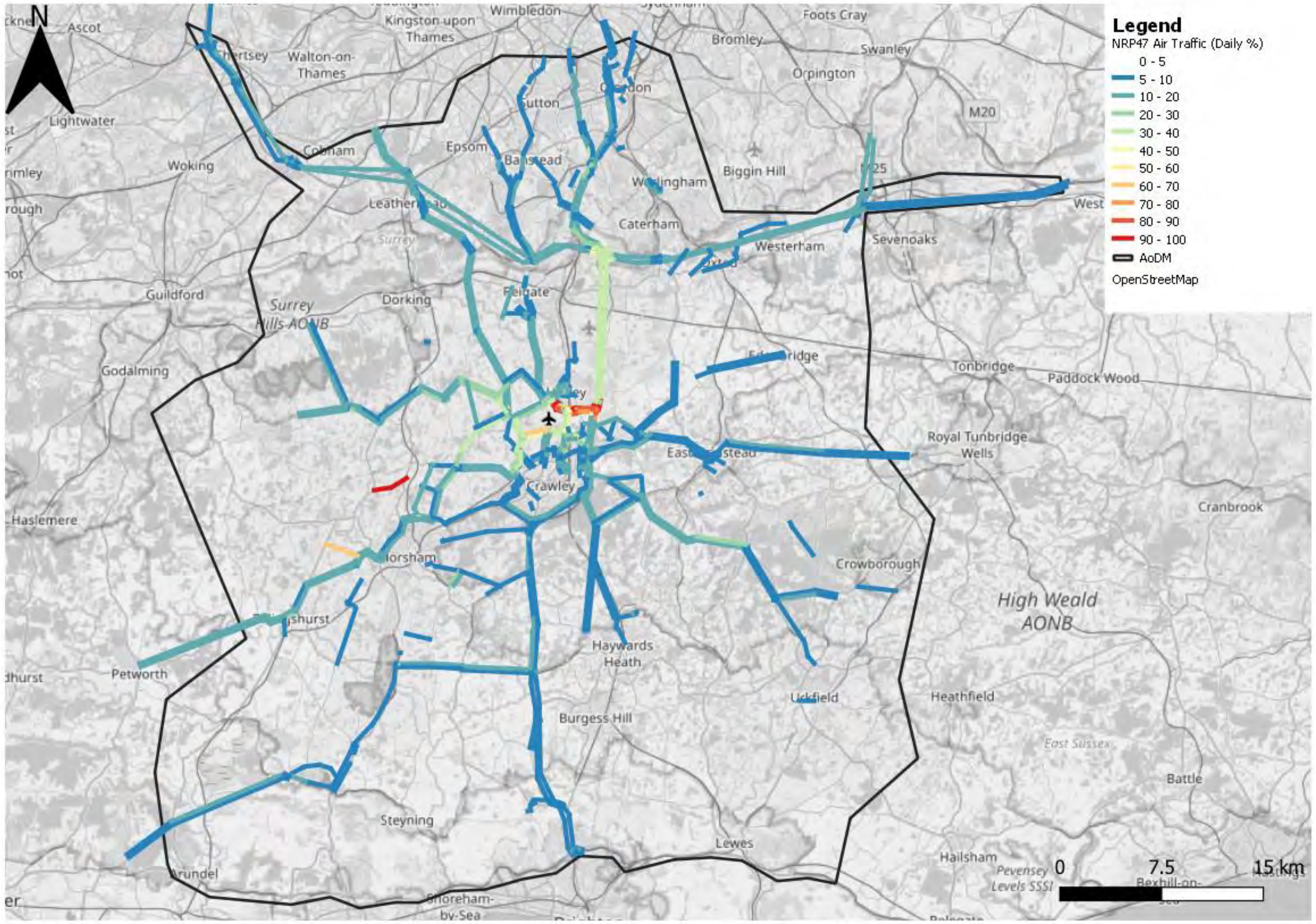


Figure 133: Change in airport road traffic (With Project Minus Future baseline 2047) (absolute values)

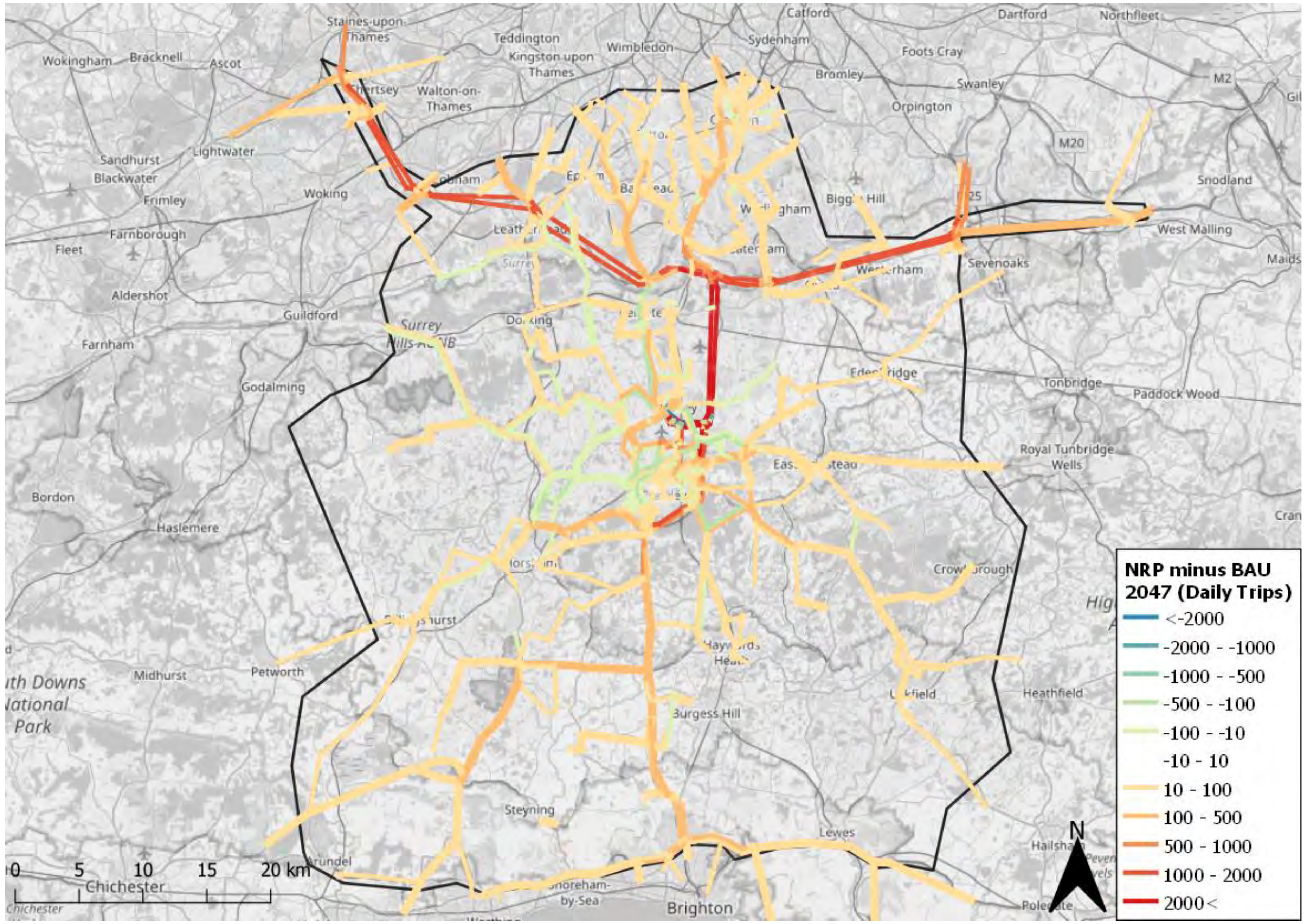
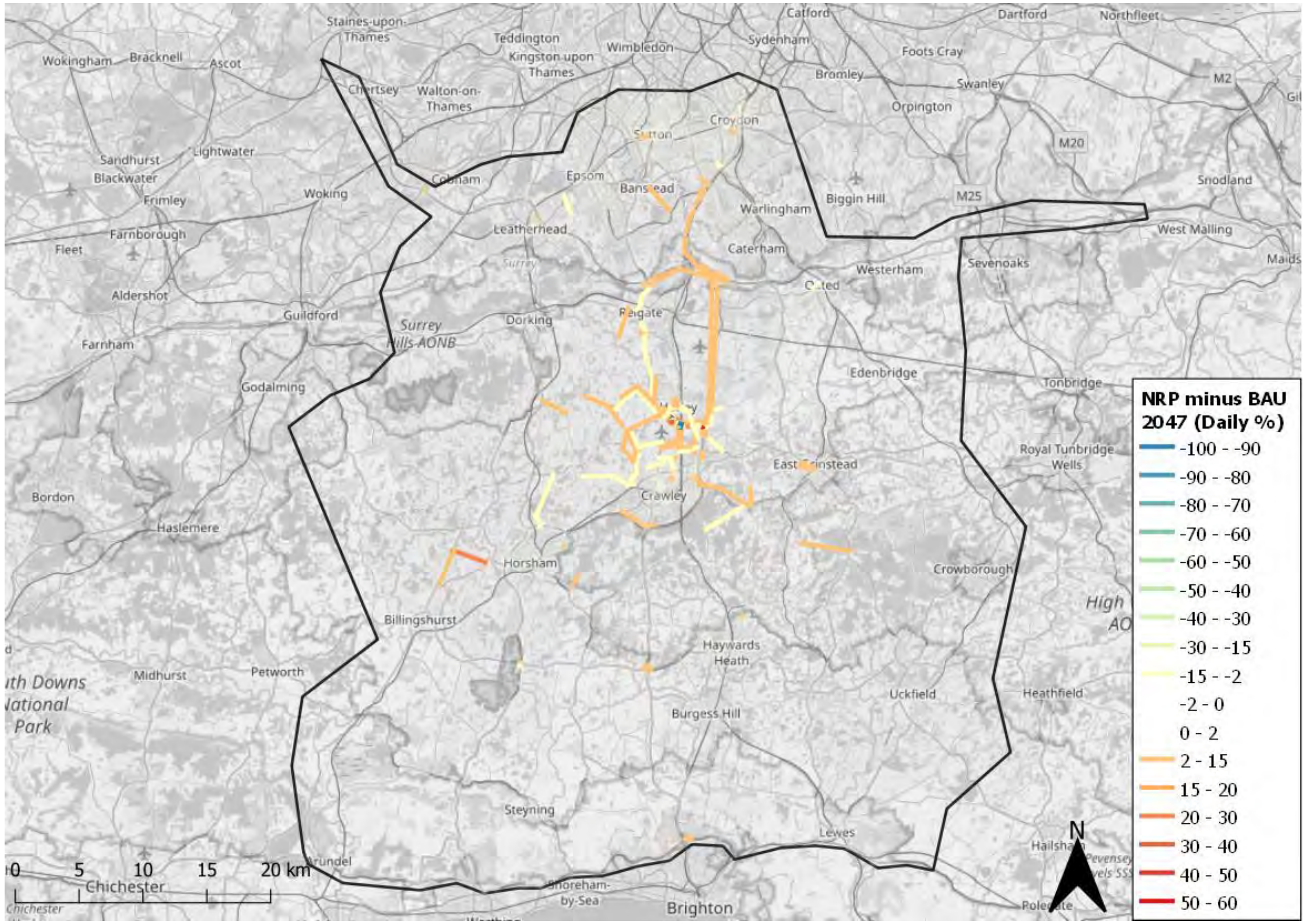


Figure 134: Proportion of airport road traffic in With Project Minus Future baseline 2047 (%)



12.7 Key junction and link flows

12.7.1 This section outlines in more detail the impact of the With Project on key junctions and links within the vicinity of the airport.

M23 Gatwick growth

12.7.2 In order to understand the impact of the growth of the airport With Project, Table 147 presents a summary of M23 AADT over the years split by airport and non-airport road traffic.

Table 147: Airport and non-airport growth on M23 Spur, With Project - rounded to nearest 10 vehicles (AADT, Vehs)

	2029	2032	2038	2047
Non-airport road traffic	18,740	21,760	23,050	24,300
Airport road traffic	71,550	85,400	87,500	90,870
Non-airport road traffic growth from BAU	-1.8%	12.0%	15.7%	18.8%
Airport road traffic growth from BAU	1.8%	19.2%	18.5%	17.0%
Airport road traffic as a proportion of Total	79.2%	79.7%	79.1%	78.9%

Key link flow changes

12.7.3 Flows have been extracted at key locations on the SRN presented in Figure 135 and Table 148.

12.7.4 The key points are:

- These flows show that there are only small changes in link flow levels in 2029 as a consequence of the Project, and the biggest change occurs between 2029 and 2032.
- The largest absolute changes are seen on the M23 Spur westbound in AM2. Much of this traffic then heads northbound on the M23 before dispersing at M23 Junction 7.
- The flow on the M25 corridor continues to grow as a consequence of projects such as the junction widening between J10-16, however these flows show that the growth as a consequence of the Project is generally small.

Figure 135: Location of key SRN links

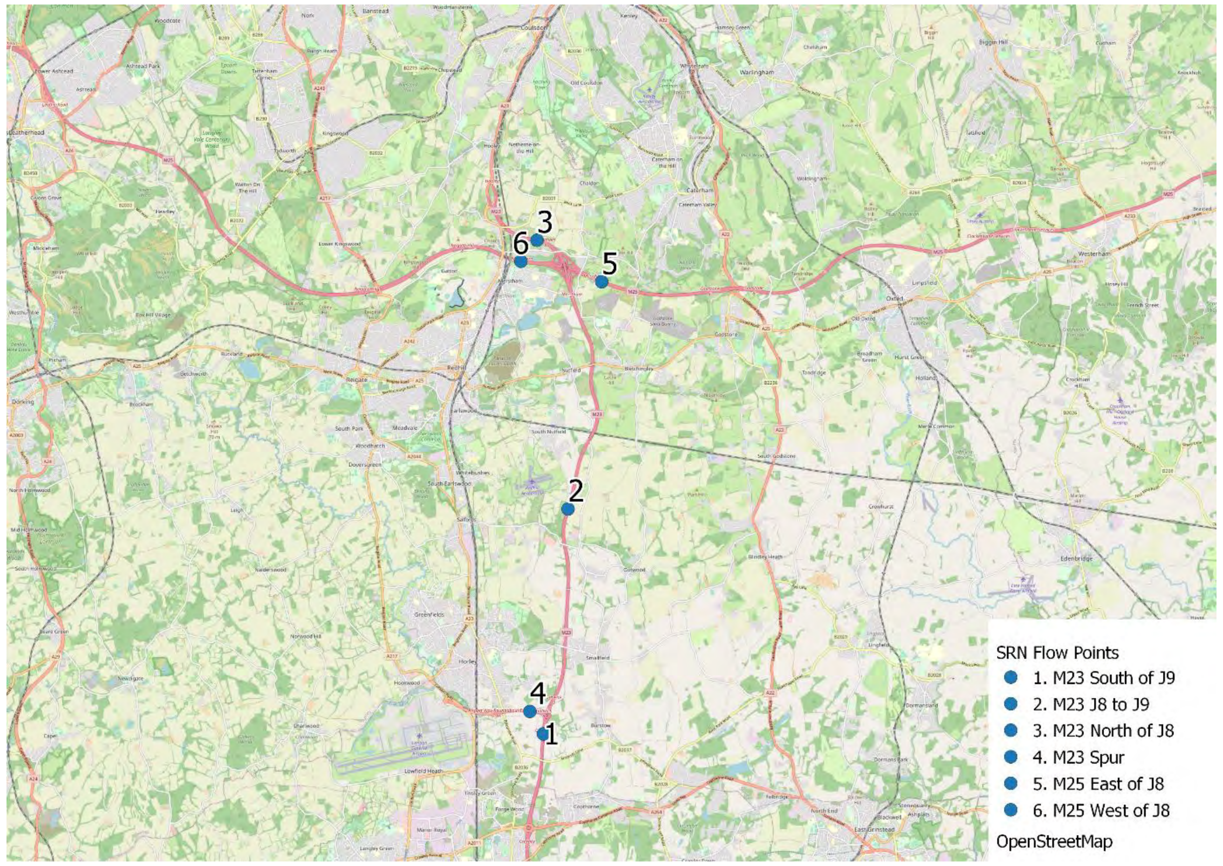


Table 148: Flows at key links for Future baseline and With Project (Change from Future baseline) - rounded to nearest 10 vehicles (Vehs)

		2029 Future baseline	2029 With Project	2032 Future baseline	2032 With Project	2038 Future baseline	2038 With Project	2047 Future baseline	2047 With Project
					AM1				
1	M23 South of J9 NB	5,620	5,620 (2)	5,730	6,030 (298)	5,940	6,180 (238)	6,120	6,330 (215)
	M23 South of J9 SB	4,050	4,070 (14)	4,170	4,030 (-147)	4,310	4,230 (-78)	4,480	4,320 (-166)
2	M23 Between J8 and J9 NB	6,060	6,090 (31)	6,260	6,480 (225)	6,550	6,650 (100)	6,720	6,780 (63)
	M23 Between J8 and J9 SB	5,670	5,760 (89)	5,810	6,180 (368)	6,020	6,440 (423)	6,200	6,570 (370)
3	M23 North of J8 NB	1,100	1,100 (2)	1,110	1,110 (-2)	1,150	1,160 (9)	1,190	1,180 (-14)
	M23 North of J8 SB	1,360	1,360 (1)	1,360	1,400 (40)	1,410	1,530 (121)	1,530	1,610 (85)
4	M23 Spur EB	2,250	2,300 (42)	2,320	2,770 (447)	2,410	2,870 (457)	2,390	2,870 (480)
	M23 Spur WB	3,430	3,520 (90)	3,440	4,480 1043)	3,500	4,570 1070)	3,520	4,620 (1103)
5	M25 East of J8 WB	7,100	7,130 (25)	7,150	7,200 (51)	7,170	7,220 (55)	7,160	7,180 (21)
	M25 East of J8 EB	6,070	6,080 (6)	6,270	6,310 (37)	6,520	6,480 (-38)	6,670	6,670 (-8)
6	M25 West of J8 WB	7,620	7,620 (2)	7,610	7,630 (13)	7,590	7,600 (18)	7,580	7,560 (-18)
	M25 West of J8 EB	6,000	6,040 (39)	6,190	6,320 (136)	6,410	6,570 (153)	6,640	6,790 (153)
					AM2				
1	M23 South of J9 NB	4,710	4,730 (18)	4,900	5,400 (497)	5,150	5,580 (422)	5,350	5,770 (417)
	M23 South of J9 SB	4,330	4,320 (-8)	4,510	4,340 (-175)	4,750	4,560 (-188)	4,960	4,600 (-356)
2	M23 Between J8 and J9 NB	5,460	5,500 (44)	5,690	5,800 (112)	6,090	6,010 (-79)	6,200	6,090 (-101)
	M23 Between J8 and J9 SB	5,990	6,060 (69)	6,180	6,560 (378)	6,420	6,800 (380)	6,620	6,870 (244)
3	M23 North of J8 NB	1,090	1,090 (2)	1,120	1,100 (-16)	1,140	1,130 (-9)	1,170	1,180 (11)
	M23 North of J8 SB	1,340	1,340 (-3)	1,400	1,450 (53)	1,450	1,590 (139)	1,540	1,640 (100)
4	M23 Spur EB	2,400	2,460 (56)	2,480	2,770 (286)	2,590	2,840 (250)	2,540	2,780 (238)
	M23 Spur WB	3,320	3,410 (86)	3,370	4,520 1152)	3,320	4,560 1237)	3,350	4,600 (1249)
5	M25 East of J8 WB	7,120	7,130 (9)	7,130	7,150 (17)	7,090	7,130 (44)	7,110	7,140 (37)
	M25 East of J8 EB	5,760	5,770 (5)	6,030	6,020 (-10)	6,390	6,360 (-27)	6,630	6,600 (-32)
6	M25 West of J8 WB	7,000	7,010 (13)	7,160	7,180 (19)	7,390	7,350 (-33)	7,430	7,410 (-21)
	M25 West of J8 EB	5,880	5,910 (28)	6,150	6,300 (148)	6,410	6,590 (179)	6,650	6,790 (136)

		2029 Future baseline	2029 With Project	2032 Future baseline	2032 With Project	2038 Future baseline	2038 With Project	2047 Future baseline	2047 With Project
					IP				
1	M23 South of J9 NB	3,770	3,770 (6)	3,920	4,260 (339)	4,130	4,540 (417)	4,350	4,770 (416)
	M23 South of J9 SB	3,550	3,550 (-1)	3,670	3,630 (-41)	3,870	3,820 (-52)	4,060	3,990 (-72)
2	M23 Between J8 and J9 NB	4,550	4,580 (23)	4,750	4,900 (149)	5,000	5,230 (231)	5,300	5,500 (199)
	M23 Between J8 and J9 SB	4,560	4,570 (10)	4,670	4,880 (210)	4,900	5,150 (244)	5,130	5,360 (228)
3	M23 North of J8 NB	1,080	1,070 (-3)	1,110	1,110 (-6)	1,140	1,140 (-5)	1,190	1,180 (-7)
	M23 North of J8 SB	1,180	1,190 (6)	1,230	1,260 (32)	1,270	1,290 (20)	1,280	1,300 (22)
4	M23 Spur EB	2,160	2,180 (25)	2,210	2,300 (92)	2,270	2,430 (159)	2,360	2,550 (188)
	M23 Spur WB	2,380	2,400 (19)	2,390	2,910 (525)	2,420	3,050 (627)	2,470	3,160 (682)
5	M25 East of J8 WB	5,900	5,900 (0)	6,090	6,120 (27)	6,360	6,390 (24)	6,470	6,480 (9)
	M25 East of J8 EB	5,640	5,660 (15)	5,830	5,840 (10)	6,070	6,110 (39)	6,260	6,290 (27)
6	M25 West of J8 WB	6,380	6,400 (17)	6,580	6,610 (38)	6,830	6,870 (48)	6,980	7,000 (23)
	M25 West of J8 EB	6,040	6,050 (8)	6,130	6,180 (47)	6,330	6,390 (54)	6,530	6,580 (46)
					PM				
1	M23 South of J9 NB	4540	4,540 (1)	4720	4,880 (161)	4980	5,170 (189)	5230	5,390 (160)
	M23 South of J9 SB	4860	4,860 (-5)	5020	4,910 (-105)	5290	5,100 (-186)	5470	5,290 (-186)
2	M23 Between J8 and J9 NB	5900	5,860 (-40)	6100	6,310 (208)	6370	6,620 (249)	6580	6,790 (208)
	M23 Between J8 and J9 SB	5640	5,640 (-8)	5820	5,970 (156)	6110	6,190 (80)	6340	6,390 (45)
3	M23 North of J8 NB	1220	1,210 (-3)	1280	1,300 (15)	1360	1,390 (27)	1440	1,470 (34)
	M23 North of J8 SB	1350	1,350 (2)	1400	1,420 (16)	1470	1,480 (10)	1530	1,540 (7)
4	M23 Spur EB	2660	2,610 (-45)	2690	2,970 (273)	2760	3,070 (317)	2790	3,130 (339)
	M23 Spur WB	2020	2,020 (-3)	2060	2,530 (461)	2130	2,620 (490)	2250	2,700 (459)
5	M25 East of J8 WB	5990	5,990 (7)	6180	6,210 (32)	6510	6,510 (3)	6710	6,720 (16)
	M25 East of J8 EB	7050	7,030 (-14)	7160	7,200 (37)	7220	7,250 (33)	7250	7,270 (16)
6	M25 West of J8 WB	6530	6,520 (-9)	6710	6,760 (46)	6970	7,030 (56)	7090	7,090 (0)
	M25 West of J8 EB	7210	7,200 (-4)	7310	7,310 (1)	7400	7,360 (-40)	7540	7,480 (-55)

North Terminal, South Terminal and Longbridge Roundabouts

12.7.5 Longbridge Roundabout, North Terminal and South Terminal roundabouts are all the subject of mitigation improvements. The strategic modelling shows they all work well. The microsimulation model provides further analysis on the operation of these junctions.

M23 Junction 9

12.7.6 The performance of M23 J9 has been a key discussion topic with stakeholders, particularly National Highways. As outlined above, J9 shows high impacts at the circulatory/M23 Southbound Off-slip within the Strategic Model.

12.7.7 Following discussions with National Highways sensitivity testing has been carried out at this junction to test the sensitivity of signal timings. Signal timings assumptions that were originally used in the model were based on assumptions derived during the PEIR stage and have been updated to align with new timings from the Microsimulation VISSIM modelling that has been undertaken but was not ready at the time of running these Core Scenarios. This has shown that updating assumptions for the signals at the southbound off-slip and circulatory leads to an increase in traffic heading south.

M23 Junction 10

12.7.8 The performance of M23 J10 has also been a key discussion topic with stakeholders, particularly National Highways. In the Future baseline the northbound off-slip shows Volume to Capacity ratio over 90%. These reduce in the With Project scenario.

M23 Junction 8/M25 Junction 7

12.7.9 The Future baseline showed multiple elements of this junction to be under stress as a consequence of the growth. The Project adds to this, particularly in the latter years. A design review of each of the merges/diverges will be conducted to ensure sufficient capacity and issues flagged in the modelling are simply a product of modelling assumptions. The **Transport Assessment** provides detailed analysis of this junction.

12.8 Future highway network performance

Network summary statistics

12.8.1 The following Network summary statistics have been extracted for each With Project model:

- Transient Queues (PCU-Hrs);
- Over Capacity Queues (PCU-Hrs);
- Link Cruise Times (PCU-Hrs);
- Total Travel Times (PCU-Hrs);
- Travel Distance (PCU-kms); and
- Average speed (kph).

12.8.2 These statistics are presented in Appendix H. These demonstrate a number of logical and sensible model responses. Average speeds decrease over the years, whilst the amount of queuing increases, responses that are expected as road traffic growth continues and the road network becomes more congested.

12.8.3 At the aggregate level the statistics show very similar numbers to the Future baseline models, albeit marginally higher. This would be expected given the increased demand as a result of the project. The average speeds are shown to be the same (to one decimal place) as the Future baseline. Whilst not a significant variation, in the IP and PM the With Project actually shows lower levels of queuing and travel times than the Future baseline in 2029.

Assessment approach

12.8.4 The following section details the performance of the highway model in relation to the Future baseline and With Project respectively. This covers the four assessment years of 2029, 2032, 2038 and 2047.

12.8.5 The performance of the highway model is assessed by considering the changes in network operation for each assessment year between the Future baseline and With Project scenarios using the approach described in Section 6.12.

Actual flow by time period

12.8.6 This section discusses the growth in hourly road traffic volumes within the study area between the Future baseline scenarios and With Project scenarios for all modelled years.

12.8.7 Increases in road traffic flow are represented by variable band widths in shades of green, with decreases in blue. Small changes in flow of between -50 and 50 are shown as grey links, to more clearly present where there are greater changes in modelled flows across the network. There are some sections of road where the network is not consistent between the two scenarios. In this case, a comparison list has been used to calculate flow changes; links without an appropriate comparison are not shown.

12.8.8 Alongside flow changes at a link level, the impact of the forecasts can also be considered through considering changes across screenlines. Appendix F presents the change across screenline for the With Project across all years.

2029

12.8.9 The modelled flow difference between the 2029 Future baseline and the 2029 With Project scenarios is presented in Figure 136 to Figure 139 for AM1, AM2, IP and PM respectively. The key points are:

- The flow changes observed are minimal. In the AM1 and AM2 there are a handful of links (namely the M23) which have flow increases between 50 and 200 vehicles.
- Most other links, see flow changes of less than 50 vehicles. In the IP and PM almost all links see flow changes of less than 50 vehicles, only those in the immediate vicinity of the airport see flow changes greater than this.

2032

12.8.10 The modelled flow difference between the 2032 Future baseline and the 2032 With Project scenarios is presented in Figure 140 to Figure 143 for AM1, AM2, IP and PM respectively. The key points are:

- Most changes observed are within the immediate vicinity of the airport.
- The largest hourly increase in road traffic volumes is seen on the southbound slip road from London Road to Airport Way and South Terminal roundabout entry by more than 1,000 vehicles.
- However, there is a significant decrease on M23 Spur and South Terminal roundabout by more than 1,000 vehicles. This change can be attributed to the new grade separation introduced for through traffic, relieving congestion at South Terminal roundabout and South Terminal entry.
- There are some reductions in road traffic volumes at Longbridge roundabout With Project as access from Gatwick North Terminal to the M23 is improved.
- In the Future baseline scenario, some vehicles exit Gatwick North Terminal roundabout, U-turn at Longbridge roundabout and then access the M23 via the off slip from London Road instead of using Airport Way.
- In the With Project scenario, vehicles can right turn from the new junction on London Road connecting to North Terminal roundabout directly, reducing the number of U-turn movements.
- Road traffic volume differences between 50 vehicles and 200 vehicles can also be observed on Charlwood Road, north of Gatwick connecting to the Long Stay carpark, and Reigate Road by Horley in peak time periods.
- At M23 Junction 9, the circulatory and slip roads connecting M23 spur experience an increasing amount of road traffic of between 500 vehicles and 1,000 vehicles. As a

consequence of this, the segregated westbound slip road for left turners from the spur to M23 northbound sees a small decrease.

- There is also a small decrease in northbound direction on M23 main carriageway through Junction 9 in AM1 but no such occurrence observed in other time periods.
- Across the wider area, there are smaller increases on the M23 between M23 J8 and M23 J9 in both directions of between 200 vehicles and 500 vehicles across all time periods, and on M23 south of J9 as well as local road networks in Crawley particularly in AM2 and IP. This reflects increasing demand accessing the airport from the wider area in the With Project scenarios.
- Road traffic between M25 J8 and M25 J10 increases by between 50 vehicles and 200 vehicles, which is fairly small considering the percentage increase being only 2%, in the eastbound direction in the morning and westbound direction in other time periods.

2038

12.8.11 The modelled flow difference between the 2038 Future baseline and the 2038 With Project scenarios is presented in Figure 144 to Figure 147 for AM1, AM2, IP and PM respectively.

12.8.12 The flow changes in 2038 illustrate similar patterns to those described for assessment year 2032 with the following key differences:

- Further decrease observed on London Road between Gatwick Roundabout and Station Approach Road by 200 vehicles to 1,000 vehicles in all time periods.
- Reductions in traffic volumes on northbound main carriageway through M23 J9 occur in both morning periods in 2038 rather than only in 2032 in AM2 With Project.
- At the wider extent, there is some route switching near West Grinstead in AM2 and near central Croydon in both AM1 and AM2.

2047

12.8.13 The modelled flow difference between the 2047 Future baseline and the 2047 With Project scenarios is presented in Figure 148 to Figure 151 for AM1, AM2, IP and PM respectively. For the assessment year 2047, changes do not present any additional noteworthy differences compared with the other assessment years.

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Figure 136: Traffic flow change (veh) 2029 Future baseline to 2029 With Project, AM1

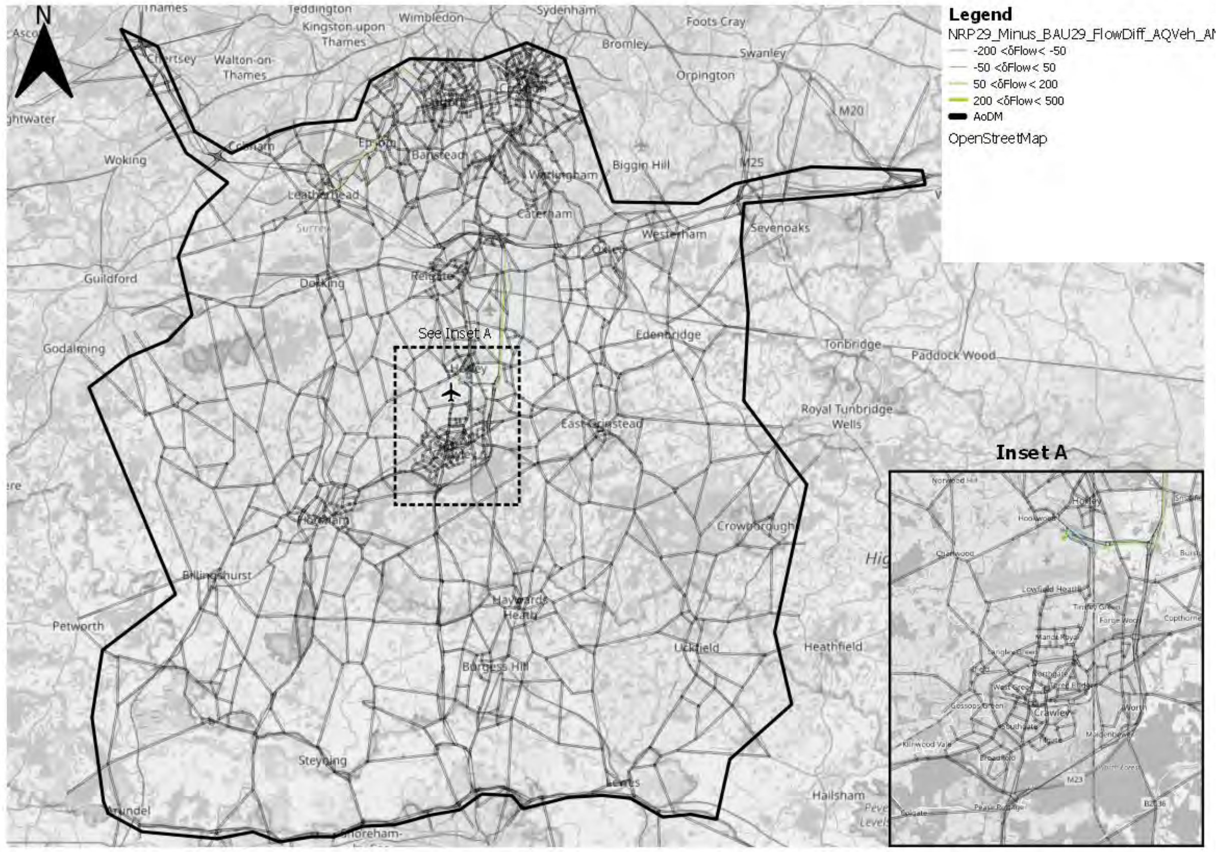


Figure 137: Traffic flow change (veh) 2029 Future baseline to 2029 With Project, AM2

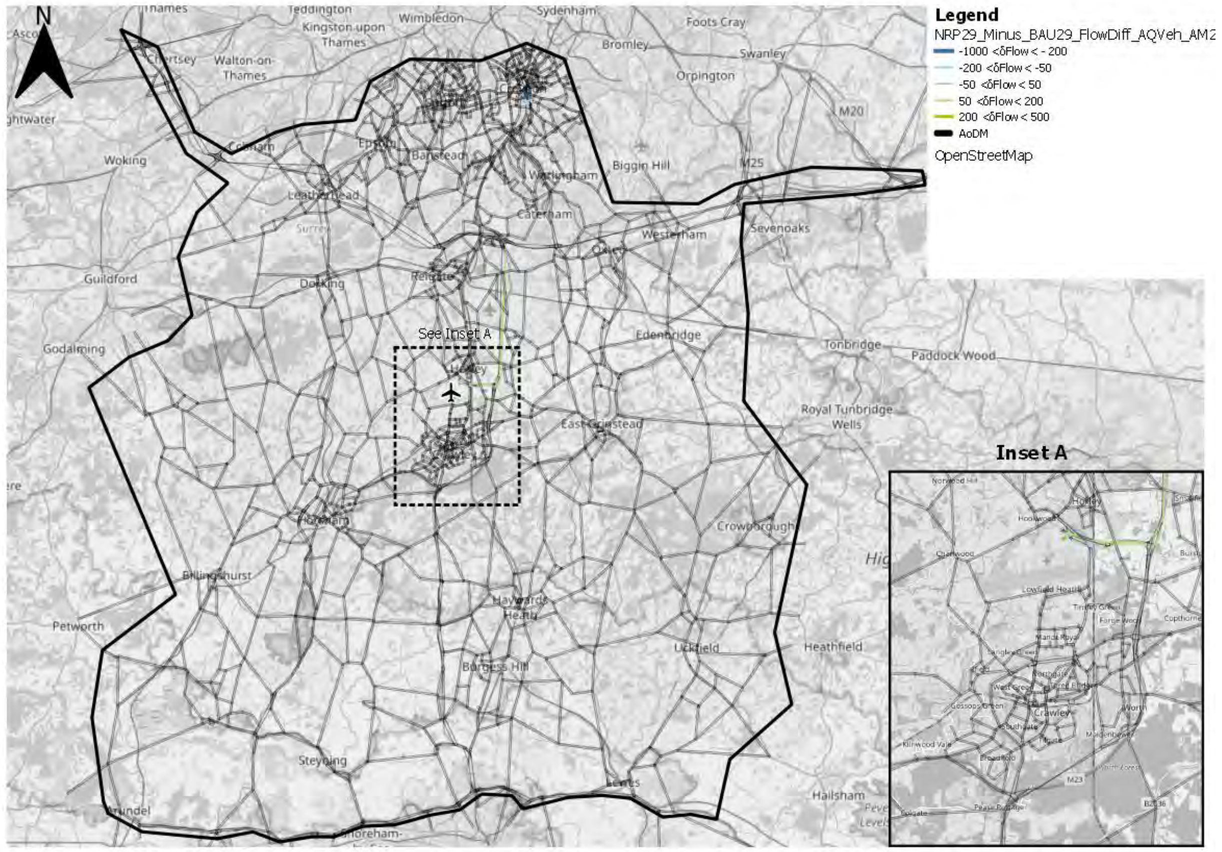


Figure 138: Traffic flow change (veh) 2029 Future baseline to 2029 With Project, IP

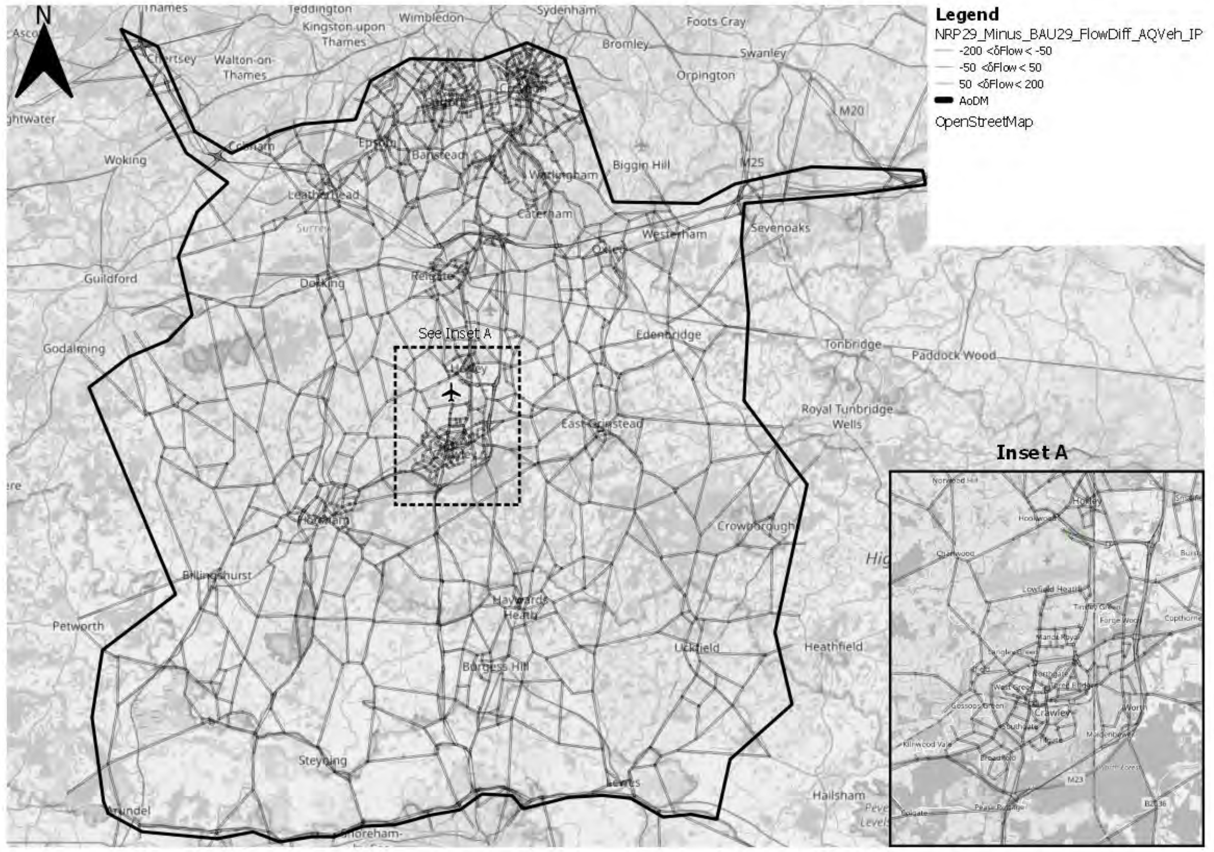


Figure 139: Traffic flow change (veh) 2029 Future baseline to 2029 With Project, PM

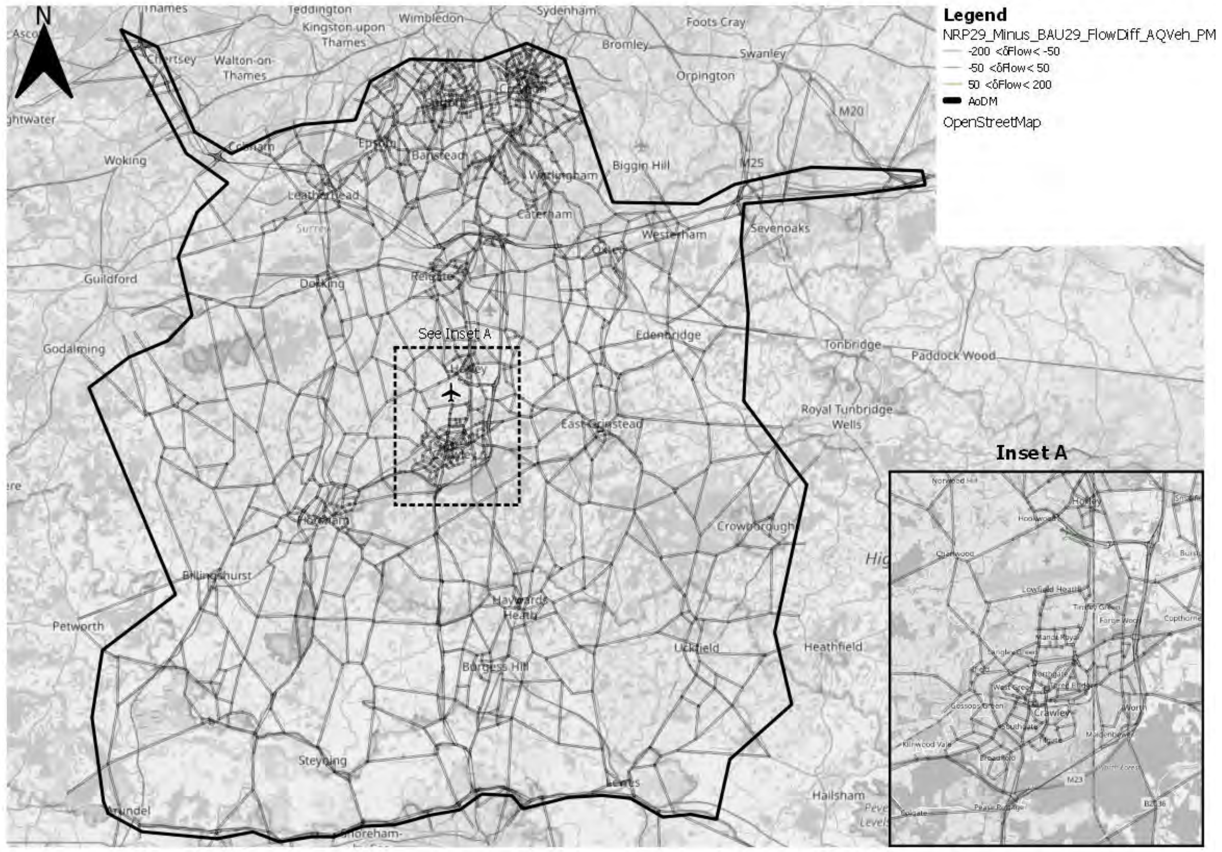


Figure 140: Traffic flow change (veh) 2032 Future baseline to 2032 With Project, AM1

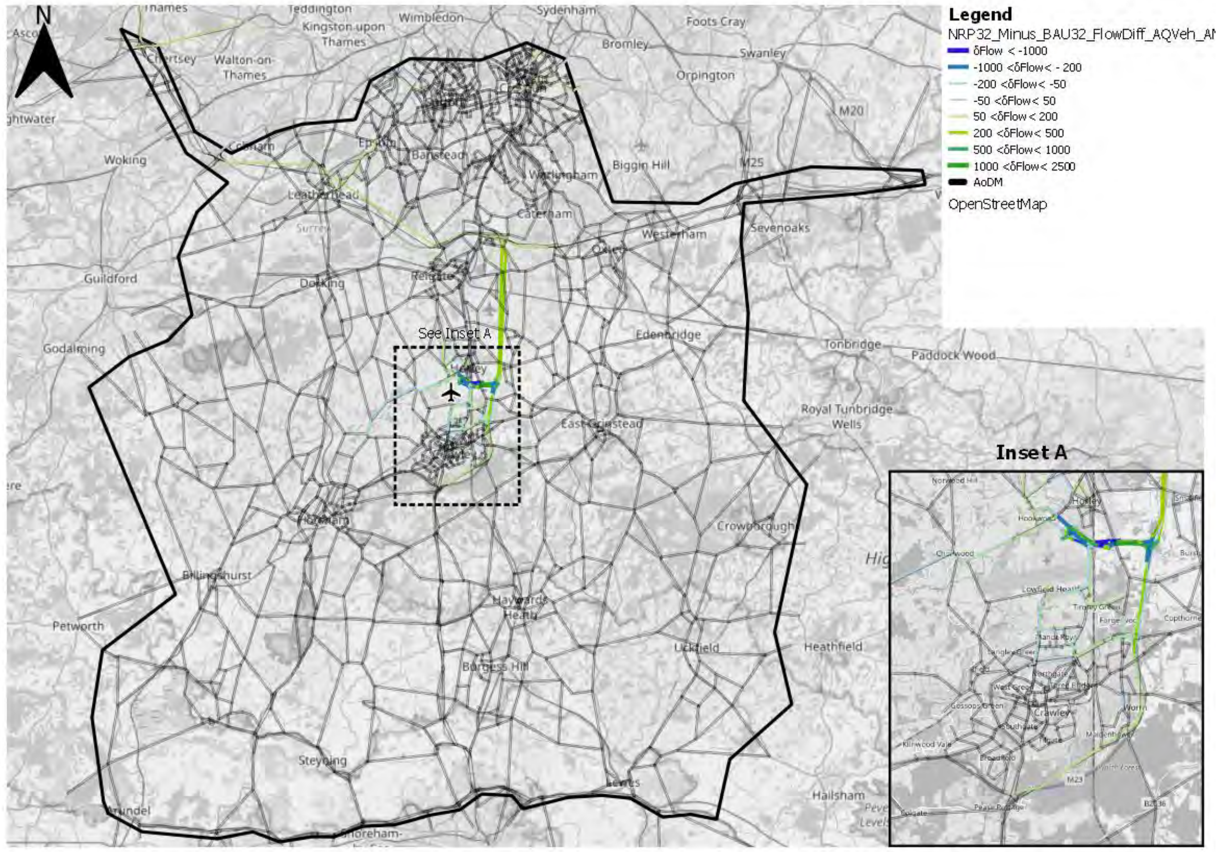


Figure 142: Traffic flow change (veh) 2032 Future baseline to 2032 With Project, IP

Figure 141: Traffic flow change (veh) 2032 Future baseline to 2032 With Project, AM2

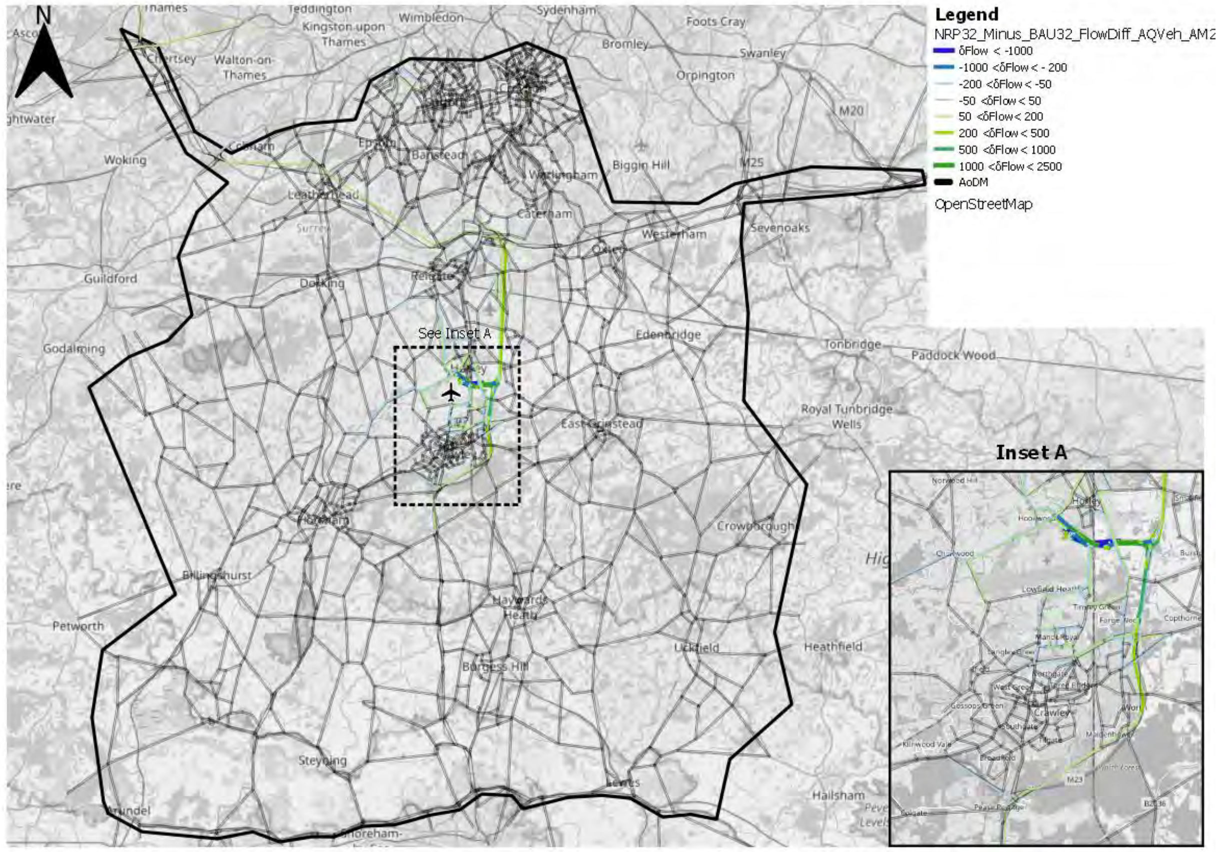


Figure 143: Traffic flow change (veh) 2032 Future baseline to 2032 With Project, PM

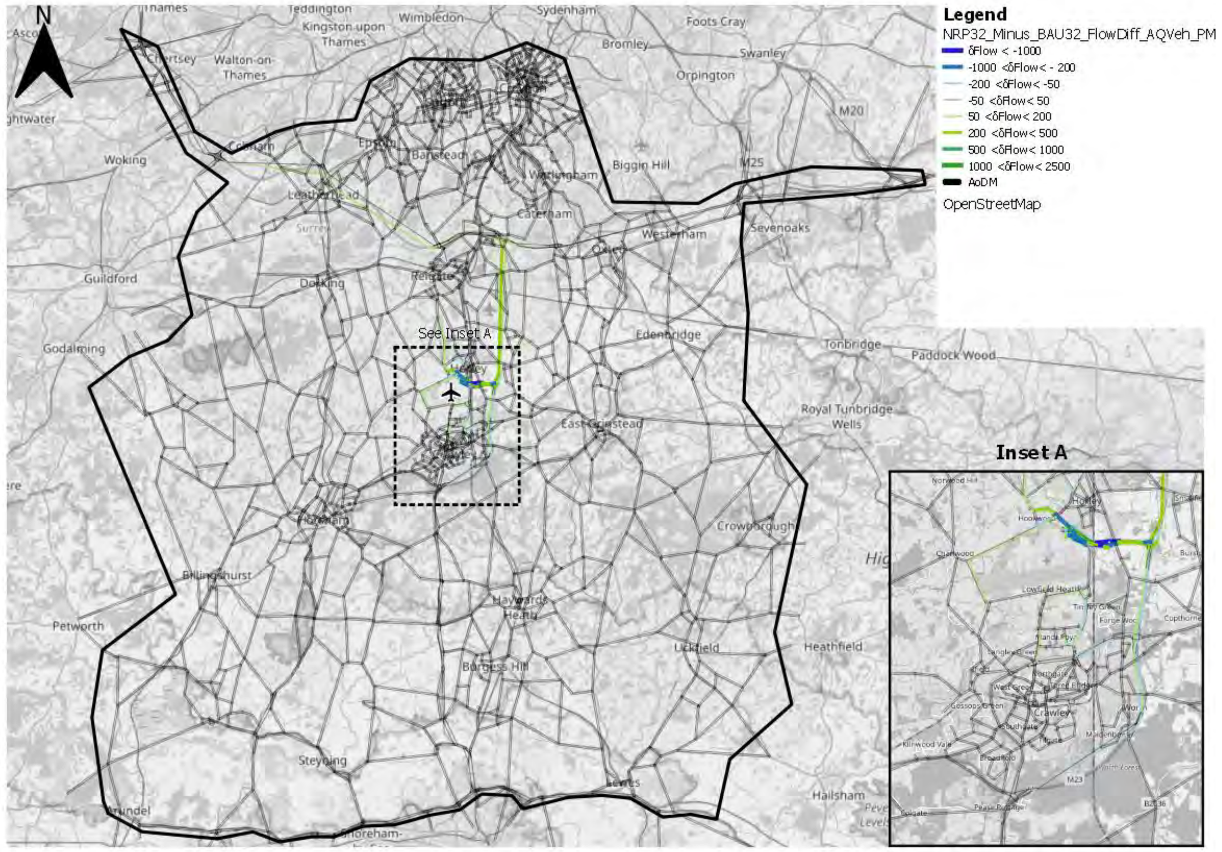


Figure 144: Traffic flow change (veh) 2038 Future baseline to 2038 With Project, AM1

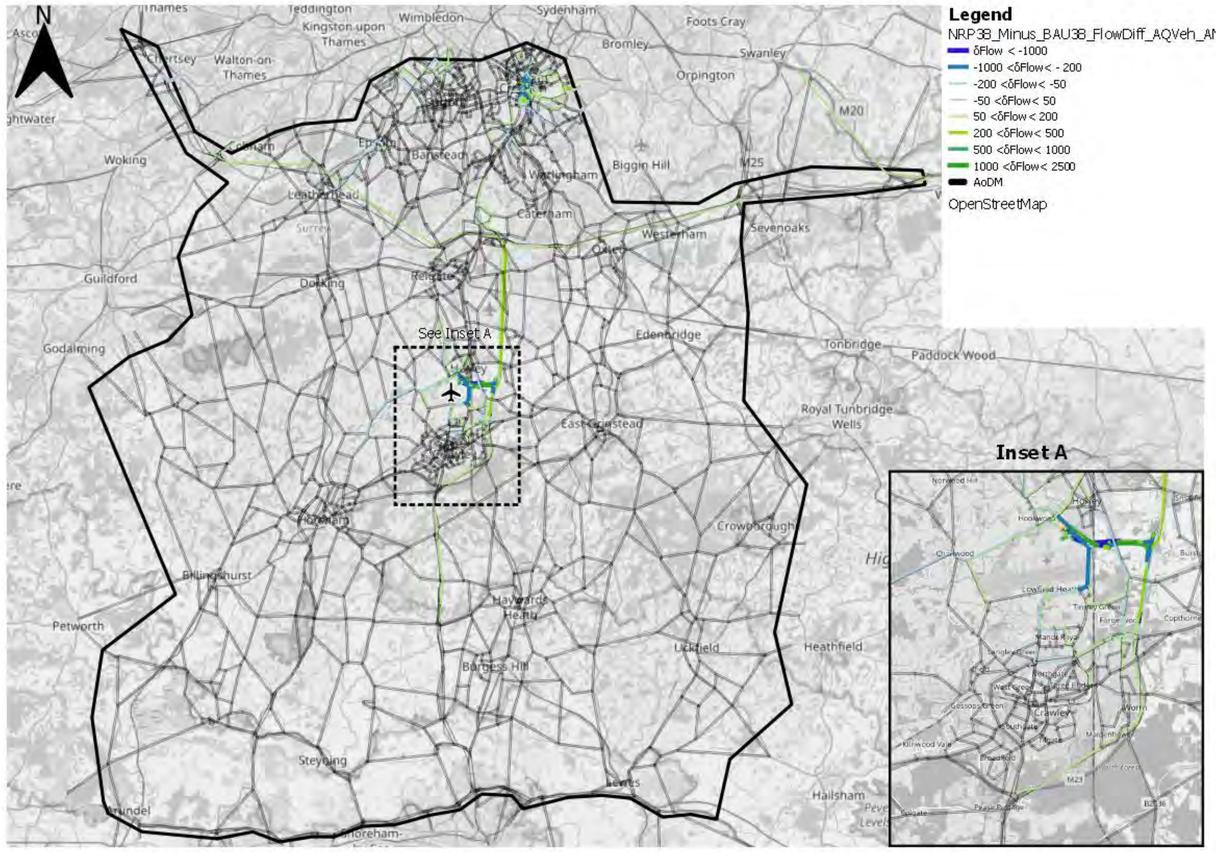


Figure 146: Traffic flow change (veh) 2038 Future baseline to 2038 With Project, IP

Figure 145: Traffic flow change (veh) 2038 Future baseline to 2038 With Project, AM2

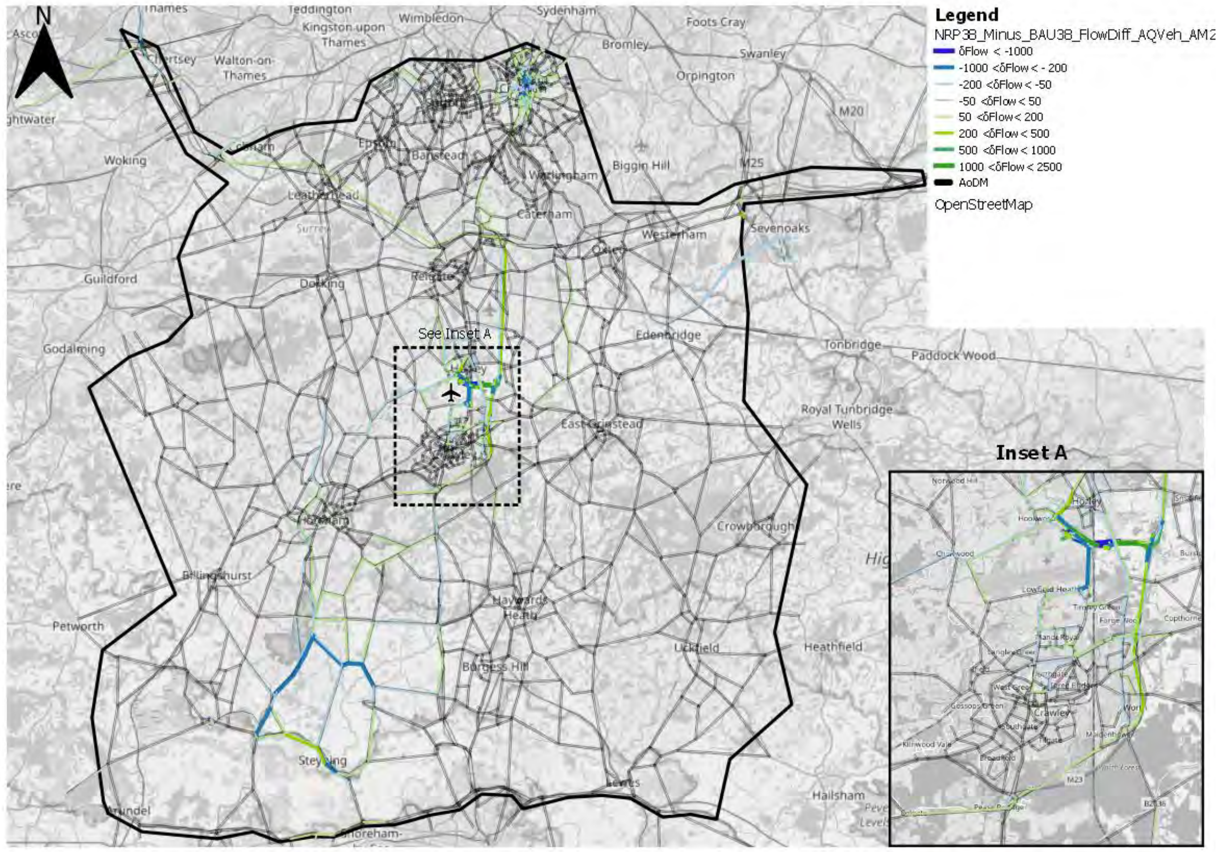


Figure 147: Traffic flow change (veh) 2038 Future baseline to 2038 With Project, PM

Figure 148: Traffic flow change (veh) 2047 Future baseline to 2047 With Project, AM1

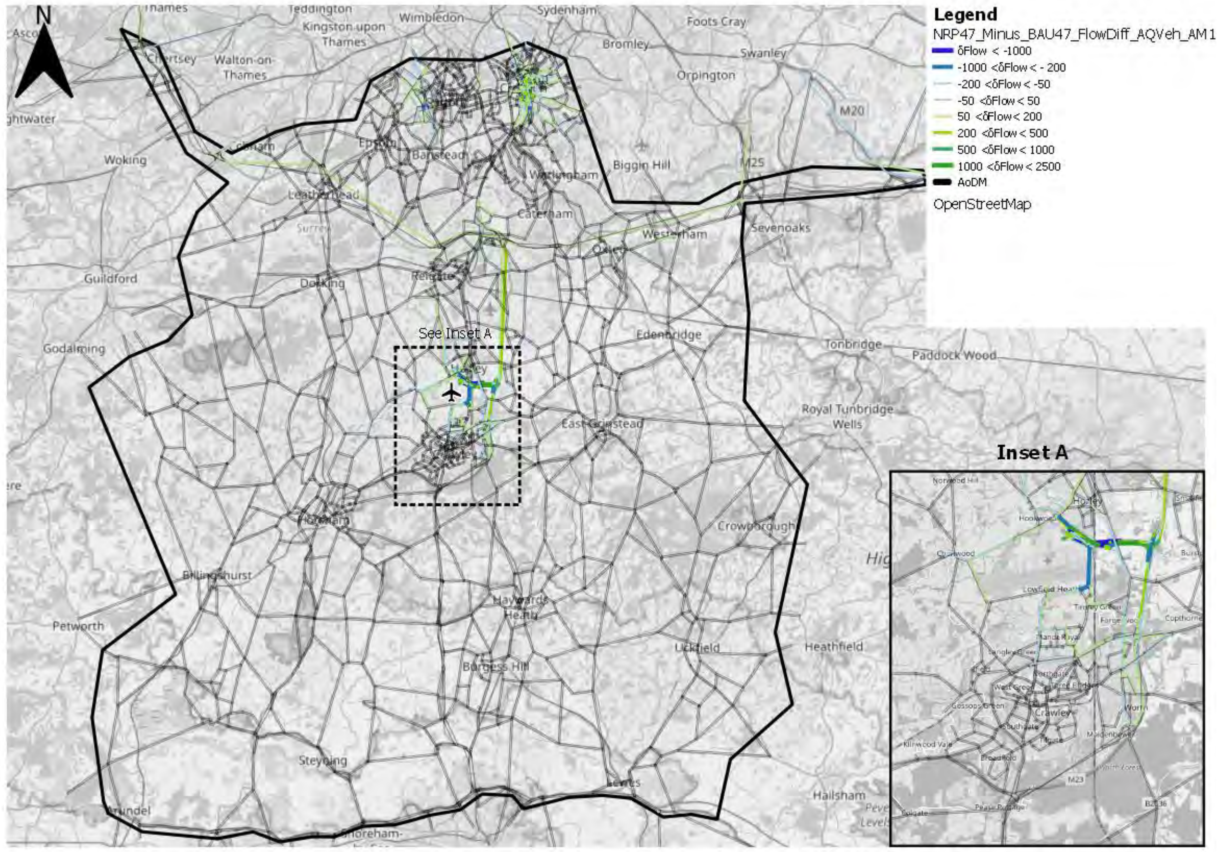


Figure 150: Traffic flow change (veh) 2047 Future baseline to 2047 With Project, IP

Figure 149: Traffic flow change (veh) 2047 Future baseline to 2047 With Project, AM2

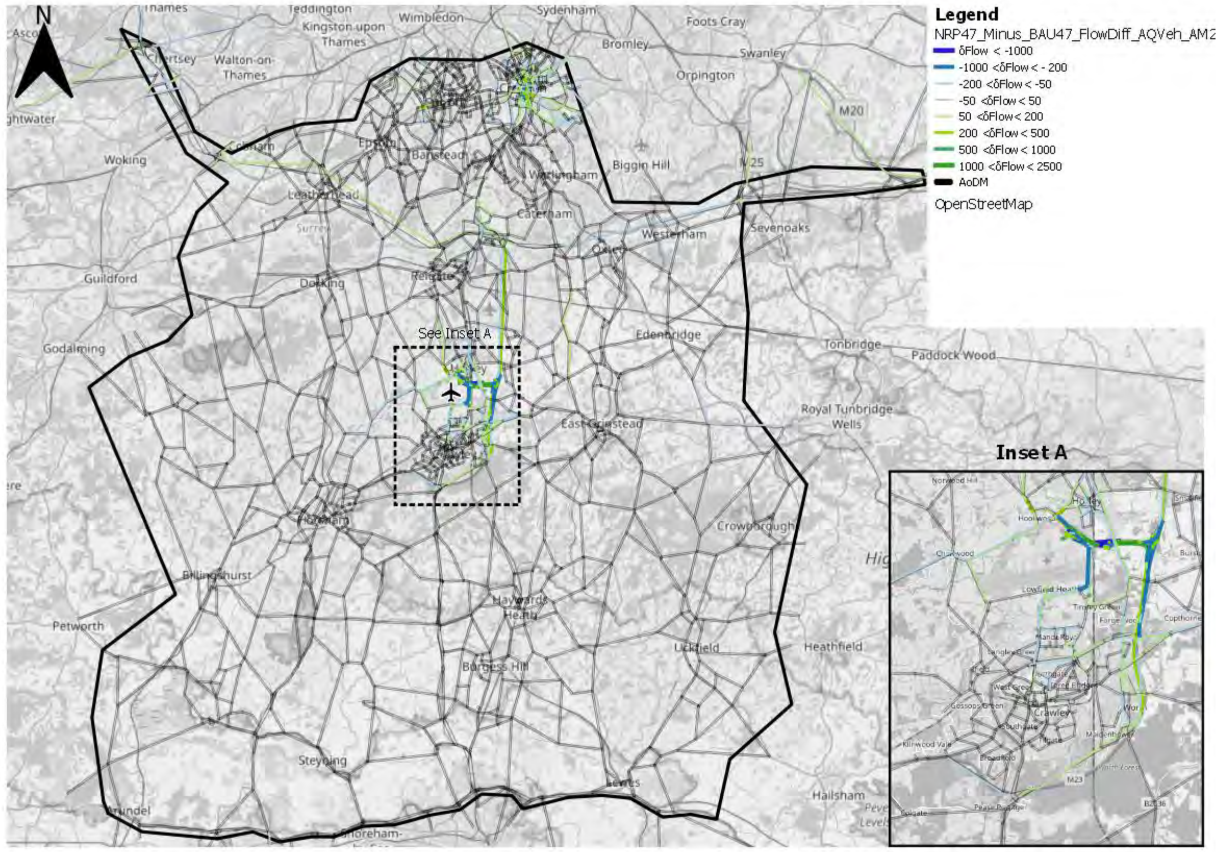
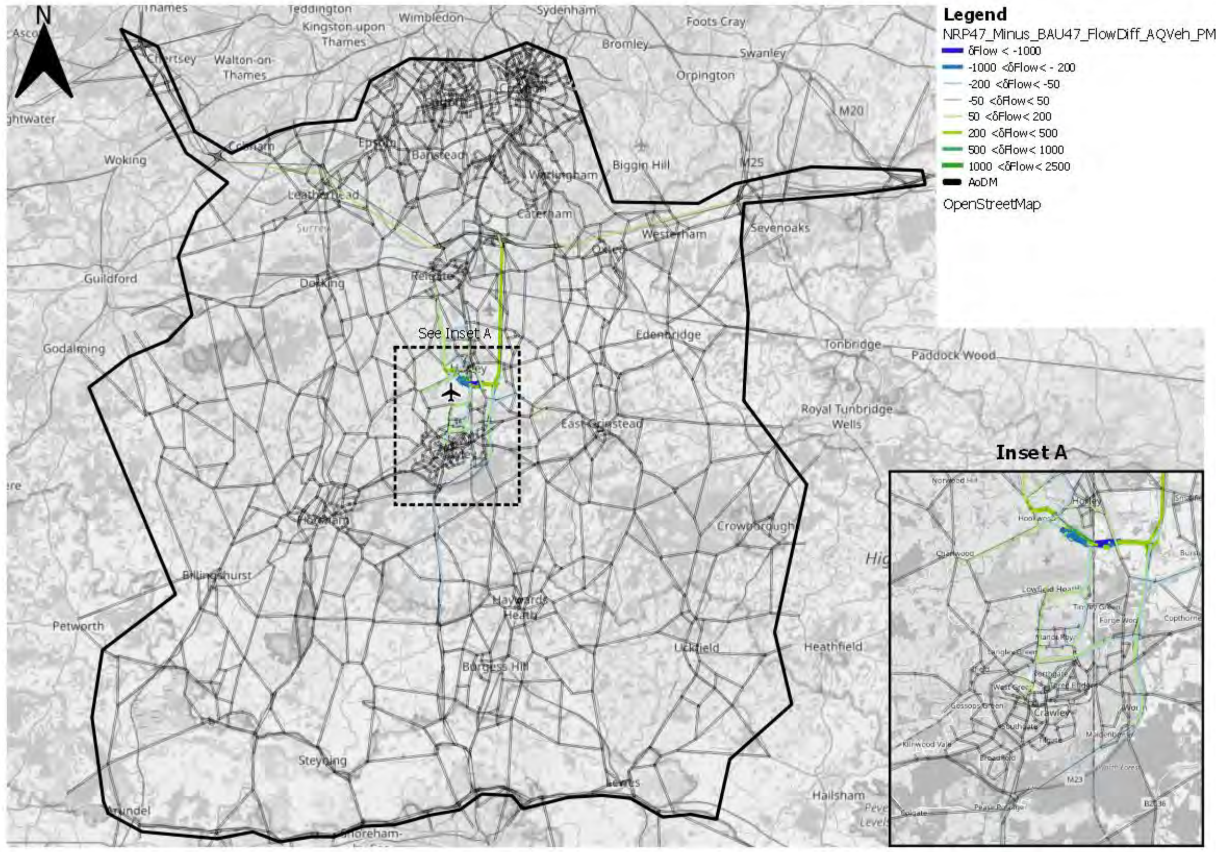


Figure 151: Traffic flow change (veh) 2047 Future baseline to 2047 With Project, PM



Annual Average Daily Traffic

12.8.14 Modelled traffic volumes extracted for the four modelled time periods are combined and expanded to represent Average Annual Daily Traffic (AADT) volumes. These averages represent (Monday-Sunday) traffic volumes at 24-hour levels. Details of the process are described in Section 6.9.

12.8.15 Comparisons across the four assessment years, considering the differences between the Future Baseline and With Project scenario, are presented in Figure 152 to Figure 155 for all modelled links respective to the performance areas. The purpose of this analysis is to demonstrate the characteristics of changes in road traffic volume per day, henceforth denoted as δAADT and distinguishes which corridors are affected and the nature in which the highway model responds in the With Project scenario.

2029

12.8.16 The δAADT between the 2029 Future baseline and the 2029 With Project scenario is presented in Figure 152. Some key points:

- There are significant decreases on North Terminal Roundabout to Longbridge Way and from Gatwick railway station by more than 400 vehicles per day.
- There are reductions in the parking provision across North Terminal Long Stay and the flying pan, which access the network via North Terminal Roundabout/Longbridge Way.
- Reductions on Station Approach Road are likely attributable to the shift of Staff Car parking from Car Park B to Car Park H at South Terminal.
- The key corridor effected between the scenarios for the band 100 < δAADT < 1,000 are predominantly the M23 (both directions) between J9 to the M23 J8/M25 J7 and on the M25 east and west of J7 to M25 J5 and J10 respectively and the A217 corridor from the M23 spur to M25 J8 as well as the periphery of the airport.
- Aside from the links mentioned above, the changes between scenarios show a small number of links with a decrease of 400 vehicles across the AoDM, although most are below 100 vehicles per day and negligible.

2032

12.8.17 The δAADT between the 2032 Future baseline and the 2032 With Project scenario is presented in Figure 153. Most of the With Project growth is between 2029 and 2032 so, as expected, the geographical reach of AADT changes is greater than in 2029. Some key points:

- Results for the 2032 assessment year identify differences for δAADT > 10,000 vehicles per day in relation to westbound arm of M23 Spur and London Road southbound slip road from North Terminal to Airport Way. These changes are expected given the increase growth with the Project as well as the re-routing impacts of the Project mitigation, particularly at North Terminal.
- South Terminal exit arm, northbound Airport Way and southbound London Road experience a lower level of AADT increase between 5,000 and 10,000.
- Further to road traffic increase in 2029, M23 corridor northbound/southbound north of M23 J9 show changes of 2,500 < δAADT < 5,000 and M25 east/west of junction 7 show tidal changes on links approaching the airport of 1,000 < δAADT < 2,500.
- Links related to M23 south of J9 northbound, M25 east of J6 and several A roads within Crawley are captured for 1,000 < δAADT < 2,500.
- There is a small decrease of more than 400 vehicles per day, which is only 2% of the total AADT, in the southbound direction between M23 J9 and M23 J10.
- There are some reductions in demand between Reigate and Crawley in the With Project scenario during the IP, which results in a slight decrease in AADT southbound towards Longbridge roundabout.

2038

12.8.18 The δAADT between the 2038 Future baseline and the 2038 With Project scenario is presented in Figure 154.

12.8.19 Assessment year 2038 illustrates similar patterns to those described for assessment year 2032 with exceptions for:

- M23 northbound carriageway to the south of J10 showing a change of AADT between 2,500 and 5,000 instead of 1,000 and 2,500 in 2032 and;
- Further reductions in Crawley urban area, West of Crawley, Croydon town centre and West Grinstead.

2047

12.8.20 The δAADT between the 2047 Future baseline and the 2047 With Project scenario is presented in Figure 155. Assessment year 2047 changes do not present any additional noteworthy differences compared with the other assessment years apart from the increased range of links effected spreading from the areas mentioned previously.

Figure 152: AADT Delta, 2029 With Project (-) 2029 Future baseline

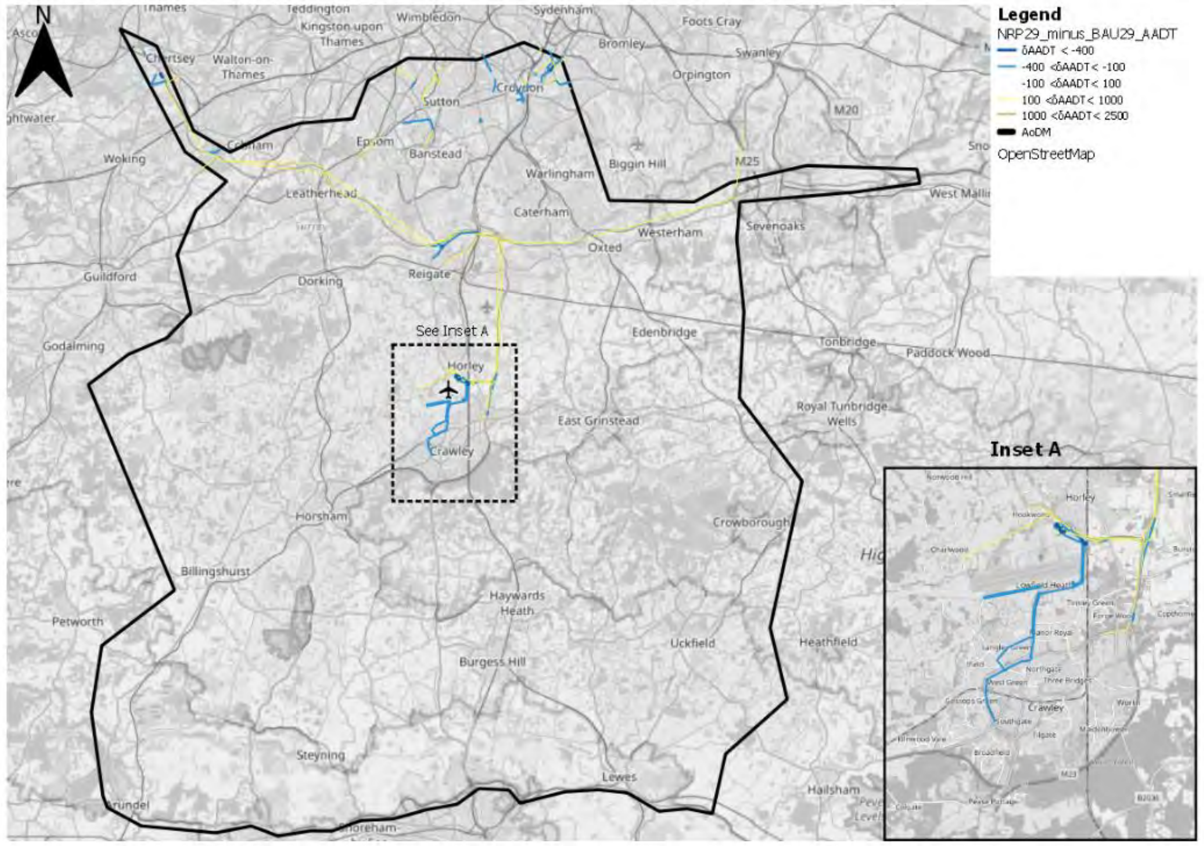


Figure 153: AADT Delta, 2032 With Project (-) 2032 Future baseline

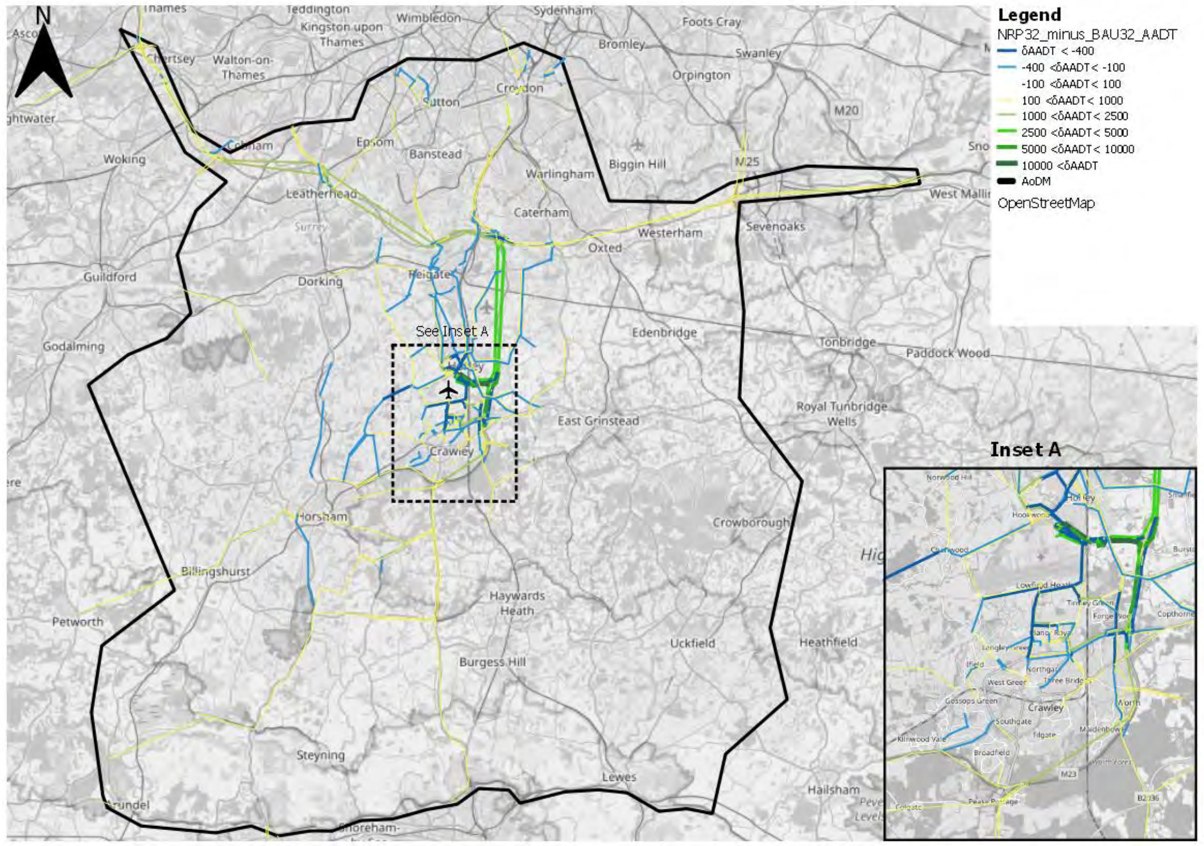


Figure 154: AADT Delta, 2038 With Project (-) 2038 Future baseline

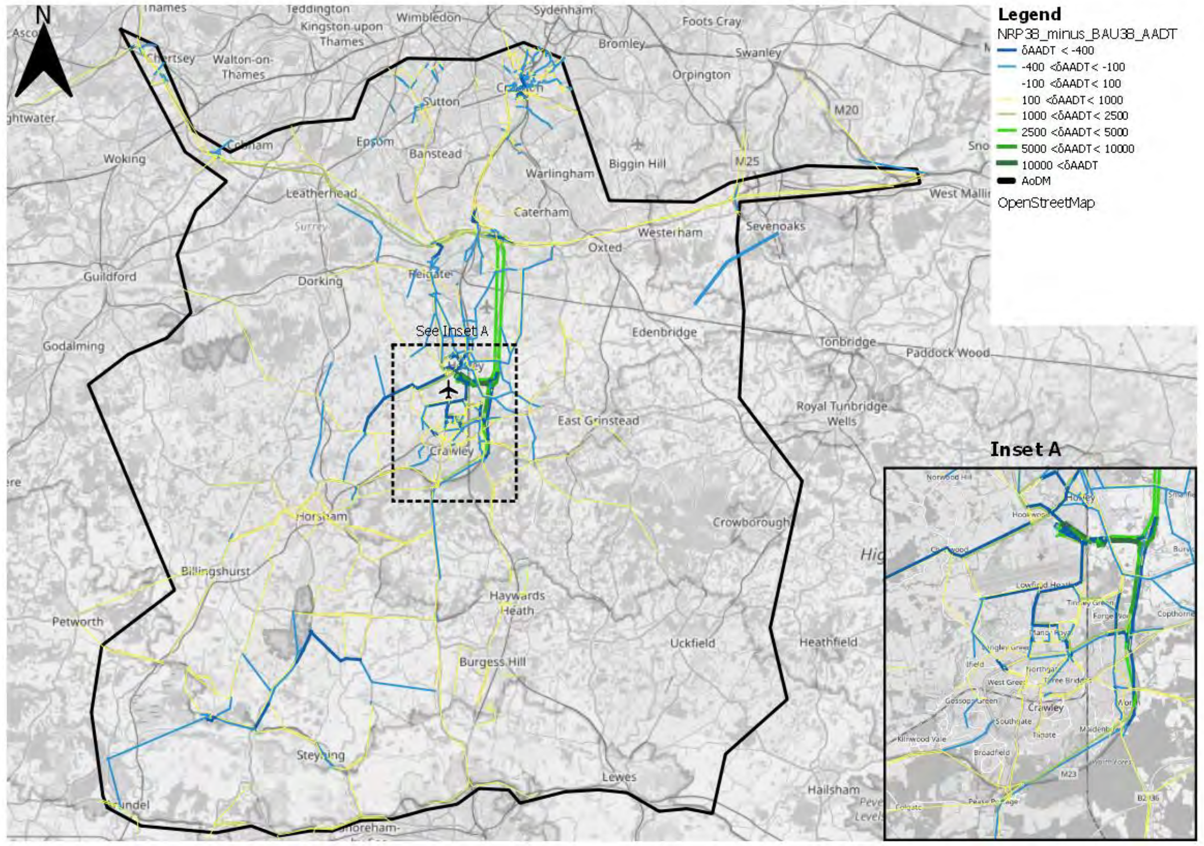
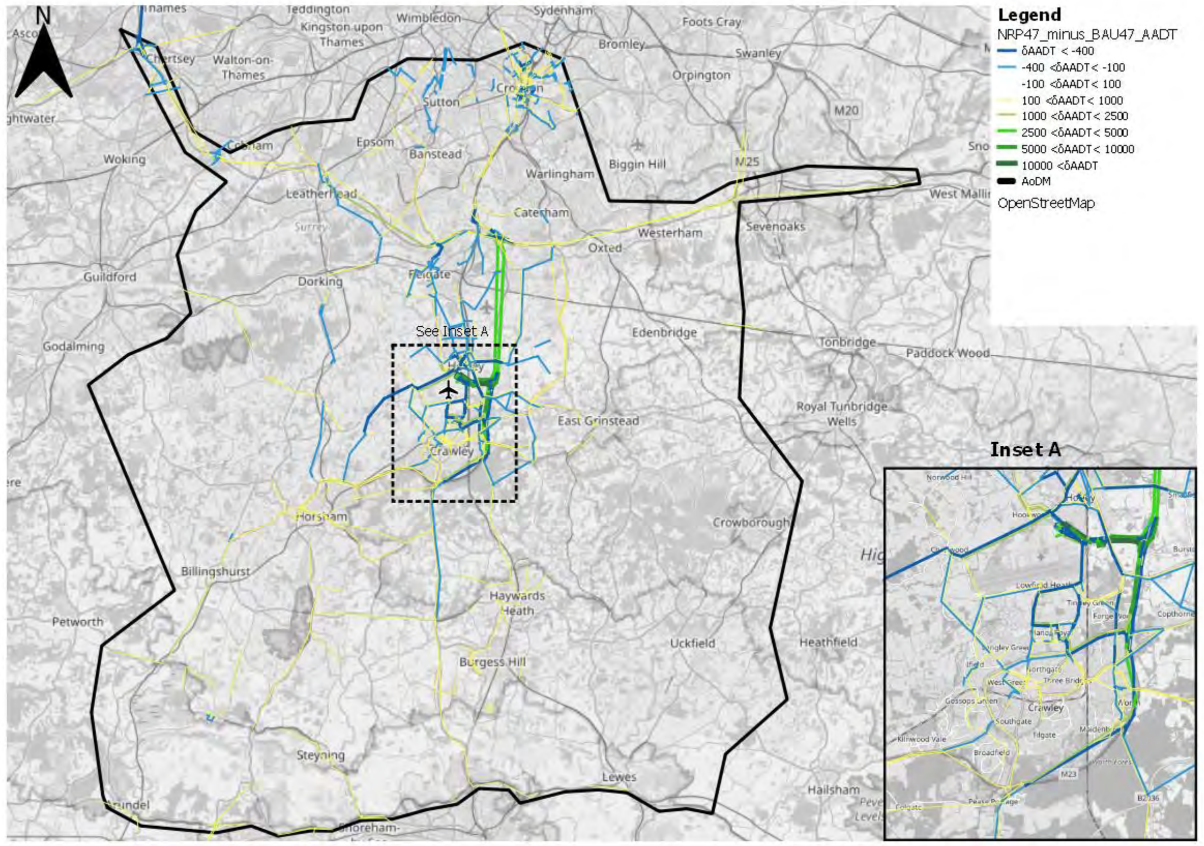


Figure 155: AADT Delta, 2047 With Project (-) 2047 Future baseline



Strategic Road Network

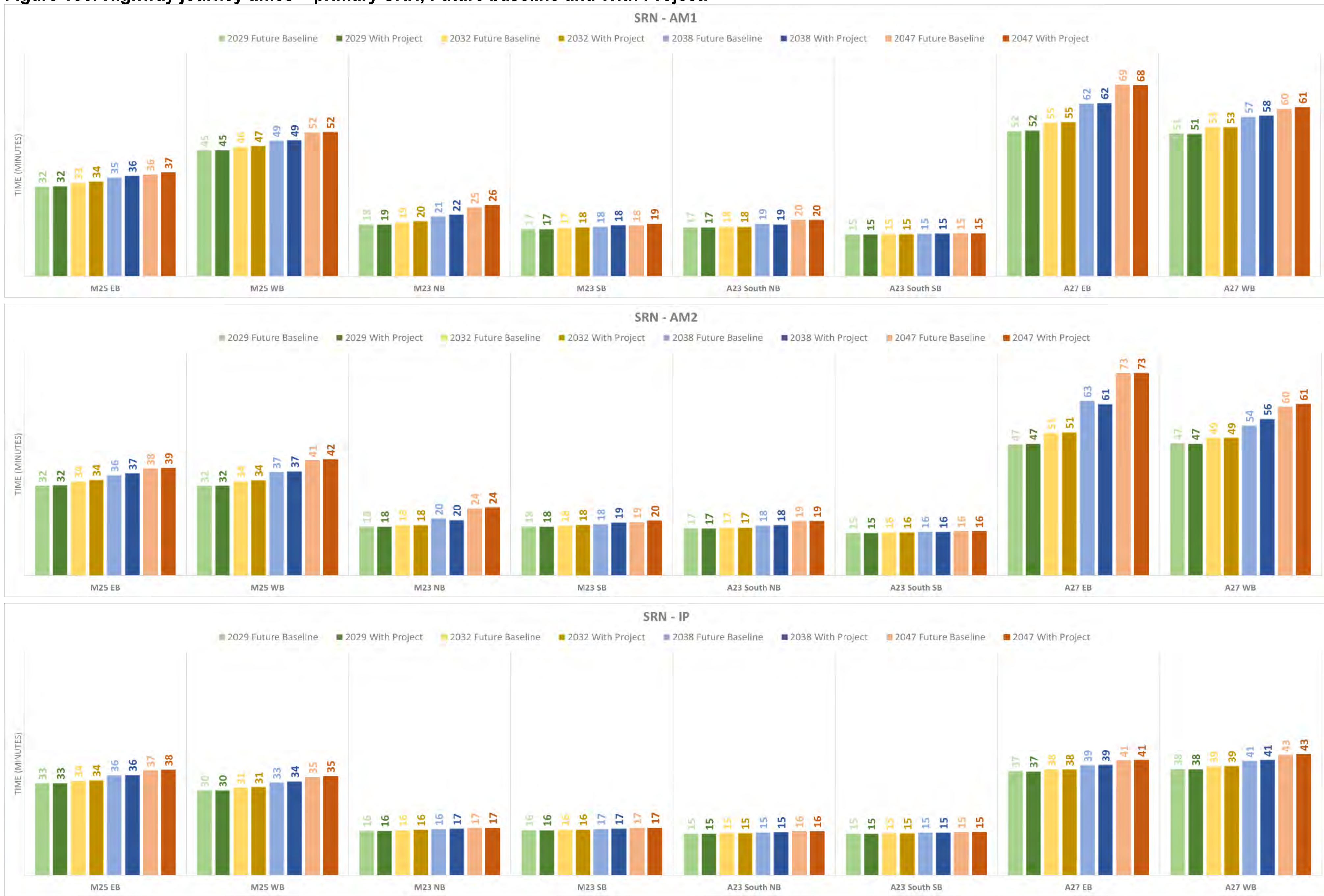
Journey times

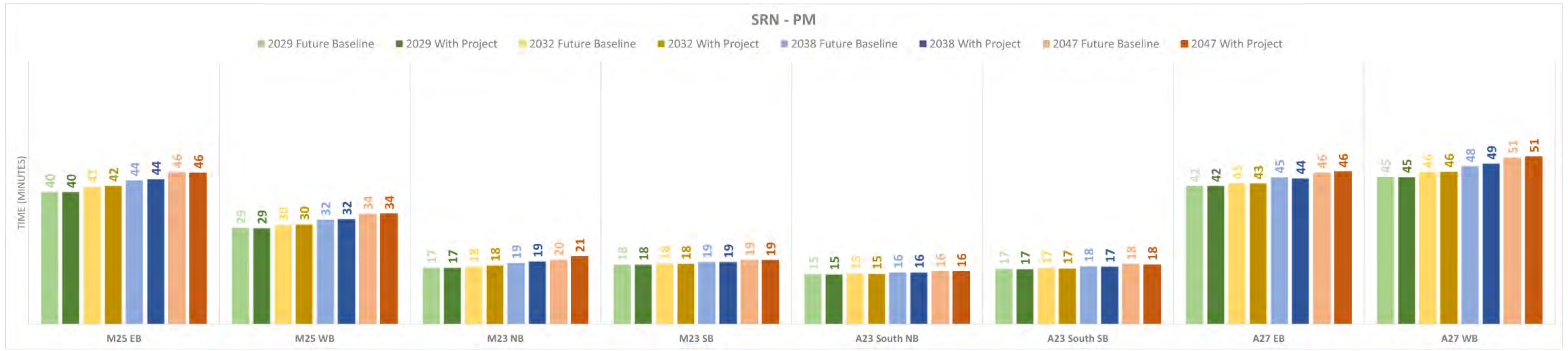
12.8.21 Journey time routes have been assessed for the SRN including the following:

- M25 from J5 to J10, westbound and eastbound - Figure 156 shows that there is an overall increase in journey times (up to 7-minutes) from 2029 to 2047 Future baseline. There is an increase of no more than 1-minute for With Project scenarios compared with Future baseline for all years.
- M23 northbound and southbound - Figure 156 shows that there is an overall increase in journey times (up to 7-minutes) from 2029 to 2047 in the Future baseline. The increase of journey time over the years is more significant during AM peaks (up to 7-minutes) and less significant during the IP and PM peaks (up to 2-minutes). There is an increase of no more than 1-minute for With Project scenarios compared with Future baseline for all years.
- A23 northbound and southbound - Figure 156 shows that there is a slight overall increase in journey times (up to 3-minutes) from 2029 to 2047 in the Future baseline. There is no change for With Project scenarios compared with Future baseline scenarios for 2029, 2032 and 2038.
- A27 Lewes to Arundel westbound and eastbound - Figure 156 shows that there is an overall increase in journey times (up to 26-minutes) from 2029 to 2047. There is change of –2 to +2 minutes in journey time for With Project scenarios compared with Future baseline scenarios for 2029, 2032 and 2038.

12.8.22 Modelled journey times extracted for Future baseline and With Project in 2029, 2032, 2038 and 2047 are illustrated in Figure 156. There are no instances of journey times exceeding changes greater than 2-minutes in any modelled year; there are no significant impacts on end-to-end journey times.

Figure 156: Highway journey times – primary SRN, Future baseline and With Projectf





Operational performance - Volume/Capacity ratios

12.8.23 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. The maximum value across all time periods was selected to identify the highest value modelled and this is presented for each modelled year With Project scenario in Figure 157 to Figure 160. The key points are:

- The modelling suggests that there are no occurrences of SRN links that have changed operational categories between the Future baseline and With Project scenarios across all assessment years, except for A23 southbound west of Burgess Hill.
- In 2047 the M23 J9 to J8 moving just over 100% in the With Project scenario.

Figure 157: Maximum V/C - 2029, With Project – SRN

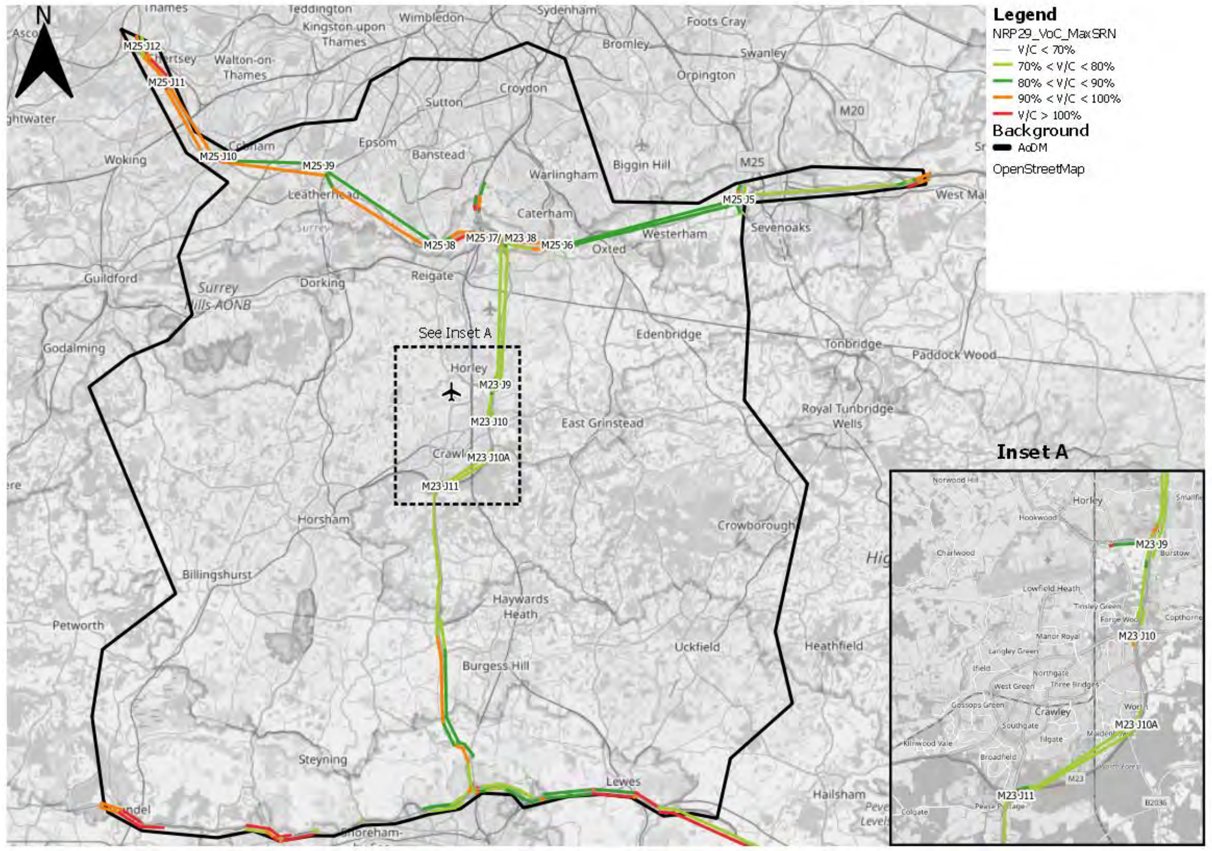


Figure 158: Maximum V/C - 2032, With Project – SRN

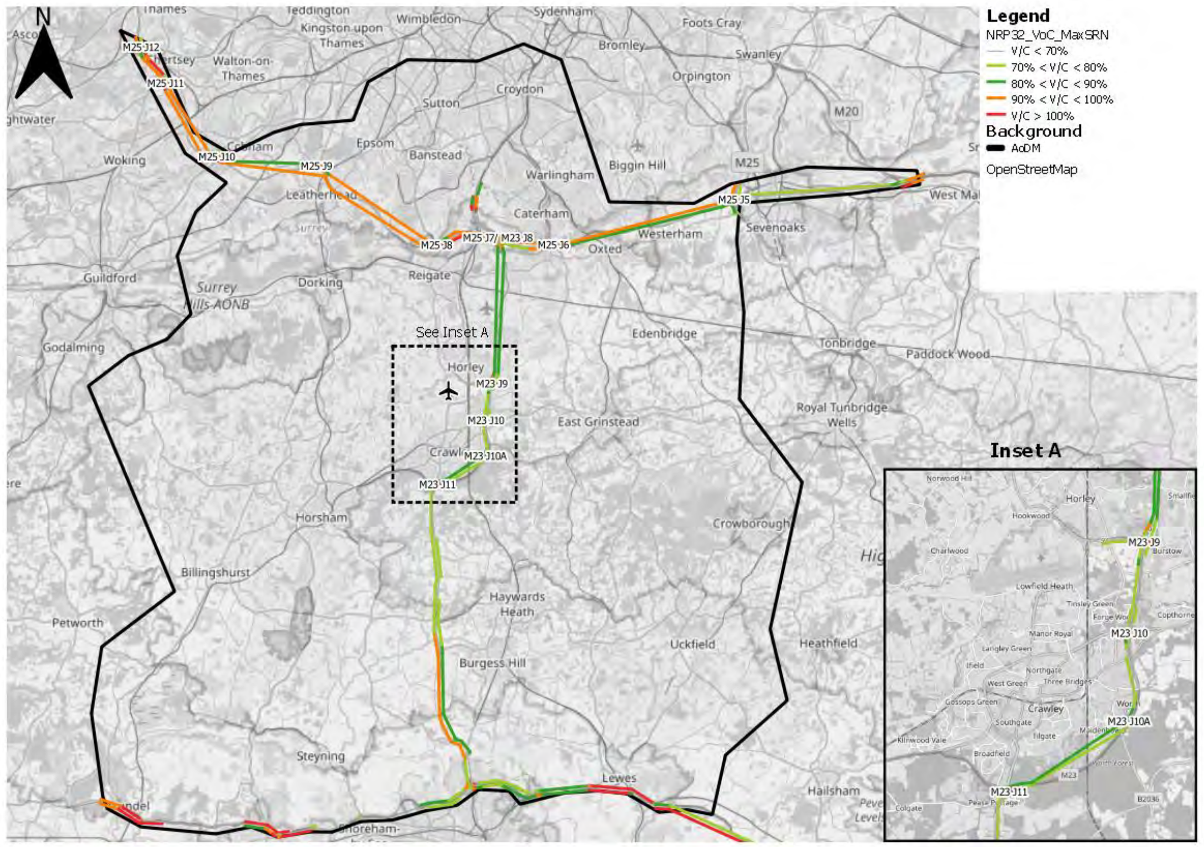


Figure 159: Maximum V/C - 2038, With Project – SRN

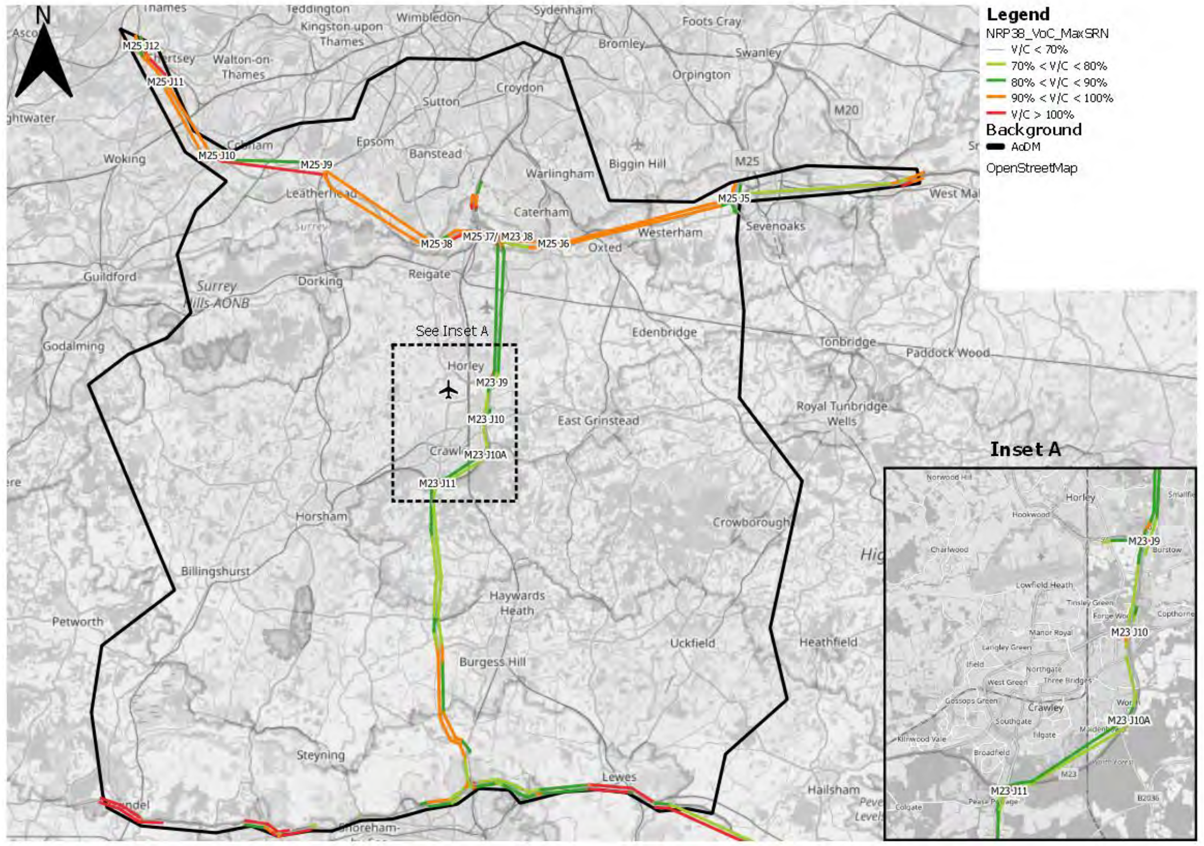
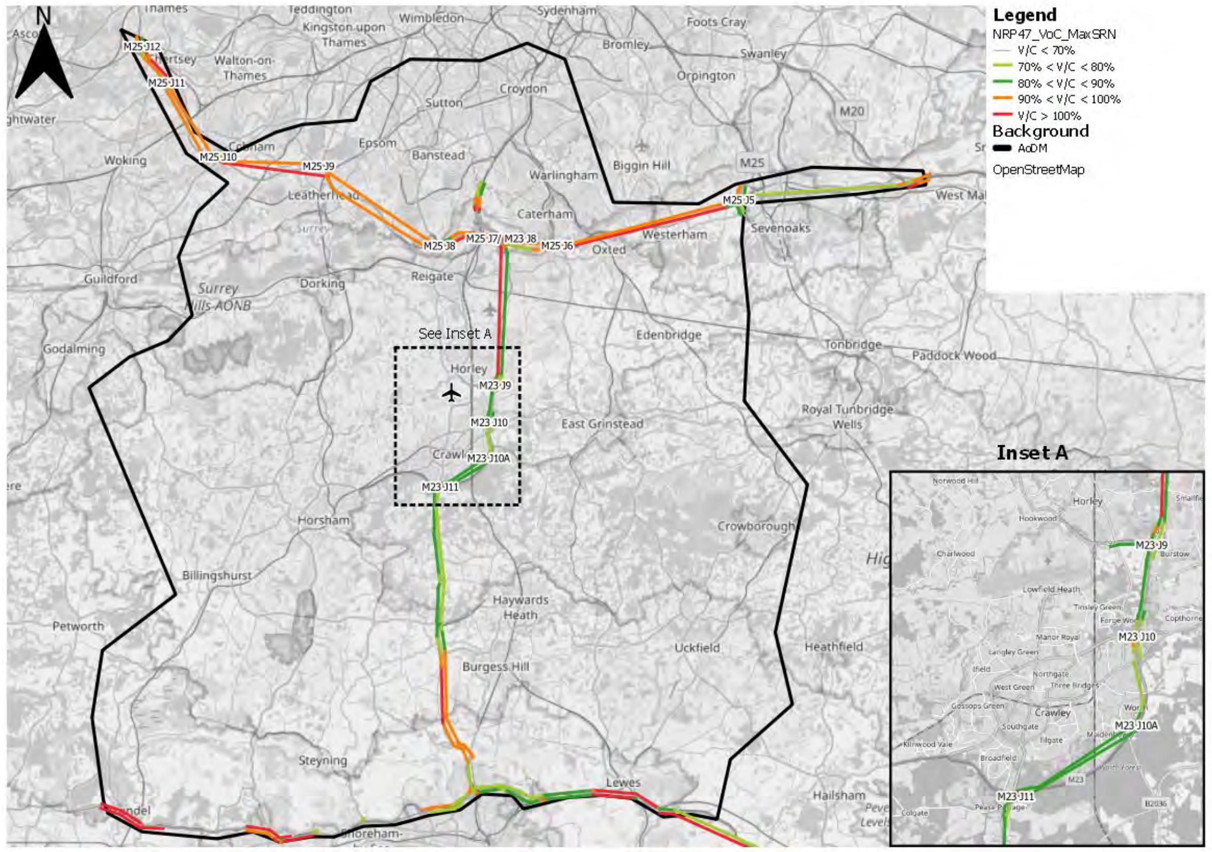


Figure 160: Maximum V/C - 2047, With Project – SRN



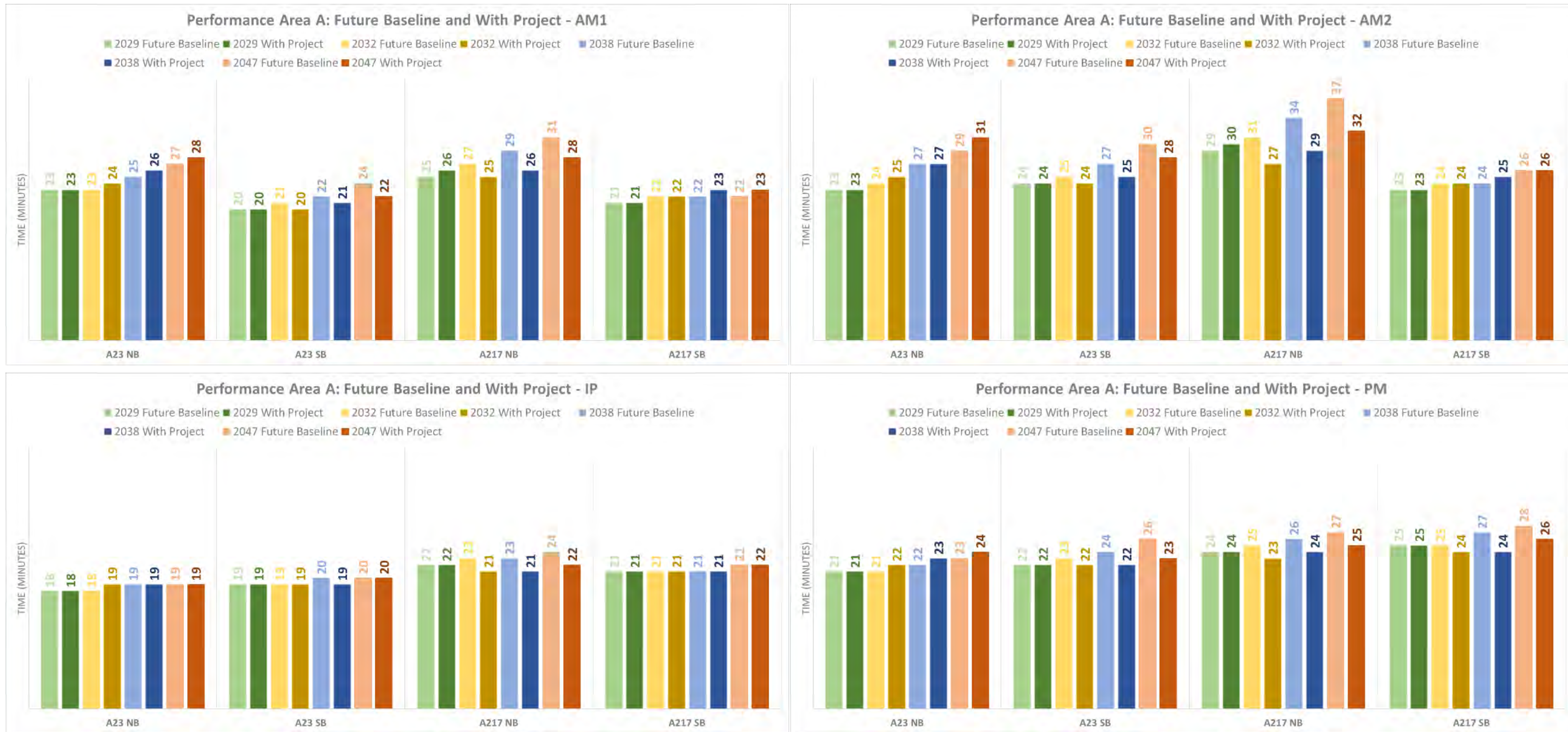
Performance Area A

Journey times

12.8.24 For Performance Area A, journey times along the key routes are shown in Figure 161. The key points are:

- A23 from Longbridge Roundabout to A23 (south of M25, near Merstham) - Figure 161 shows that there is no change or 1-minute increase in journey time from 2029 Future baseline to 2032 Future baseline. There is an increase in journey time (up to 3-minutes) from 2032 Future baseline to 2038 Future baseline and no change in journey time from 2038 Future baseline to 2047 Future baseline. In the northbound direction, there is no change or up to 1-minute increase in journey time as a result of the Project for 2032, 2038 and 2047. In the southbound direction, while there is no change of journey time as a result of the Project in 2029, a decrease of up to 2-minutes in journey time is observed in 2032, 2038 and 2047.
- A217 from M23 Spur via A217 to M25 J8 - Figure 161 shows that there is generally an increase in journey time of up to 2-minutes from 2029 Future baseline to 2032 Future baseline. There is an increase in journey time (up to 3-minutes) from 2032 Future baseline to 2038 Future baseline and no change in journey time from 2038 Future baseline to 2047 Future baseline. In the northbound direction, there is no change or up to 1-minute increase in journey time as a result of the Project for 2029 and a decrease in journey time of up to 5-minutes in 2032, 2038 and 2047 as a result of the Project. In the southbound direction, while there is no change or a 1-minute increase of journey time as a result of the Project at the AM and IP peaks in all years, and there is a decrease of up to 3-minutes in journey time at the PM peak in 2032, 2038 and 2047.

Figure 161: Highway journey times - Performance Area A, Future baseline and With Project



Operational performance - Volume/Capacity ratios

12.8.25 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. The maximum value across all time periods was selected to identify the highest value modelled and this is presented in Figure 162 to Figure 165 for each modelled year in across Performance Area A.

12.8.26 The modelling suggests that:

- there are some instances of relevant links that have changed operational categories between the Future baseline and With Project scenario across all assessment years.
- For 2029, Charlwood Road to the south of the airport changes from orange (90%<V/C<100%) to dark green (80%<V/C<90%) With Project. However, the operational levels switch to red (over capacity) in the other assessment years With Project whereas those stay the same across Future baseline scenarios. This indicates possible traffic re-routing to alternative local roads in early assessment year.
- 2032 indicates that London Road between Longbridge roundabout and North Terminal eastbound changes from grey (<70%) to orange (90%<V/C<100%), highlighting the increased conflict in movements between the Longbridge roundabout and North Terminal access. The links operate above capacity beyond 2032.

12.8.27 Additionally, congestion on South Terminal roundabout is relieved by A23 main carriageways going straight through beyond 2032 With Project. Broadfield roundabout in Crawley and A23/Victoria Road junction in Horley experience capacity issues in Future baseline but not With Project in 2032 and 2038. This is still the case for A23/Victoria Road in 2047. Some findings below:

- The analysis of the Future baseline showed that M23 J10 northbound off-slip is showing high Volume to Capacity ratios, particularly in AM2.
- With Project these Volume to Capacity ratios are shown to reduce.
- Given the proximity to M23 J9, the performance of this junction has been looked at as part of the M23 Junction 9 sensitivity testing.
- Aside from the instances mentioned, the changes between scenarios across all assessment years show no other changes in links that were operating within capacity (V/C 100%) and links over capacity (V/C > 100%).

12.8.28 Further analysis is undertaken to contextualise these impacts by categorisation with respect to magnitude of impacts.

Figure 162: Maximum V/C, 2029 With Project - Performance Area A

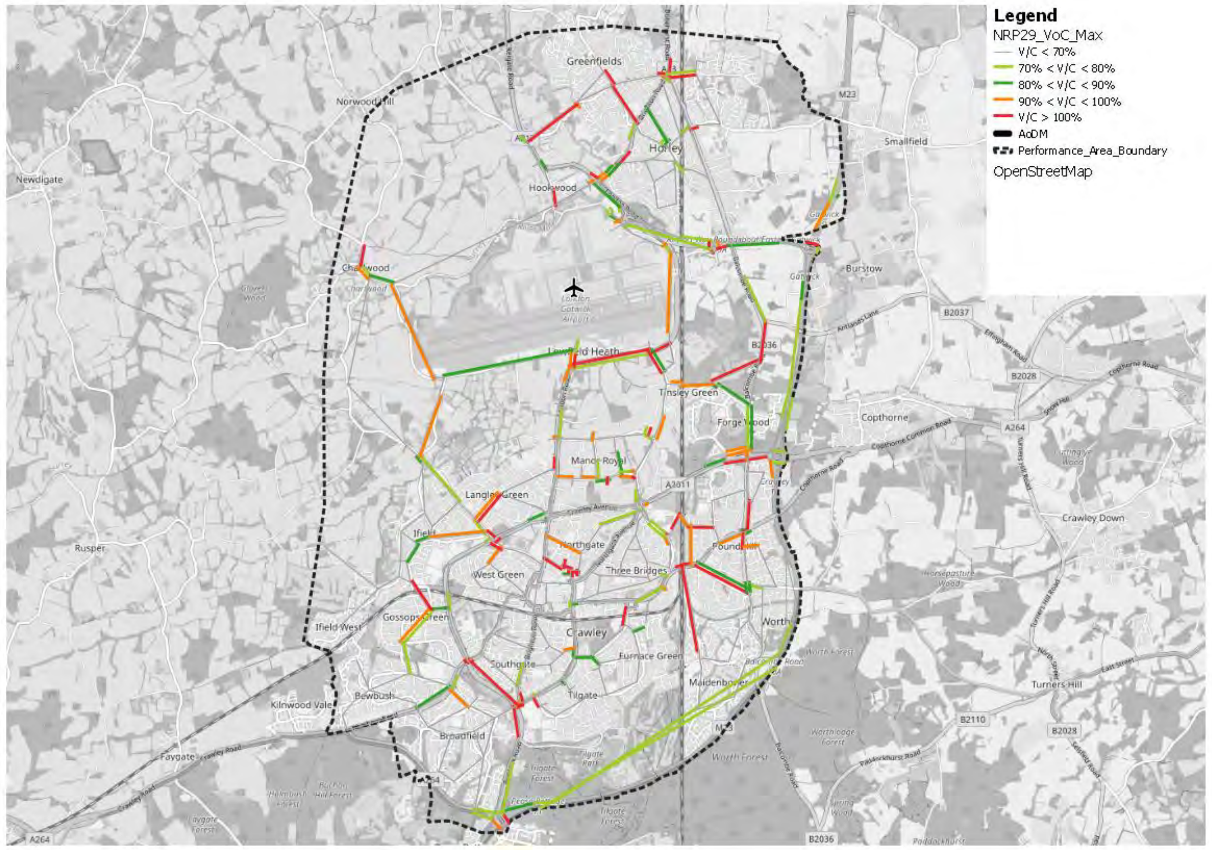


Figure 163: Maximum V/C, 2032 With Project - Performance Area A

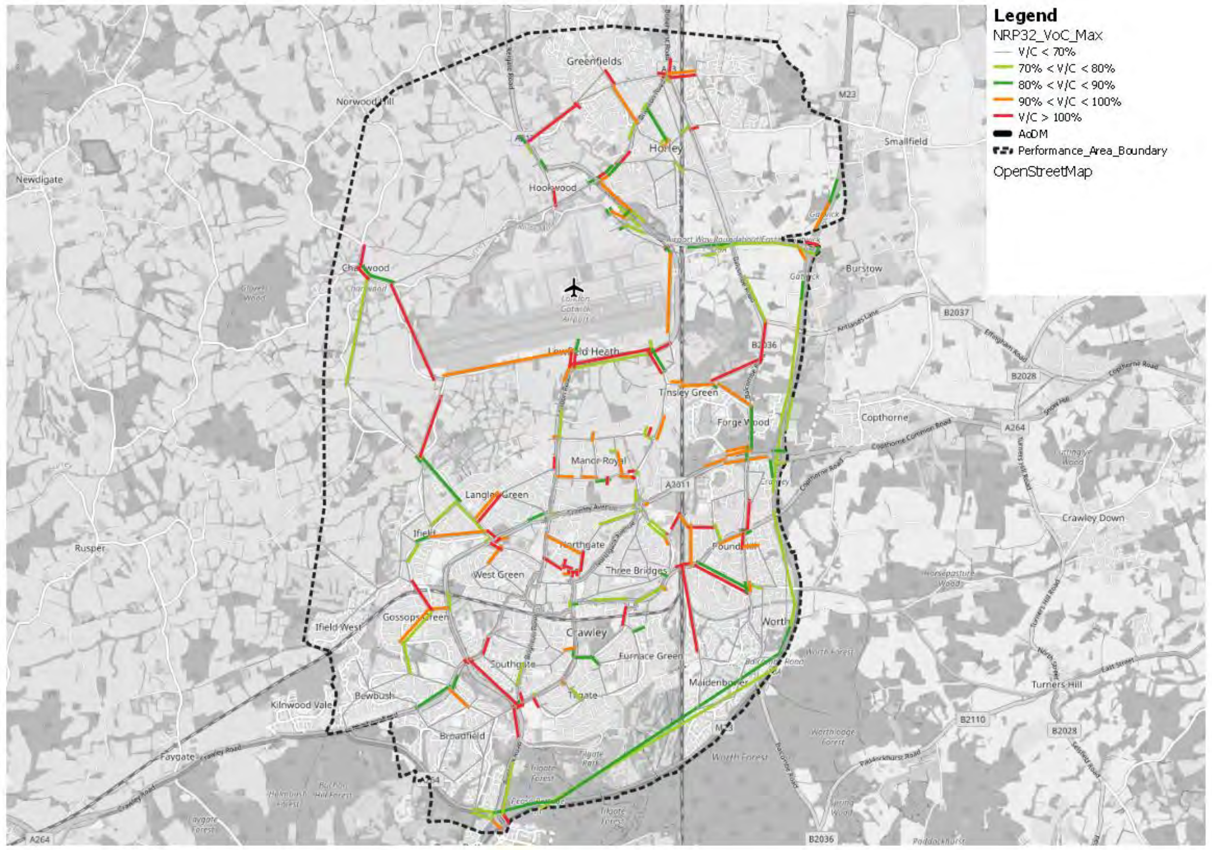


Figure 164: Maximum V/C, 2038 With Project - Performance Area A

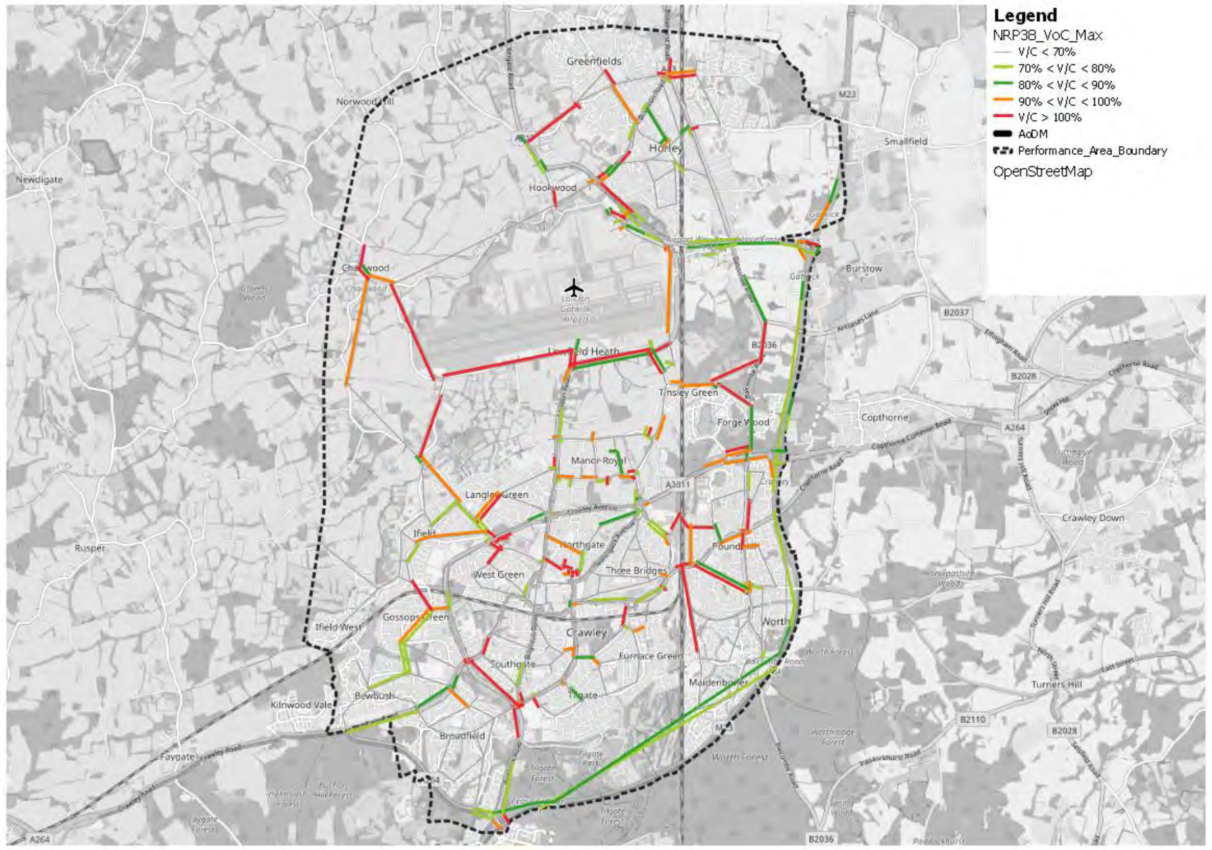
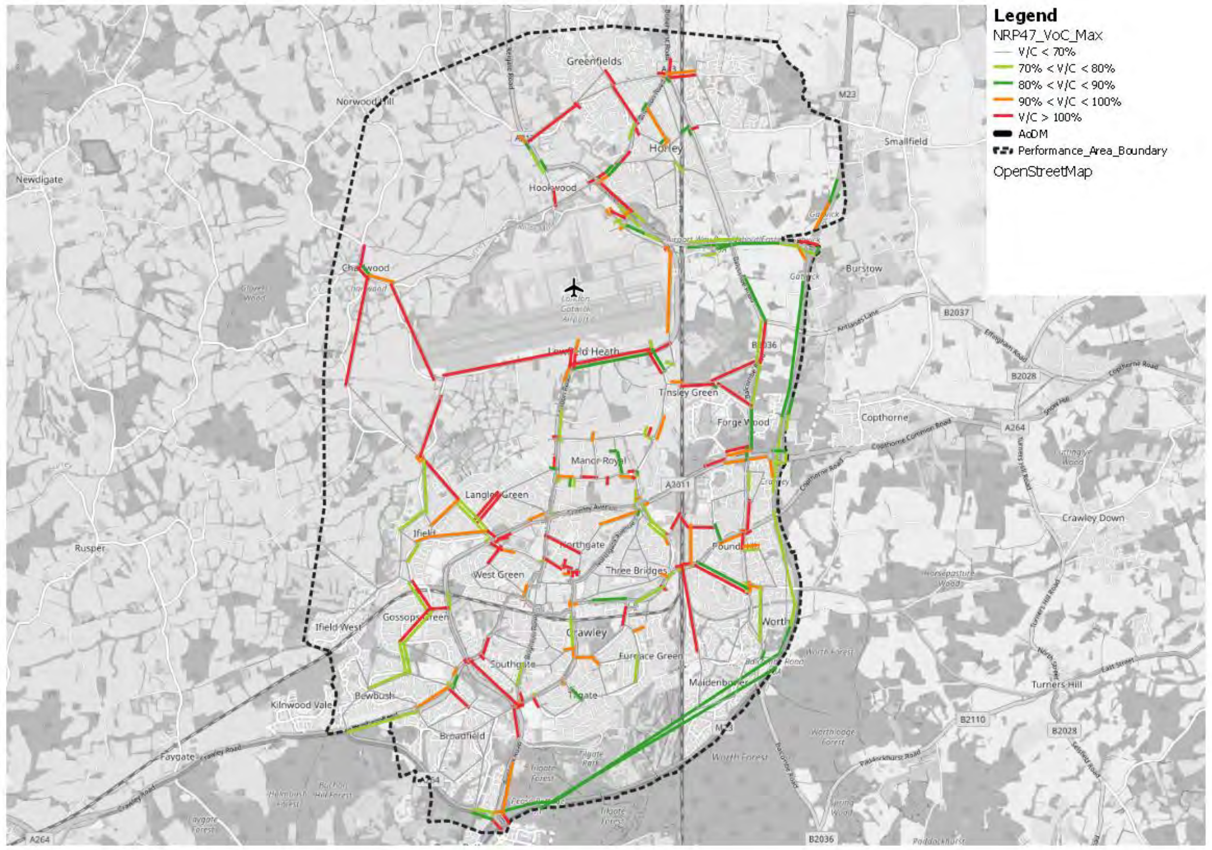


Figure 165: Maximum V/C, 2047 With Project - Performance Area A



Magnitude of Impact – nodes

12.8.29 In accordance with the criteria specified in 6.12, the following section elaborates on instances of 'High', 'Medium' and 'Low' impacts for each assessment year between Future baseline and With Project scenarios. All junctions flagged in this section as Medium or High Impacts are considered within the Chapter 10 of the **Transport Assessment** and **Environmental Statement Appendix 12.9.2: Rail Passenger Flows** (Doc Ref. 5.3), so commentary in the following paragraphs is high level and is primarily related to modelling effects only.

2029

12.8.30 When considering 2029, the only instance of 'Low' impact relates to M23 J9 and M23 Spur in both AM1 and AM2 as shown in Figure 166. This change is predominantly driven by an increase in the volume of trips accessing the airport.

Table 149: Magnitude of Impacts: Performance Area A – Future baseline 2029 to With Project 2029

2029	Performance Area A - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	22	24	23	6
Low	2	2	0	0
Medium	0	0	0	0
High	0	0	0	0

2032

12.8.31 The 2032 assessment year impacts are summarised in Table 150. The table outlines that there is a maximum of one 'High' magnitude impact and two 'Medium' across all modelled periods.

12.8.32 Figure 167 outlines all occurrences across all peaks.

- This is the first year that the Project mitigation is in place which will help facilitate the growth in the airport but also the benefits that this brings to existing roads using by making it easier to travel past South Terminal on the flyover.
- This shows that there are no impacts flagged at either North or South Terminal.
- The AM1 and AM2 'High' instance relates to the M23 J9 southbound off-slip/circulatory and is associated with additional demand accessing the airport. This is a signalised part of the junction, and the operation has been reviewed as part of the VISSIM modelling.
- In AM1 and AM2 'Medium' impact is also highlighted at Junction 9 at the exit heading southbound, and the operation of this exit is also considered in the VISSIM modelling.

Table 150: Magnitude of Impacts: Performance Area A – Future baseline 2032 to With Project 2032

2032	Performance Area A - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	95	114	105	125
Low	0	2	0	0
Medium	2	1	0	0
High	1	1	0	0

2038

12.8.33 The 2047 assessment year impacts are summarised in Table 151. The table outlines that there is a maximum of one 'High' impact and two 'Medium' instances across all modelled periods.

12.8.34 Figure 168 outlines all occurrences across all peaks.

- Similar to 2032, the proposed highway mitigation shows that there is no impact on the M23 Spur and Airport Way in the With Project scenario.
- The additional 'Medium' impact relates to the M23 J9 circulatory and follows from the issue described for traffic volumes accessing via the M23 J9 southbound off-slip.

Table 151: Magnitude of Impacts: Performance Area A – Future baseline 2038 to With Project 2038

2038	Performance Area A - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	76	169	160	170
Low	0	3	0	0
Medium	2	1	0	0
High	1	1	0	0

2047

12.8.35 The 2047 assessment year impacts are summarised in Table 152.

- The table outlines that there is a maximum of two 'High' magnitude impact and three 'Medium' across all modelled periods.

12.8.36 Figure 169 outlines all occurrences across all peaks.

- The additional 'High' impact occurrences introduced in 2047 relates to Gatwick Road roundabout junction and Longbridge Way Car Park.
- The change at Gatwick Road roundabout is an impact in the PM predominantly driven by an increase in southbound traffic which increases the Volume to Capacity ratio on this approach from 88 to 100, and an increase in the Volume to Capacity ratio from the airport side from 67 to 80, with a consequent impact on the overall average.

Table 152: Magnitude of Impacts: Performance Area A – Future baseline 2047 to With Project 2047

2047	Performance Area A - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	94	165	133	188
Low	0	2	0	2
Medium	1	3	0	0
High	2	1	0	1

Figure 166: Magnitude of Impacts: Performance Area A – Future baseline 2029 to With Project 2029

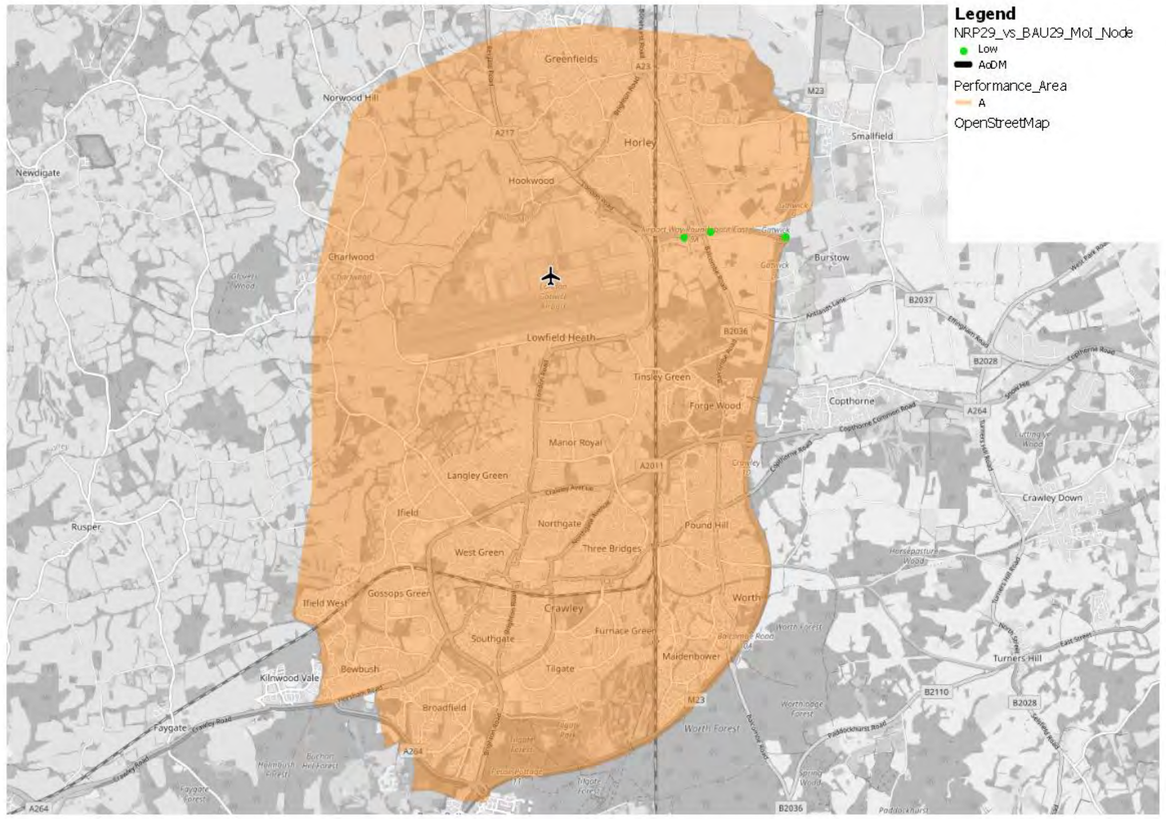


Figure 168: Magnitude of Impacts: Performance Area A – Future baseline 2038 to With Project 2038

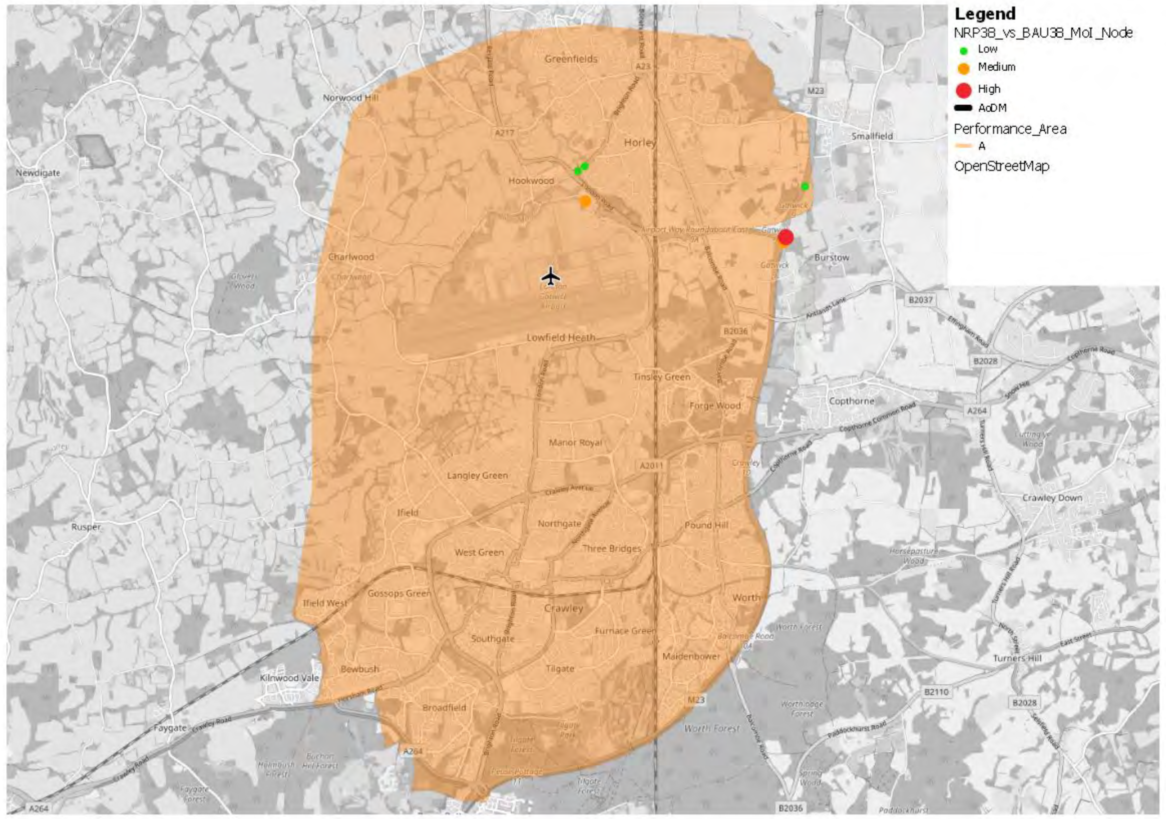


Figure 167: Magnitude of Impacts: Performance Area A – Future baseline 2032 to With Project 2032

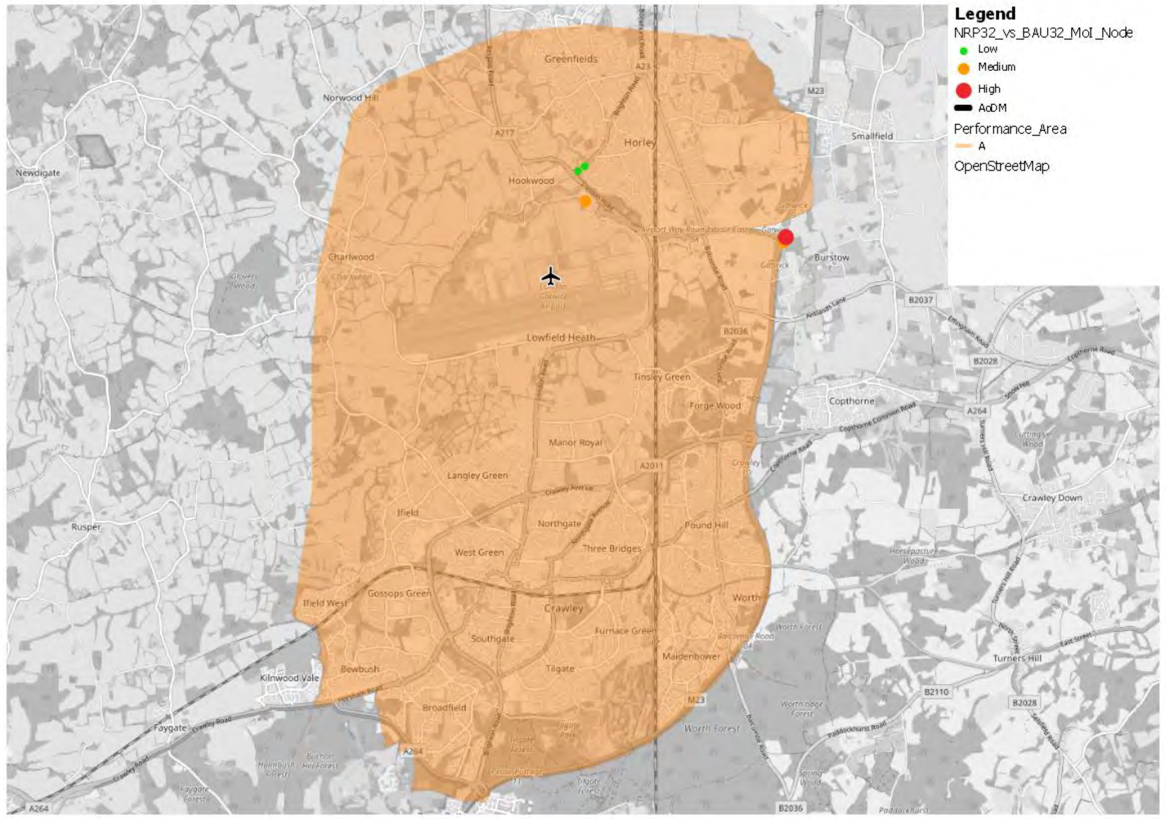


Figure 169: Magnitude of Impacts: Performance Area A – Future baseline 2047 to With Project 2047

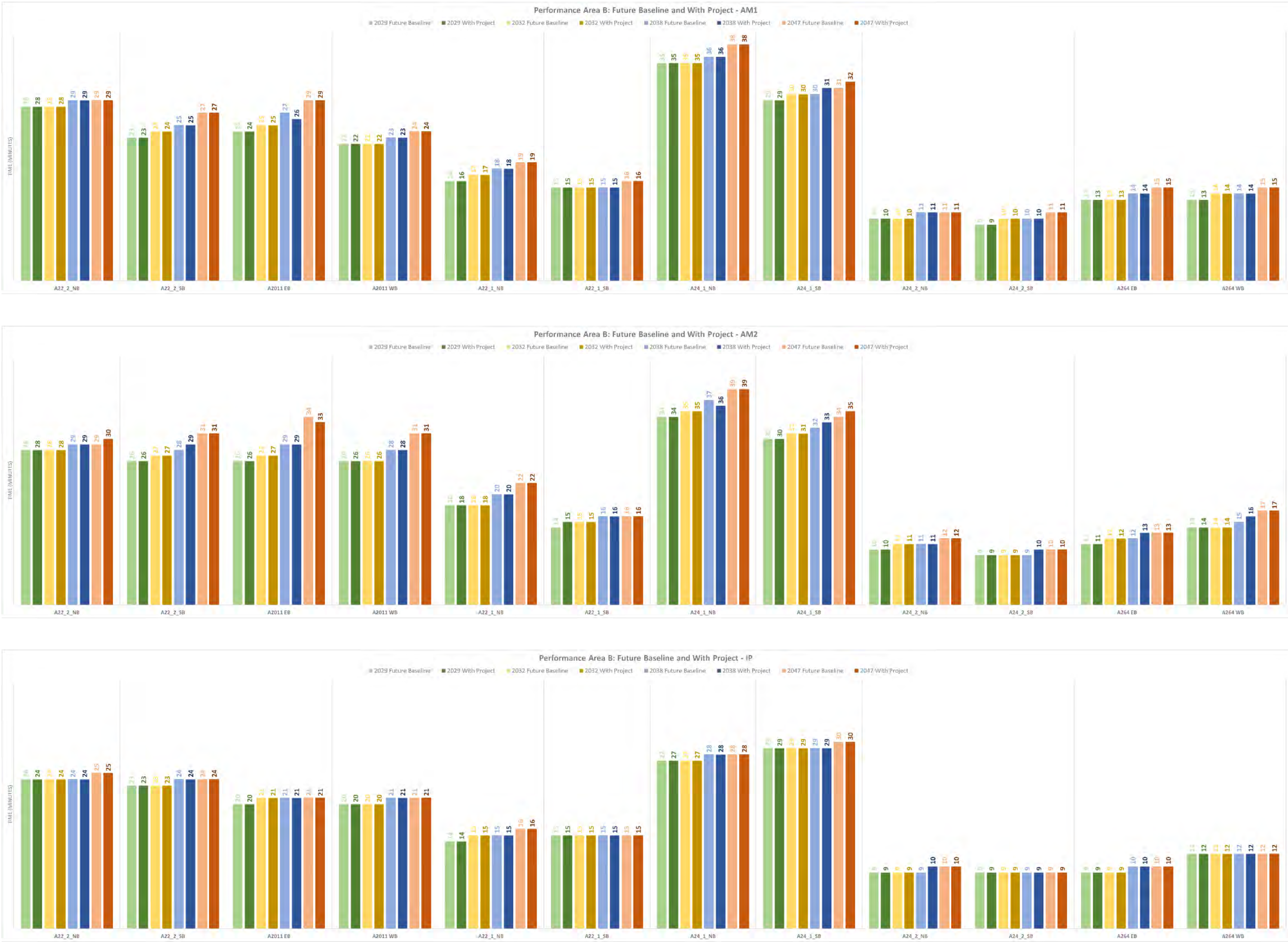
Performance Area B

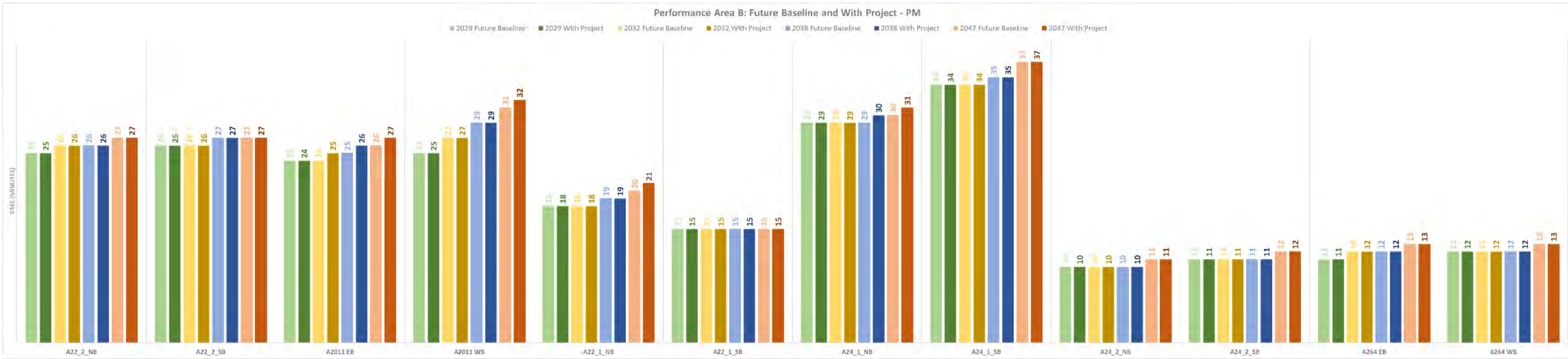
Journey times

12.8.37 Journey time routes with respect to Performance Area B include the following:

- A22 [1] from M25 J6 to East Grinstead – Figure 170 shows that in the northbound direction, there is no change in journey time as a result of the Project for 2029, 2032 and 2038 and a 1-minute increase of journey time at the PM peak in 2047. In the southbound direction, while there is no change of journey time as a result of the Project in 2032, 2038 and 2047 as a result of the project, there is a 1-minute increase in journey time at the AM2 peak in 2029.
- A22 [2] from East Grinstead to Maresfield – Figure 170 shows that in the northbound direction, there is no change in journey time as a result of the Project for 2029, 2032 and 2038 and a 1-minute increase in journey time at the AM2 peak in 2047. In the southbound direction, there is no change of journey time as a result of the Project in 2029, 2032 and 2047 and a decrease of 1-minute in journey time is observed at the AM2 peak in 2038.
- A2011 from M23 J11 to East Grinstead via Crawley – Figure 170 shows that in the eastbound direction, there is no change in journey time as a result of the Project for 2029, and a 1-minute increase/decrease in journey time in 2032, 2038 and 2047. In the westbound direction, there is no change of journey time as a result of the Project in 2029, 2032 and 2038 and an increase of 1-minute in journey time is observed at the PM peak in 2047.
- A24 [1] from near M25 J9 (Leatherhead) to north Horsham – Figure 170 in the northbound direction, there is no change in journey time as a result of the Project for 2029 and 2032 and a 1-minute increase/decrease in journey time in 2038 and 2047. In the southbound direction, there is no change of journey time as a result of the Project in 2029 and an increase of 1-minute in journey time is observed in 2038 and 2047.
- A24 [2] from north Horsham to A272/A24 near West Grinstead - Figure 170 shows that for both directions, there is no change in journey time as a result of the Project for 2029, 2032 and 2047, and a 1-minute increase in journey time is observed in 2038.
- A264 from north Horsham to M23 J11 - for both directions, there is no change in journey time as a result of the Project for 2029, 2032 and 2047, and a 1-minute increase in journey time at the AM2 peak in 2038 is observed.

Figure 170: Highway journey times - Performance Area B, Future baseline and With Project





Operational performance - Volume/Capacity ratios

12.8.38 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. The maximum value across all time periods was selected to identify the highest value modelled and this is presented in Figure 171 to Figure 174.

- For 2029, there is barely any occurrence of links changing operational category, except for two links in Redhill and two links in suburban Crawley.
- 2032 exhibits similar patterns with the exception of a link from Leigh to Betchworth with a category shift of orange (90%<V/C<100%) to red (V/C>100%) and Hophurst Lane with a Volume/Capacity ratio from above 80% to below 80%.
- In 2038, there are increases in Volume/Capacity ratios of several local road link to the east of Crawley near Blindley Heath, New Chapel and Crawley Down, all of which are rural roads.
- The vast majority of links do not change operational categories in 2047. The operational category of M23 Spur eastbound link changes from dark green (80%<V/C<90%) to orange (90%<V/C<100%), which is being examined in further detail within the VISSIM model.
- However, a few links show counter changes in operational category. In 2047 Hollow Lane near Abinger, the western and southern arms approaching A29 Bognor Road/A281 Guildford Road roundabout, and A264 near Ashurst, Kent experience lower levels of V/C by one to two categories in the With Project scenario, given the geographic distance to the airport and low volumes of airport traffic in these locations they are not deemed to be real impacts of the Project.

12.8.39 Further analysis is undertaken to contextualise these impacts by categorisation with respect to magnitude of impacts in the following section.

Figure 171: Maximum V/C - 2029, With Project – Performance Area B

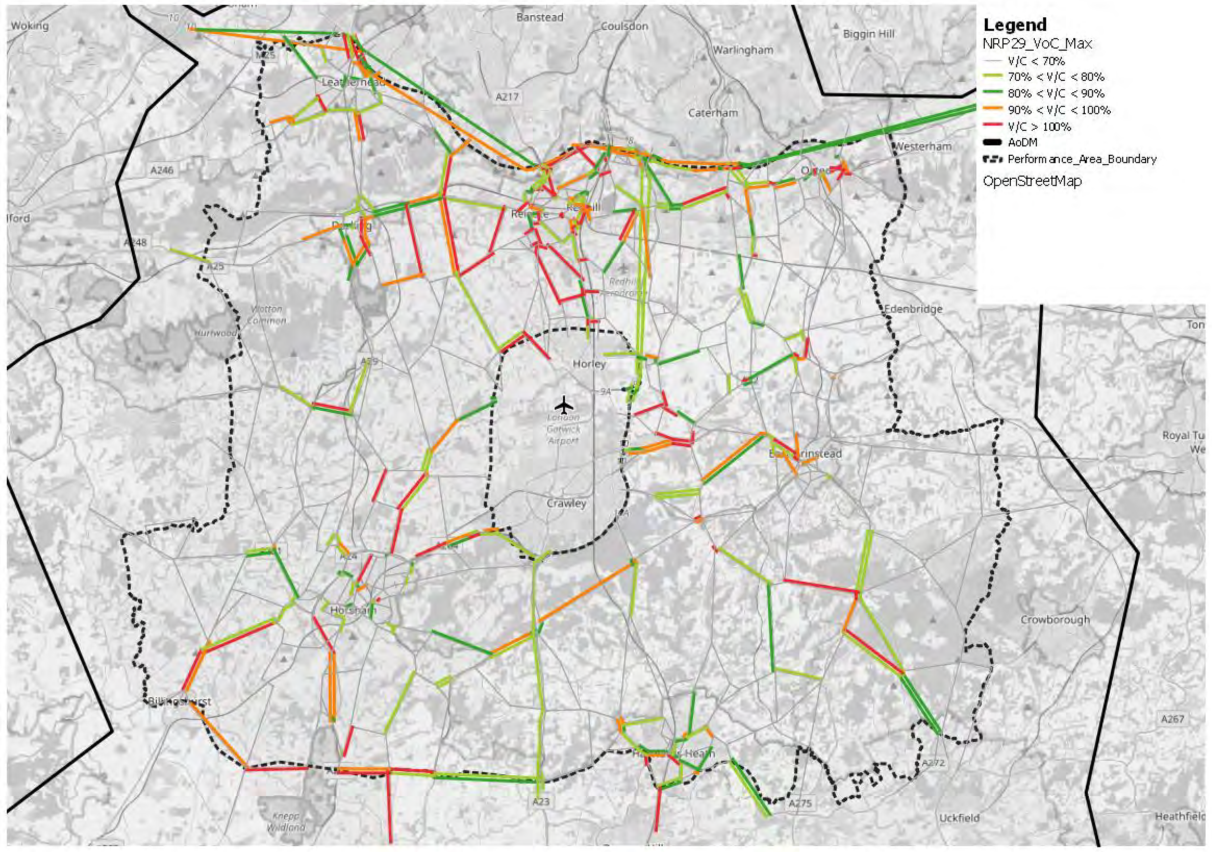


Figure 172: Maximum V/C - 2032, With Project – Performance Area B

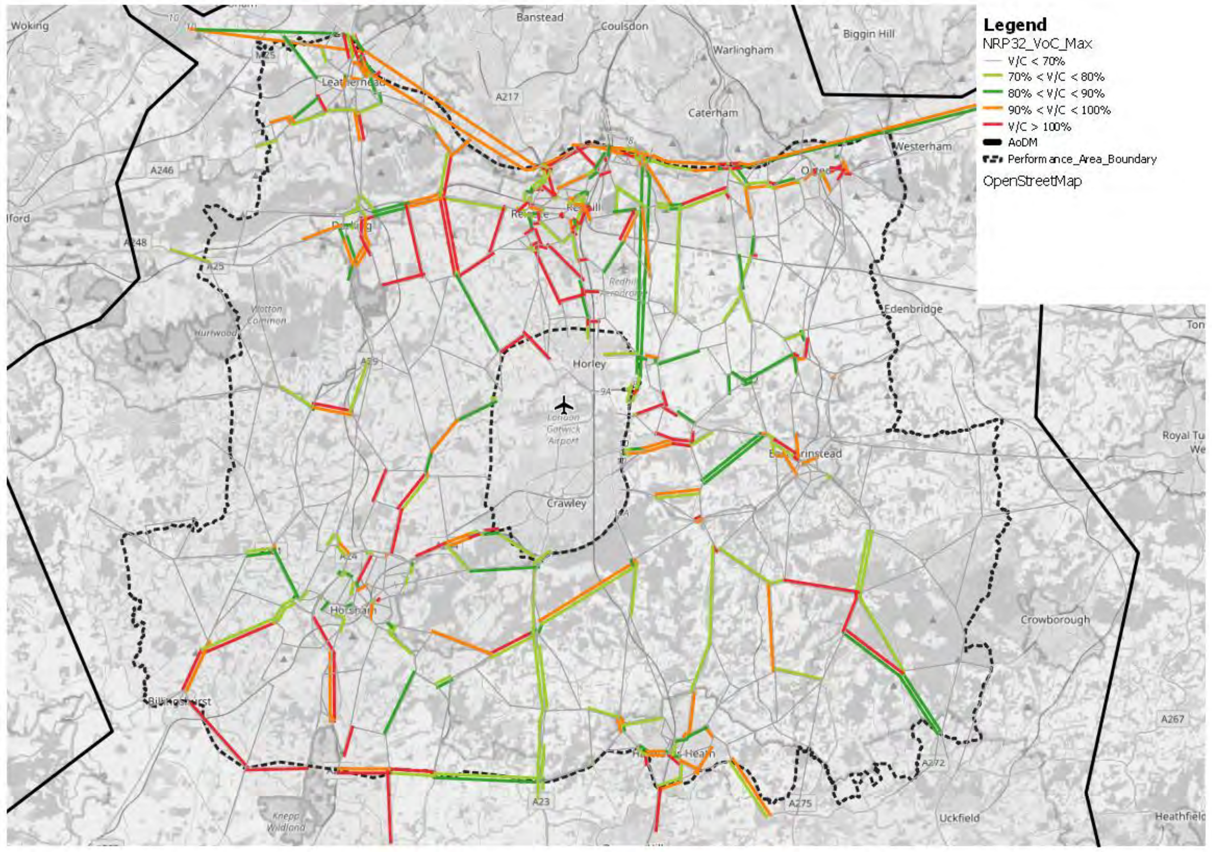


Figure 173: Maximum V/C - 2038, With Project – Performance Area B

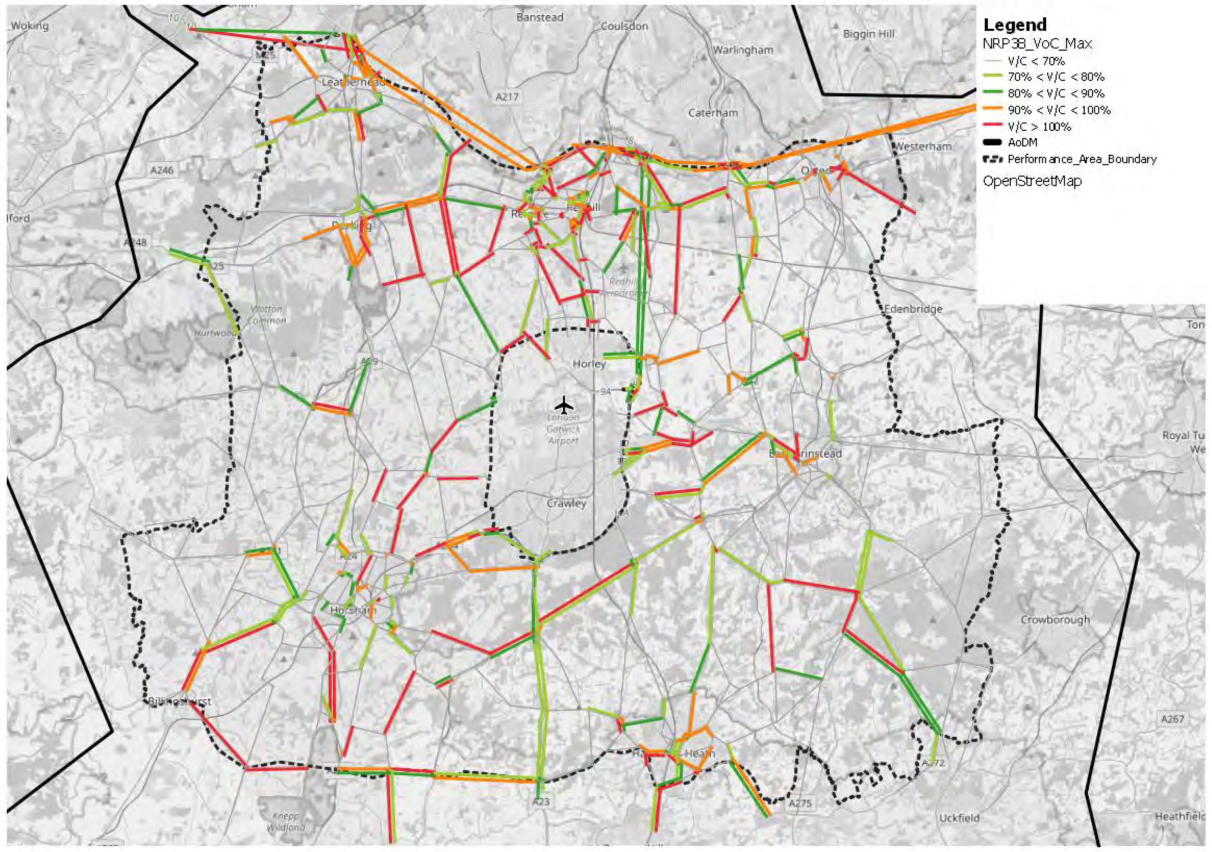
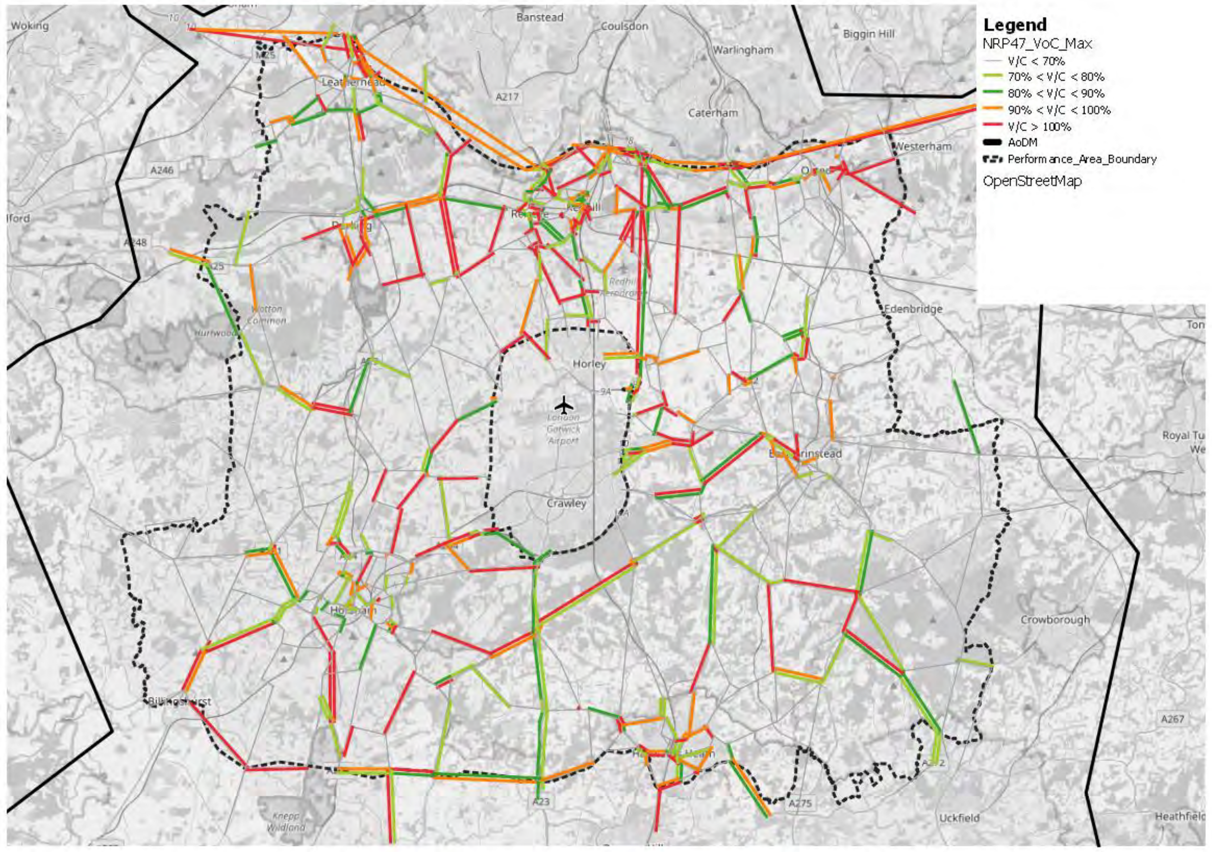


Figure 174: Maximum V/C - 2047, With Project – Performance Area B



Magnitude of Impact – nodes

2029

12.8.40 For 2029, there are no instances of 'Medium' or 'High' magnitude impacts. The results of the assessment are summarised in Table 153.

Table 153: Magnitude of Impacts: Performance Area B – Future baseline 2029 to With Project 2029

2029	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	3	11	2	1
Low	0	0	0	0
Medium	0	0	0	0
High	0	0	0	0

2032

12.8.41 For 2032, there is one junction with a 'High' and a maximum of three 'Medium' magnitude impacts and is presented in Table 154 and Figure 175.

12.8.42 The junctions with Medium and High Impacts are clustered at the M23 Junction 8/M25 Junction 7, where there is a complex set of merges and diverges. Further analysis on this can be found in **Annex E** of the **Transport Assessment**.

Table 154: Magnitude of Impacts: Performance Area B – Future baseline 2032 to With Project 2032

2032	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	34	84	26	37
Low	1	4	0	3
Medium	3	1	0	1
High	0	1	0	0

2038

12.8.43 For 2038, there are a maximum of two junctions with a 'High' and a maximum of four 'Medium' magnitude impacts, is presented in Table 155 and. Figure 176

12.8.44 The cluster of merges and diverges at M23 Junction 8/M25 Junction 7 that are identified in 2032 are highlighted in 2038. The **Transport Assessment** does not assess the impacts of the 2038 models within it, however, the impacts at this junction are explored further within the context of the 2047 models in **Annex E** of the **Transport Assessment**.

- One of the medium impacts is in South Godstone where there is a priority junction zone connector. The impact here is considered a modelling effect and is not material.
- The signalised junction of Woodhatch Road/Dovers Green Road in Reigate also has medium impacts.
- This junction shows improvement in the AM1 but Medium impacts in the PM, and is already operating at over 90% Volume to Capacity ratio in the Future baseline.

12.8.45 The percentage of airport road traffic through this junction is also low. It is considered worthy of further investigation/monitoring and whilst the **Transport Assessment** does not assess the impacts of the 2038 models within it the impacts at this junction will be explored further within the context of the 2047 models that are considered within the **Transport Assessment**.

Table 155: Magnitude of Impacts: Performance Area B – Future baseline 2038 to With Project 2038

2038	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	42	193	76	116
Low	0	4	0	0
Medium	2	4	0	4
High	0	2	0	0

2047

12.8.46 For 2047, there are a maximum of two junctions with a 'High' and a maximum of three 'Medium' magnitude impacts, is presented in Table 156 and Figure 177.

- It can be seen that the junctions in South Godstone and Reigate outlined for 2038 are showing High and Medium impacts, as would be expected for connectors of this nature and therefore are not deemed a concern or real impact of the Project.
- The cluster of merges and diverges at the M23 J8/M25 J7 continue to show High and Medium impacts in 2047 as would be expected.

Table 156: Magnitude of Impacts: Performance Area B – Future baseline 2047 to With Project 2047

2047	Performance Area B - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	49	143	69	72
Low	2	3	1	0
Medium	1	3	0	1
High	1	2	0	0

Figure 175: Magnitude of Impacts: Performance Area B – Future baseline 2032 to With Project 2032

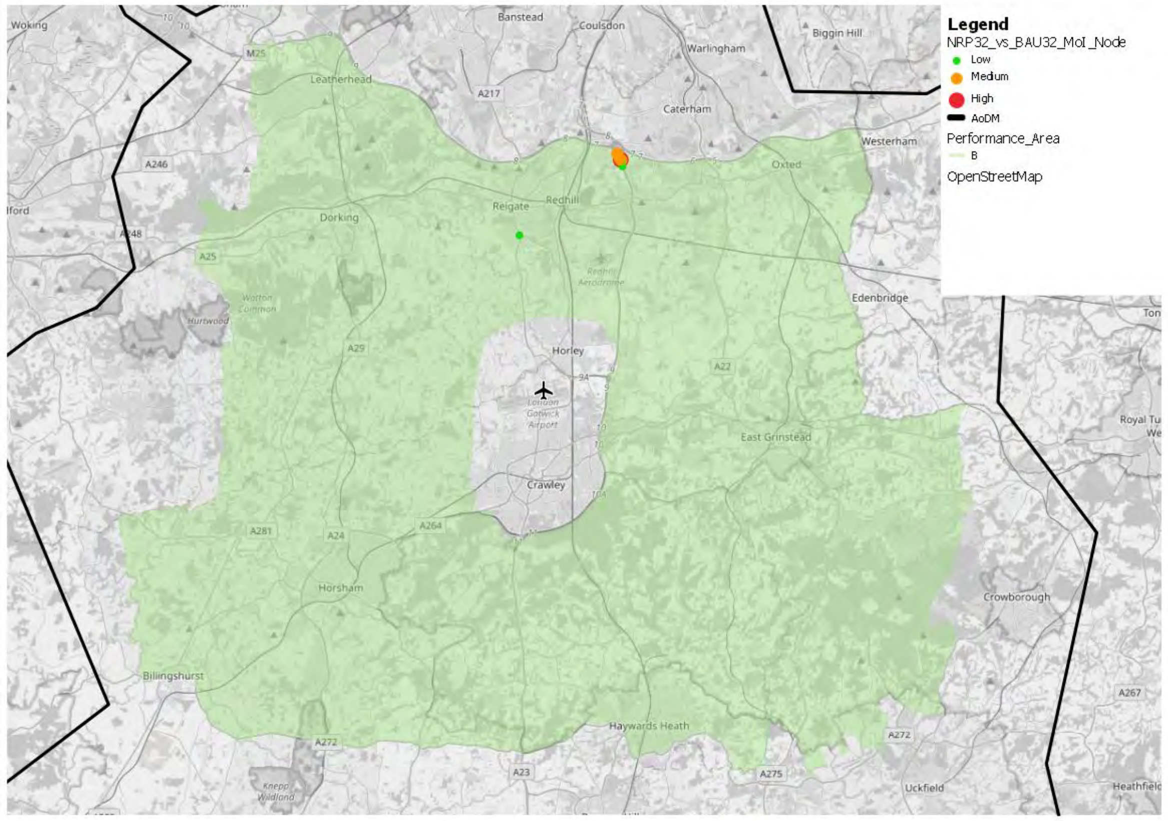


Figure 176: Magnitude of Impacts: Performance Area B – Future baseline 2038 to With Project 2038

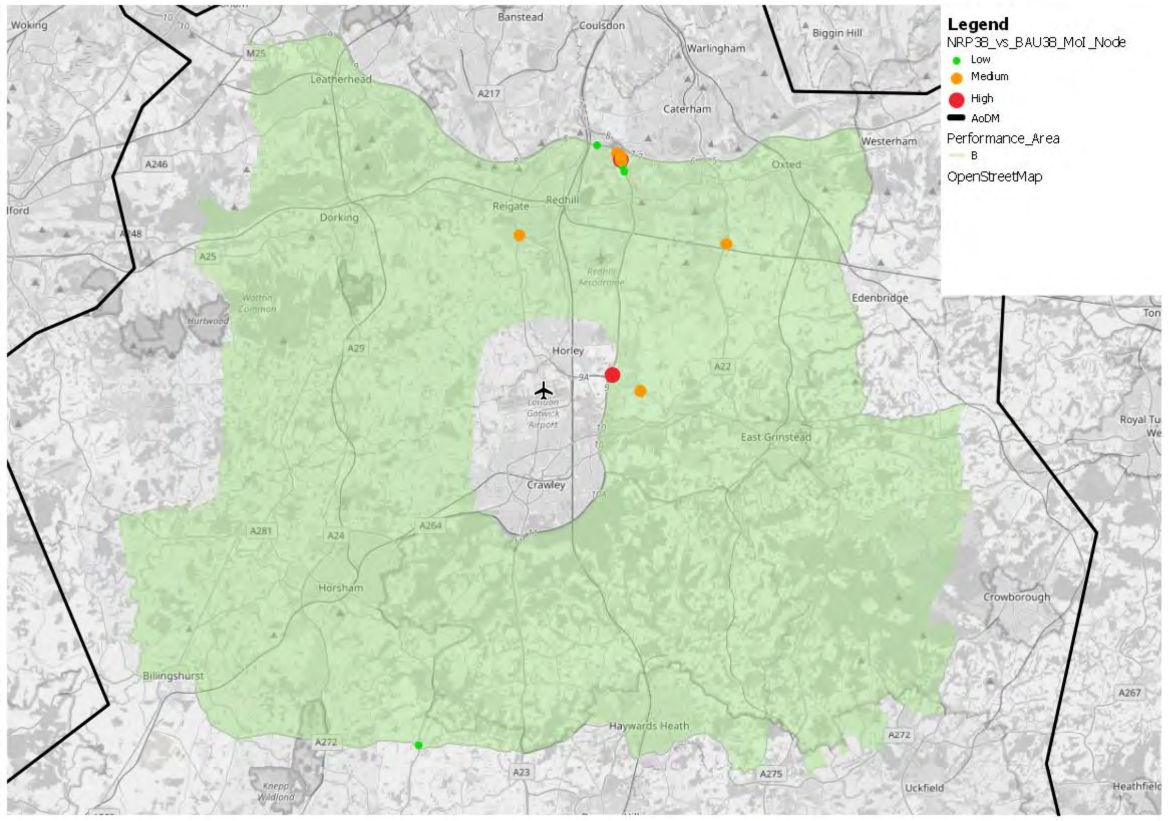
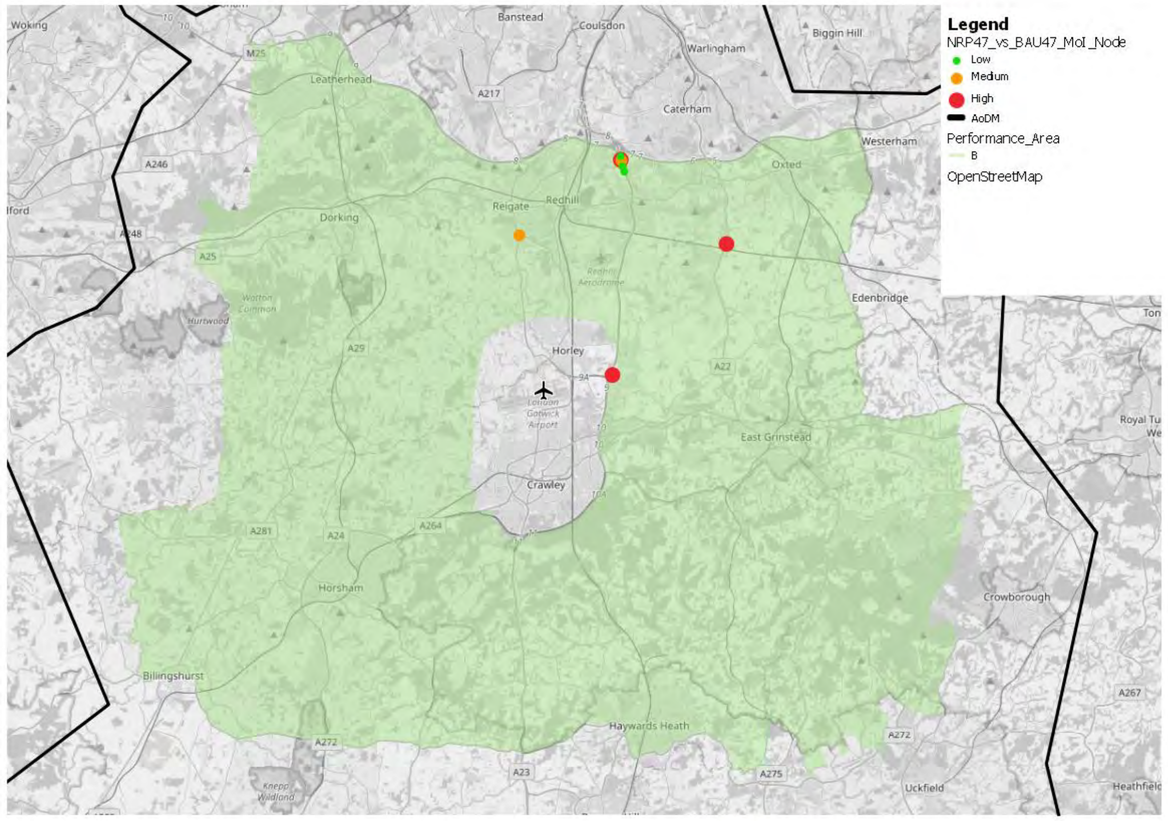


Figure 177: Magnitude of Impacts: Performance Area B – Future baseline 2047 to With Project 2047



Performance Area C

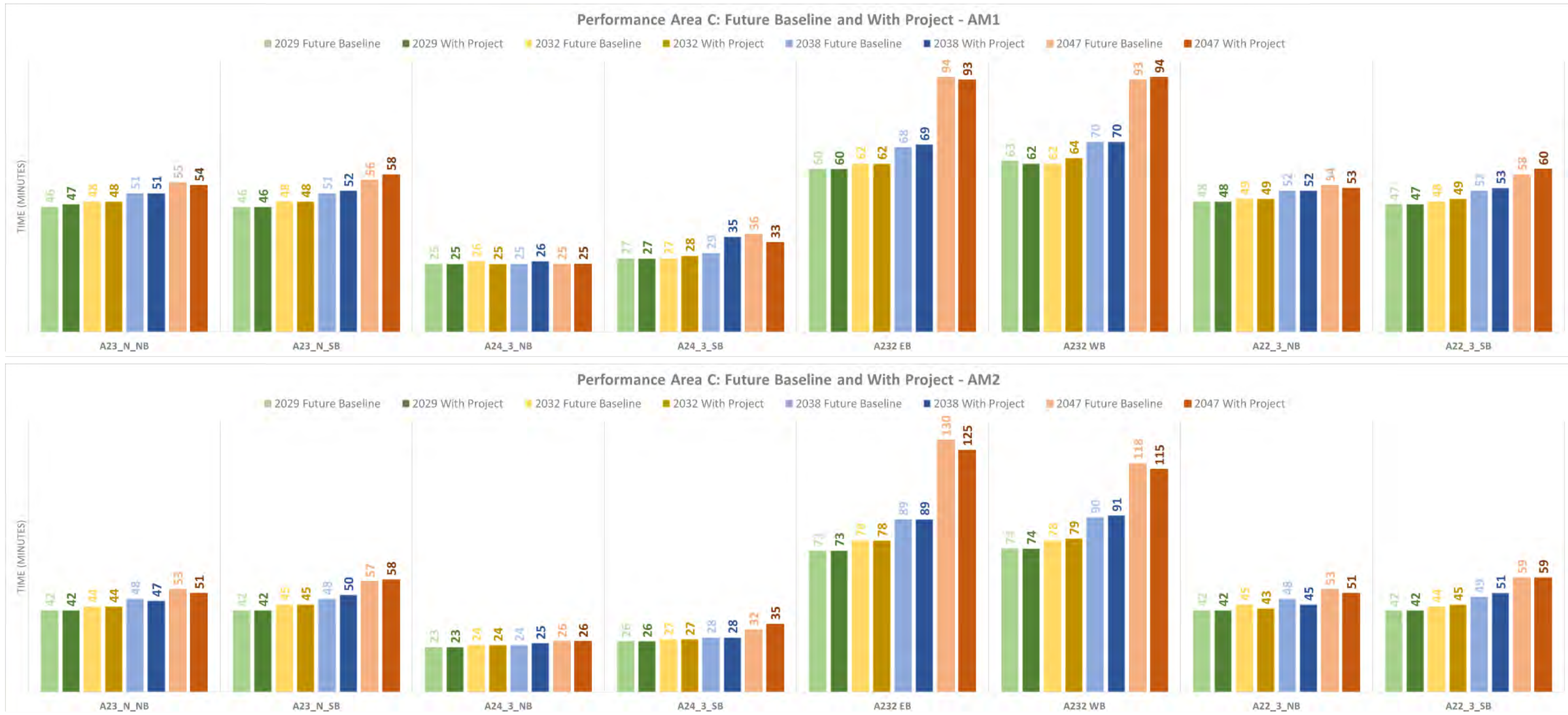
Journey times

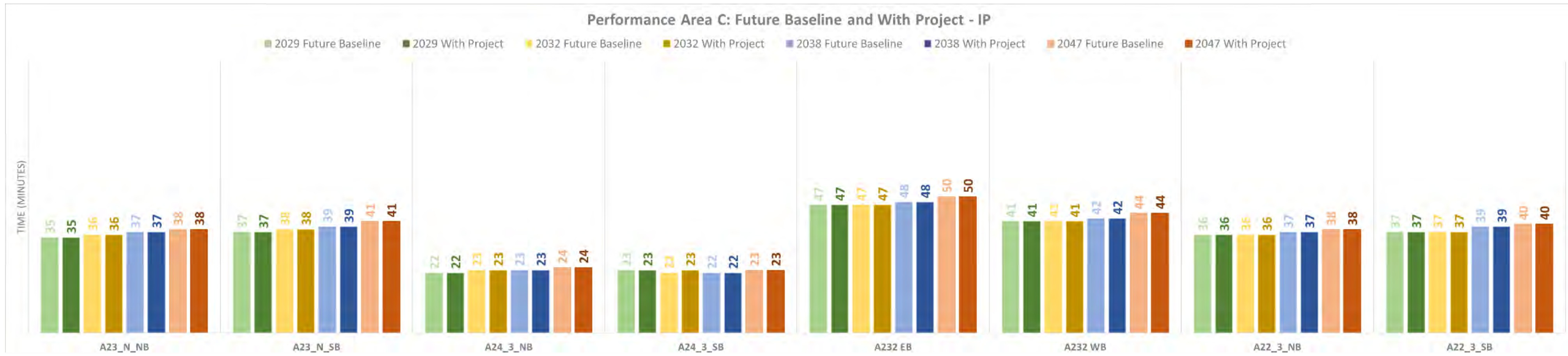
12.8.47 Journey times routes with respect to Performance Area C includes the following route:

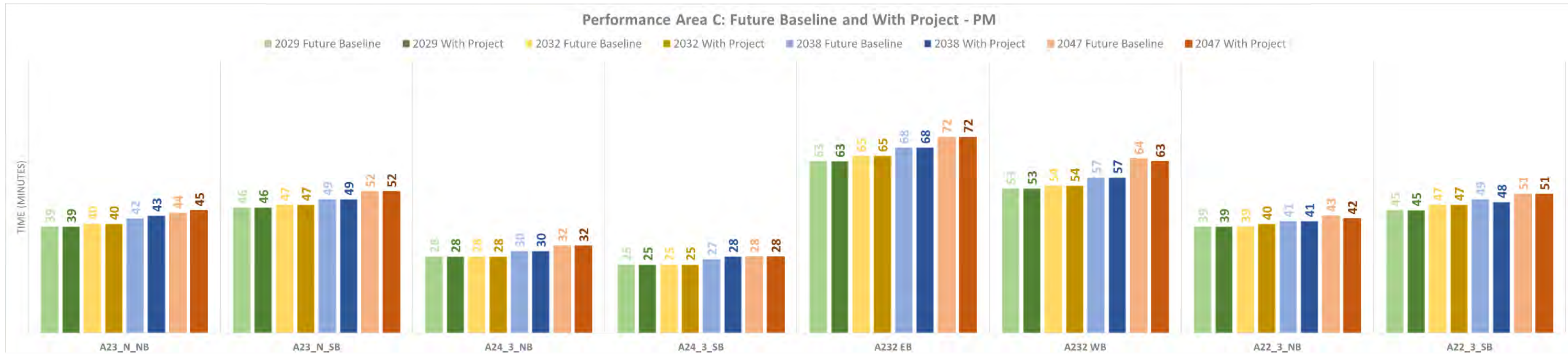
- A22 from M25 junction 6 to B273 Norbury - Figure 178 shows that in the northbound direction, there is no change in journey time as a result of the Project in 2029, and a change in journey time (-3 to 1-minute) as a result of the Project for 2032, 2038 and 2047. In the southbound direction, while there is no change of journey time as a result of the Project in 2029 as a result of the project, there is a -1 to 2-minute change in journey time in 2032, 2038 and 2047. A23 from M25 junction 7 to B273 Norbury - Figure 178 shows that in the northbound direction, there is no change in journey time as a result of the Project in 2032, and a change in journey time (-2 to 1-minute) as a result of the Project for 2029, 2038 and 2047. In the southbound direction, while there is no change of journey time as a result of the Project in 2029 and 2032, there is a 2-minute increase in journey time is observed in 2038 and 2047.
- A24 from Leatherhead to A217 crossroads in Sutton - Figure 178 shows that in the northbound direction, there is no change in journey time as a result of the Project in 2029 and 2047, and an increase/decrease in journey time of 1-minute as a result of the Project for 2032 and 2038. In the southbound direction, while there is no change of journey time as a result of the Project in 2029 as a result of the project, there is a change of -3 to 6-minute in journey time in 2032, 2038 and 2047. In the 2038 AM1 peak, the journey time on the A24 southbound route increases by 6-minutes due to an increase in delay on the westbound High Street in Cheam on approach to the signals with the A2043. This junction is at or approaching 100% V/C on a number of movements in the Future baseline. In the With Project there are small changes in the demand flows causing the junction to operate differently. The V/C on the eastern approach increase from 88% in the Future baseline to 116% With Project and less traffic than therefore gets through the junction (despite very similar overall actual flow levels). This leads to the increase in delays. The impacts shown here are not deemed real impacts of the scheme given the junction is a long way from Gatwick and flow levels remain fairly stable in this area overall.
- A232 from A217 crossroads in Sutton to West Wickham - Figure 178 shows that in the eastbound direction, there is no change in journey time as a result of the Project in 2029 and 2032, and a change of journey time of up to 1-minute as a result of the Project for 2032 and 2038. In the westbound direction, there is a change of up to 3-minutes in journey time in 2032, 2038 and 2047 as a result of the Project. In the 2047 AM2 peak, there is a decrease in journey time on the A232 in both directions when comparing the With Project scenario to the Future baseline. However, the decreases of 3 and 5-minutes are a small proportion of the overall journey time on this route.

12.8.48 There are a number of links on the route in each direction where delay decrease contributes to the overall reduction in journey time. The impacts on these links are not deemed real impacts of the scheme given the distance from Gatwick and flow levels remain fairly stable in this area overall.

Figure 178: Highway journey times - Performance Area C, Future baseline and with Project







Operational performance - Volume/Capacity ratios

12.8.49 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. The maximum value across all time periods was selected to identify the highest value modelled and this is presented in Figure 179 to Figure 182.

12.8.50 This area is particularly sensitive to route switching and there are instances of operational category switching across assessment years. Some findings below:

- The overall patterns are similar between Future baseline and With Project scenarios in respective years, with lower Volume/Capacity ratios of links near the performance area boundary such as Bromley, Epsom and Morden.
- The A23 and B273 northbound links near Streatham switch from below 70% to above 70% in 2032, but does not occur in the other assessment years.

Figure 179: Maximum V/C - 2029, With Project – Performance Area C

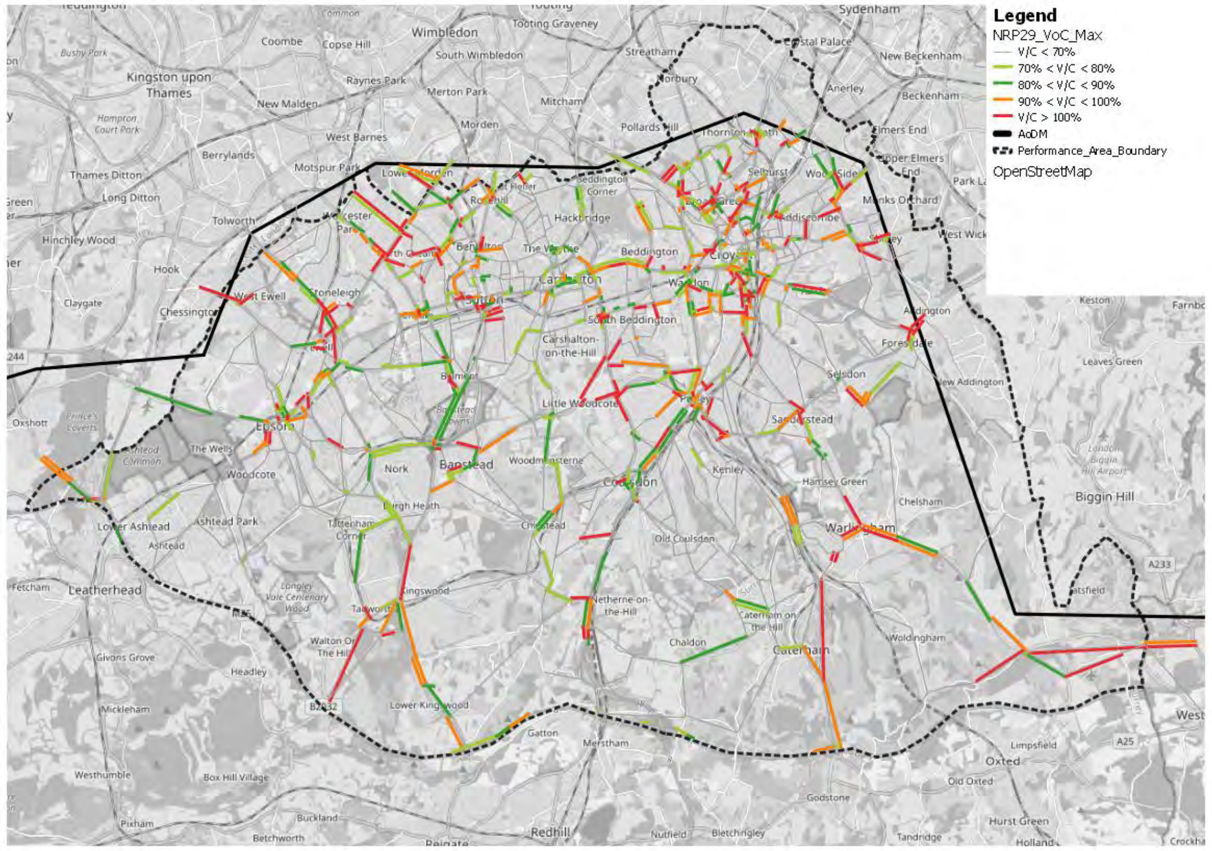


Figure 180: Maximum V/C - 2032, With Project – Performance Area C

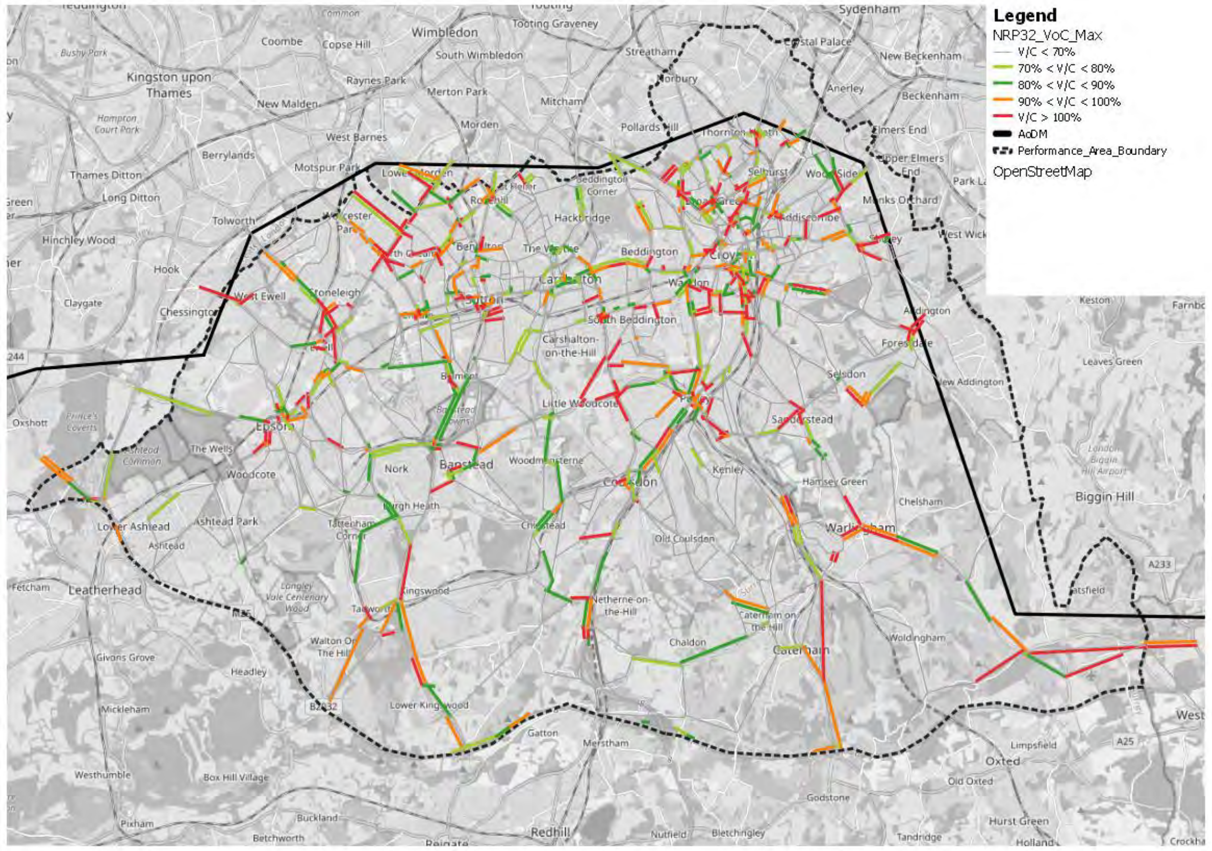


Figure 181: Maximum V/C - 2038, With Project – Performance Area C

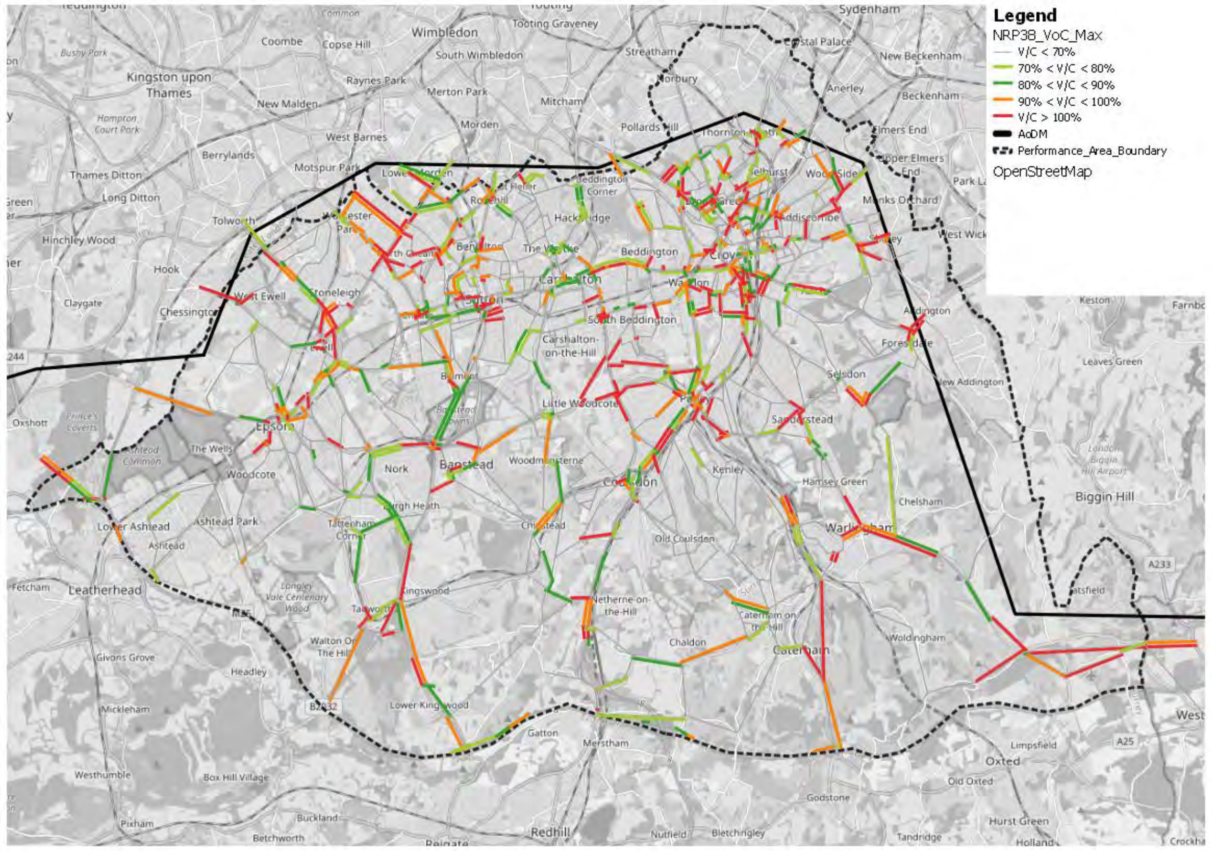
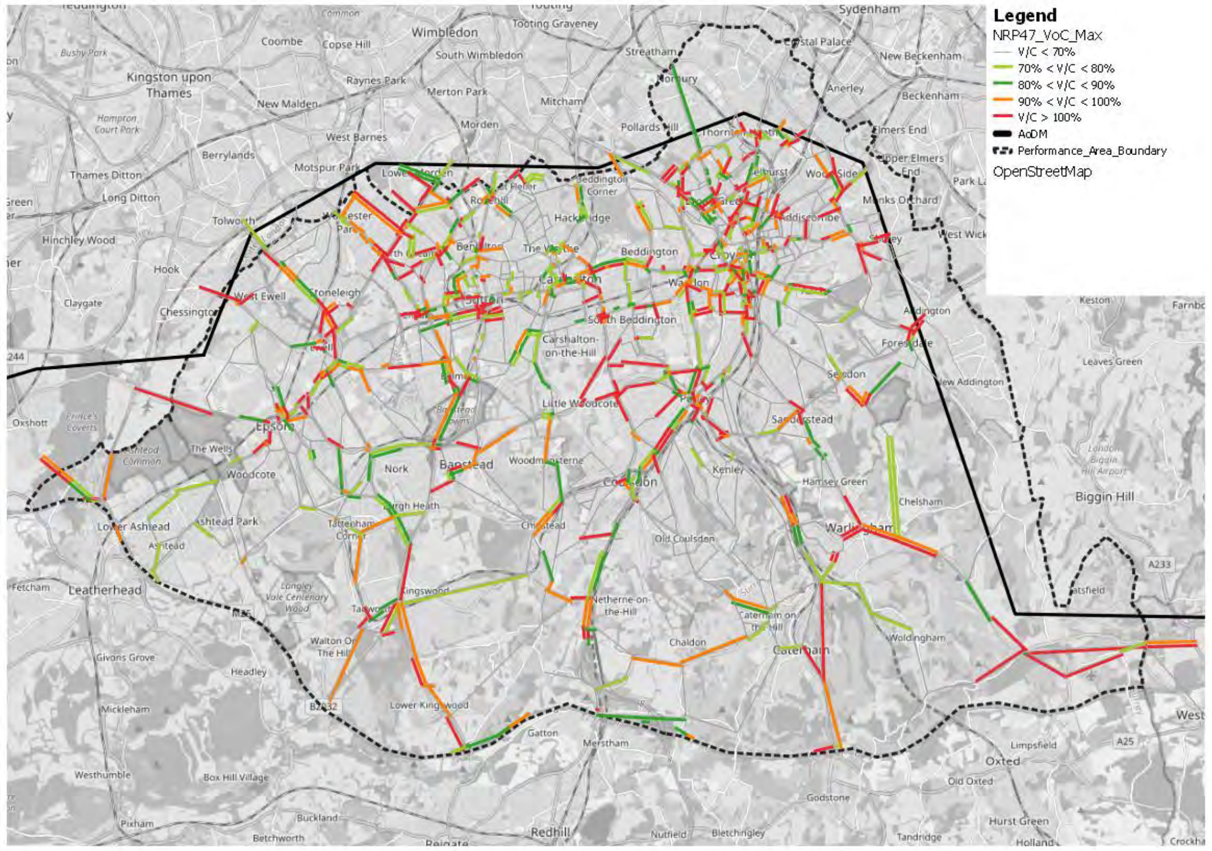


Figure 182: Maximum V/C - 2047, With Project – Performance Area C



Magnitude of Impact – nodes

12.8.51 This section highlights those nodes within Performance Area C which show Medium and High impacts in the modelling.

12.8.52 These impacts should be considered with reference to the flow differences in this area. Some findings below:

- The flow difference plots show that the impact on traffic in Hooley, just north of the M25 J7/M23 J8 is low, in IP and PM there are only small changes in flow (less than 10 PCUs in each direction) and in the AM1 and AM2 time period a maximum of 80 PCUs in one direction.
- The flow difference plots show much greater levels of flow increase in the urban areas in this Performance Area: Croydon, Sutton and Epsom.
- Given the smaller increases seen in Hooley, and indeed other arterial routes into these urban areas, the flow changes seen, and thus the impacts observed, largely as a consequence of the localised rerouting of traffic, are generally not considered to be real impacts of the scheme.

12.8.53 The localised rerouting of traffic between the scenarios is not unexpected given the highly congested nature of this part of the network. This section does however look at each Medium and High impact in turn, and **Chapter 12** of the **Transport Assessment** provides more commentary on these changes.

2029

12.8.54 For 2029, there is a maximum of one ‘High’ magnitude impacts across all time periods, as presented Table 157 and in Figure 183

12.8.55 The junction flagging High impacts is Bartlett Street in Croydon but the impact at this junction is not a real impact of the Project. In this area there is some localised rerouting. This A235 in this area becomes congested in the With Project models as a consequence of the route choice. This congestion causes blocking back from A235 down Bartlett Street, and as a consequence flags this node.

Table 157: Magnitude of Impacts: Performance Area C – Future baseline 2029 to With Project 2029

2029	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	78	55	4	14
Low	2	0	0	1
Medium	0	0	0	0
High	1	1	0	0

2032

12.8.56 For 2032, there is a maximum of two ‘Medium’ magnitude impacts across all time periods, as presented Table 158 and in Figure 184.

Table 158: Magnitude of Impacts: Performance Area C – Future baseline 2032 to With Project 2032

2032	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	102	139	10	20
Low	5	1	0	0
Medium	2	0	0	0
High	0	0	0	0

2038

12.8.57 For 2038, there is a maximum of three ‘High’ magnitude impacts across all time periods and a maximum of one ‘Medium’ magnitude impact, as presented in Table 159 and in Figure 185.

12.8.58 The high impacts shown here are not deemed real impacts of the Project given there is an evident localised route switching/model noise in this area.

Table 159: Magnitude of Impacts: Performance Area C – Future baseline 2038 to With Project 2038

2038	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	297	314	18	23
Low	6	4	0	0
Medium	1	0	0	0
High	2	3	0	0

2047

12.8.59 For 2047, there is a maximum of five ‘High’ magnitude impacts across all time periods and a maximum of four ‘Medium’ magnitude impact, as presented in Table 160 and in Figure 186.

Table 160: Magnitude of Impacts: Performance Area C – Future baseline 2047 to With Project 2047

2047	Performance Area C - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	239	334	68	87
Low	11	10	0	0
Medium	4	1	0	1
High	2	5	0	0

Figure 183: Magnitude of Impacts: Performance Area C – Future baseline 2029 to With Project 2029

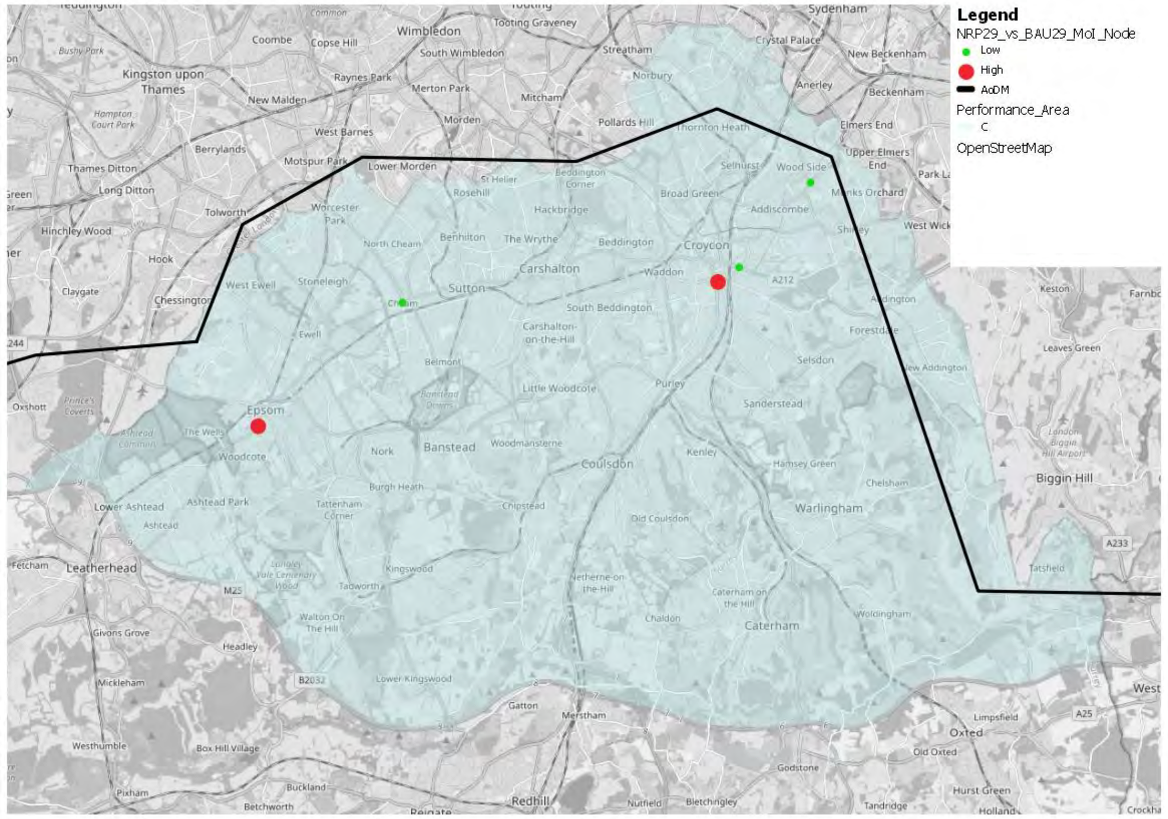


Figure 184: Magnitude of Impacts: Performance Area C – Future baseline 2032 to With Project 2032

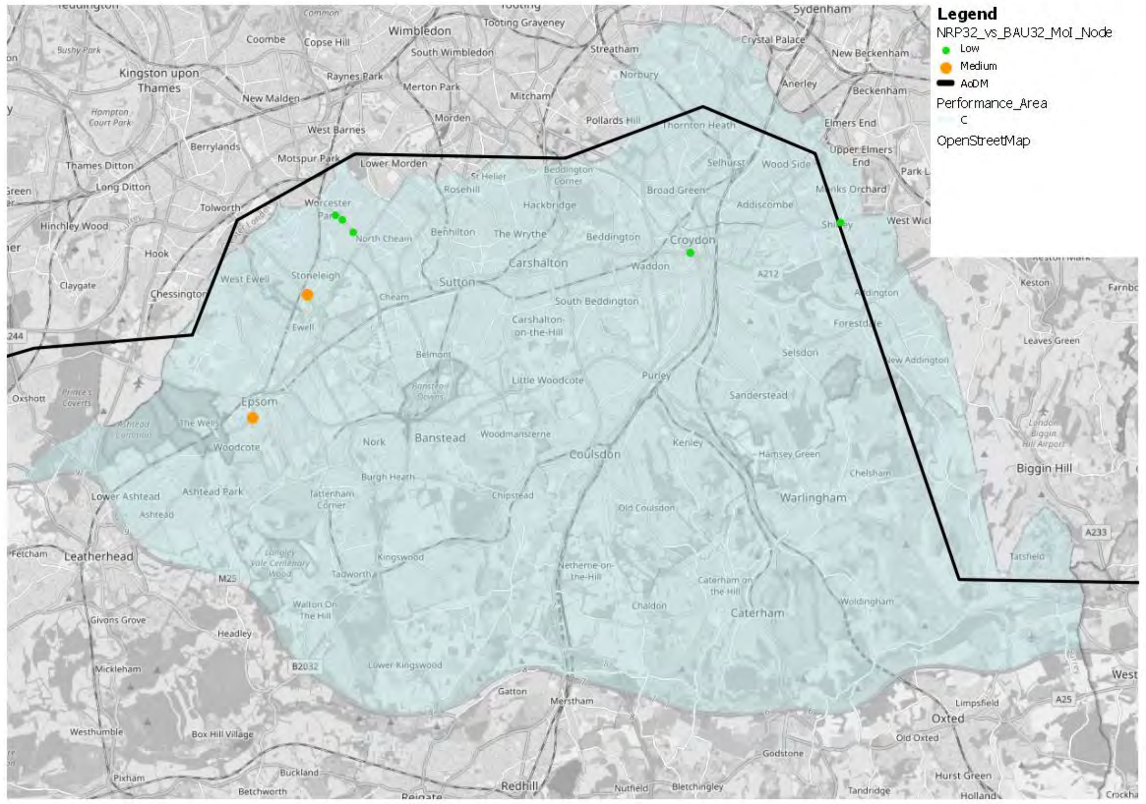


Figure 185: Magnitude of Impacts: Performance Area C – Future baseline 2038 to With Project 2038

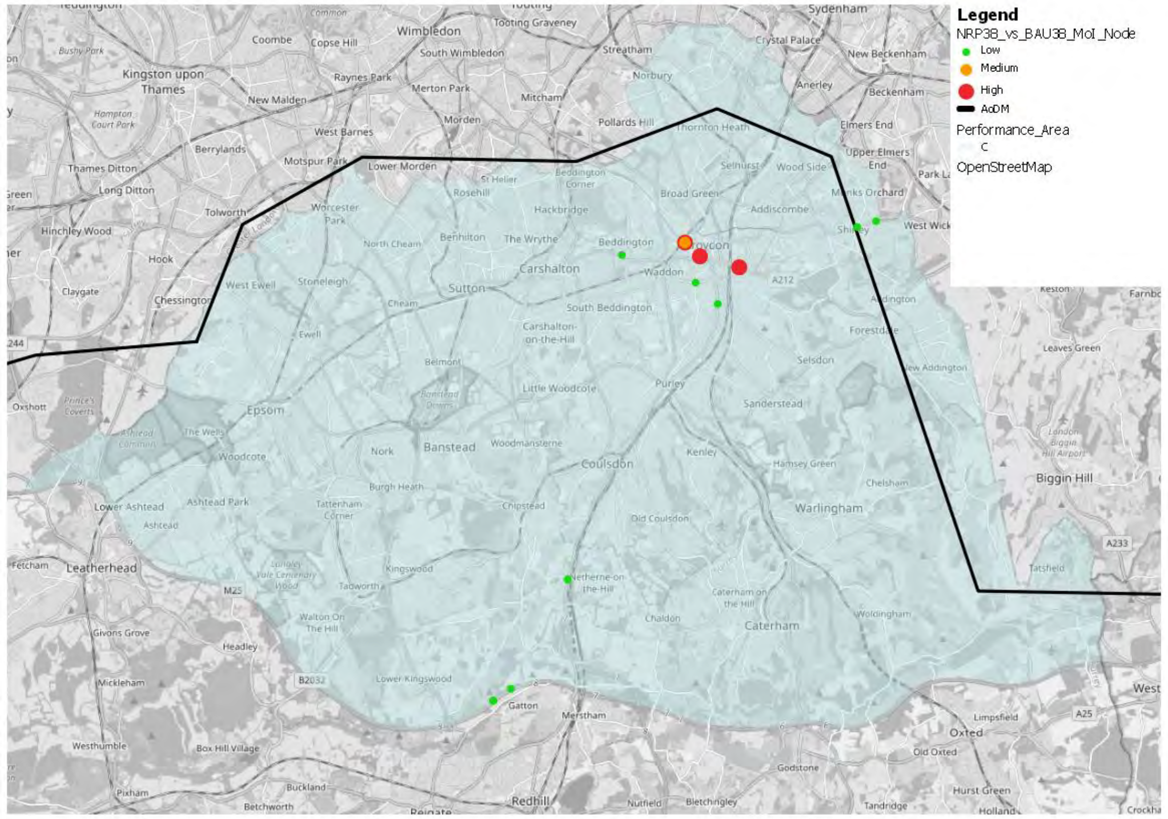
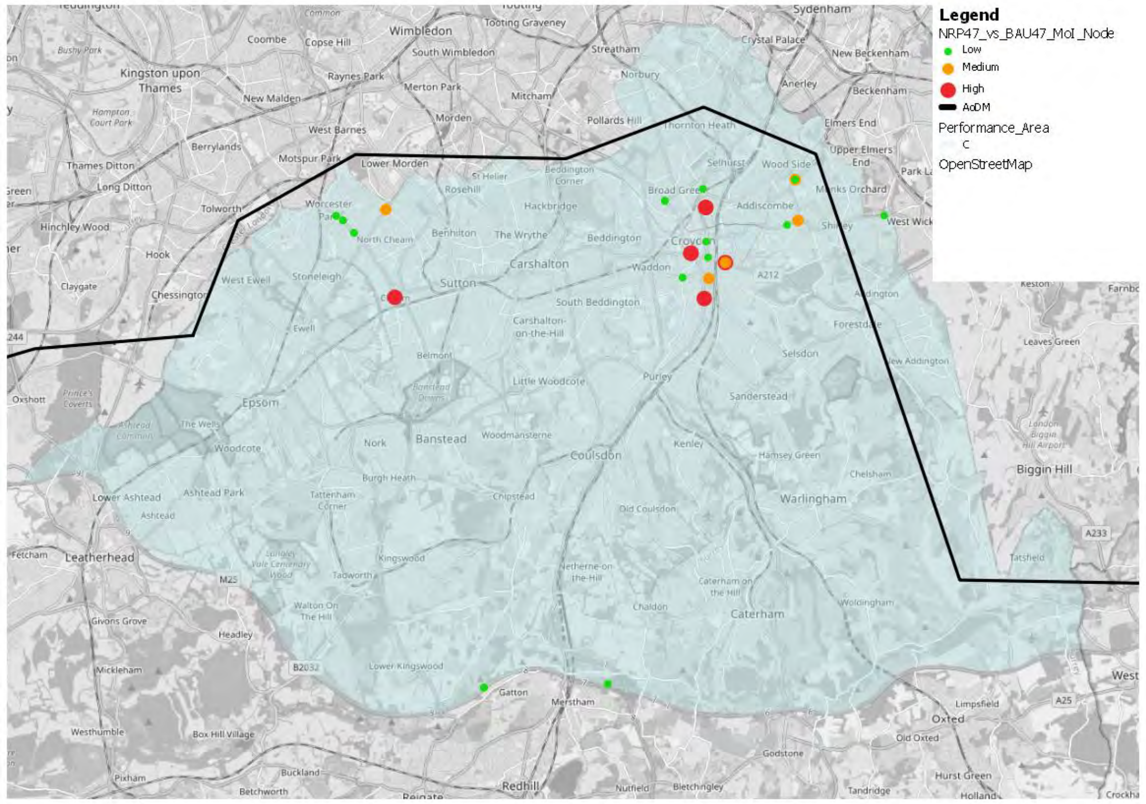


Figure 186: Magnitude of Impacts: Performance Area C – Future baseline 2047 to With Project 2047



Performance Area D

Journey times

12.8.60 Journey times routes with respect to Performance Area D includes the following route:

12.8.61 A272 from Coolham to near Uckfield - Figure 187 shows that in the eastbound direction, there is no change in journey time as a result of the Project in 2029, and an increase of up to 1-minute in journey time as a result of the Project for 2032, 2038 and 2047. In the westbound direction, while there is no change of journey time as a result of the Project in 2029, there is an increase in journey time of up to 4-minutes observed in 2032 and 2038. There are two key locations contributing to this – The Street through Cowfold as well as Coolham Road, east of Shipley. Between 2038 and 2047 there are no instances of journey times exceeding changes greater than 1-minute a result of the Project; there are no significant impacts on end-to-end journey times.

Operational performance - Volume/Capacity ratios

12.8.62 Modelled Volume/Capacity ratios were extracted for each of the four modelled time periods. The maximum value across all time periods was selected to identify the highest value modelled and this is presented in Figure 188 to Figure 191. Some findings below:

- The evidence suggests that there are no instances of categories changing between the Future baseline and With Project scenario in 2029 and 2032.
- The Volume/Capacity ratio of B2133 Lordings Road changes from over 100% to below 70% and that of B2133 Adversane lane changes the other way around in 2038 but change back in 2047.
- This highlights potential rerouting in the local area. 2038 also indicates that A273 Brighton Road between New Road and Keymer Road switch from dark green (80%<V/C<90%) to orange (90%<V/C<100%).
- For 2047, A27 Arundel Road northbound in Fontwell and A272 Western Road eastbound near Newick operate with V/C just below 100% With Project whereas between 80% and 90% in the Future baseline.

Figure 187: Highway journey times - Performance Area D, Future baseline and With Project

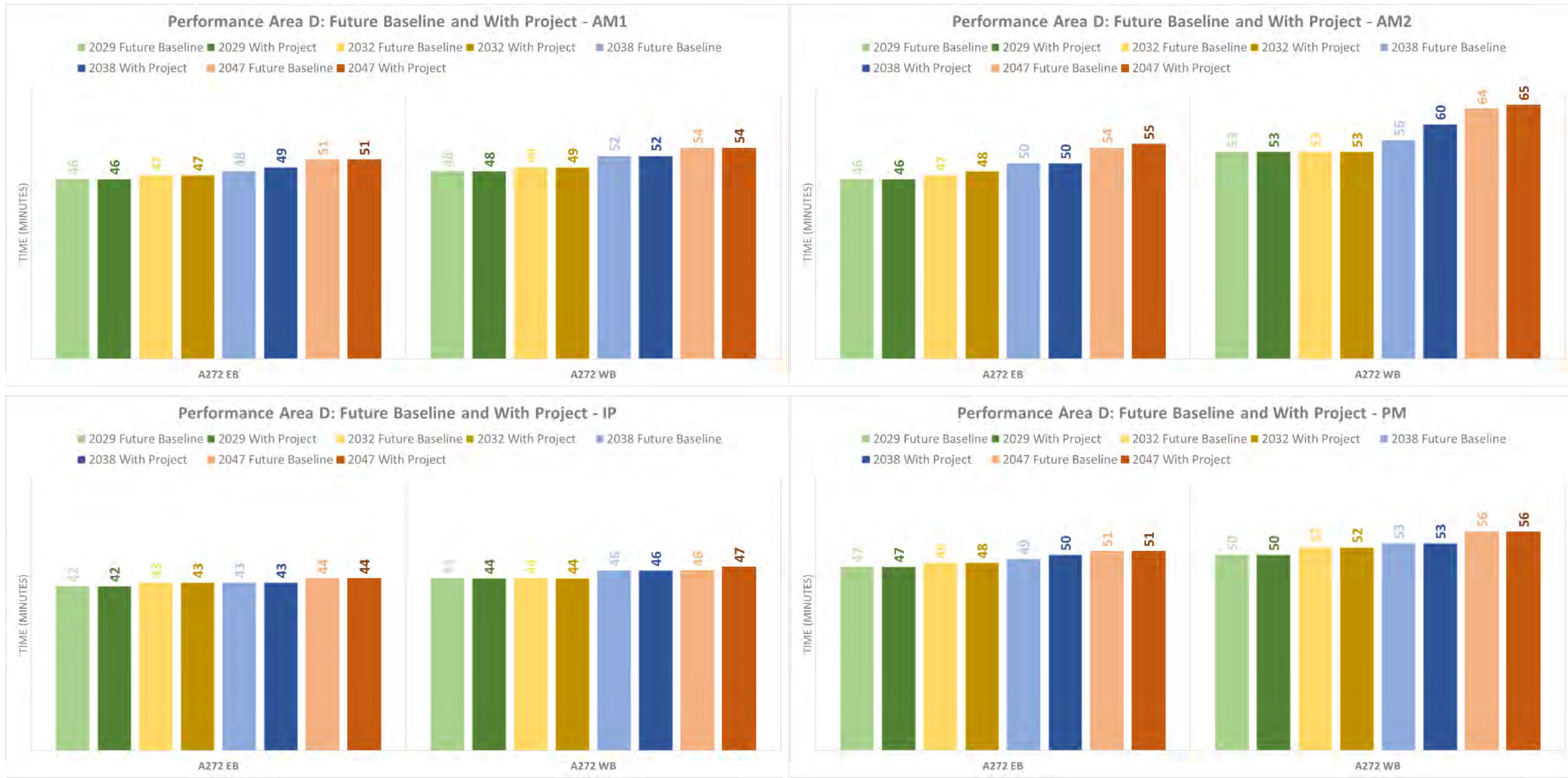


Figure 188: Maximum V/C - 2029, With Project – Performance Area D

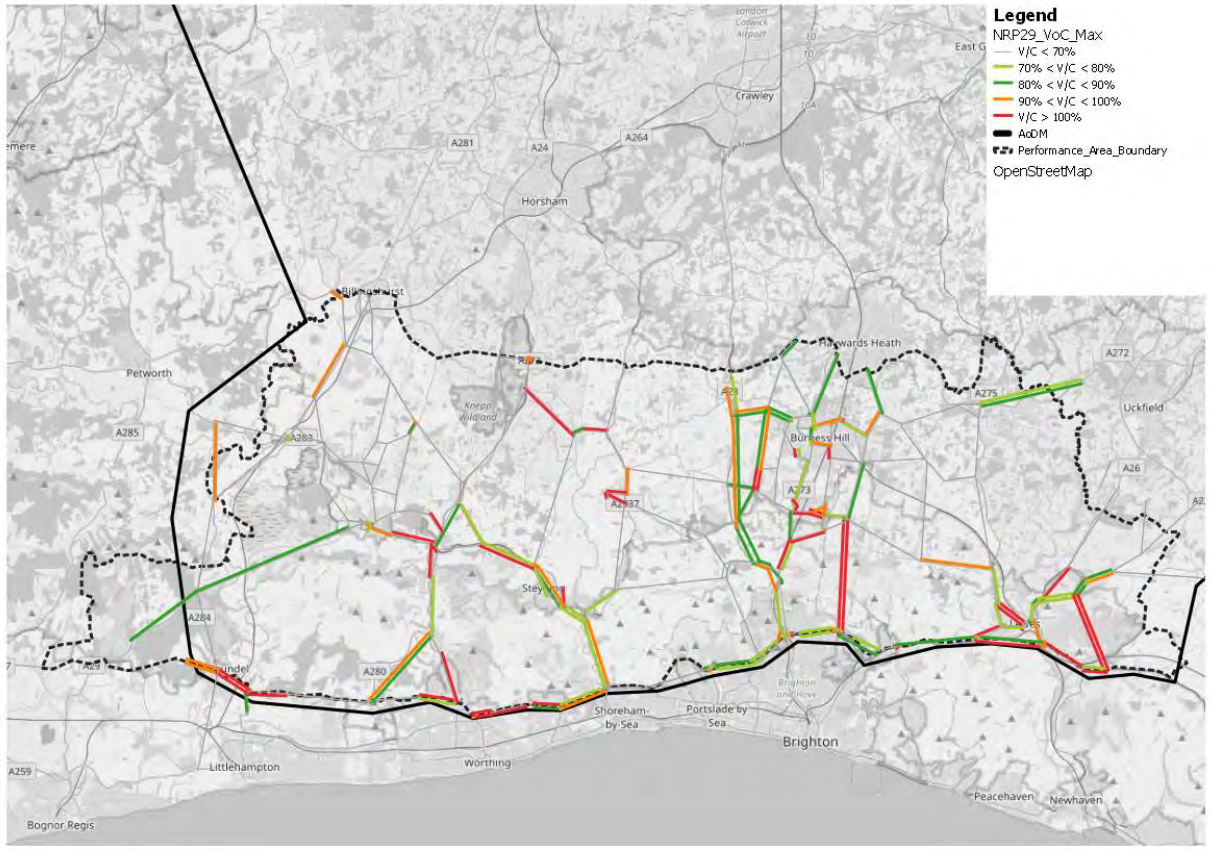


Figure 189: Maximum V/C - 2032, With Project – Performance Area D

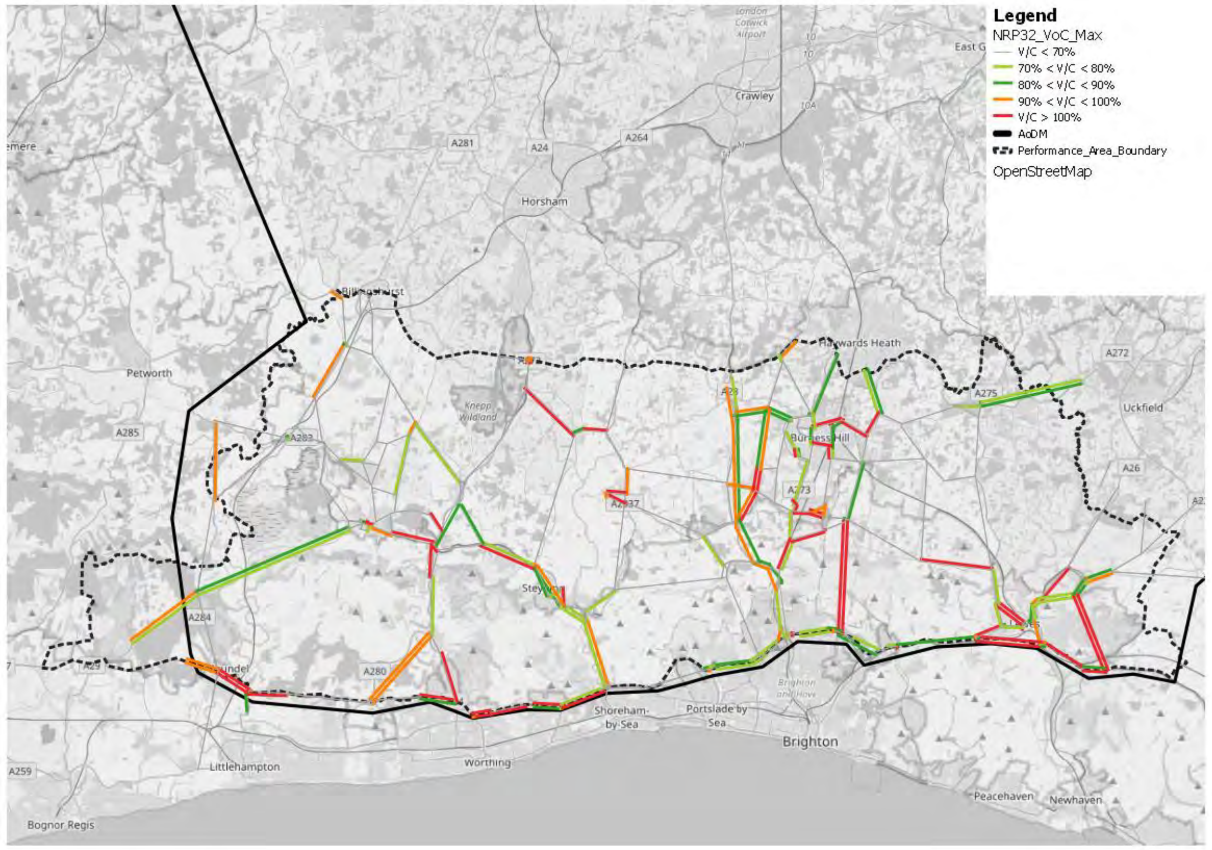


Figure 190: Maximum V/C - 2038, With Project – Performance Area D

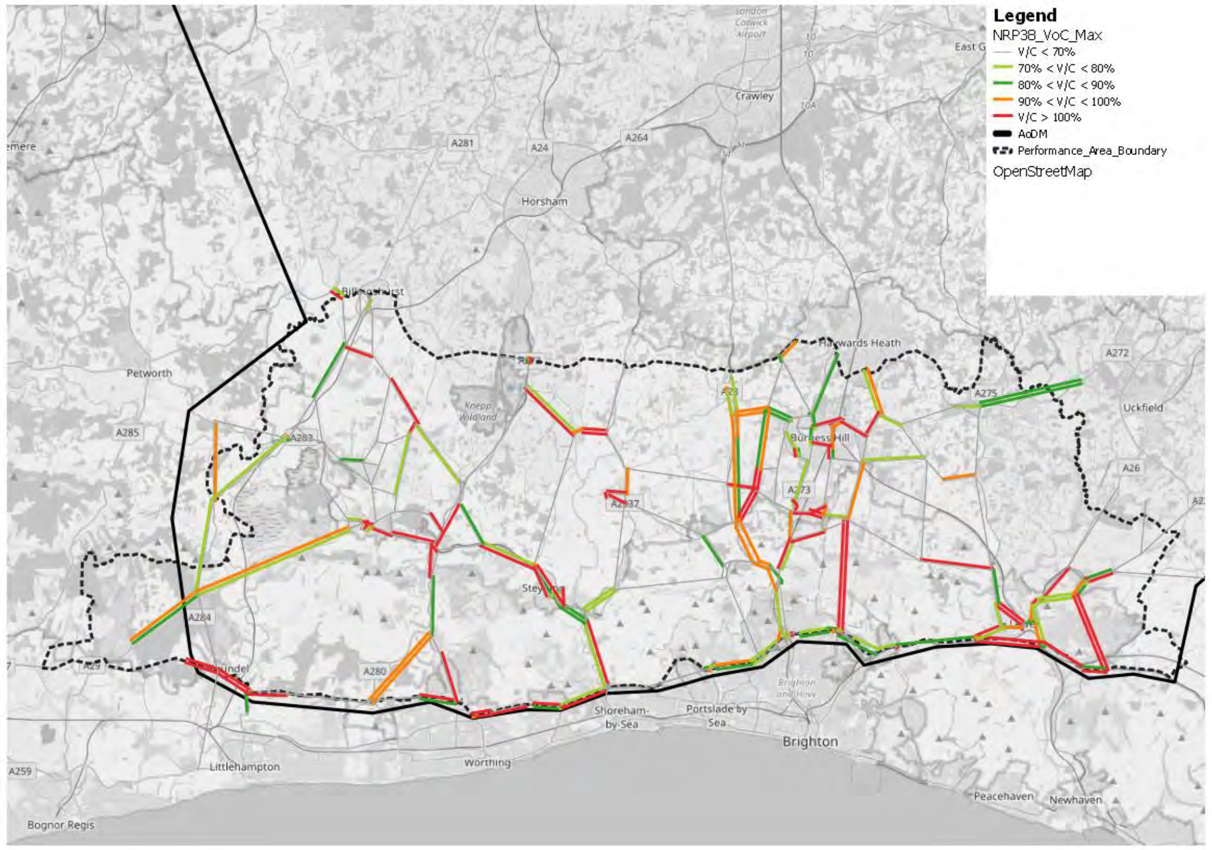
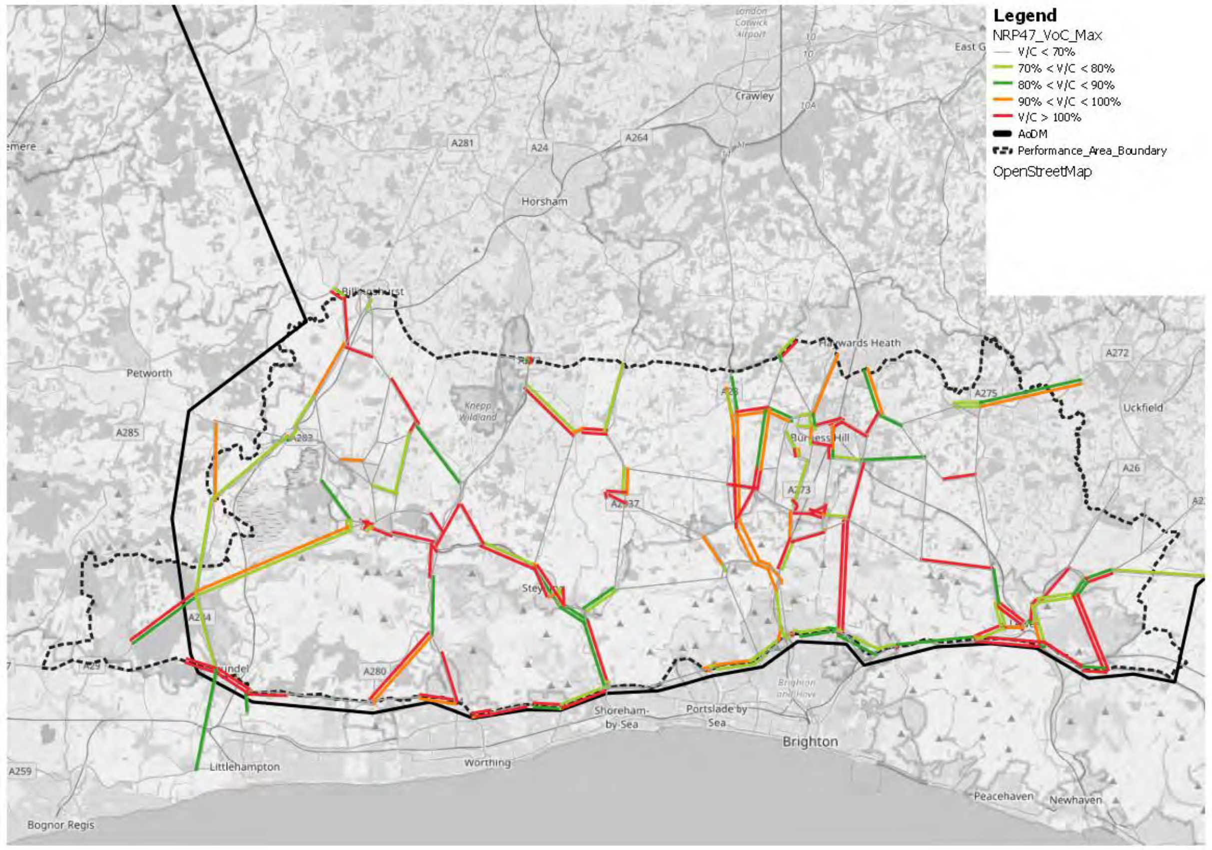


Figure 191: Maximum V/C - 2047, With Project – Performance Area D



Magnitude of Impact – nodes

2029

12.8.63 For 2029, there are no instances of 'Low', 'Medium' or 'High' magnitude impacts. A summary of the assessment is presented in Table 161.

Table 161: Magnitude of Impacts: Performance Area D – Future baseline 2029 to With Project 2029

2029	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	2	0	0	0
Low	0	0	0	0
Medium	0	0	0	0
High	0	0	0	0

2032

12.8.64 For 2032, there are no instances of 'Low', 'Medium' or 'High' magnitude impacts. A summary of the assessment is presented in Table 162.

Table 162: Magnitude of Impacts: Performance Area D – Future baseline 2032 to With Project 2032

2032	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	4	12	9	1
Low	0	0	0	0
Medium	0	0	0	0
High	0	0	0	0

2038

12.8.65 The 2038 assessment year impacts are summarised in Table 162. The table outlines that there is a maximum of one 'Medium' magnitude impact across all modelled periods.

12.8.66 Figure 192 illustrates all occurrences across for all peaks.

12.8.67 The 'Medium' instances occur on Cuckfield Road, Hurstpierpoint in the AM2 peak and at the Arundel Road/Lyminster Road signals in the PM peak.

Table 163: Magnitude of Impacts: Performance Area D – Future baseline 2038 to With Project 2038

2038	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	7	73	32	26
Low	0	0	0	0
Medium	0	1	0	1
High	0	0	0	0

2047

12.8.68 For 2047, there are no instances of 'Low', 'Medium' or 'High' magnitude impacts and is presented in Table 164 and Figure 193.

Table 164: Magnitude of Impacts: Performance Area D – Future baseline 2047 to With Project 2047

2047	Performance Area D - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	11	21	12	11
Low	0	0	0	0
Medium	0	0	0	0
High	0	0	0	0

Figure 192: Magnitude of Impacts: Performance Area D – Future baseline 2038 to With Project 2038

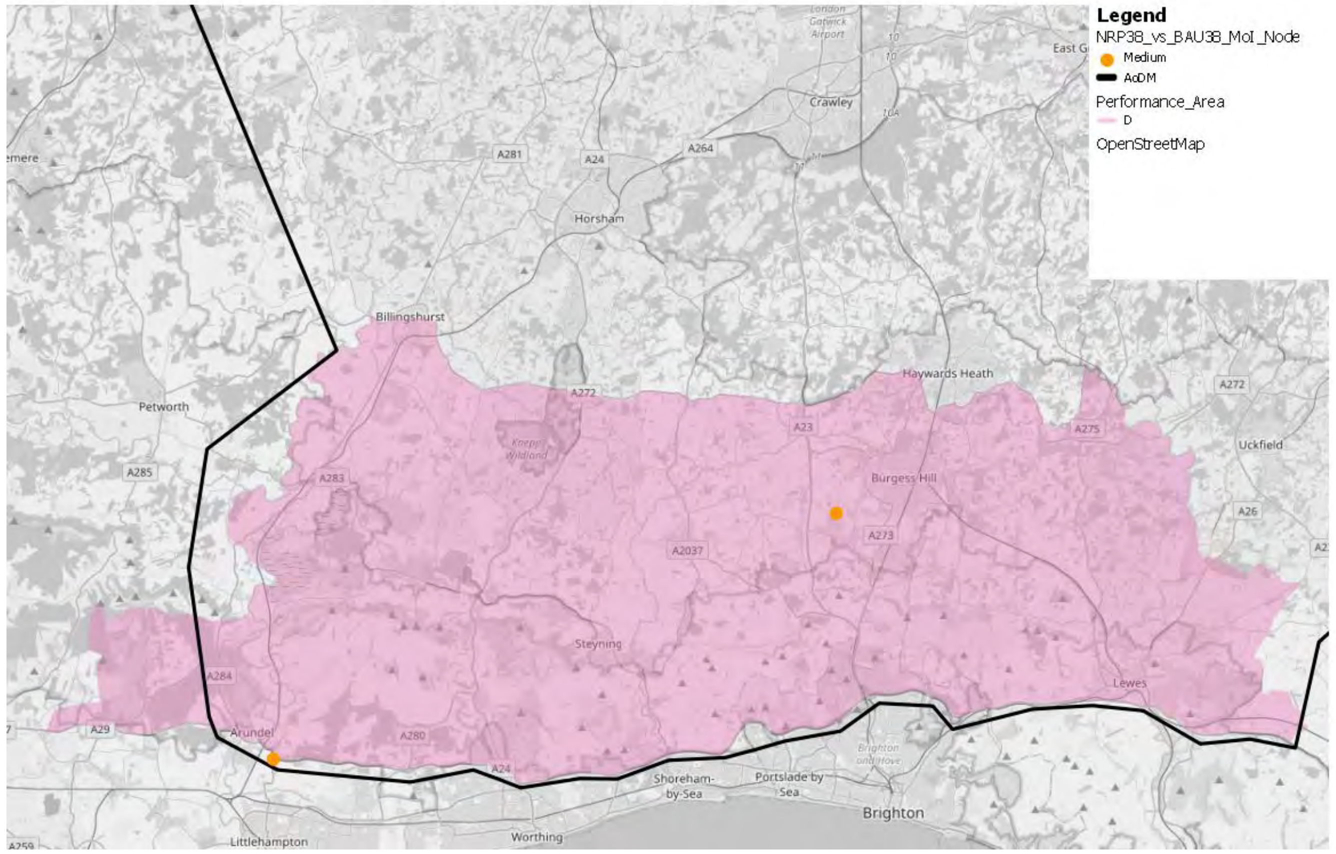
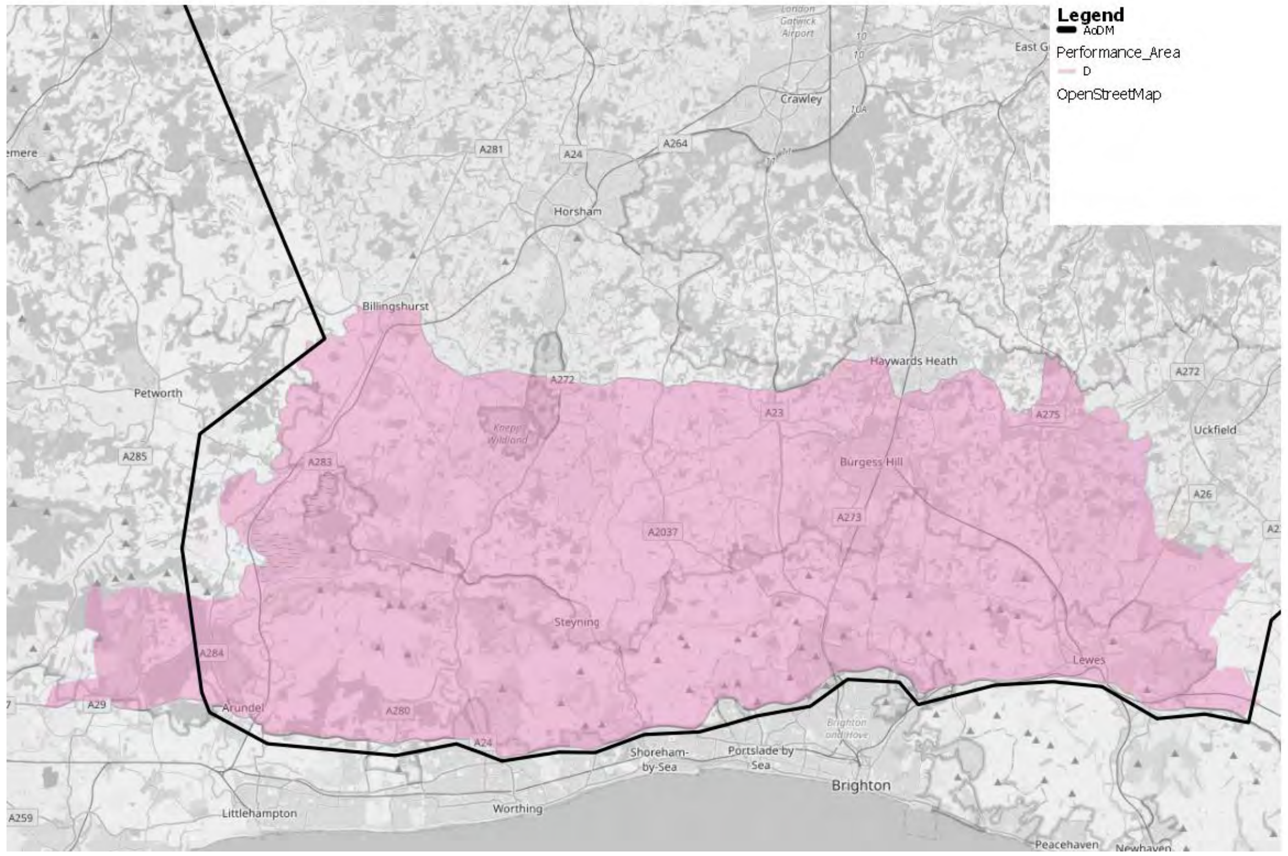


Figure 193: Magnitude of Impacts: Performance Area D – Future baseline 2047 to With Project 2047



12.9 Future rail network performance

Assignment statistics

12.9.1 Table 165 shows network statistics for the With Project rail assignments. The three OP assignment periods are aggregated to a single OP period, and all assignment periods are combined for the 24-hour results. These statistics include all demand (airport and non-airport). The number in brackets is the change from Baseline to 2 decimal places.

12.9.2 The results are overall very similar to the Baseline because airport surface access trips to Gatwick are a very small proportion of the total. However, the impact can be seen most clearly in the increases in passenger kms outside the peak periods as airport surface access trips are relatively long and relatively unlikely to occur in the peaks.

- The increase in IP and OP passenger kms from Baseline to With Project is around 0.8% from 2032 onwards.

Table 165: Rail assignment network statistics, With Project

Period	Metric	2016	2018/19	2029	2032	2038	2047
AM	Pax Trips (m)	1.66	1.74	2.02 (0)	2.08 (0)	2.18 (0)	2.34 (0)
	Pax Km (m)	36.60	39.58	45.51 (0.1)	47.21 (0.17)	50.6 (0.22)	56.21 (0.23)
	Pax Hr (m)	0.78	0.84	0.96 (0)	0.99 (0)	1.06 (0)	1.16 (0)
	Avg speed km/h	46.7	47.1	47.39 (0.04)	47.52 (0.06)	47.92 (0.07)	48.59 (0.07)
	Avg km/trip	22.0	22.7	22.58 (0.04)	22.72 (0.06)	23.2 (0.07)	24.02 (0.07)
	Avg mins/trip	28.3	29.0	28.58 (0.02)	28.69 (0.04)	29.04 (0.04)	29.66 (0.04)
IP	Pax Trips (m)	1.81	1.90	2.25 (0)	2.34 (0.01)	2.51 (0.01)	2.76 (0.01)
	Pax Km (m)	52.95	57.95	69.84 (0.29)	74.3 (0.55)	83.69 (0.69)	100.23 (0.73)
	Pax Hr (m)	0.95	1.03	1.23 (0)	1.29 (0.01)	1.42 (0.01)	1.64 (0.01)
	Avg speed km/h	55.9	56.1	56.92 (0.07)	57.49 (0.11)	58.84 (0.12)	61.08 (0.1)
	Avg km/trip	29.3	30.5	31.06 (0.08)	31.74 (0.14)	33.4 (0.16)	36.27 (0.14)
	Avg mins/trip	31	33	32.74 (0.05)	33.12 (0.08)	34.06 (0.09)	35.63 (0.09)
PM	Pax Trips (m)	1.37	1.43	1.68 (0)	1.74 (0)	1.84 (0)	1.99 (0)
	Pax Km (m)	30.78	33.63	39.73 (0.05)	41.84 (0.17)	46.08 (0.19)	53.38 (0.16)
	Pax Hr (m)	0.61	0.67	0.78 (0)	0.82 (0)	0.89 (0)	1 (0)
	Avg speed km/h	50.2	50.3	50.67 (0.02)	51.02 (0.06)	51.86 (0.06)	53.2 (0.03)
	Avg km/trip	22.5	23.5	23.68 (0.02)	24.07 (0.06)	25.07 (0.06)	26.77 (0.05)
	Avg mins/trip	27	28	28.04 (0.01)	28.31 (0.04)	29 (0.04)	30.19 (0.03)
OP	Pax Trips (m)	1.75	1.84	2.16 (0)	2.24 (0.01)	2.38 (0.01)	2.59 (0.01)
	Pax Km (m)	50.08	54.32	64.76 (0.16)	68.46 (0.54)	75.67 (0.63)	87.98 (0.69)
	Pax Hr (m)	0.97	1.04	1.22 (0)	1.27 (0.01)	1.38 (0.01)	1.56 (0.01)
	Avg speed km/h	51.9	52.4	53.23 (0.04)	53.74 (0.12)	54.81 (0.12)	56.57 (0.11)
	Avg km/trip	28.6	29.6	30.01 (0.05)	30.57 (0.15)	31.82 (0.15)	33.94 (0.15)
	Avg mins/trip	33	34	33.83 (0.03)	34.13 (0.08)	34.83 (0.09)	36 (0.09)
24hr	Pax Trips (m)	6.59	6.91	8.1 (0.01)	8.4 (0.02)	8.9 (0.02)	9.69 (0.02)
	Pax Km (m)	170.41	185.48	219.84 (0.6)	231.81 (1.43)	256.04 (1.73)	297.79 (1.81)
	Pax Hr (m)	3.31	3.58	4.19 (0.01)	4.38 (0.02)	4.75 (0.02)	5.36 (0.02)
	Avg speed km/h	51.5	51.8	52.49 (0.04)	52.93 (0.1)	53.93 (0.1)	55.6 (0.09)
	Avg km/trip	25.9	26.9	27.14 (0.05)	27.61 (0.11)	28.76 (0.12)	30.73 (0.11)
	Avg mins/trip	30	31	31	31	32	33

Fast services, morning peak, northbound

12.9.3 In this section, Brighton Main Line train load factors are provided for the peak and shoulder hours: 06:00-11:00 in the morning peak; 15:00-20:00 in the evening peak.

12.9.4 A value less than 1 means there are unoccupied seats; a value of 1 means all seats are taken; a value greater than 1 means all seats are taken and there are standing passengers.

- green shading: up to 85% of seats occupied, no passengers standing;
- yellow shading: 85-100% of seats occupied, no passengers standing; and
- red shading: all seats occupied plus passengers standing.

12.9.5 Table 166 to Table 173 show train load factors for fast trains in the morning peak and shoulder hours (06:00-11:00) for the peak (northbound) direction for the With Project scenarios.

12.9.6 In the Future baseline it is forecast that there will be standing between Gatwick and East Croydon for two hours in 2038 and 2047 (08:00-10:00).

Table 166: Load factors: morning peak northbound, fast trains, With Project 2029

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.55	0.61	0.35	0.31	1.07
07:00	AM	0.62	0.76	0.92	0.84	1.20
08:00	AM	0.70	0.87	1.06	0.97	1.37
09:00	IP	0.44	0.89	0.89	0.68	1.34
10:00	IP	0.28	0.56	0.56	0.43	0.85

Table 167: Load factors: morning peak northbound, fast trains, With Project 2032

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.58	0.64	0.36	0.32	1.11
07:00	AM	0.64	0.82	0.96	0.87	1.25
08:00	AM	0.74	0.94	1.10	1.00	1.43
09:00	IP	0.48	0.97	0.95	0.73	1.43
10:00	IP	0.30	0.61	0.60	0.46	0.90

Table 168: Load factors: morning peak northbound, fast trains, With Project 2038

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.64	0.71	0.39	0.35	1.21
07:00	AM	0.71	0.89	1.02	0.92	1.33
08:00	AM	0.81	1.02	1.17	1.05	1.52
09:00	IP	0.55	1.09	1.04	0.80	1.58
10:00	IP	0.35	0.69	0.66	0.51	1.00

Table 169: Load factors: morning peak northbound, fast trains, With Project 2047

Hour starting	In period	Three Bridges to Gatwick	Gatwick to East Croydon	East Croydon to Clapham Jcn	Clapham Jcn to Victoria	East Croydon to London Bridge
06:00	OP3	0.74	0.81	0.43	0.38	1.36
07:00	AM	0.80	1.00	1.10	0.98	1.45
08:00	AM	0.92	1.14	1.26	1.12	1.66
09:00	IP	0.68	1.28	1.18	0.91	1.81
10:00	IP	0.43	0.81	0.74	0.57	1.14

Fast services, evening peak, southbound

12.9.7 The tables to the right show the train load factors in the evening peak and shoulder hours (15:00-20:00) for the peak (southbound) direction for the With Project scenarios.

12.9.8 In the Future baseline it is forecast that there will be standing between East Croydon and Gatwick for one hour in 2038 (18:00-19:00) and two hours in 2047 (17:00-19:00).

12.9.9 The tables show the key information. Full details of loadings for all 24 hours of the day are provided in the Appendix G.

12.9.10 The highest load factors in the busiest hour in the most distant future year, shown in Table 173, are:

- between Gatwick and East Croydon: 1.27 (compared to 1.22 in Future baseline); and
- between East Croydon and London Bridge: 2.11 (compared to 2.07 in Future baseline).

12.9.11 The services into London Bridge from the Brighton Main Line are operated using Class 700 trains, mostly 12 car sets. These have 664 seats. Some findings below:

- A load factor of 2.11 means there are 664 seated passengers and 737 standing passengers (compared to 724 in Future baseline).
- A total of 1,401 passengers on the train. The official standing capacity of these trains is 1,081. Therefore, two-thirds of the standing space is taken up at a load factor of 2.11.
- The travel time between London Bridge and East Croydon is within the 20-minute threshold that DfT use as guidance for acceptable standing, as long as the standing capacity is not exceeded.

12.9.12 Between East Croydon and Gatwick most travellers in this section will be going to/from London and this is more than a 20-minute journey; DfT guidance is that the operator should endeavour to seat these passengers. With the maximum load factor of 1.27 however there is some low density standing predicted (approximately 15% of standing capacity being taken up).

Table 170: Load factors: evening peak southbound, fast trains, With Project 2029

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.35	0.47	0.70	0.46	0.23
16:00	PM	0.76	0.87	1.06	0.65	0.42
17:00	PM	0.93	1.07	1.30	0.80	0.52
18:00	OP1	0.81	0.87	1.63	0.87	0.71
19:00	OP1	0.62	0.67	1.25	0.67	0.54

Table 171: Load factors: evening peak southbound, fast trains, With Project 2032

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.38	0.52	0.76	0.53	0.25
16:00	PM	0.81	0.94	1.11	0.72	0.45
17:00	PM	0.99	1.15	1.36	0.88	0.55
18:00	OP1	0.87	0.94	1.72	0.97	0.76
19:00	OP1	0.67	0.72	1.32	0.74	0.58

Table 172: Load factors: evening peak southbound, fast trains, With Project 2038

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.41	0.57	0.82	0.59	0.30
16:00	PM	0.86	1.00	1.17	0.80	0.50
17:00	PM	1.06	1.22	1.43	0.97	0.62
18:00	OP1	0.94	1.03	1.87	1.09	0.86
19:00	OP1	0.72	0.79	1.44	0.84	0.66

Table 173: Load factors: evening peak southbound, fast trains, With Project 2047

Hour starting	In period	Victoria to Clapham Jcn	Clapham Jcn to East Croydon	London Bridge to East Croydon	East Croydon to Gatwick	Gatwick to Three Bridges
15:00	IP	0.45	0.63	0.92	0.69	0.38
16:00	PM	0.93	1.08	1.28	0.91	0.60
17:00	PM	1.14	1.33	1.56	1.11	0.74
18:00	OP1	1.05	1.16	2.11	1.27	1.03
19:00	OP1	0.80	0.89	1.62	0.98	0.79

12.9.13 Trains loadings and crowding analyses have also been undertaken for the Arun Valley Line (between Billingshurst and Gatwick) and the North Downs Line (between Guildford and Gatwick). A summary of the results from the 2047 With Project analysis is shown in Table 174 (other modelled years have lower load factors). In general the factors are slightly higher in the With Project case, although it can be seen that the highest load factors of 1.00 and 1.10 are unchanged from the Future baseline. In summary:

- there is sufficient capacity in all years on the Arun Valley Line in the With Project scenarios; and
- there is sufficient capacity in all years on the North Downs Line in the With Project except between Reigate and Redhill where load factors rise just above 1 indicating low density standing associated with the short hop between Redhill and Reigate made by Reigate commuters who interchange to/from mainline services at Redhill. The load factors exceed 1 only on this one link and only for one hour.

Standers per carriage

12.9.14 To help understand rail crowding from a passenger perspective, Figure 194 shows the forecasts of standers per carriage by year for the busiest hour of the morning and evening peaks for Baseline and With Project. From 2038 onwards the 'With Project' cases see 5 more standers per carriage in the AM busiest hour and 3 more standers per carriage in the PM busiest hour.

Table 174: Summary of peak load factors for Arun Valley and North Downs Lines, With Project 2047

	Peak Load Factor (with Baseline LF in brackets for comparison)	Hour	On departure from
Arun Valley NB Fasts	1.00 (1.00)	08:00-09:00	Crawley
Arun Valley SB Fasts	0.82 (0.79)	18:00-19:00	Horsham
Arun Valley NB Stoppers	0.65 (0.64)	08:00-09:00	Crawley
Arun Valley SB Stoppers	0.77 (0.75)	18:00-19:00	Three Bridges
North Downs Line EB	1.10 (1.10)	07:00-08:00	Reigate
North Downs Line WB	0.94 (0.87)	18:00-19:00	Redhill

Figure 194: Standers per carriage Gatwick to East Croydon in busiest hour

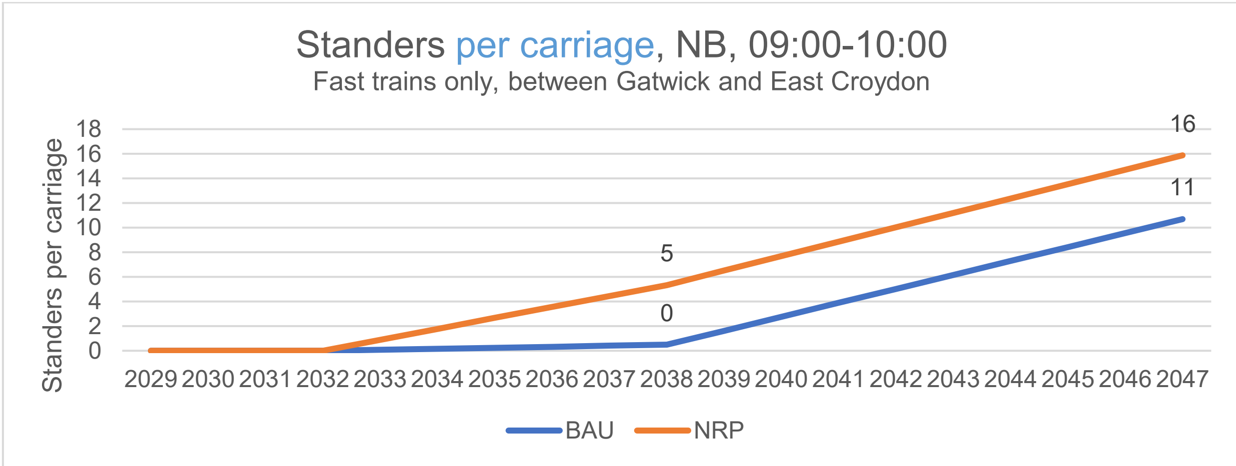
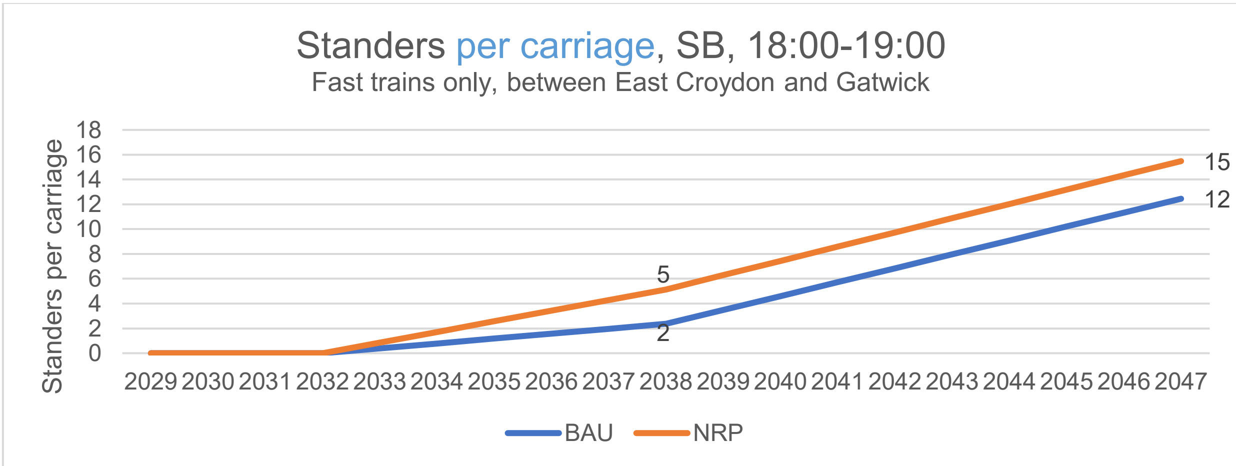


Figure 195: Standers per carriage East Croydon to Gatwick in busiest hour



12.10 Future bus/coach airport service performance

12.10.1 For bus and coach services the assumption is that operators can adjust capacity to manage loadings more readily than rail services by adjusting frequencies as Gatwick demand grows. Coach and bus loadings are therefore not assessed against a fixed capacity plan.

12.10.2 For the purpose of the calculating times and costs for the choice models, it was assumed that the frequency of base routes operated by National Express and Megabus will rise proportionally with Gatwick demand. Where possible the additional services are inserted into the schedule at times when there is gap in service. The frequency uplifts for the future baseline scenarios are shown in Table 175.

Table 175: With Project coach frequency uplift assumptions – existing routes

	2029	2032	2038	2047
With Project	+42%	+67%	+77%	+86%

12.10.3 In addition, the following new regional express bus/coach routes are assumed in the future 'with project' cases:

- Chatham – Maidstone – Sevenoaks – Gatwick (half hourly in daytime, hourly early and late);
- Uckfield – East Grinstead – Gatwick (hourly in peaks, two-hourly at other times);
- Romford – Hornchurch – Upminster – Dartford – Gatwick (hourly);
- Bexley – Footscray – Gatwick (hourly);
- Worthing – Ashington – Dial Post – Southwater – Wickhurst Green/Broadbridge Heath – Gatwick (hourly); and
- Tunbridge Wells – East Grinstead – Gatwick (half hourly).

12.10.4 The Romford service is a partial reinstatement of the Chingford route operated by Airport Express before its liquidation in 2019; other routes operated by this company – to Southend and Rayleigh – are not reinstated.

12.10.5 The With Project coach routes and daily services are summarised in Table 176.

Table 176: Daily coaches serving Gatwick in each direction, With Project

Terminus	via LHR?	With Project 2029	With Project 2032	With Project 2038	With Project 2047
Bexley		24	24	24	24
Bognor Regis		2	2	2	2
Brighton		24	27	29	31
Bristol	via LHR	9	10	10	11
Cardiff	via LHR	11	12	13	13
Chatham		35	35	35	35
Chingford/Romford		24	24	24	24
Derby	via LHR	13	15	16	17
Heathrow	via LHR	7	8	9	9
Northampton	via LHR	10	12	12	13
Norwich	via LHR	13	15	16	17
Nottingham	via LHR	4	5	5	5
Oxford		29	33	35	37
Park Royal		13	15	16	17
Poole		12	13	14	15
Rayleigh		0	0	0	0
Reading	via LHR	1	1	1	1
Southend		0	0	0	0
Swansea	via LHR	14	17	18	19
Tunbridge Wells		48	48	48	48
Uckfield		14	14	14	14
Victoria		67	77	81	86
Wolverhampton	via LHR	9	10	11	11
Worthing		28	28	29	29
TOTAL		410	447	460	477
LGW-LHR total	*via LHR*	*91*	*105*	*109*	*116*

12.10.6 It is assumed that local buses will operate at the same frequencies in future years as they are in the Base, with the following exceptions (same as the Future baseline). These are modelling assumptions reflecting the level of uplift anticipated, discussions with operators may result in improvements to other services:

- Metrobus 4/5 (Pound Hill): increase from 4 to 6 bph daytime; from 2 to 4 bph early and late;
- Metrobus 10 (Bewbush): increase from 8 to 10 bph daytime; from 4 to 6 bph early and late;
- Metrobus 20 (Pease Pottage, Horley): increase from 4 to 6 bph daytime; from 2 to 4 bph early and late;
- Metrobus 22 (Holmbury St Mary): increase from ½ to 2 bph peak; from ½ to 1 bph off-peak; and
- Metrobus 100 (Maidenbower, Redhill) : increase from 4 to 6 bph daytime; from 2 to 4 bph early and late.

12.10.7 The frequencies of all local bus services combined are summarised in Table 178. There are no differences between Future baseline and With Project cases.

Table 177: Local bus frequencies per direction, all routes combined, Gatwick South

Period	Future baseline	With Project
AM (07:00-09:00) per hour	38	38
IP (09:00-16:00) per hour	36	36
PM (16:00-18:00) per hour	39	39
OP1 (18:00-00:00) per hour	23	23
OP2 (00:00-04:00) per hour	15	15
OP3 (04:00-07:00) per hour	25	25
Daily total per 24hr	674	674

12.11 Future bus/coach demand

12.11.1 Table 178 and Table 179 show the forecast bus/coach demand by area for the 'With Project' scenarios for air passengers and airport employees respectively.

12.11.2 The local bus network principally serves the airport employees, while coach principally serves air passengers.

12.11.3 Air passenger demand is forecast to grow at a higher rate than airport employees hence the growth in coach use is higher than local bus use.

Table 178: Gatwick bus/coach air passenger tours, With Project, 24hr

		Base	2029 With Project	2032 With Project	2038 With Project	2047 With Project
Local Bus	Crawley	151	234	272	287	296
	Mole Valley	5	22	26	27	28
	Reigate and Banstead	51	87	100	105	109
	Tandridge	2	3	4	4	4
	Mid Sussex	15	30	35	37	38
	Horsham	16	38	44	47	48
Long distance bus and coach	Brighton and Hove	156	311	394	427	456
	Rest of West Sussex	39	97	120	129	136
	Rest of Surrey	15	45	56	59	61
	East Sussex	39	197	230	242	252
	Kent	60	731	841	890	925
	London	1,194	1,884	2,282	2,424	2,516
	Hampshire	191	483	612	657	709
	Ox, Bucks, Berks	481	833	1,001	1,075	1,134
	Rest of UK	1,095	2,102	2,505	2,666	2,792
	TOTAL	**3,509**	**7,099**	**8,522**	**9,076**	**9,504**

Table 179: Gatwick bus/coach airport employee tours, With Project, 24hr

		Base	2029 With Project	2032 With Project	2038 With Project	2047 With Project
Local Bus	Crawley	1,772	2,695	2,893	2,952	3,017
	Mole Valley	2	4	4	4	4
	Reigate and Banstead	132	252	273	281	291
	Tandridge	9	18	19	19	19
	Mid Sussex	28	97	105	107	110
	Horsham	51	77	82	82	83
Long distance bus and coach	Brighton and Hove	59	132	166	179	196
	Rest of West Sussex	3	8	10	11	12
	Rest of Surrey	0	0	0	0	0
	East Sussex	8	27	31	32	34
	Kent	0	0	0	0	0
	London	49	71	81	83	86
	Hampshire	0	0	0	0	0
	Ox, Bucks, Berks	8	15	17	19	20
	Rest of UK	16	26	29	32	35
	TOTAL	**2,137**	**3,421**	**3,710**	**3,802**	**3,905**

12.12 Convergence

Variable Demand Model

12.12.1 The VDM is run for a fixed 6 cycles. The target convergence criterion from TAG is % Gap below 0.1%. The convergence details for the With Project scenarios are shown in Table 180.

Table 180: VDM convergence: With Project

Scenario	% Gap at completion	Converged (Gap <0.1%)?
With Project 2029	0.05%	Yes
With Project 2032	0.06%	Yes
With Project 2038	0.07%	Yes
With Project 2047	0.10%	Yes

Highway assignment model

12.12.2 Table 181 lists out the highway assignment model convergence statistics for the Future baseline models. This shows in all instances that the models meet the acceptable values set out within TAG Unit M3.1.

Table 181: Highway assignment model convergence – With Project

Scenario	Measure of convergence	Model Acceptable Values	AM1	AM2	IP	PM
2029 With Project	**Delta and %GAP**	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.0098 0.0091 0.0069 0.0092	0.0070 0.0092 0.0066 0.0092	0.0070 0.0057 0.0067 0.0052	0.011 0.0095 0.0087 0.0083
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	98.2 98.1 98.2 98.2	98.1 97.7 98.3 97.8	98.0 97.9 98.5 98.3	97.8 97.5 97.8 98.2
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	98.4 98.4 98.4 98.5	98.3 98.4 98.4 98.4	98.8 98.9 99.0 99.0	97.7 97.7 98.1 98.1
2032 With Project	**Delta and %GAP**	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.013 0.012 0.012 0.011	0.011 0.0093 0.0083 0.012	0.012 0.0085 0.0094 0.0080	0.011 0.0095 0.011 0.0086
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	98.0 97.7 97.9 97.9	97.4 96.9 97.6 97.7	97.7 97. 9 98.2 97.7	97.8 97.6 97.9 97.9
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	98.2 98.2 98.2 98.3	98.4 98.2 98.5 98.5	98.7 98.7 98.8 98.9	97.8 97.7 97.7 97.9
2038 With Project	**Delta and %GAP**	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.010 0.012 0.0075 0.013	0.0087 0.0094 0.0063 0.011	0.0098 0.0097 0.010 0.010	0.011 0.011 0.013 0.0099
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	98.4 97.8 98.3 98.5	97.0 98.3 97.6 98.2	98.1 98.0 98.3 97.7	97.7 98.0 98.0 97.9
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	97.8 97.7 98.1 97.9	98.1 98.1 98.3 98.25	98.7 98.7 98.7 98.7	97.3 97.4 97.5 97.6

Scenario	Measure of convergence	Model acceptable values	AM1	AM2	IP	PM
2047 With Project	**Delta and %GAP**	Less than 0.1% or at least stable with convergence fully documented and all other criteria met	0.013 0.012 0.011 0.013	0.012 0.013 0.011 0.012	0.013 0.010 0.012 0.0099	0.011 0.016 0.010 0.014
	Percentage of links with flow change (P)<1%	Four consecutive iterations greater than 97.5%	97.7 97.7 98.3 98.4	97.6 98.3 97.7 98.8	97.6 97.5 98.1 97.8	97.6 97.8 97.8 98.3
	Percentage of links with delay change (P2)<1%	Four consecutive iterations greater than 98%	97.3 97.5 98.0 98.0	97.9 97.9 97.9 98.4	98.3 98.2 98.4 98.5	97.5 97.9 97.8 98.0

Rail assignment model

12.12.3 Table 182 shows the crowded rail assignment model convergence statistics for AM and PM periods for the With Project models. There is no criterion given in TAG so we have assumed the same as for the demand model: that the percentage gap in the measure of total weighted time is less than 0.1%. In all instances the models meet the criterion by the final iteration.

Table 182: Rail Assignment Model Convergence – With Project

Iteration 12 (final)	2029 With Project	2032 With Project	2038 With Project	2047 With Project
Gap AM Peak	0.06%	0.06%	0.07%	0.09%
Gap PM Peak	0.04%	0.04%	0.05%	0.08%

12.13 Summary and conclusions

12.13.1 The analysis shows that over the effects of the With Project scenarios vary across the years assessed:

- In 2029, the extent of effects is minimal as the extent of demand uplift associated with the Project is minimal.
- The effects are more noticeable from 2032 onwards, growing in significance to 2047 as background demand on the transport system is higher and there is less residual capacity to support the growth.

Mode shares

12.13.2 There is a reduction in passenger Car (park & fly) and Car (kiss & fly) mode share between 2016 and 2047 from a combined 41% to 29% as a consequence of measures introduced to encourage mode shift:

- Rail mode share rises from 35% to 45% between 2016 and 2047, whilst bus mode share increases from 5% to 8%.
- For employees, car mode share reduces from 63% to 53% over the period, whilst rail increases from 13 to 17% and bus from 16% to 21%.
- The single-occupancy car parking charge for employees is the prime cause.

Highway impacts

12.13.3 The greatest increases in traffic flows, and thus greatest changes in AADT are predicted in Performance Areas A and B, those routes outside the airport and the M23 corridor to the M25. It is in these Performance Areas where the key junctions of M23 J9 and M23 J8/M25 J7 are. These junctions show High and Medium impacts, particularly in the later years.

12.13.4 Despite the growth, the Project results in a reduction in some journey times on routes past the airport as a result of the introduction of the highway mitigation which provides a step change in capacity through the M23 Spur corridor.

12.13.5 On the SRN the journey time impacts are minimal with no increases of more than 2-minutes across the 4 assessment years. The overall operational performance, measured through the Volume Capacity, is generally similar between the Future baseline and the With Project. However, the M23 northbound is suggested to reach 100% in the With Project scenario.

12.13.6 Impacts in Performance Area C are generally deemed model noise effects due to the high levels of congestion in the Croydon area. Despite this, the **Transport Assessment** looks at all the Medium and High magnitude impacts. The journey time increases seen are the product of some of the localised re-routing.

12.13.7 Performance Area D shows only minimal impacts: there are no significant journey time increases. In 2029, 2032, and 2047 there are no Medium or High magnitude impact nodes, and only 2 Medium in 2038.

12.13.8 Convergence results have been reviewed for each Future baseline scenario which show the model converged. The network summary statistics show the model is providing logical responses over the modelled years.

Public transport impacts

12.13.9 The project has no material impact on the background rail demand volumes. There is a significant reduction in car and increase in public transport/coach shares for both air passengers and airport employees as a result of the surface access strategy measures including escalation of car parking and forecourt charges and investment in coach and bus.

12.13.10 As in the Baseline cases there is standing between East Croydon and London in the peak hours in both directions. However, the Project makes little difference to the amount of standing that is already present in the Baseline. Between East Croydon and Gatwick there is no standing forecast until 2032. From 2032 there will be slightly more standing in the With Project scenarios than in the Baseline.

12.13.11 The easiest way to visualise the crowding impact is in terms of standers per carriage between East Croydon and Gatwick. In 2047 the forecast is:

- 11 standers per carriage in the most crowded AM peak northbound hour in Future baseline; rising to 16 standers per carriage With Project
- 12 standers per carriage in the most crowded PM peak southbound hour in Future baseline; rising to 15 standers per carriage With Project

12.13.12 Standing for >20-minute is strategically undesirable. However:

- No demand adjustments have been made in relation to Covid – the peak crowding may therefore be significantly overestimated.
- There is a large standing area available especially in the Class 700 Thameslink units.

12.13.13 On Arun Valley and North Downs lines crowding is not an issue other than a short section between Redhill and Reigate where small amount of standing may be experienced in both Future Baseline and With Project cases.

12.13.14 National Express and Megabus coach services are assumed to increase frequencies, adjusting capacity to match airport-related coach demand. Additional local bus services part funded by Gatwick will provide extra capacity on bus for employees.

13 Post VDM – construction scenarios - results and analysis

13.1 Introduction

13.1.1 As outlined in Section 8.3, two construction scenarios have been modelled to assess the impact of construction for two stages of the Project. The scenarios are:

- the airfield and airport works (2029 Future baseline vs. 2029 Future baseline with Airport construction); and
- the effect of the highway construction (2029 Future baseline With Project vs. 2029 Future baseline With Project and Highway construction).

13.1.2 This section outlines the impact of the two scenarios on the highway network by examining changes in traffic flows, journey times, and magnitude of impact on nodes, using the approach described in Section 6.12. Whilst the Airfield construction scenario has run through the VDM and public transport models the impact on these is minimal; the forecast switches from car to rail as a result of airfield construction works are immaterial:

- for air passengers: 32 a day (out of the total car access of 85,000) with 26 switching to rail and 6 to bus/coach; and
- for employees: 8 a day (out of the total car access of 20,000) with 4 switching to rail, 3 to bus/coach and 1 to active modes.

13.1.3 For the highway construction scenario, the air passenger and employee surface access demand is assumed to be fixed at the level in the 2029 With Project scenario. On this basis the VDM has not been run.

13.2 Airfield construction

Future highway network performance

Actual flow by time period

13.2.1 The modelled flow difference between the 2029 Future Baseline and the 2029 Airfield construction scenarios is presented in Figure 196 to Figure 199 for AM1, AM2, IP and PM respectively. The key points are:

- The modelling shows that there are generally small changes in traffic flows on the network (between -50 and +50 an hour) as the result of airfield construction. This is expected given the low volumes of airfield construction traffic flow generated by the Project, as described in Section 8.3.
- Increases in traffic are generally localised around the airport, for instance, as shown in the AM1 peak.
- There are some changes in the London area because of model noise, ie the reassignment of some traffic from one route to another due to very similar journey times. This explains why some reductions in traffic are shown with increase.

Magnitude of Impact – nodes

13.2.2 The magnitude of impact assessment described in Section 6.12 has been undertaken for the 2029 Future baseline with Airfield construction against the 2029 Future baseline, as shown in Table 183 and Figure 201. The key points are:

- Airfield construction are expected to have minimal impact on nodes, with a maximum of one 'High' magnitude of impact identified in the AM1 and AM2 peak periods, and none in the IP and PM peak periods. Only one 'Medium' magnitude of impact has been identified and this was in the AM1 peak.
- The nodes identified with 'High' and 'Medium' magnitude of impact are in the northern part of the AoDM, in Croydon and Epsom. These effects are not as a result of the airport construction traffic but associated model noise as set out above, and due to the area being highly congested. Further commentary for these nodes during airport construction is provided in the **Transport Assessment**.

Table 183: Magnitude of Impacts – Airfield construction

2029	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	183	89	33	34
Low	0	0	0	1
Medium	1	0	0	0
High	1	1	0	0

Figure 196: Traffic flow change (veh) for Airfield construction, AM1

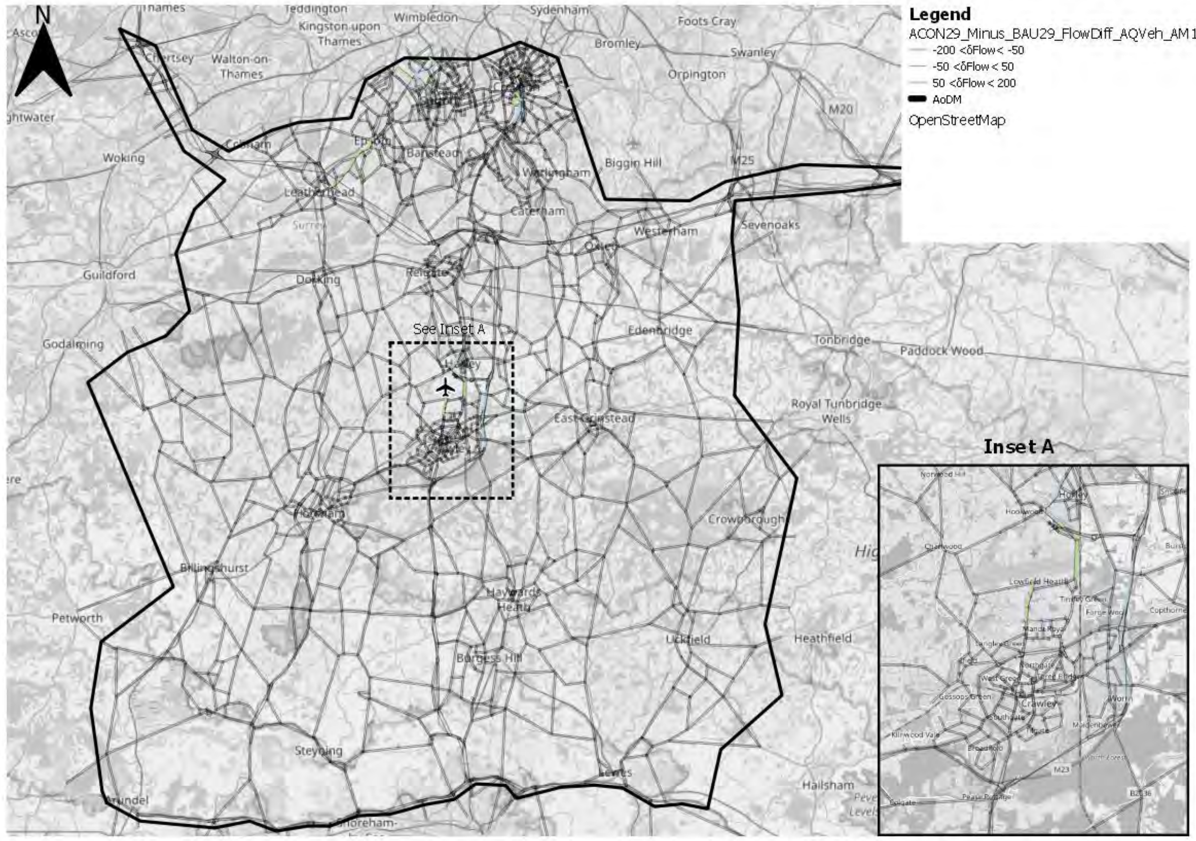


Figure 197: Traffic flow change (veh) for Airfield construction, AM2

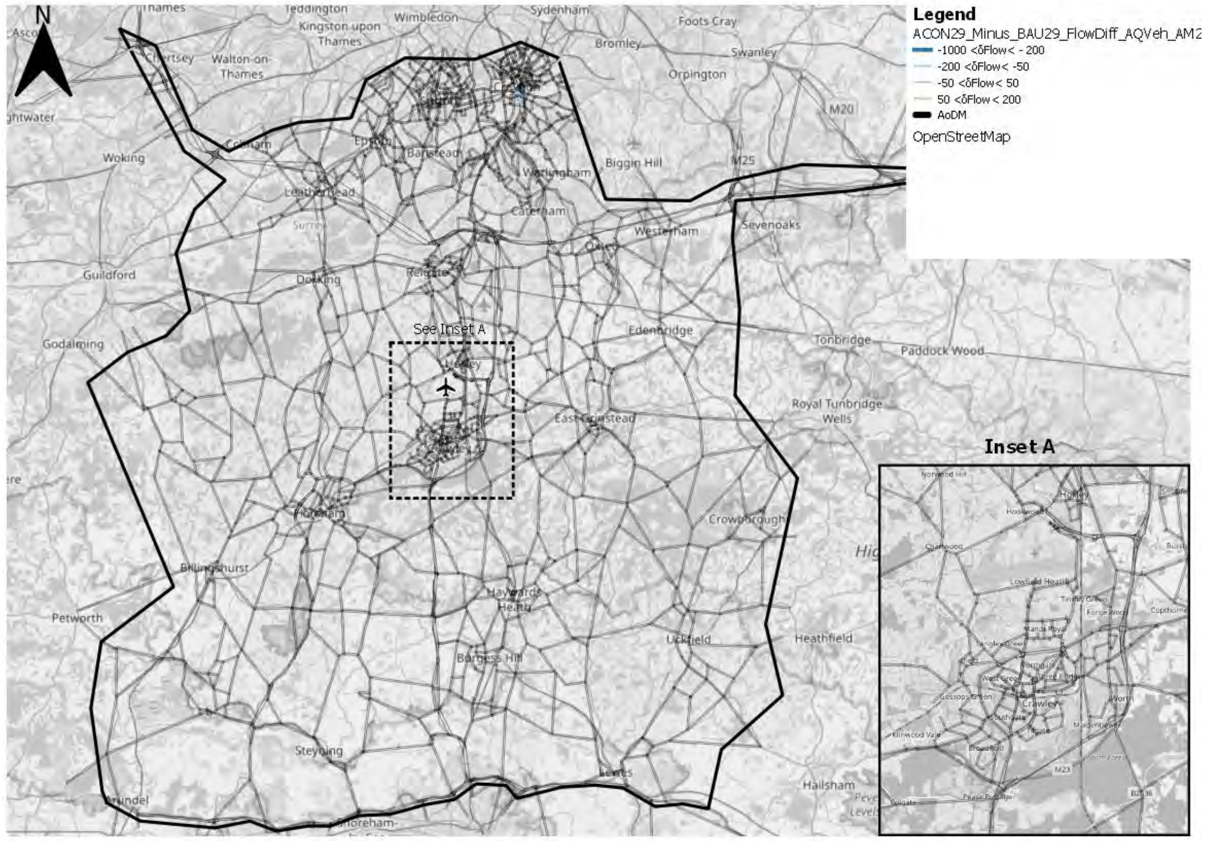


Figure 198: Traffic flow change (veh) for Airfield construction, IP

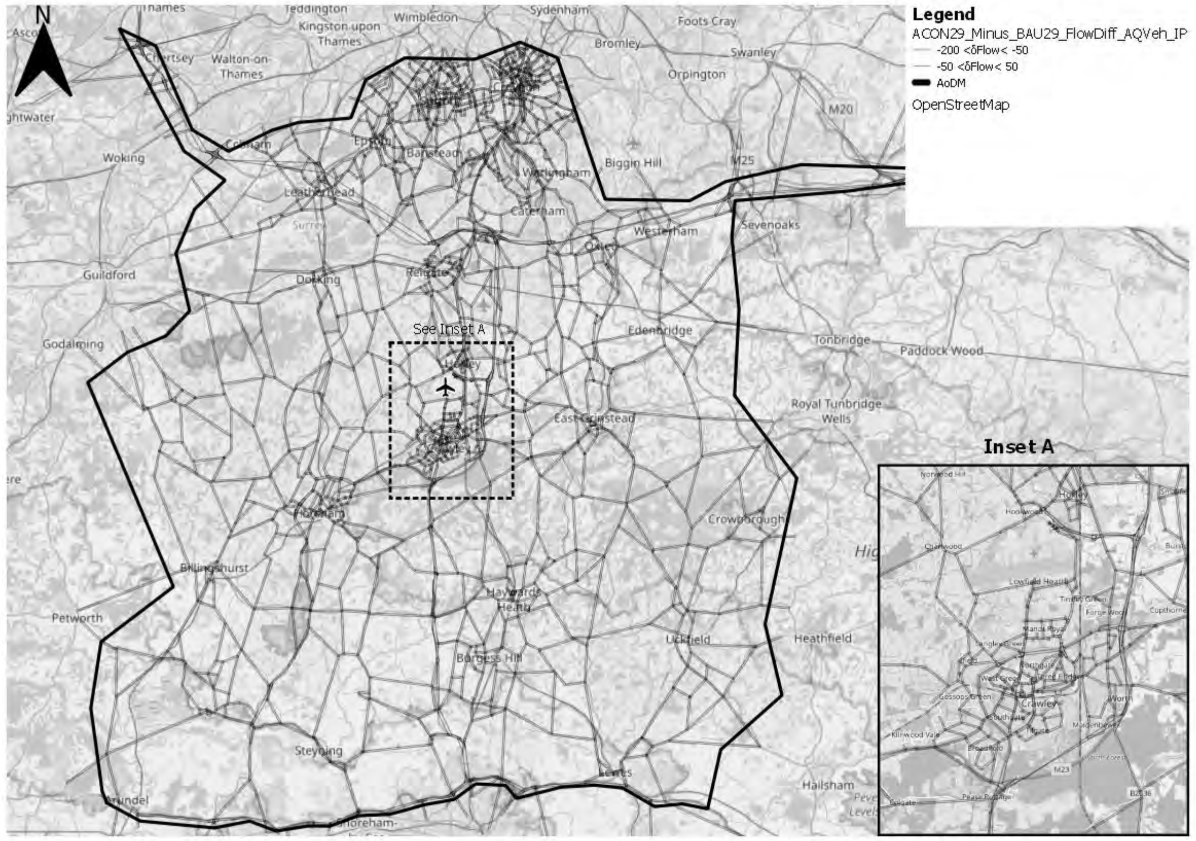


Figure 199: Traffic flow change (veh) for Airfield construction, PM

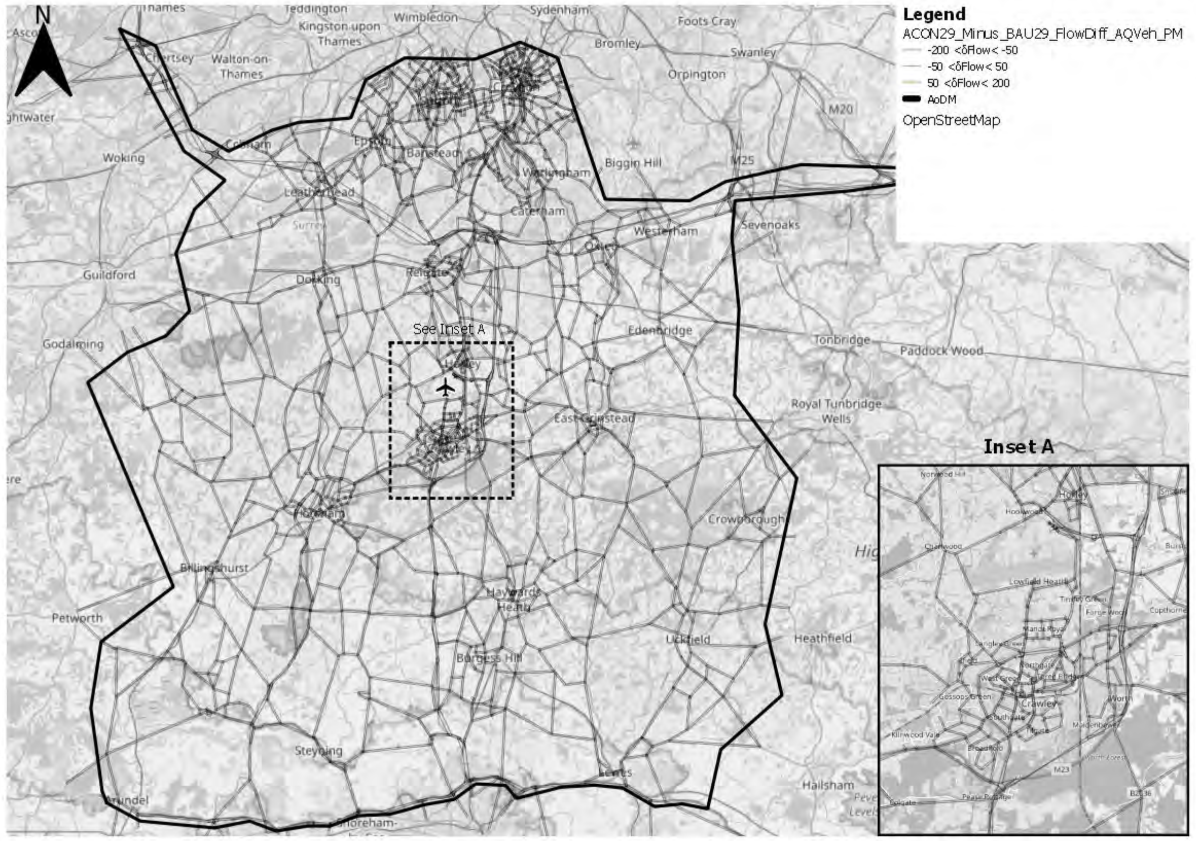


Figure 200: AADT Delta, 2029 Future baseline with Airfield construction (-) 2029 Future baseline

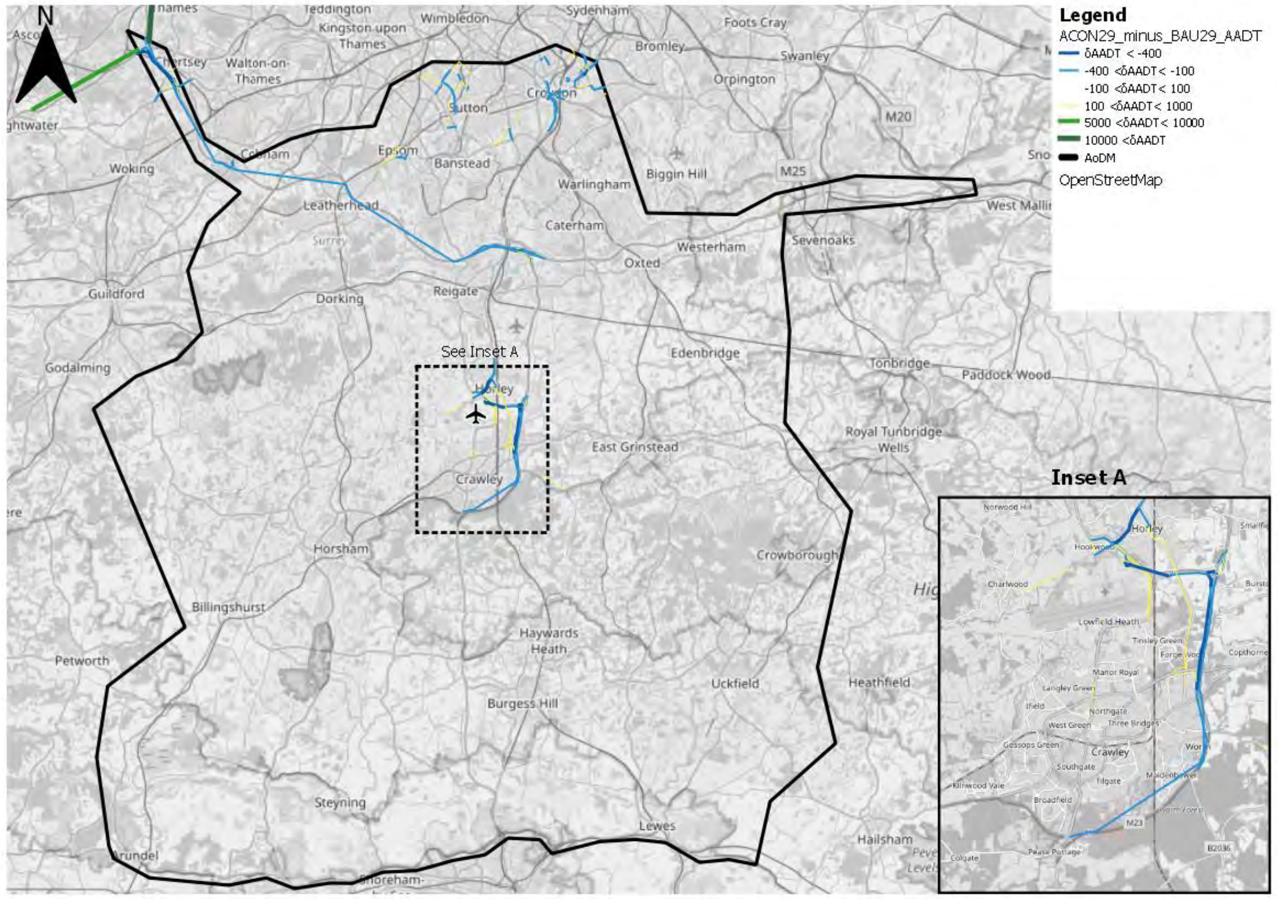
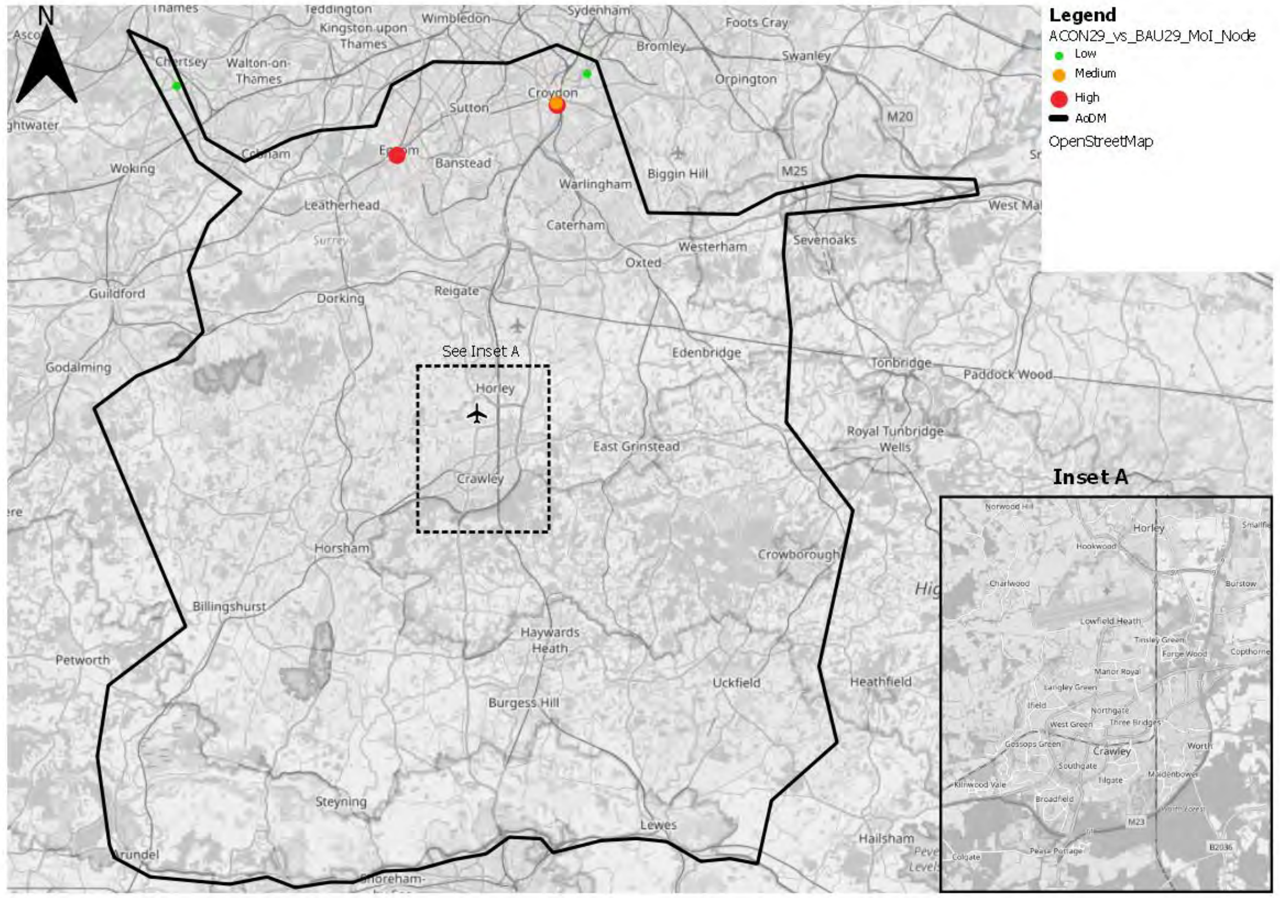


Figure 201: Magnitude of Impacts: Future baseline 2029 to Airfield construction 2029



13.3 Highway construction

Future highway network performance

Actual flow by time period

13.3.1 The modelled flow differences from 2029 With Project to 2029 With Project and Highway Construction are presented in Figure 202 to Figure 205 for AM1, AM2, IP and PM respectively. The key points are:

- There are reductions in the immediate roads around Gatwick: M23 Spur, Airport Way, A23. These are expected because of the narrowing of lanes and subsequent reduction in capacity on these roads due to the construction works.
- There are some reductions on local back roads such as Horley Road towards Horsham. These reductions of -5, -91, -36, and -34 vehicles in AM1, AM2, IP and PM respectively are expected given the redistribution of traffic the highway works would lead to.
- There are increases on the M23 and M25 roads, as well as within Crawley itself, such as Balcombe Road and Crawley Avenue at Hazelwick Roundabout. These increases are expected to be traffic that would normally use the M23 Spur temporarily using alternate routes to avoid the constraints during construction works.

Annual Average Daily Traffic

13.3.2 The AADT flow difference are presented in Figure 206

13.3.3 Some observations below:

- The AADT differences further highlight the main routes in the immediate area around Gatwick which are expected to experience reductions in traffic due to construction works restricting capacity.
- There are increases in AADT between 100 and 1,000 vehicles per day on the M23, Balcombe Road, Crawley Avenue between Hazelwick Roundabout and M23 J10.
- The changes shown in the Croydon, Sutton and Steyning areas are due to model noise and the switching between routes with similar journey times. This explains the localised increases and reductions shown in this area.
- There is a reduction in AADT shown on the route towards Petworth, with reductions above 400 as far as Horsham. This is an effect driven by small changes in the individual time period model for instance at the junction of the A264/A24 there are flow changes of +1, -7, -22, -69 in the AM1, AM2, IP, PM models respectively which translates to a change of -505 at an AADT level but within the individual models themselves relatively small numbers.

Magnitude of Impact – nodes

13.3.4 The magnitude of impact assessment considers the junction performance of the highway construction scenario against the 2029 With Project scenario, as shown in Table 184 and Figure 207.The key points are:

- There are up to five nodes with ‘High’ magnitude of impacts. This was in the AM2 peak period.
- There is a cluster of ‘High’ impact nodes near the airport, which is expected given the temporary reduction in capacity along this corridor during highway construction.
- There is a cluster of nodes with ‘High’ and ‘Medium’ magnitude of impacts in Croydon. These are not as a result of the highway construction traffic but associated model noise as shown in the analysis of the traffic changes. Further commentary on these nodes is provided in the **Transport Assessment**.

Table 184: Magnitude of Impacts – highway construction

2029	All performance areas - nodes			
MoI	AM1	AM2	IP	PM
Negligible	216	307	102	158
Low	1	3	0	0
Medium	1	1	0	0
High	4	5	1	2

Figure 202: Traffic flow change (veh) for highway construction, AM1

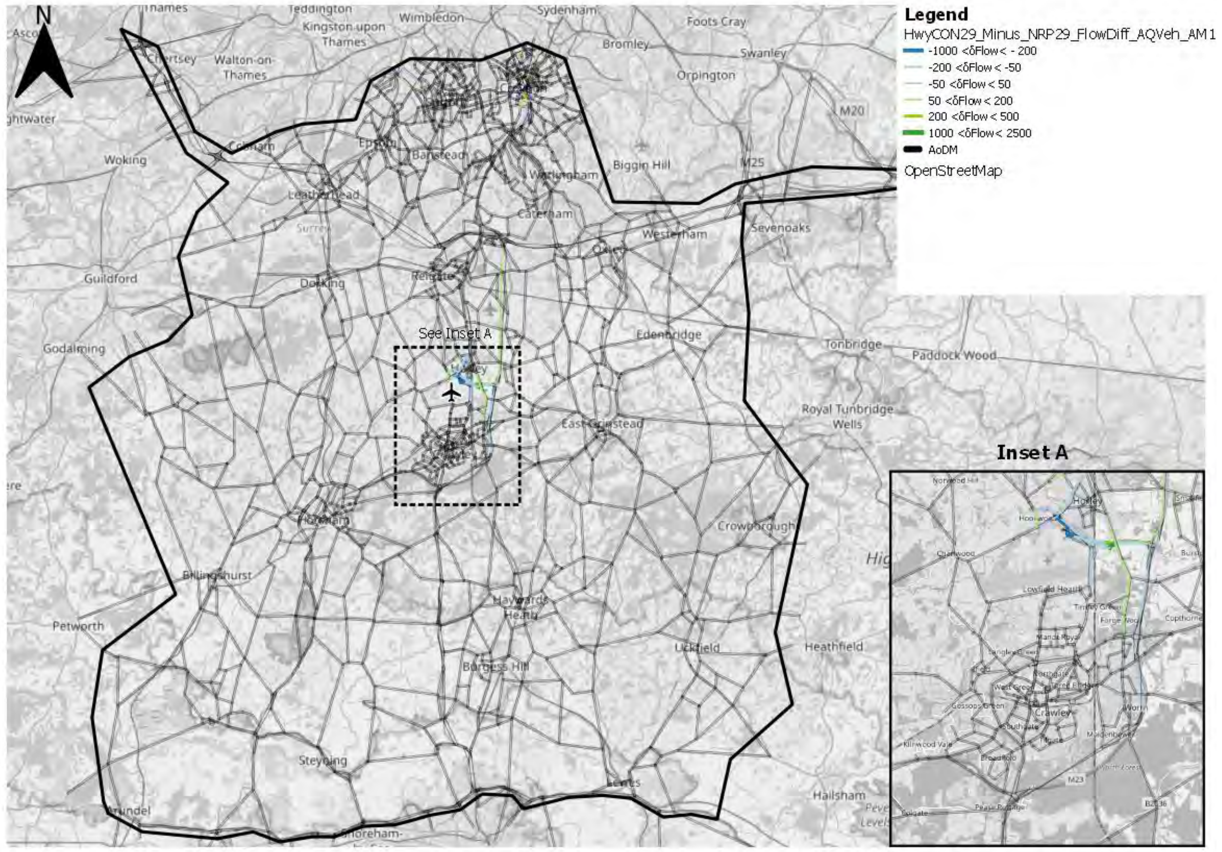


Figure 203: Traffic flow change (veh) for highway construction, AM2

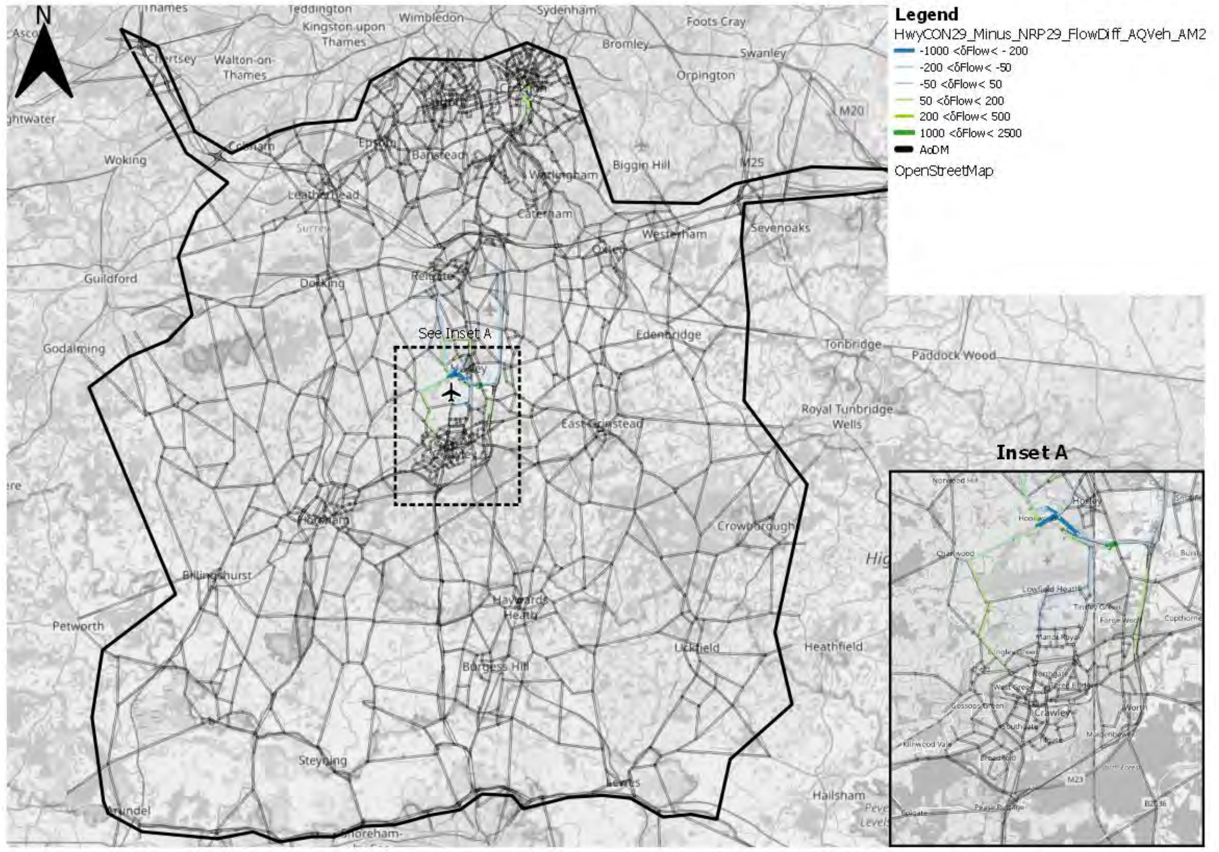


Figure 204: Traffic flow change (veh) for highway construction, IP

Figure 205: Traffic flow change (veh) for highway construction, PM

Figure 206: AADT Delta, 2029 highway construction (-) 2029 With Project

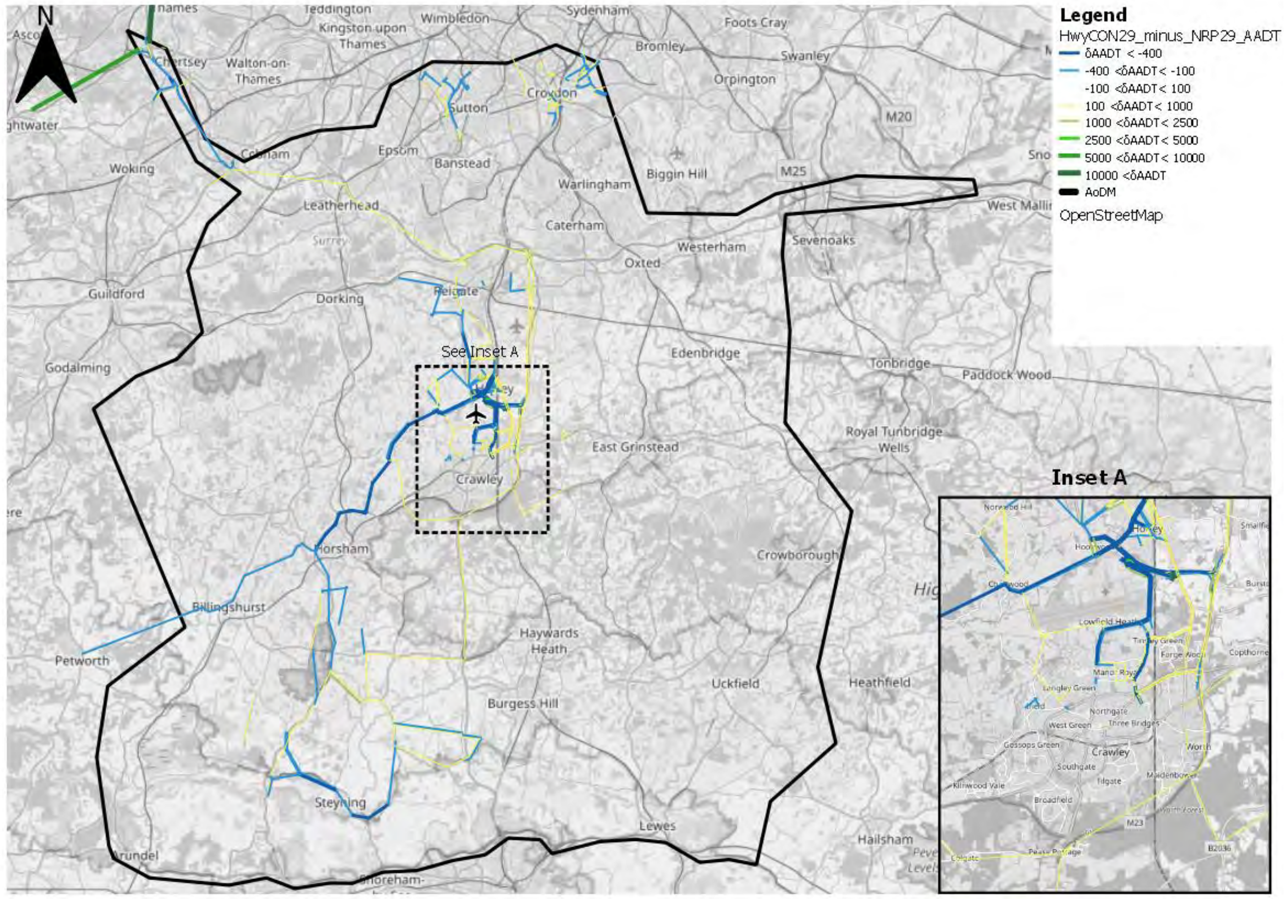
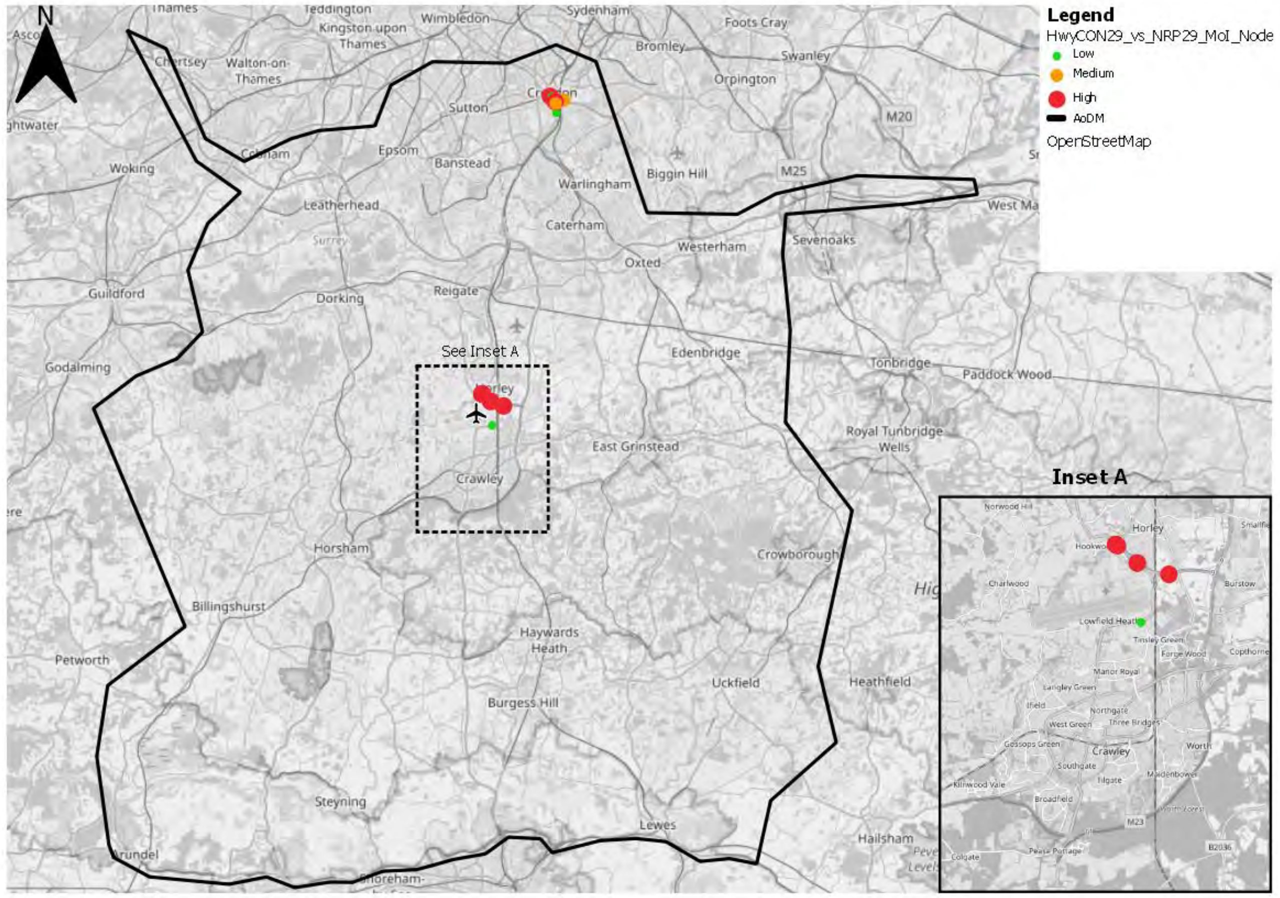


Figure 207: Magnitude of Impacts: With Project 2029 to highway construction 2029



13.4 Summary and conclusions

13.4.1 This section has provided information on the expected impact of the airfield and highway construction works on the highway network. The key points are:

- There are minimal impacts as a consequence of Airfield construction.
- The highway construction works will reduce the capacity of some key roads near the airport. This results in temporary high magnitude of impacts within the immediate vicinity of Gatwick.
- Both airfield and highway construction scenarios show impacts in the Croydon area of the network. These are the result of model noise due to similar journey times and therefore the switching between routes.

14 Post VDM – cumulative development scenarios – results and analysis

14.1 Introduction

14.1.1 This section outlines the state of the network in relation to the Cumulative Development Future baseline (CDev) and Cumulative Development With Project (CDev With Project):

- Airport mode shares, both passengers and employees, across the four assessment years;
- The future highway network performance, assessed through:
  - Actual flow changes
  - Annual Average Daily Traffic changes
  - Impact on Journey Times across the SRN
  - Impact on Operational Performance across the SRN and AoDM
  - Magnitude of Impact in the AoDM

14.2 Airport surface access mode shares - passengers

14.2.1 Table 185 and Table 186 show the forecast trips and mode shares, respectively, for air passengers for the CDev scenarios. Table 187 and Table 188 show the forecast trips and mode shares, respectively, for air passengers for the with CDev With Project scenarios. Forecasts are compared to the base year position of 2016 and the interim calibration year of 2018/19 (outlined in Section 6.8).

14.2.2 The tables show the increase in the volume of air passengers in the CDev and CDev with Project scenarios between 2016 and 2047. In terms of mode shares, the car shares generally decrease or remain stable in both CDev and CDev With Project scenarios; and there is an increase in all public transport trips in both the CDev and CDev With Project scenarios compared to the Baseline scenarios. Some key points are:

- Car (park and fly) and car (kiss and fly) trips increase over time from 2016 to 2047 in the CDev scenario and further increase in the CDev With Project scenario, but car park and fly mode share is reduced by 4 percentage points in the CDev scenario and by 8 percentage points in the CDev With Project scenario.
- Car rental and taxi trips also increase over time in the CDev scenario and further increase in the CDev With Project scenario, but their mode shares between 2016 and 2047 are not expected to change materially. Taxi fluctuates +/-2 percentage points over time from the starting value of 17% in both scenarios.

Table 185: CDev Baseline air passenger surface access trips (thousands per day, High June)

	Base 16	Base 18/19	CDev 29	CDev 32	CDev 38	CDev 47
Car (park & fly)	31.8	31.8	32.9	33.1	34.7	36.5
Car (kiss & fly)	22.3	22.6	22.8	23.3	23.6	23.8
Car rental	3.1	3.0	3.4	3.5	3.5	3.6
Taxi	22.3	25.4	26.8	27.9	29.5	31.5
Rail	45.7	54.0	69.5	72.8	75.7	78.5
Bus/coach	7.0	7.8	11.5	12.1	12.6	13.1
TOTAL	**132.1**	**144.7**	**166.9**	**172.8**	**179.7**	**187.0**

Table 186: CDev Baseline air passenger surface access mode shares, High June (annual average mode shares in brackets)

	Base 16	Base 18/19	CDev 29	CDev 32	CDev 38	CDev 47
Car (park & fly)	24% (23%)	22% (20%)	20% (18%)	19% (18%)	19% (18%)	20% (18%)
Car (kiss & fly)	17% (15%)	16% (14%)	14% (12%)	13% (12%)	13% (12%)	13% (12%)
Car rental	2% (3%)	2% (2%)	2% (2%)	2% (2%)	2% (2%)	2% (2%)
Taxi	17% (16%)	18% (16%)	16% (15%)	16% (15%)	16% (15%)	17% (16%)
Rail	35% (37%)	37% (40%)	42% (44%)	42% (44%)	42% (44%)	42% (44%)
Bus/coach	5% (6%)	5% (6%)	7% (7%)	7% (8%)	7% (8%)	7%(8%)
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 187: CDev With Project air passenger surface access trips (thousands per day, High June)

	Base 16	Base 18/19	CDev With Project 29	CDev With Project 32	CDev With Project 38	CDev With Project 47
Car (park & fly)	31.8	31.8	31.2	34.7	35.6	36.2
Car (kiss & fly)	22.3	22.6	23.8	27.4	28.1	28.4
Car rental	3.1	3.0	3.5	4.0	4.1	4.2
Taxi	22.3	25.4	27.9	32.6	34.9	37.3
Rail	45.7	54.0	76.1	91.3	96.9	101.5
Bus/coach	7.0	7.8	13.7	16.1	18.2	19.0
TOTAL	**132.1**	**144.7**	**176.4**	**206.0**	**217.9**	**226.7**

Table 188: CDev With Project air passenger surface access mode shares, High June (annual average mode shares in brackets)

	Base 16	Base 18/19	CDev With Project 29	CDev With Project 32	CDev With Project 38	CDev With Project 47
Car (park & fly)	24% (23%)	22% (20%)	18% (16%)	17% (15%	16% (15%)	16% (15%)
Car (kiss & fly)	17% (15%)	16% (14%)	14% (12%)	13% (12%)	13% (12%)	13% (11%)
Car rental	2% (3%)	2% (2%)	2% (2%)	2% (2%)	2% (2%)	2% (2%)
Taxi	17% (16%)	18% (16%)	16% (15%)	16% (15%)	16% (15%)	16% (15%)
Rail	35% (37%)	37% (40%)	43% (45%)	44% (47%)	44% (47%)	45% (47%)
Bus/coach	5% (6%)	5% (6%)	8% (8%)	8% (8%)	8% (9%)	8% (9%)
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

- Rail has the highest increase in trips by 32,800 per day in the CDev scenario and by 55,800 per day in the CDev With Project scenario from 2016 to 2047. The mode share increases by 7 and 10 percentage points in the CDev and CDev With Project scenarios, respectively, from 2016 to 2047. This accounts for 42% and 45% in the CDev and CDev With Project scenarios, respectively, of all trips in 2047.
- Bus/coach has a more modest increase in trips of 6,100 per day in the CDev scenario and 12,000 in the CDev With Project scenario from 2016 to 2047. The mode share increases by 2 and 3 percentage points in the CDev and CDev With Project scenarios, respectively, from 2016 to 2047.
- When compared to the With Project air passenger tables in Section 8, the CDev and CDev With Project scenarios show a similar pattern, with no change in mode share larger than half of one percentage point. The conclusion is that the three extra developments included in the CDev and CDev With Project scenarios have not had a material impact on air passenger mode share.

14.2.3 It should be noted that the reductions in car mode shares and increases in public transport mode shares are as a result of the escalation in real terms of car parking and forecourt access charges in the Future baseline.

14.3 Airport surface access mode shares – employees

14.3.1 Table 189 and Table 190 show the forecast trips and mode shares, respectively, for airport employees for the CDev scenarios. Table 191 and Table 192 show the forecast trips and mode shares, respectively, for airport employees for the with CDev with Project scenarios.

14.3.2 The tables show the increase in the number of employees means there is an increase in trips for all modes between 2016 and 2047 in the CDev and CDev with Project scenarios. Key points are:

- Car driver (solo) is the highest mode share for airport employees, however the mode shares for both car solo and car share are expected to reduce over time in the CDev and CDev With Project scenarios. Car solo trips are expected to increase from 2016 to 2047 by 2,000 per day in the CDev scenario and 1,600 trips per day in the CDev With Project scenario, but their mode shares will reduce by 5 percentage points in the CDev scenario and 11 percentage points in the CDev With Project scenario. Car share trips are also expected to increase from 2016 to 2047 by 100 trips per day in the CDev scenario and 700 trips per day in the CDev With Project scenario, but their mode shares will reduce by 2 percentage points in the CDev scenario and 1 percentage points in the CDev With Project scenario. This is driven by increasing road congestion and improvements to the local bus network.
- Bus has the highest increase in trips raising by 2,300 per day in the CDev scenario and 4,000 per day in the CDev With Project scenario. This is closely followed by rail, which is expected to increase by 1,800 trips per day in the CDev scenario and 2,900 per day in the CDev with Project scenario. Both of these mode shares increase by 3% each over time in the CDev scenario and by 6% and 4%, respectively, in the CDev with Project scenario.
- Company car and active travel trips have minor increases over time by 200 and 300 trips per day, respectively, in the CDev scenario and by 500 trips per day each in the CDev with Project scenario. Their mode shares are expected to remain unchanged.
- When compared to the With Project employee tables in Section 8, the CDev With Project scenario shows a similar pattern, with no change in mode share larger than 1.2 percentage points. Concluding that the three extra developments included in the CDev scenarios are expected to have a minimal impact on employee mode share.

Table 189: CDev airport employee surface access trips (thousands per day, High June)

	Base 16	Base 18/19	CDev 29	CDev 32	CDev 38	CDev 47
Car solo	15.0	14.8	16.3	16.4	16.7	17.0
Car share	2.1	2.1	2.2	2.2	2.2	2.2
Company	1.4	1.4	1.5	1.6	1.6	1.6
Rail	3.5	3.7	4.6	4.7	5.0	5.3
Bus/coach	4.3	4.4	5.8	6.0	6.3	6.6
Active	1.1	1.1	1.3	1.3	1.3	1.4
TOTAL	**27.4**	**27.6**	**31.7**	**32.2**	**33.0**	**34.1**

Table 190: CDev airport employee surface access mode shares (High June)

	Base 16	Base 18/19	CDev 29	CDev 32	CDev 38	CDev 47
Car solo	55%	54%	51%	51%	50%	50%
Car share	8%	8%	7%	7%	7%	6%
Company	5%	5%	5%	5%	5%	5%
Rail	13%	14%	14%	15%	15%	16%
Bus/coach	16%	16%	18%	19%	19%	19%
Active	4%	4%	4%	4%	4%	4%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 191: CDev With Project airport employee surface access trips (thousands per day, High June)

	Base 16	Base 18/19	CDev With Project 29	CDev With Project 32	CDev With Project 38	CDev With Project 47
Car solo	15.0	14.8	14.5	15.9	16.1	16.6
Car share	2.1	2.1	2.7	3.0	2.9	2.8
Company	1.4	1.4	1.8	1.9	1.9	1.9
Rail	3.5	3.7	5.3	5.9	6.1	6.4
Bus/coach	4.3	4.4	7.0	7.6	8.0	8.3
Active	1.1	1.1	1.5	1.6	1.6	1.6
TOTAL	**27.4**	**27.6**	**32.8**	**35.8**	**36.7**	**37.6**

Table 192: CDev With Project airport employee surface access mode shares (High June)

	Base 16	Base 18/19	CDev With Project 29	CDev With Project 32	CDev With Project 38	CDev With Project 47
Car solo	55%	54%	44%	44%	44%	44%
Car share	8%	8%	8%	8%	8%	7%
Company	5%	5%	5%	5%	5%	5%
Rail	13%	14%	16%	16%	17%	17%
Bus/coach	16%	16%	21%	21%	22%	22%
Active	4%	4%	5%	5%	4%	4%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

14.4 Future baseline highway network performance

Network summary statistics

14.4.1 The following Network summary statistics have been extracted for each Future baseline model:

- Transient Queues (PCU-Hrs);
- Over Capacity Queues (PCU-Hrs);
- Link Cruise Times (PCU-Hrs);
- Total Travel Times (PCU-Hrs);
- Travel Distance (PCU-kms); and
- Average speed (kph).

14.4.2 These statistics are presented in Appendix H. These demonstrate a number of logical and sensible model responses. Average speeds decrease over the years, whilst the amount of queuing increases, responses that are reasonable as growth continues and the road network becomes more congested. These also show that compared to the Core Scenarios the additional developments lead to more queuing and congestion across the network. These responses provide confidence in the model outputs.

Assessment

14.4.3 The following section details the performance of the highway model in relation to the Future baseline (as outlined in Section 8) and CDev scenarios, as well as the CDev and CDev With Project scenarios, respectively. This covers the four assessment years of 2029, 2032, 2038 and 2047.

14.4.4 The performance of the highway model is assessed by considering the changes in network operation for each assessment year using the approach described in Section 6.12.

Actual flow by time period

14.4.5 This section discusses the change in hourly traffic volumes within the study area between the Future baseline and CDev scenarios, and CDev and CDev with Project scenarios for all modelled years. Increases in traffic flow are represented by variable band widths in shades of green, with decreases in blue. Small changes in flow of between -50 and 50 are shown as grey links, to more clearly present where there are greater changes in modelled flows across the network. There are some sections of road where the network is not consistent between the two scenarios. In this case, a comparison list has been used to calculate flow changes; links without an appropriate comparison are not shown.

Future baseline against Cumulative Development Future baseline (CDev)

14.4.6 Figure 208 to Figure 223 show changes in traffic flow between Future baseline and CDev scenarios.

2029

14.4.7 The modelled traffic flow changes between the 2029 Future baseline and 2029 CDev scenarios are presented in Figure 208 to Figure 211 for AM1, AM2, IP and PM respectively.

14.4.8 The key points are:

- The largest hourly changes in traffic volumes are expected within the Crawley area and the M23, particularly between the M23 J8 and M23 J9.
- Some route switching by traffic in the Crawley area is expected as a result of the new western link built to facilitate the West of Ifield development, this provides an alternative route between Ifield Green and Rusper Road.
- Between the M23 J8 and J9, northbound traffic flows are forecast to increase by 200 to 500 vehicles in AM1 but decreases by 200 to 1,000 vehicles in AM2.
- In the immediate vicinity of the airport, westbound traffic flows on the M23 Spur, Airport Way and London Road (between the North Terminal roundabout and Longbridge roundabout) decrease by more than 200 vehicles in each AM period.
- The circulatory traffic on the South Terminal roundabout is forecast to decrease, apart from that in the western section. These changes can be attributed to delays on the M23 Spur introduced by increased arrival traffic to Horley Business Park to the north of the South Terminal roundabout.
- Changes in the IP and PM are forecast to be minimal, with traffic flow changes of less than 50 vehicles for links not in the immediate vicinity of the airport.

2032

14.4.9 The modelled traffic flow changes between the 2032 Future baseline and 2032 CDev scenarios are presented in Figure 212 to Figure 215 for AM1, AM2, IP and PM respectively.

14.4.10 The traffic flow changes in 2032 illustrate similar patterns to those described for assessment year 2029 with the following key differences:

- Increase in westbound traffic on the M23 Spur by 200 to 500 vehicles in AM2.
- Further small traffic volume increases on the Crawley local highway network and the M23 between J9 and J11.
- Westbound traffic flows on the M25 (south of London) decrease by less than 200 vehicles in AM1.
- Increased traffic on Reigate Hill and London Road on both sides of M25 as alternative routes for northbound traffic towards London via M23 in AM2.
- At the wider extent, there is some route switching near West Grinstead in AM1.

2038

14.4.11 The modelled traffic flow changes between the 2038 Future baseline and 2038 CDev scenarios are presented in Figure 216 to Figure 219 for AM1, AM2, IP and PM respectively.

14.4.12 The key points are:

- Changes in 2038 traffic flows follow a similar pattern as those for assessment year 2032 with a greater level of traffic flow decrease on Airport Way by more than 1,000 vehicles in AM1.
- Reduction in traffic volumes from Longbridge roundabout towards Horley.
- On Balcombe Road, traffic volumes decrease between 200 vehicles and 100 vehicles in AM2 as a consequence of delays introduced in the southern section of the link by increased number of trips entering the Gatwick Green from the south in the AM2.
- At the wider extent, there are traffic flow increases in the Crawley area except for Crawley Avenue between Ifield roundabout and Cheals roundabout in the AM periods.
- A slight traffic flow increase on the M25 (eastbound direction) by 50 to 200 vehicles in AM2.
- There is no occurrence of traffic switching near West Grinstead in 2038.
- Traffic flow changes in the IP and PM periods are forecast to be minimal.

2047

14.4.13 The modelled traffic flow changes between the 2047 Future baseline and 2047 CDev scenarios is presented in Figure 220 to Figure 223 for AM1, AM2, IP and PM respectively.

14.4.14 The key points are:

- Changes in 2047 traffic flows follow a similar pattern as those for other assessment years.
- Traffic flow changes in the IP and PM periods are forecast to be minimal.

14.4.15 In summary, traffic flows are expected to increase with CDev traffic growth through all the assessment years, with the most increase on the SRN.

Figure 208: Traffic flow change (veh) 2029 Future baseline to 2029 CDev, AM1

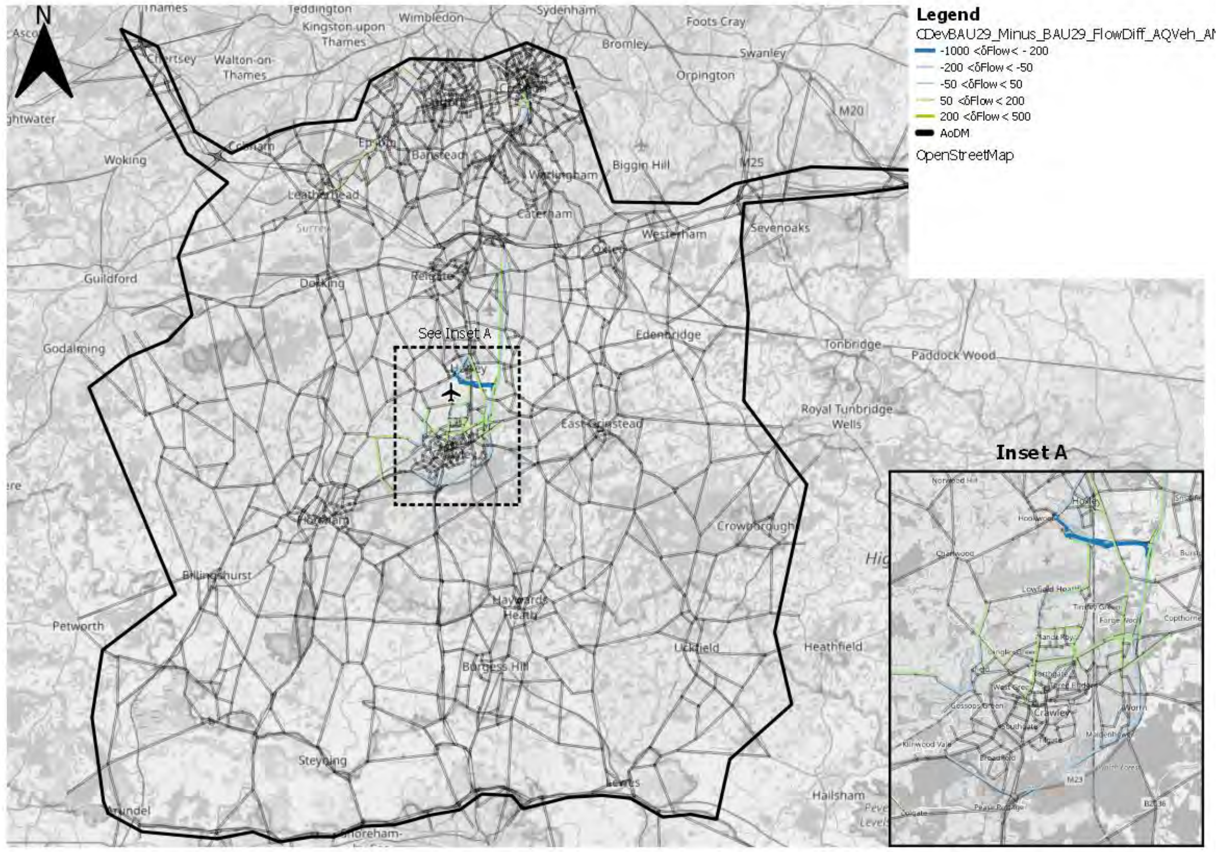


Figure 209: Traffic flow change (veh) 2029 Future baseline to 2029 CDev, AM2

Figure 210: Traffic flow change (veh) 2029 Future baseline to 2029 CDev, IP

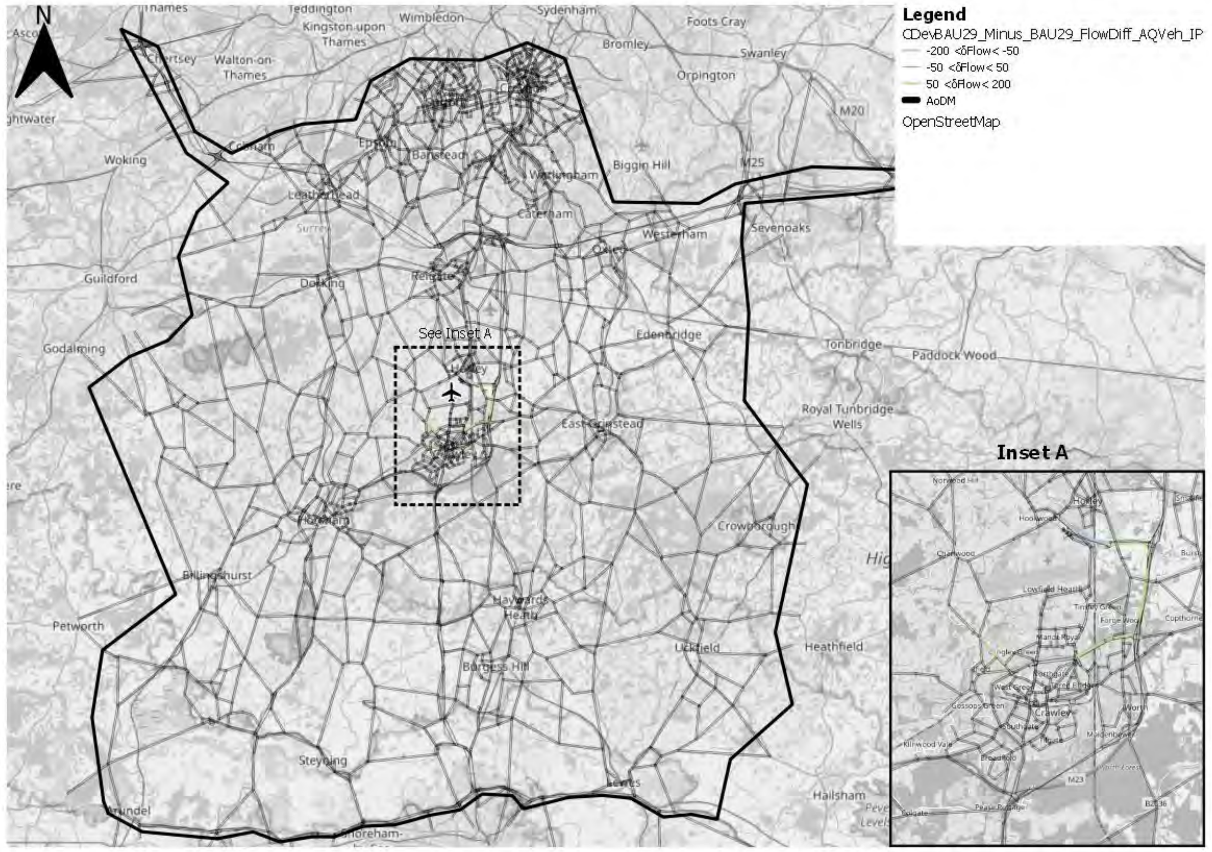


Figure 211: Traffic flow change (veh) 2029 Future baseline to 2029 CDev, PM

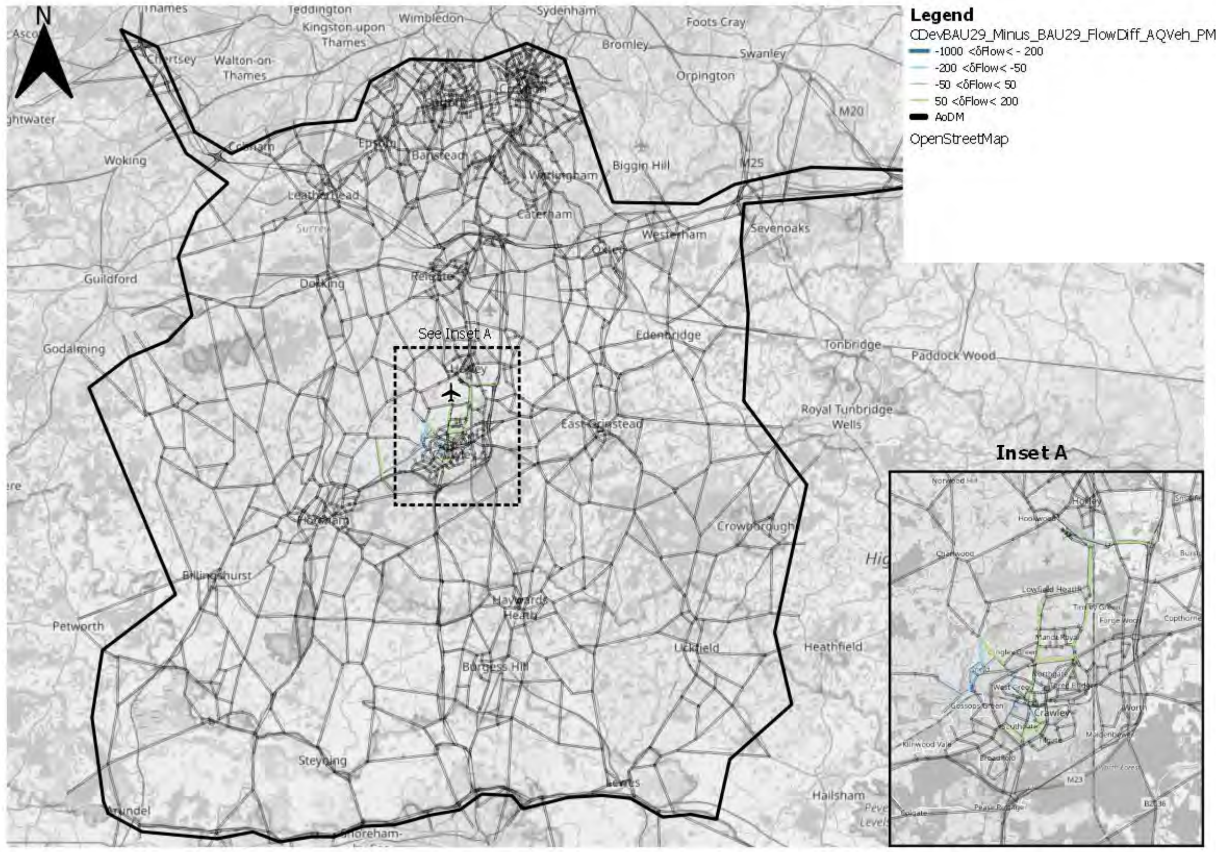


Figure 212: Traffic flow change (veh) 2032 Future baseline to 2032 CDev, AM1

Figure 214: Traffic flow change (veh) 2032 Future baseline to 2032 CDev, IP

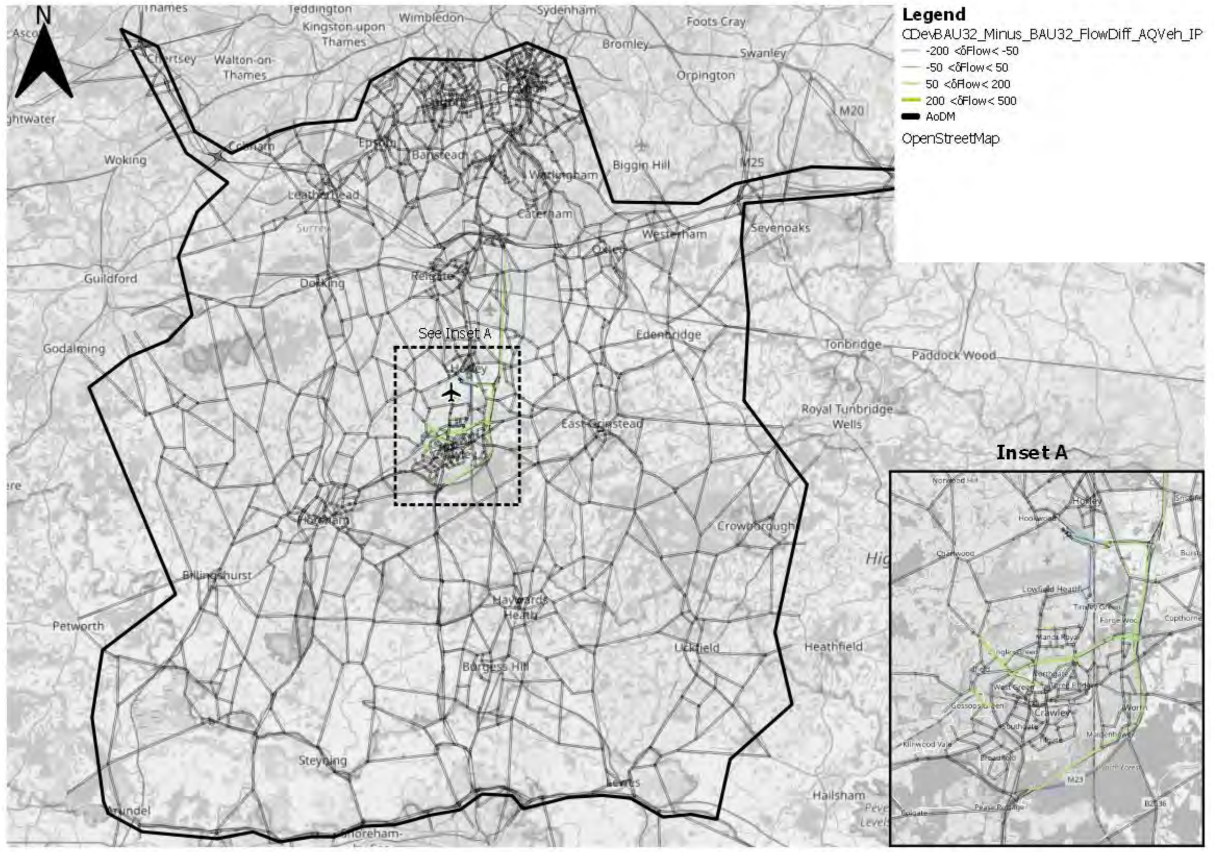


Figure 213: Traffic flow change (veh) 2032 Future baseline to 2032 CDev, AM2

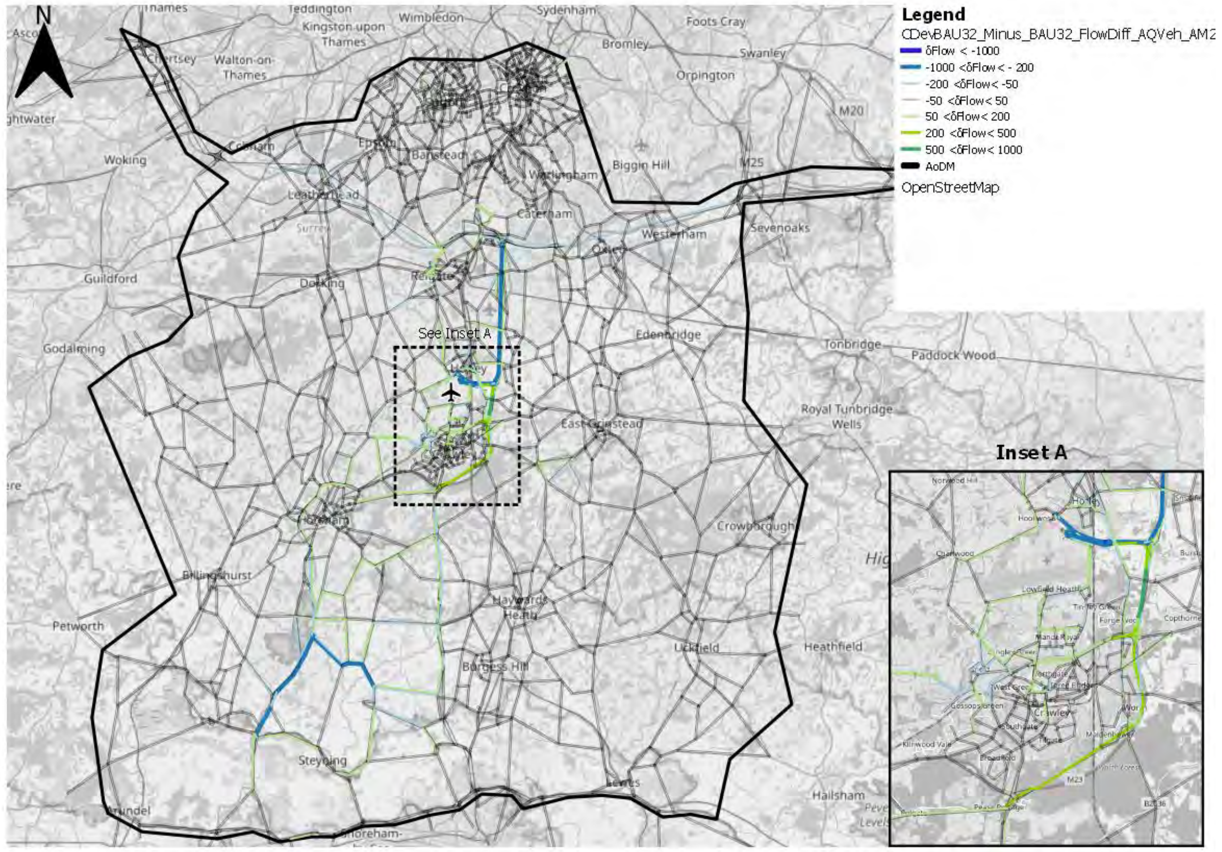


Figure 215: Traffic flow change (veh) 2032 Future baseline to 2032 CDev, PM

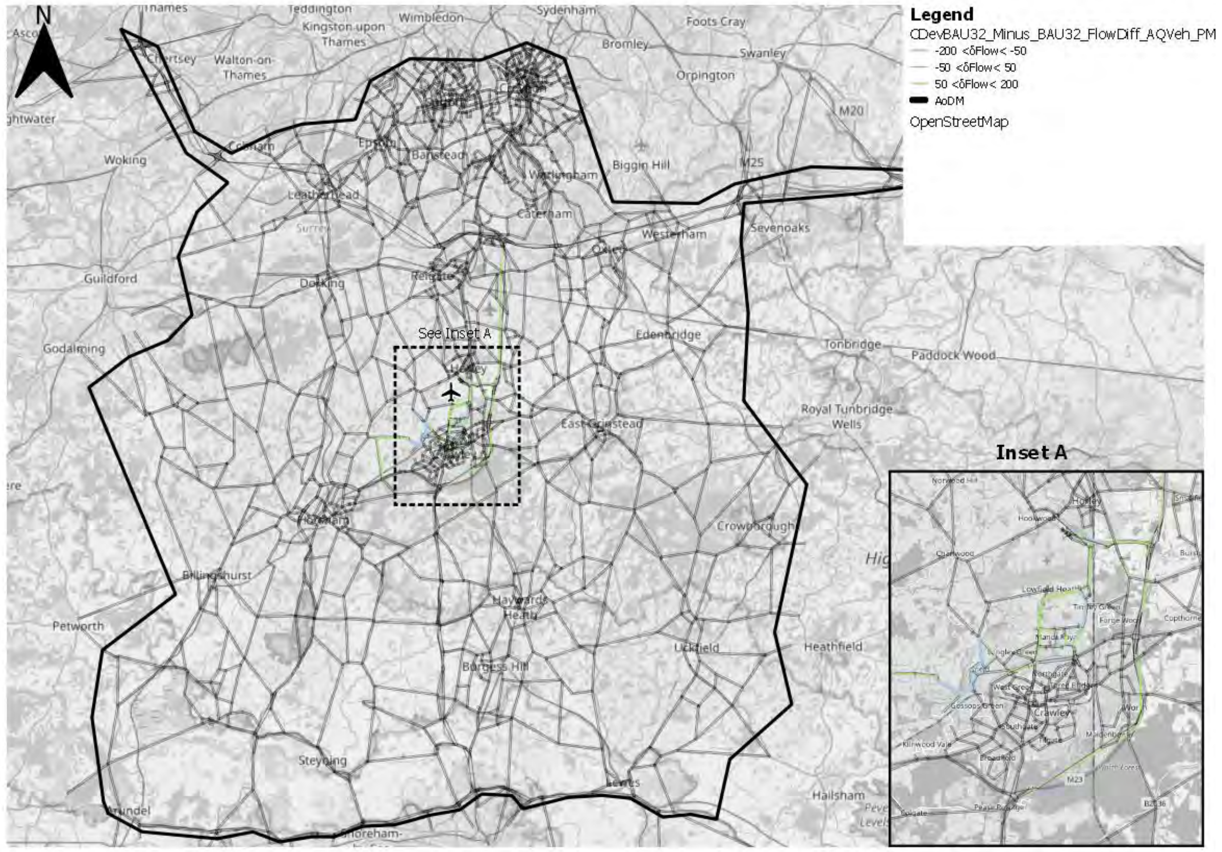


Figure 216: Traffic flow change (veh) 2038 Future baseline to 2038 CDev, AM1

Figure 217: Traffic flow change (veh) 2038 Future baseline to 2038 CDev, AM2

Figure 218: Traffic flow change (veh) 2038 Future baseline to 2038 CDev, IP

Figure 219: Traffic flow change (veh) 2038 Future baseline to 2038 CDev, PM

Figure 220: Traffic flow change (veh) 2047 Future baseline to 2047 CDev, AM1

Figure 222: Traffic flow change (veh) 2047 Future baseline to 2047 CDev, IP

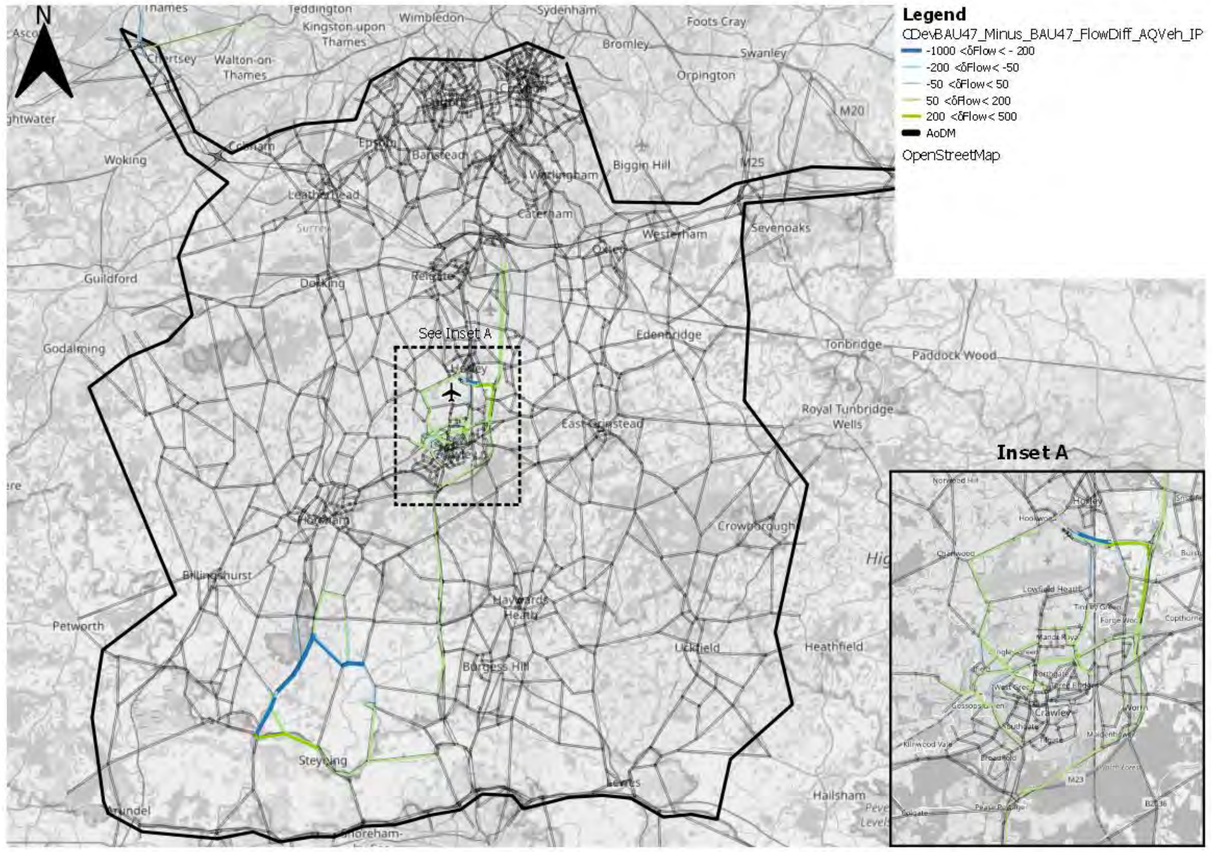


Figure 221: Traffic flow change (veh) 2047 Future baseline to 2047 CDev, AM2

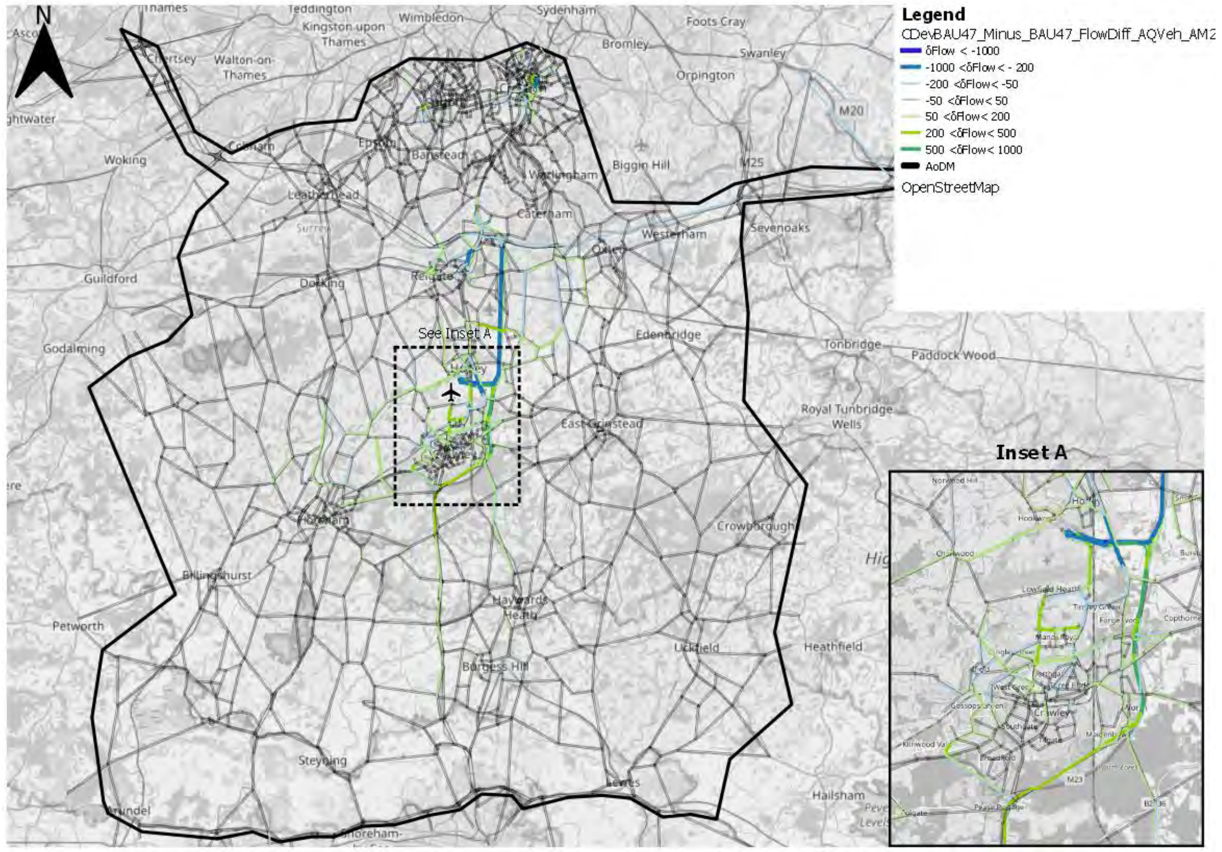
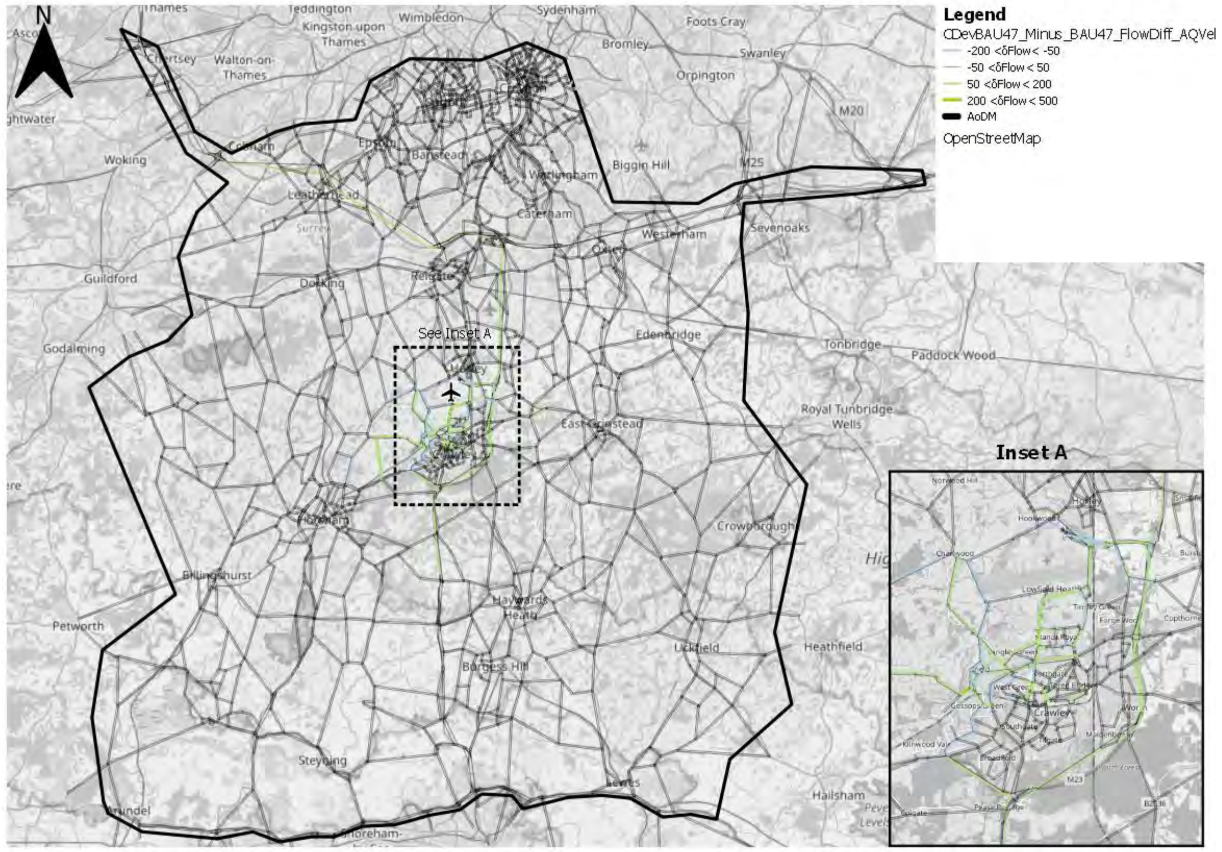


Figure 223: Traffic flow change (veh) 2047 Future baseline to 2047 CDev, PM



Cumulative Development Future Baseline (CDev) against Cumulative Development With Project (CDev With Project)

14.4.16 Figure 224 to Figure 239 show changes in traffic flow between CDev and CDev With Project scenarios.

2029

14.4.17 The modelled traffic flow changes between the 2029 CDev and 2029 CDev With Project scenarios are presented in Figure 222 to Figure 227 for AM1, AM2, IP and PM respectively. The key points are:

- In the immediate vicinity of the airport, traffic flows are forecast to increase on the M23 Spur westbound, North Terminal roundabout and North Terminal entry/exit, as a result of the increased traffic generation associated with the Project.
- Between the M23 J8 and J9, traffic flows are forecast to increase by 50 to 200 vehicles in the AM peak periods in both directions.

2032

14.4.18 The modelled traffic flow changes between the 2032 CDev and 2032 CDev With Project scenarios are presented in Figure 228 to Figure 231 for AM1, AM2, IP and PM respectively.

14.4.19 The key points are:

- Traffic flow changes follow similar patterns as those observed when comparing 2029 CDev and 2029 CDev With Project scenarios.
- Minimal change are anticipated in traffic flows on London Road to the south of the airport.
- Slight traffic flow decreases to the west of Crawley in the core scenario (With Project (Section 12) and Future baseline (Section 11)), become increases of 50 to 200 vehicles per hour in the with CDev scenarios as a result of increased demand to the West of Ifield.

2038

14.4.20 The modelled traffic flow changes between the 2038 CDev and 2038 CDev with Project scenarios are presented in Figure 232 to Figure 235 for AM1, AM2, IP and PM respectively.

14.4.21 The key points are:

- Traffic flow changes follow a similar pattern when comparing to the equivalent core scenarios (With Project (Section 12) and Future baseline (Section 11)).
- Traffic flow patterns in the with CDev scenarios follow a similar pattern to those mentioned for assessment year of 2032, with the exception of:
  - There is no occurrence of flow changes on London Road to the east of the airport before joining with the railway station access in AM peaks;
  - The level of eastbound traffic reduction on Airport Way is lower, by no more than 1,000 vehicles in the AM peak.

2047

14.4.22 The modelled traffic flow changes between the 2047 CDev and 2047 CDev with Project scenarios are presented in Figure 236 to Figure 239 for AM1, AM2, IP and PM respectively.

14.4.23 The key points are:

- The additional change presented in assessment year 2047 compared with the other assessment years is that route switching across London Road, Gatwick Road and Fleming Way to the south of the airport occurs in AM1.

Figure 224: Traffic flow change (veh) 2029 CDev to 2029 CDev With Project, AM1

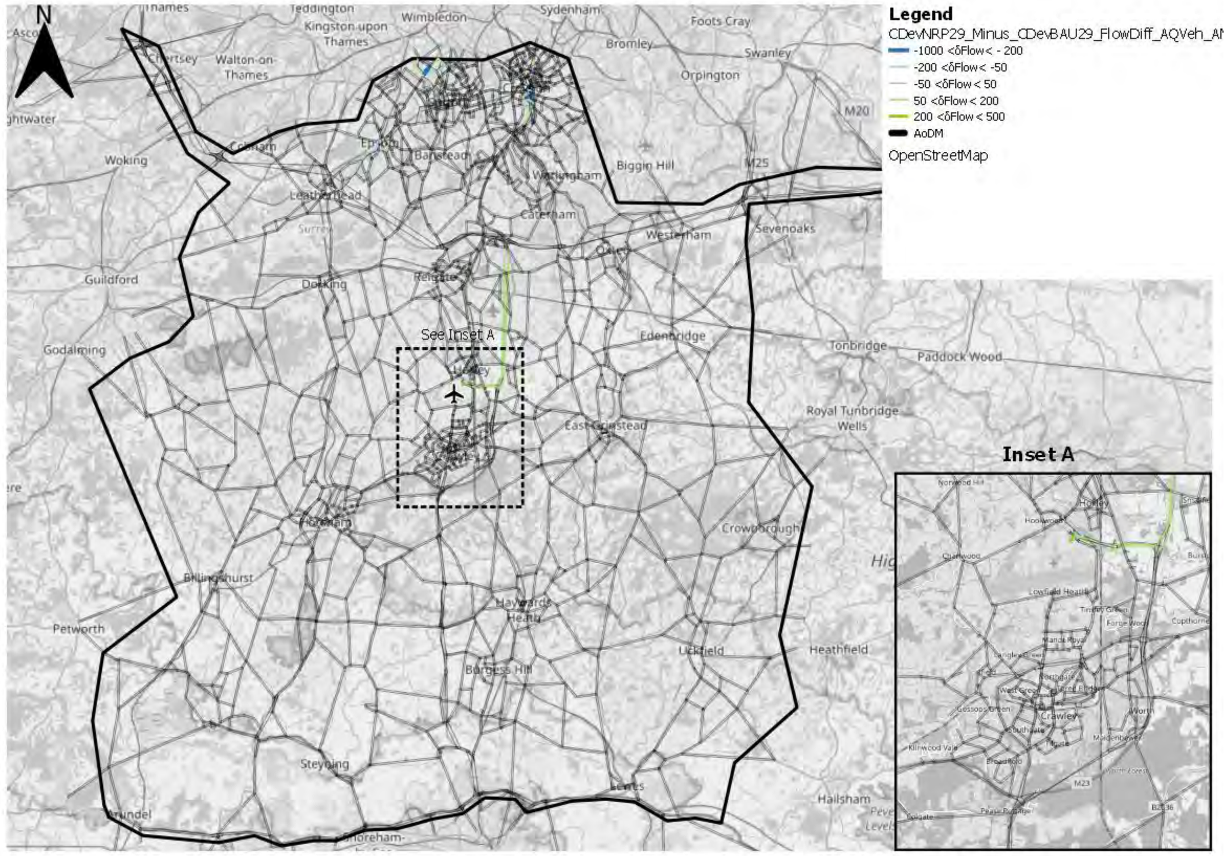


Figure 226: Traffic flow change (veh) 2029 CDev to 2029 CDev With Project, IP

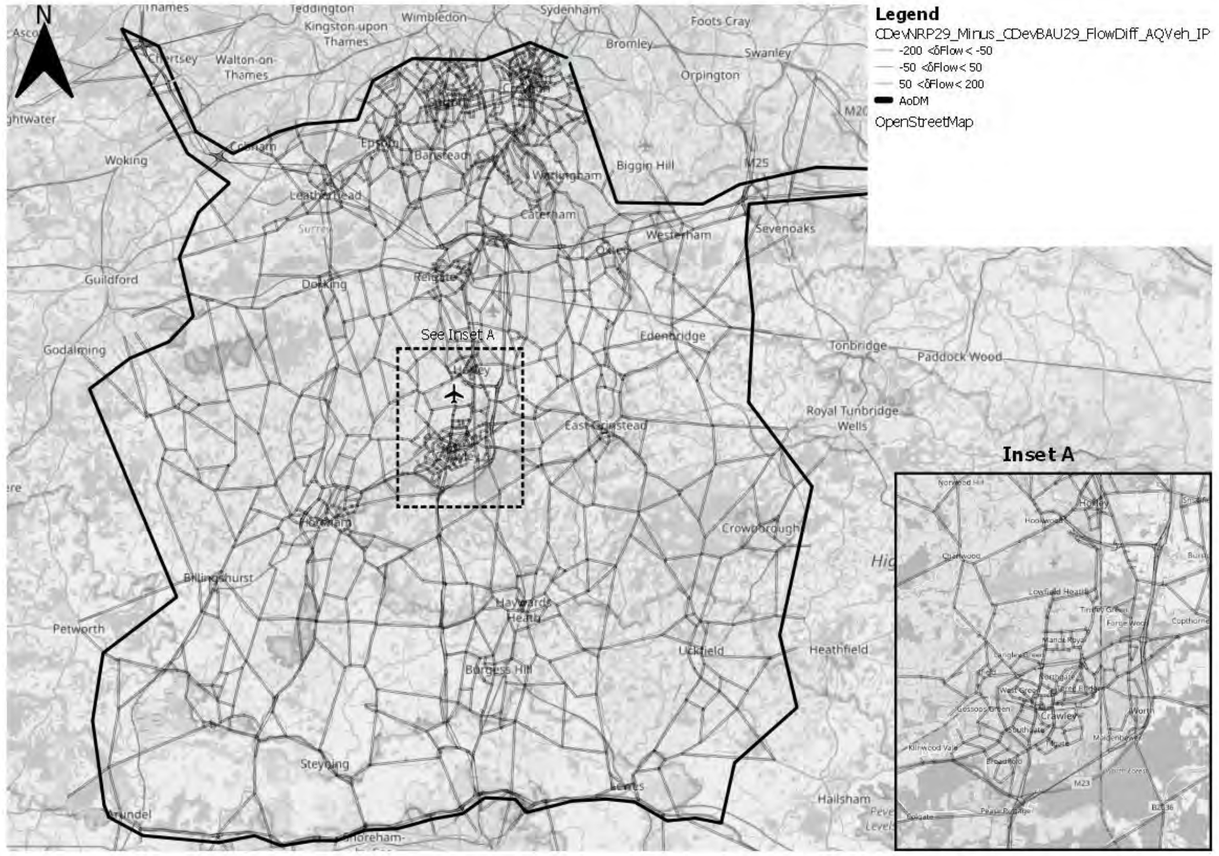


Figure 225: Traffic flow change (veh) 2029 CDev to 2029 CDev With Project, AM2

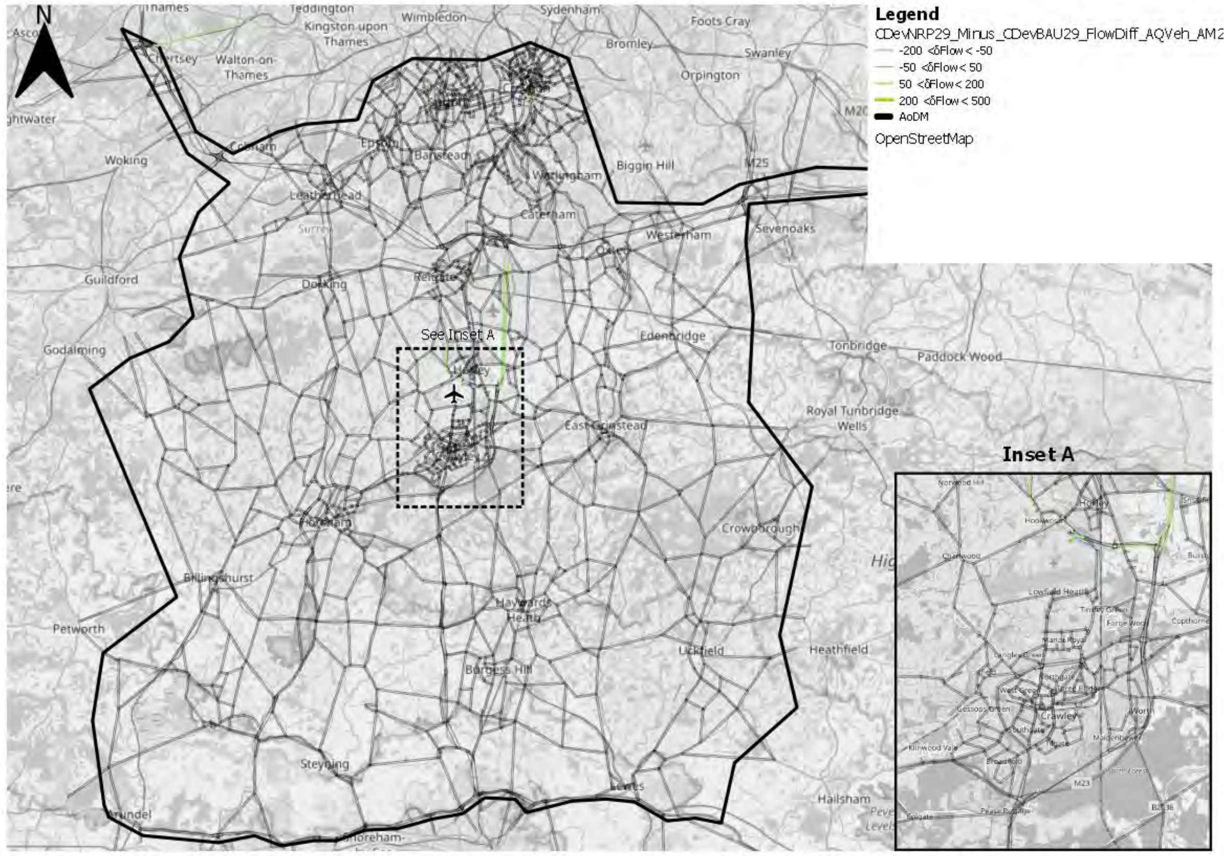


Figure 227: Traffic flow change (veh) 2029 CDev to 2029 CDev With Project, PM

Figure 228: Traffic flow change (veh) 2032 CDev to 2032 CDev With Project, AM1

Figure 229: Traffic flow change (veh) 2032 CDev to 2032 CDev With Project, AM2

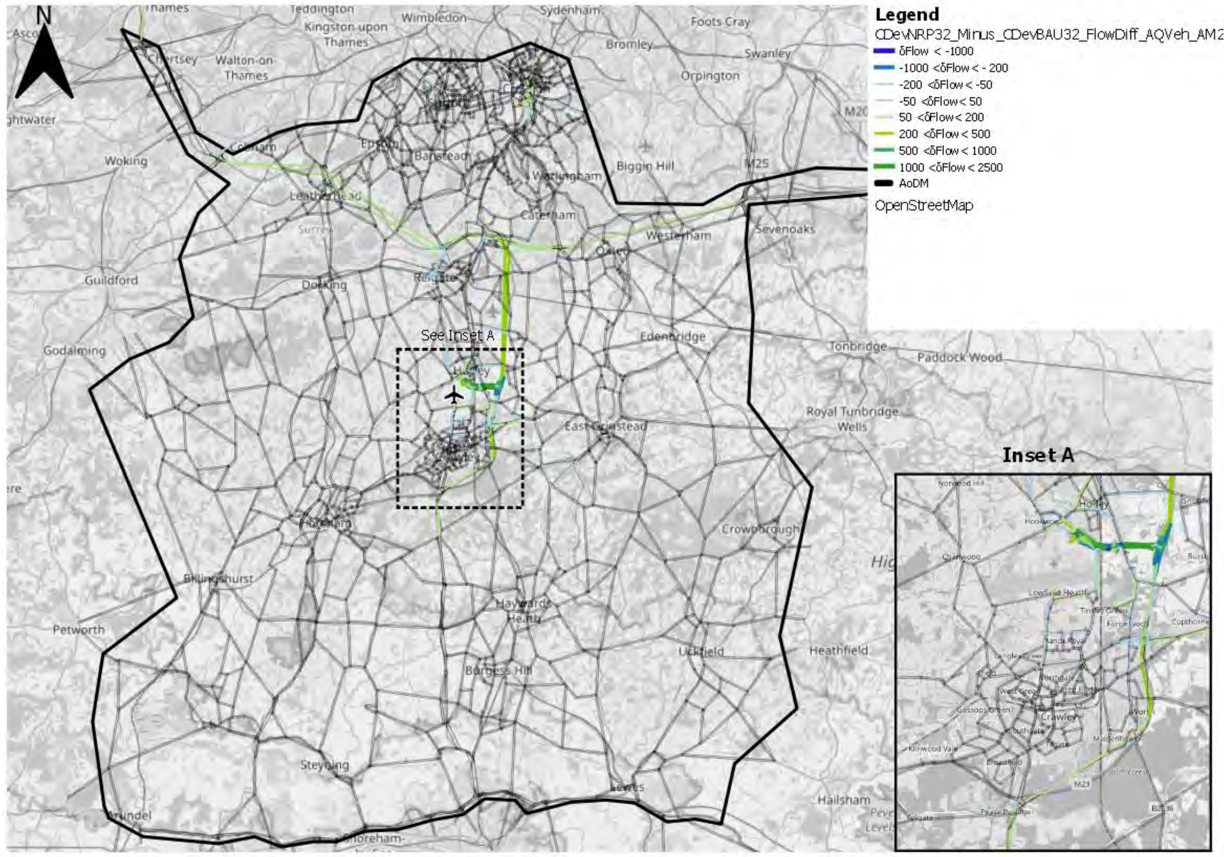


Figure 230: Traffic flow change (veh) 2032 CDev to 2032 CDev With Project, IP

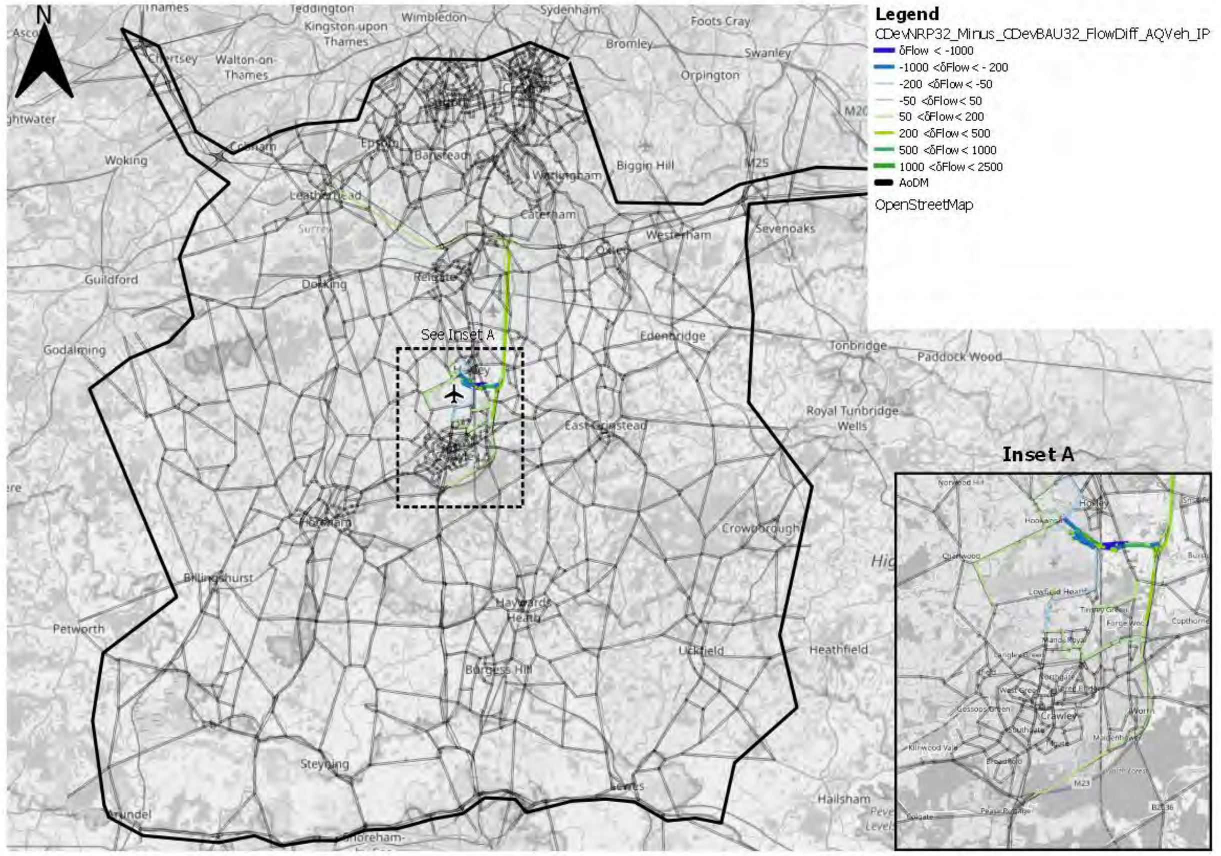


Figure 231: Traffic flow change (veh) 2032 CDev to 2032 CDev With Project, PM

Figure 232: Traffic flow change (veh) 2038 CDev to 2038 CDev With Project, AM1

Figure 234: Traffic flow change (veh) 2038 CDev to 2038 CDev With Project, IP

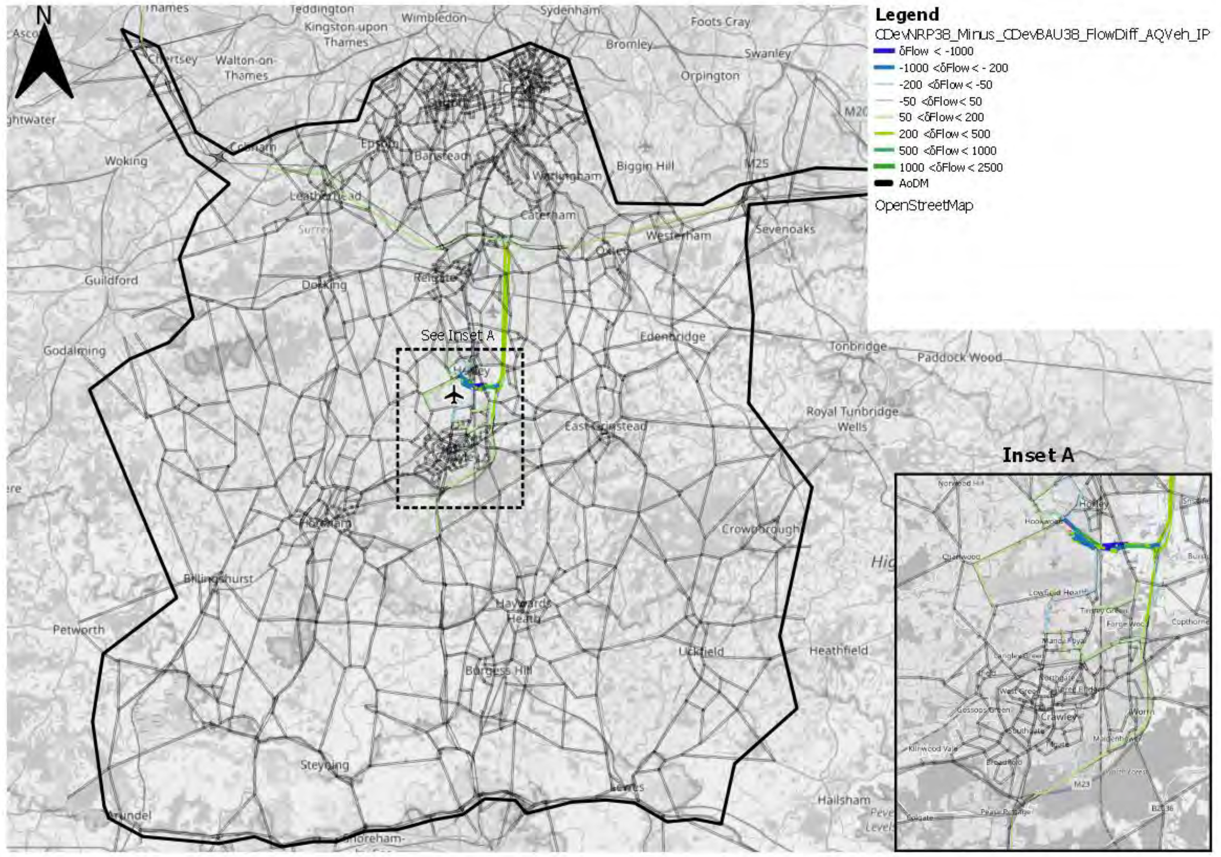


Figure 233: Traffic flow change (veh) 2038 CDev to 2038 CDev With Project, AM2

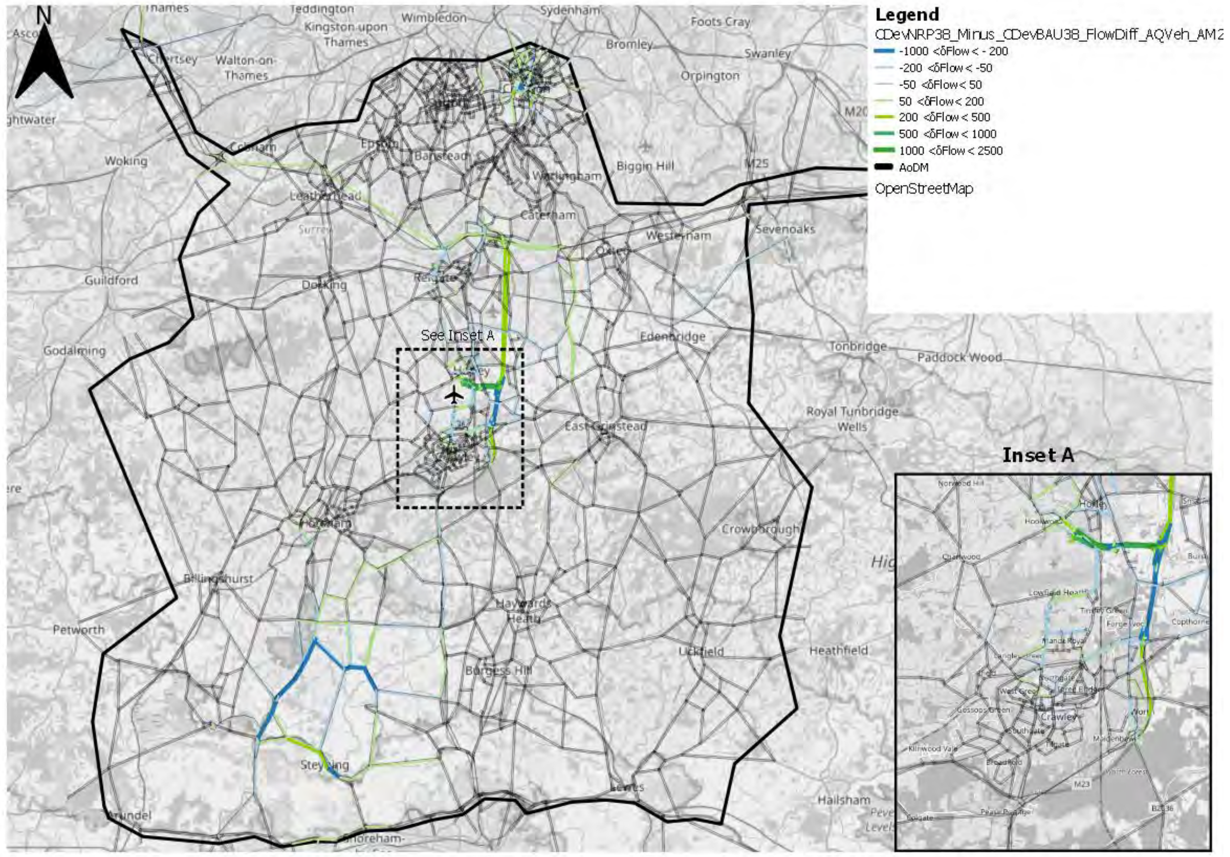


Figure 235: Traffic flow change (veh) 2038 CDev to 2038 CDev With Project, PM

Figure 236: Traffic flow change (veh) 2047 CDev to 2047 CDev With Project, AM1

Figure 237: Traffic flow change (veh) 2047 CDev to 2047 CDev With Project, AM2

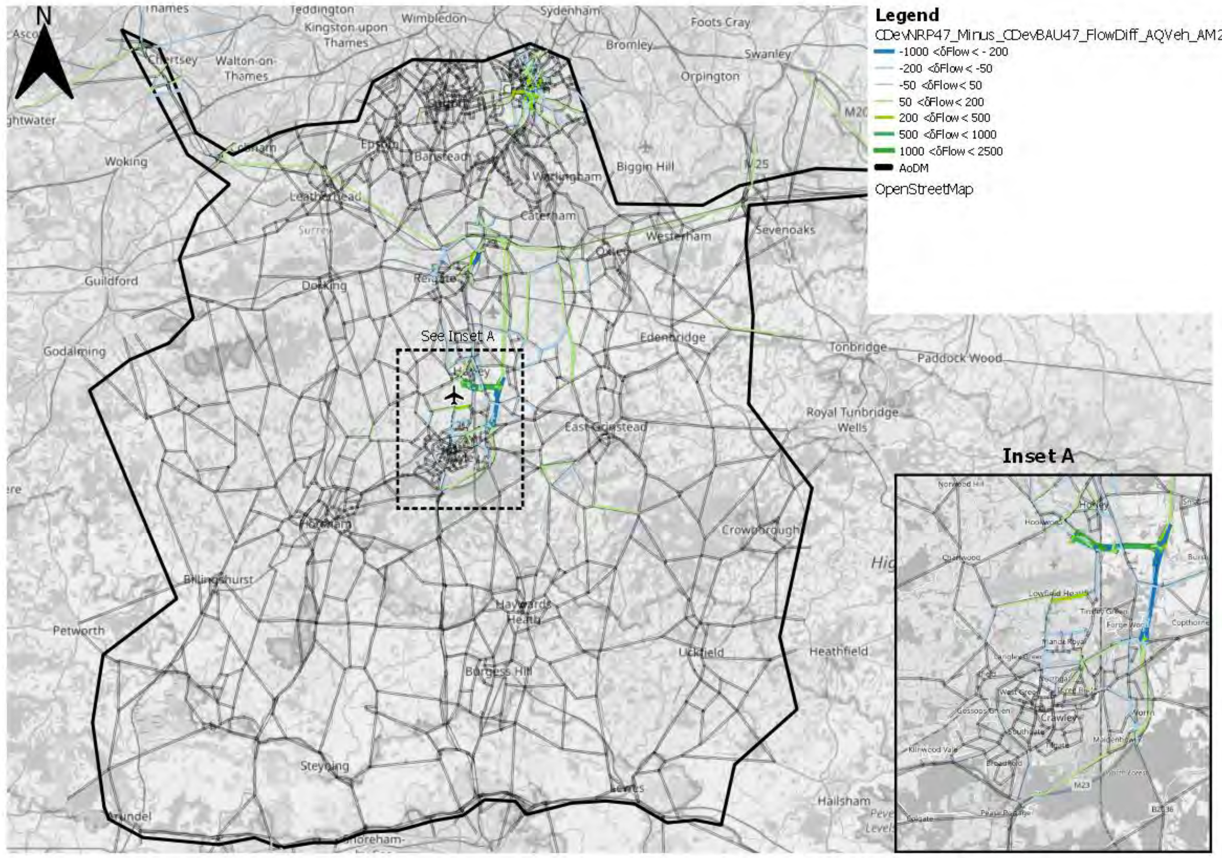


Figure 238: Traffic flow change (veh) 2047 CDev to 2047 CDev With Project, IP

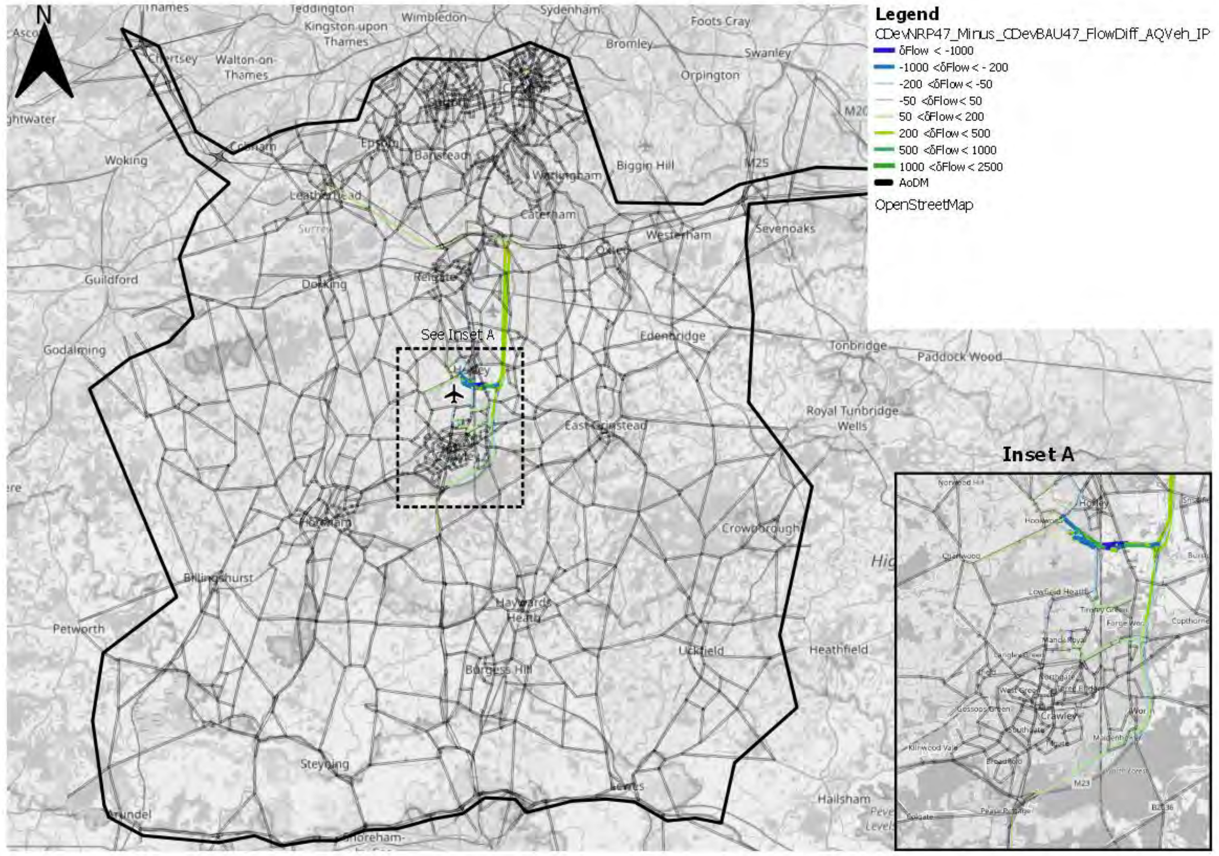


Figure 239: Traffic flow change (veh) 2047 CDev to 2047 CDev With Project, PM

Annual Average Daily Traffic

Cumulative Development Future baseline (CDev) against Future baseline

14.4.24 Comparisons across the four assessment years, considering the differences between the CDev scenarios and Future Baseline scenarios (Section 11), are presented in Figure 240 to Figure 243 for all modelled links. The purpose of this analysis is to demonstrate the characteristics of changes in traffic volume, henceforth denoted as δAADT, brought about by the three committed developments in the CDev scenario on the Future baseline, and thus the impact on the highway network.

2029

14.4.25 The δAADT between 2029 CDev and 2029 Future baseline scenarios is presented in Figure 240.

14.4.26 The key points are:

- Reductions of more than 400 vehicles per day on the M23 Spur eastbound, Airport Way, and London Road (between North Terminal roundabout and Longbridge roundabout) as a consequence of the delays caused by the additional arrival trips to Horley Business Park.
- Reductions in traffic on existing roads to the West of Ifield due to rerouting following the introduction of the new link road.
- The key corridors affected between the scenarios for the band 100 < δAADT < 1,000 are predominantly the M23, A23 south of Crawley and the periphery of the airport. Local roads in Crawley see an increase at the same level due to additional travel demand. Note that the link with the largest daily increase of more than 1000 vehicles is outside the AoDM and is more likely to be the result of model noise rather than the impact of the developments.

2032

14.4.27 The δAADT between 2032 CDev and 2032 Future baseline scenarios is presented in Figure 241.

14.4.28 The key points are:

- Assessment year 2032 illustrates similar patterns to those described for assessment year 2029.
- Changes in AADT of 5,000< δAADT < 10,000 vehicles per day on the northbound arm of the M23 between J9 and J10.
- The range of roads affected is spreading from the West of Ifield development towards Horsham, further down to West of Grinstead, and A23 south of Crawley all the way towards the coast.
- There is an increase between 100 to 1,000 vehicles daily on Reigate Road, which is an alternative route between the airport and the M25 other than M23.
- The M25 corridor eastbound shows changes related to 100 < δAADT < 1,000 vehicles per day.

2038

14.4.29 The δAADT between 2038 CDev and 2038 Future baseline scenarios is presented in Figure 242.

14.4.30 The key points are:

- Assessment year 2038 illustrates similar patterns to those described for assessment year 2032.
- Changes of 5,000< δAADT < 10,000 vehicles per day on the M23 northbound (between Junction 9 and Junction 10a) and on the M23 Spur westbound.
- Changes of 100 < δAADT < 1,000 vehicles per day spread to areas 10km away from the airport
- Changes of 1,000< δAADT <2,500 vehicles per day on some local roads in Crawley eg Crawley Avenue.

2047

14.4.31 The δAADT between 2047 CDev and 2047 Future baseline scenarios is presented in Figure 243.

14.4.32 The key points are:

- Assessment year 2047 illustrates similar patterns to those described for the other assessment years.
- Decreases in AADT of more than 400 vehicles per day in the West Grinstead area. The modelling undertaken to date has identified that this area of the network is particularly sensitive with traffic switching between competing routes in this area so this impact is not deemed a real impact but one of model noise.

Figure 240: AADT Delta, 2029 CDev to 2029 Future baseline

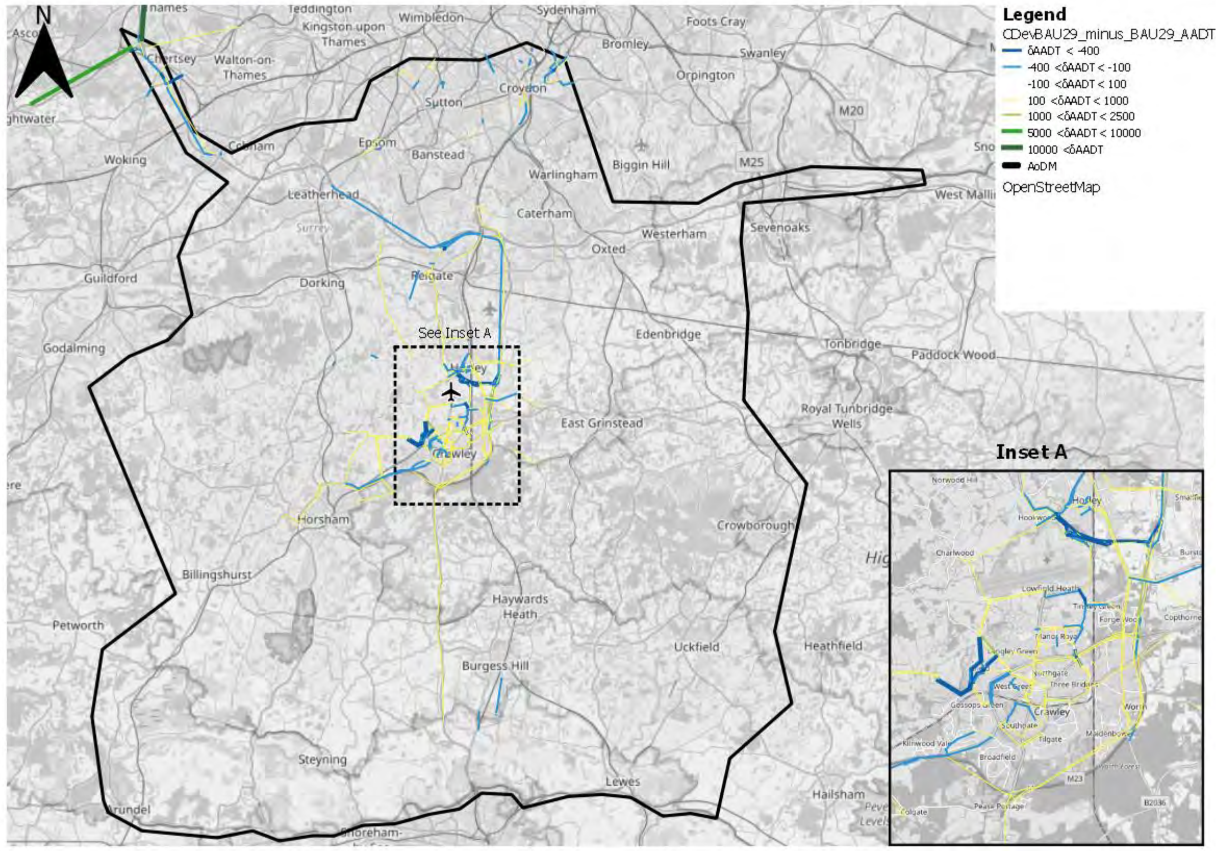


Figure 241: AADT Delta, 2032 CDev to 2032 Future baseline

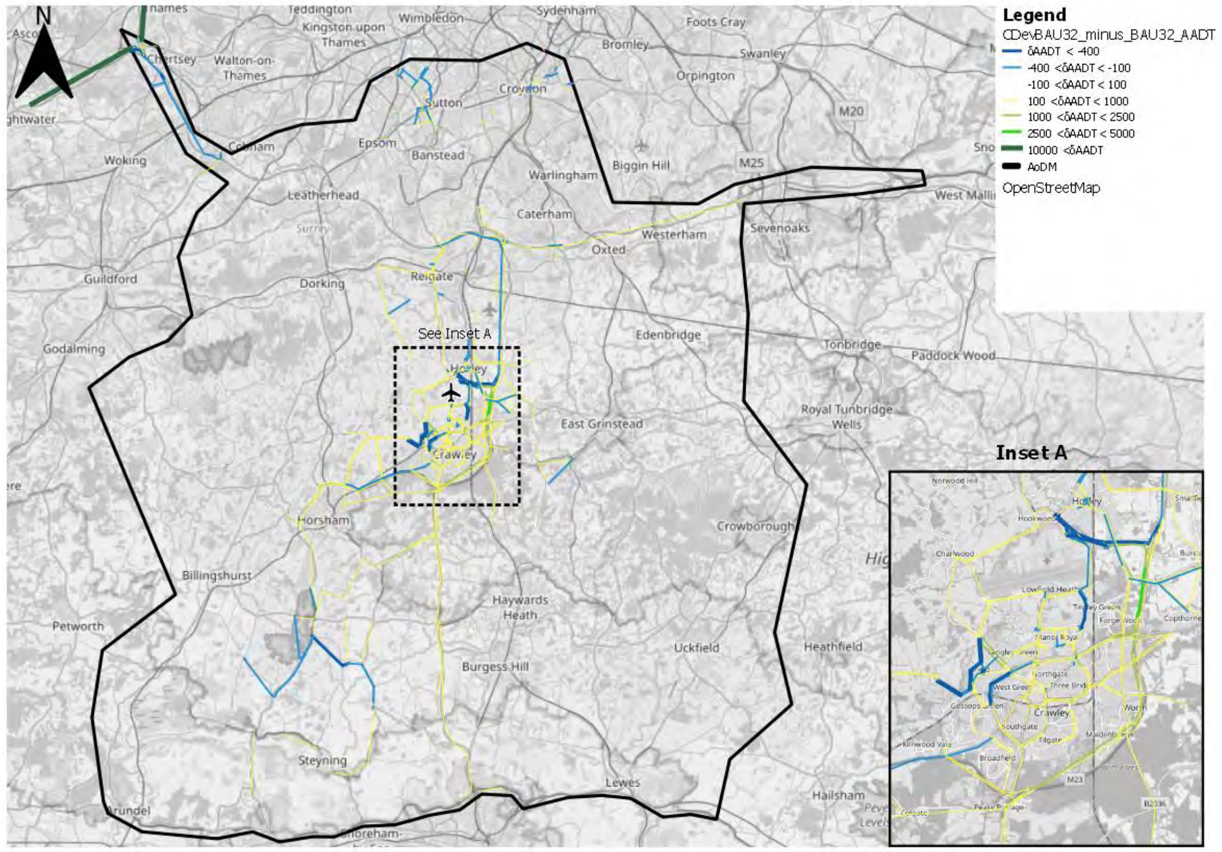


Figure 242: AADT Delta, 2038 CDev to 2038 Future baseline

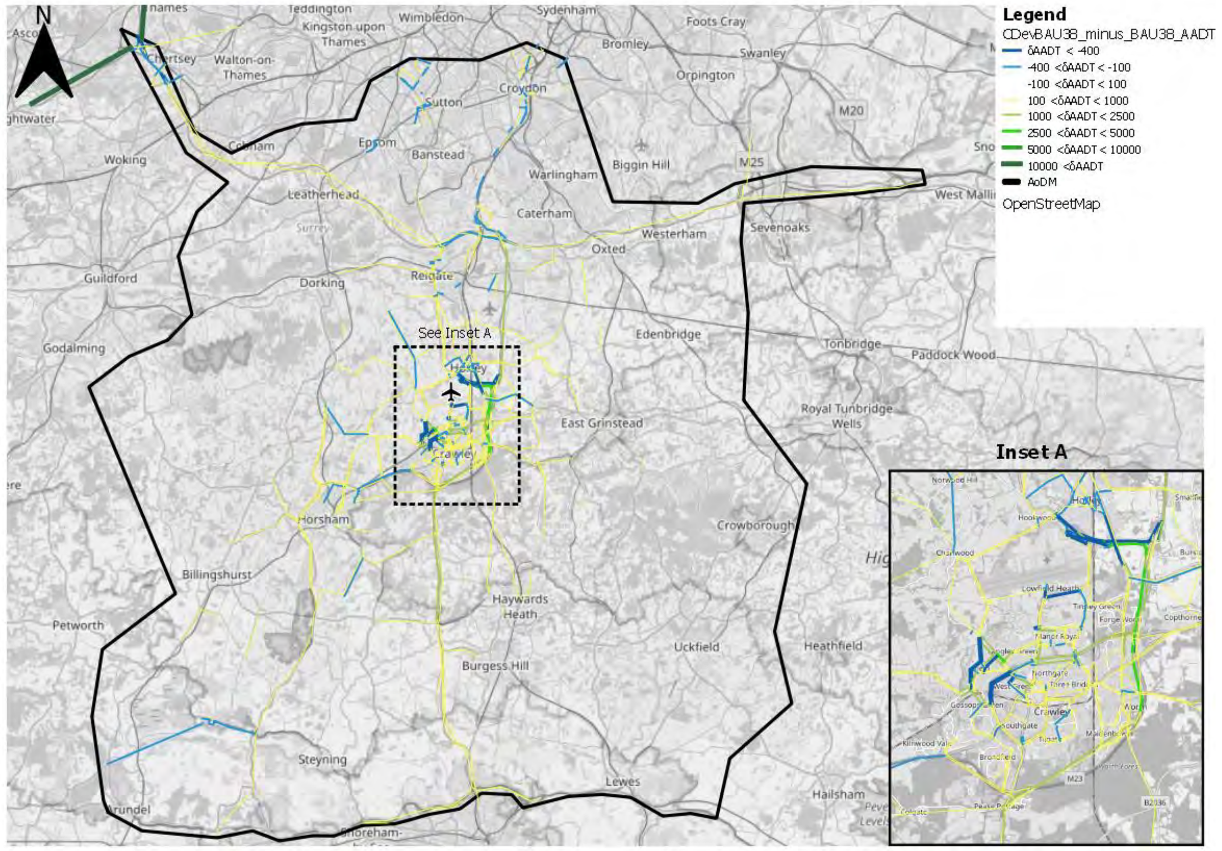
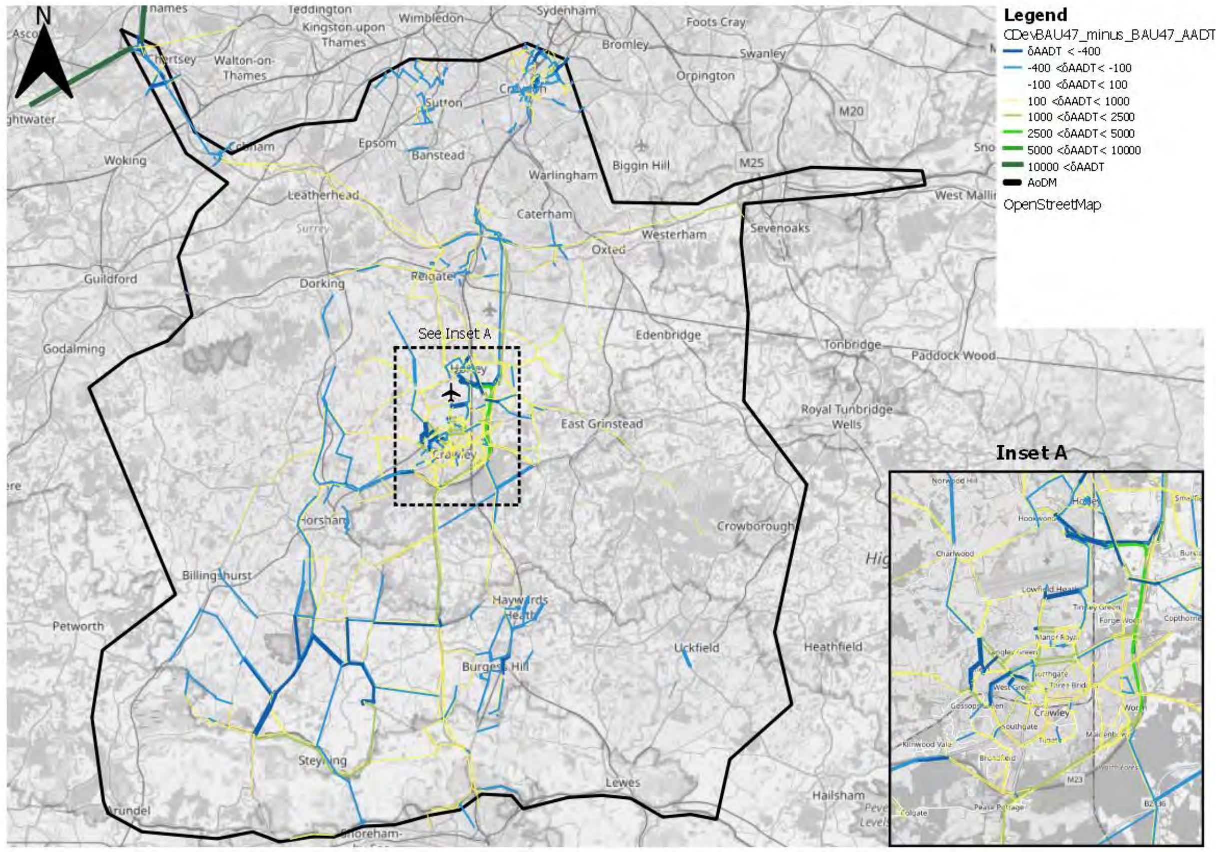


Figure 243: AADT Delta, 2047 CDev to 2047 Future baseline



Cumulative Development With Project (CDev With Project) against Cumulative Development Future baseline (CDev)

14.4.33 The δAADT between CDev With Project and CDev scenarios are presented in Figure 244 to Figure 247. The pattern of impact shown by this analysis is very similar to the patterns outlined in the core scenario modelling outlined in Section 12.

2029

14.4.34 The δAADT between 2029 CDev With Project and 2029 CDev scenarios is presented in Figure 244.

14.4.35 The key points are:

- Traffic flow increases of between 100 and 1,000 vehicles per day in the area near Gatwick are predicted by the modelling, the SRN (M23 Spur, M23, and M25) and local roads such as Horley Road to Charlwood.
- There are reductions in AADT on links in the immediate vicinity of Gatwick as a consequence of the readjustment of parking in this early construction year.

2032

14.4.36 The δAADT between 2032 CDev With Project and 2032 CDev scenarios is presented in Figure 245.

14.4.37 The key points are:

- Results show similar patterns as those between 2029 With Project and 2029 Future baseline.
- Increase of over 10,000 vehicles daily on the M23 Spur and London Road and increase of around 10,000 vehicles per day between South Terminal roundabout and North Terminal, although reductions on the approaches and exit of South Terminal roundabout due to the new grade separation introduced in Baseline scenarios.
- Decrease in demand between Reigate and Crawley, resulting in a reduction of AADT southbound flows towards Longbridge Roundabout.
- δAADT band on the M23 corridor switches from 500 < ∆AADT < 5,000 to 5,000 < δAADT < 10,000 vehicles per day between J9 and south of London compared to the respective core scenarios comparison. This change is attributed to increased demand from the committed developments.

2038

14.4.38 The δAADT between 2038 CDev With Project and 2038 CDev scenarios is presented in Figure 246.

14.4.39 The key points are:

- Assessment year 2038 illustrates similar patterns to those described for assessment year 2032.
- Northbound AADT increases further on the M23 to the south of J10, similar to those of the respective core scenario comparison as outlined in section 12.8.19.
- Further reductions in the AADT in the Crawley urban area and West Grinstead.

2047

14.4.40 The δAADT between 2047 CDev With Project and 2047 CDev scenarios is presented in Figure 247.

14.4.41 The key points are:

- Assessment year 2047 illustrates similar patterns to those described for other assessment years.
- No occurrence of reductions in AADT in West Grinstead as found in 2038.

Figure 244: AADT Delta, 2029 CDev With Project to 2029 CDev

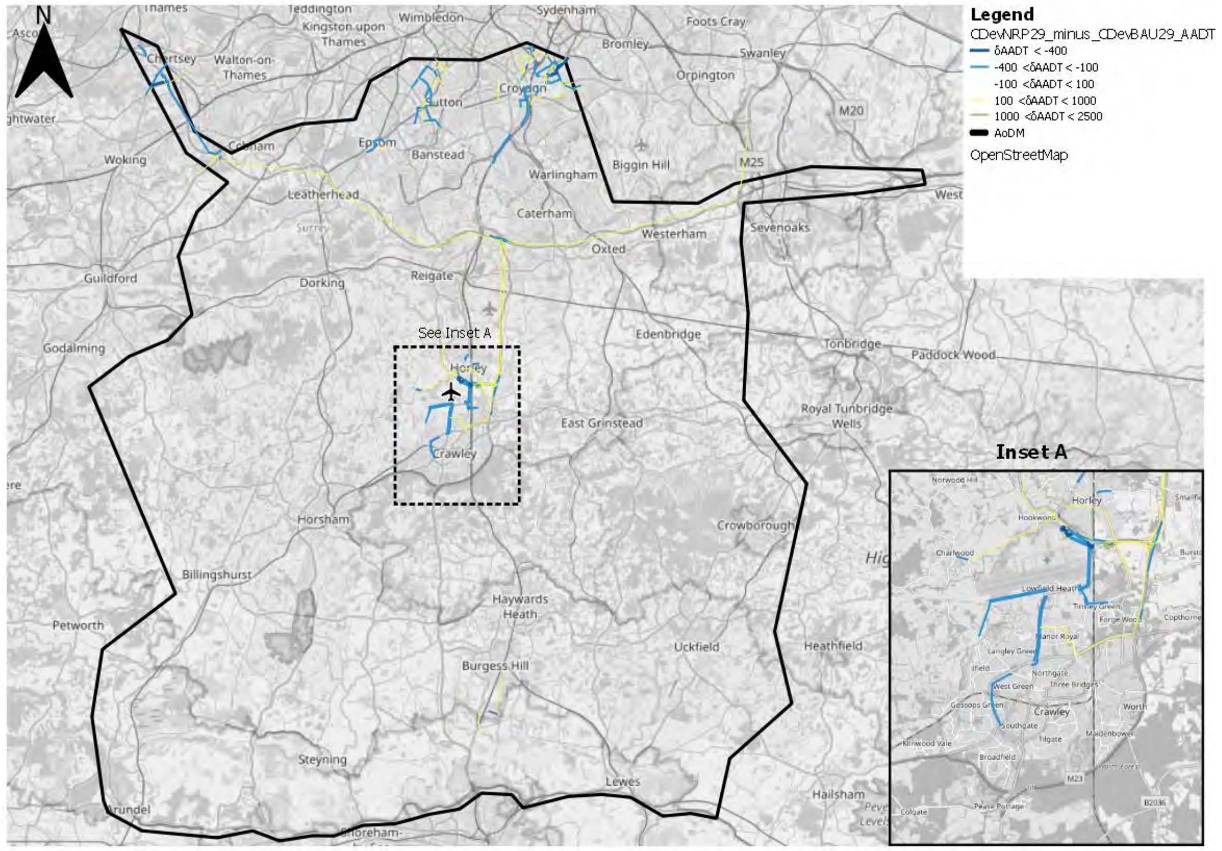


Figure 245: AADT Delta, 2032 CDev With Project to 2032 CDev

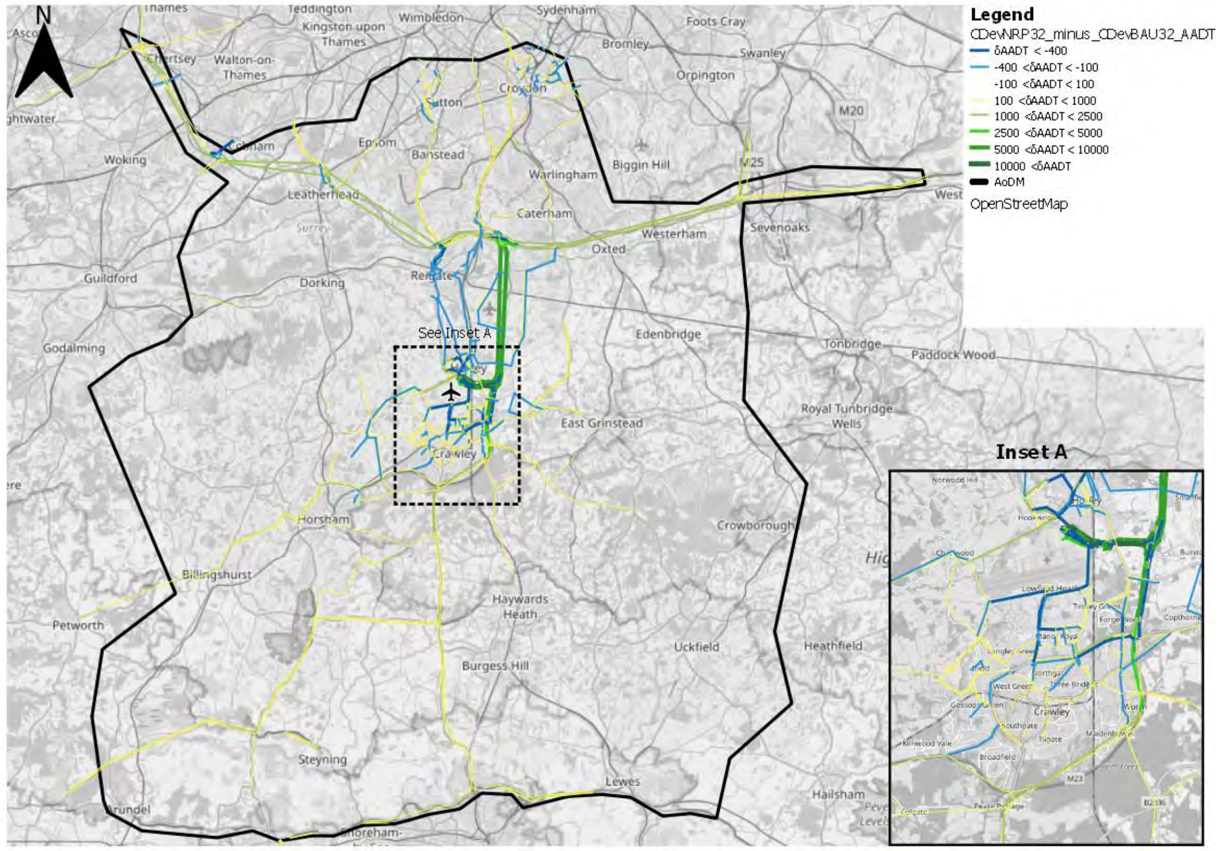


Figure 246: AADT Delta, 2038 CDev With Project to 2038 CDev

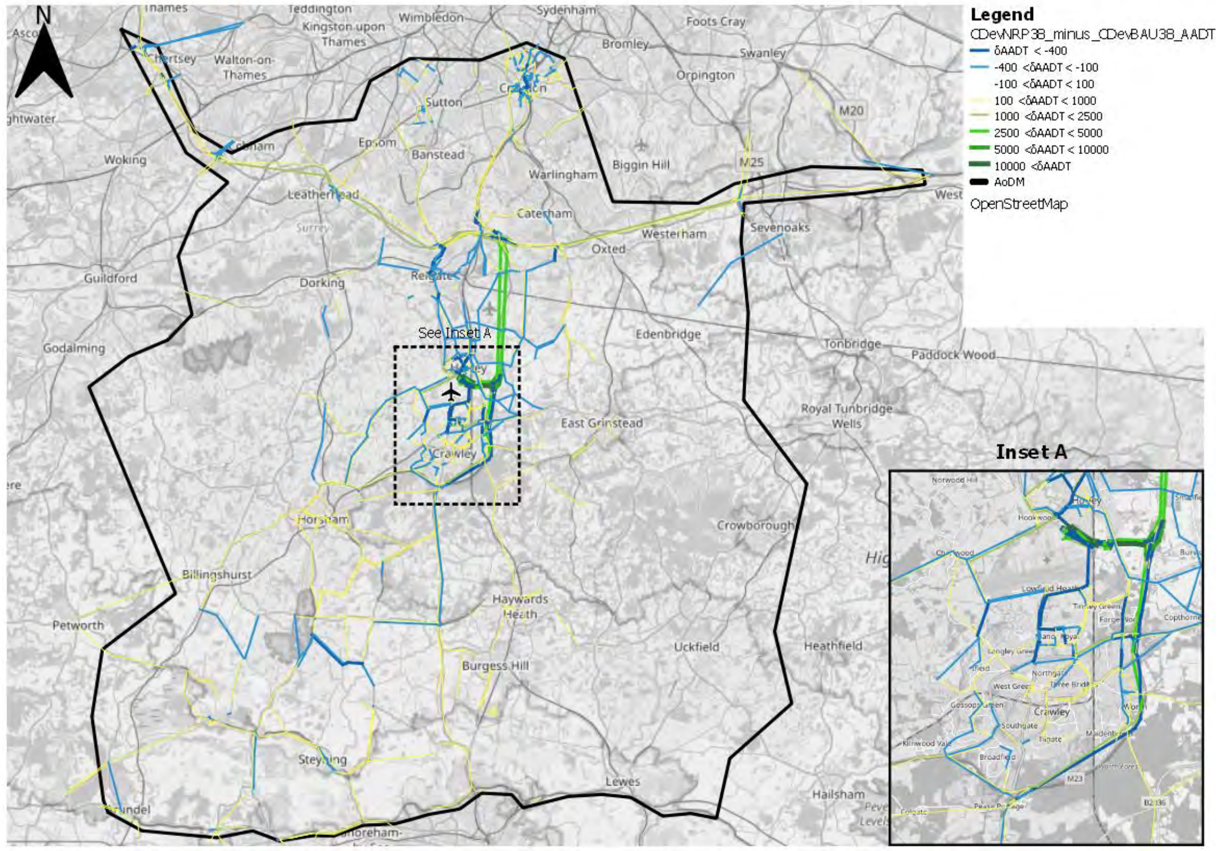
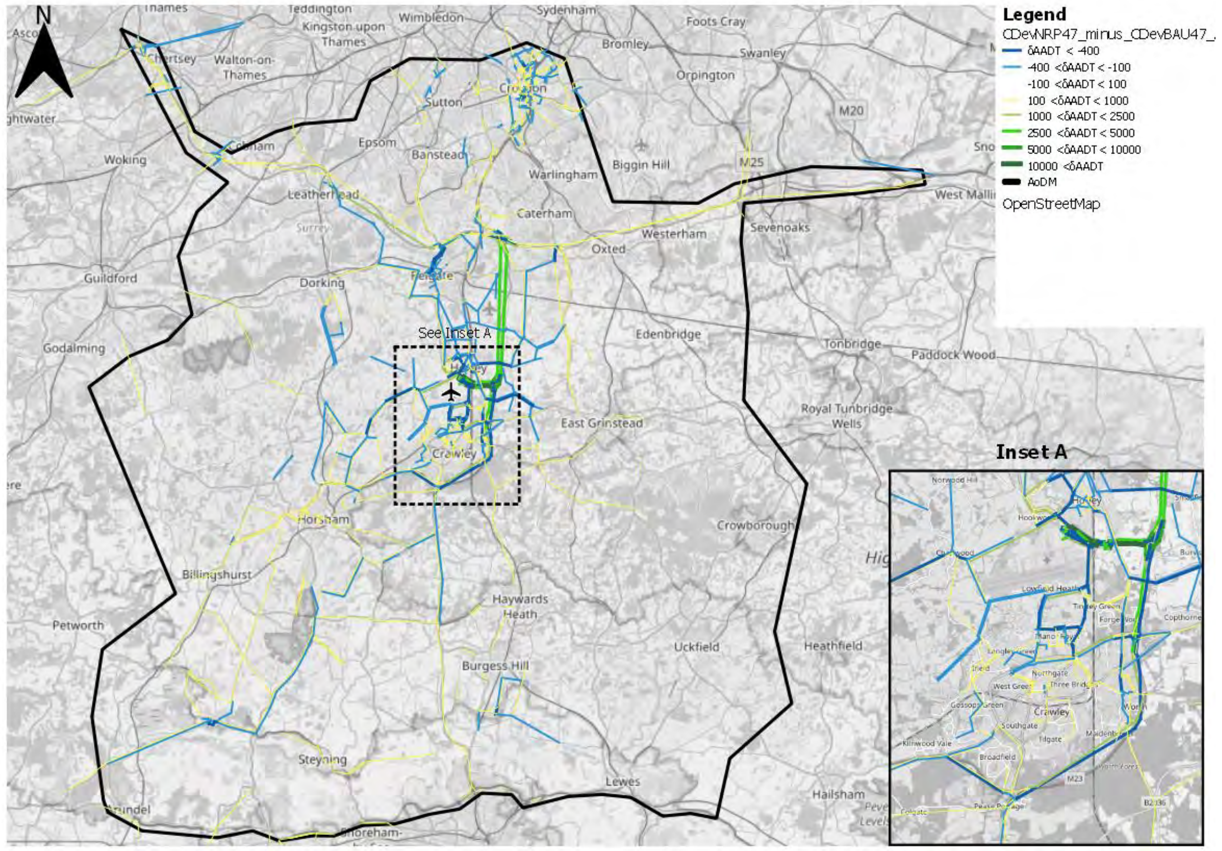


Figure 247: AADT Delta, 2047 CDev With Project to 2047 CDev



SRN

Journey times

14.4.42 Journey time routes have been assessed comparing the Future baseline and CDev scenarios for the strategic road network (SRN) including the following:

- M25 from J5 to J10 - Figure 248 shows that in the eastbound direction, there is no change in journey time as a result of the cumulative development in 2029 and 2032, and an increase in journey time of 1-minute as a result of the cumulative development for 2038 and 2047. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029 while there is an increase in journey time of 1-minute as a result of that in 2032, 2038 and 2047. In the westbound direction, while there is no change of journey time as a result of the cumulative development in 2029, 2038 and 2047, there is a 1-minute increase in journey time observed in 2032. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029 while there is an increase in journey time of 1-minute as a result of that in 2032, 2038 and 2047;
- M23 - Figure 248 shows that in the northbound direction, there is an increase/decrease in journey time of 1-minute as a result of the cumulative development in all years. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029 and 2032 while there is an change in journey time of -1 to 2-minutes as a result of that in 2038 and 2047. In the southbound direction, while there is no change of journey time as a result of the cumulative development in 2029 and 2032, there is a 1-minute increase in journey time observed in 2038 and 2047. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029 while there is an increase in journey time of 1-minute as a result of that in 2032, 2038 and 2047;
- A23 - Figure 248 shows in the northbound direction, there is no change in journey time as a result of the cumulative development in 2029, 2032 and 2038 and an increase in journey time of 1-minute as a result of the cumulative development in 2047. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029, 2032 and 2047 while there is an increase in journey time of 1-minute as a result of that in 2038. In the southbound direction, while there is no change of journey time as a result of the cumulative development in 202, 2038 and 2047, there is a 1-minute decrease in journey time observed in 2032. There is no change in journey time as a result of Project with consideration of cumulative developments in all years; and
- A27 Lewes to Arundel - Figure 248 shows that in the eastbound direction, there is no change in journey time as a result of the cumulative development in 2029, 2032 and 2047 and a decrease in journey time of 2-minute as a result of the cumulative development in 2038. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029, 2032 and 2047 while there is a change in journey time of -1 to 2-minutes as a result of that in 2038. In the westbound direction, while there is no change of journey time as a result of the cumulative development in 2029, 2038 and 2047, there is a 1-minute increase in journey time observed in 2032. There is no change in journey time as a result of Project with consideration of cumulative developments in 2029 and 2032, while an increase of journey time of up to 2-minutes as a result of that is observed in 2038 and 2047.

14.4.43 A further set of journey time routes for each of the base model validation routes can be found in Appendix I.

Figure 248: Highway journey times – primary SRN, Future baseline and CDev

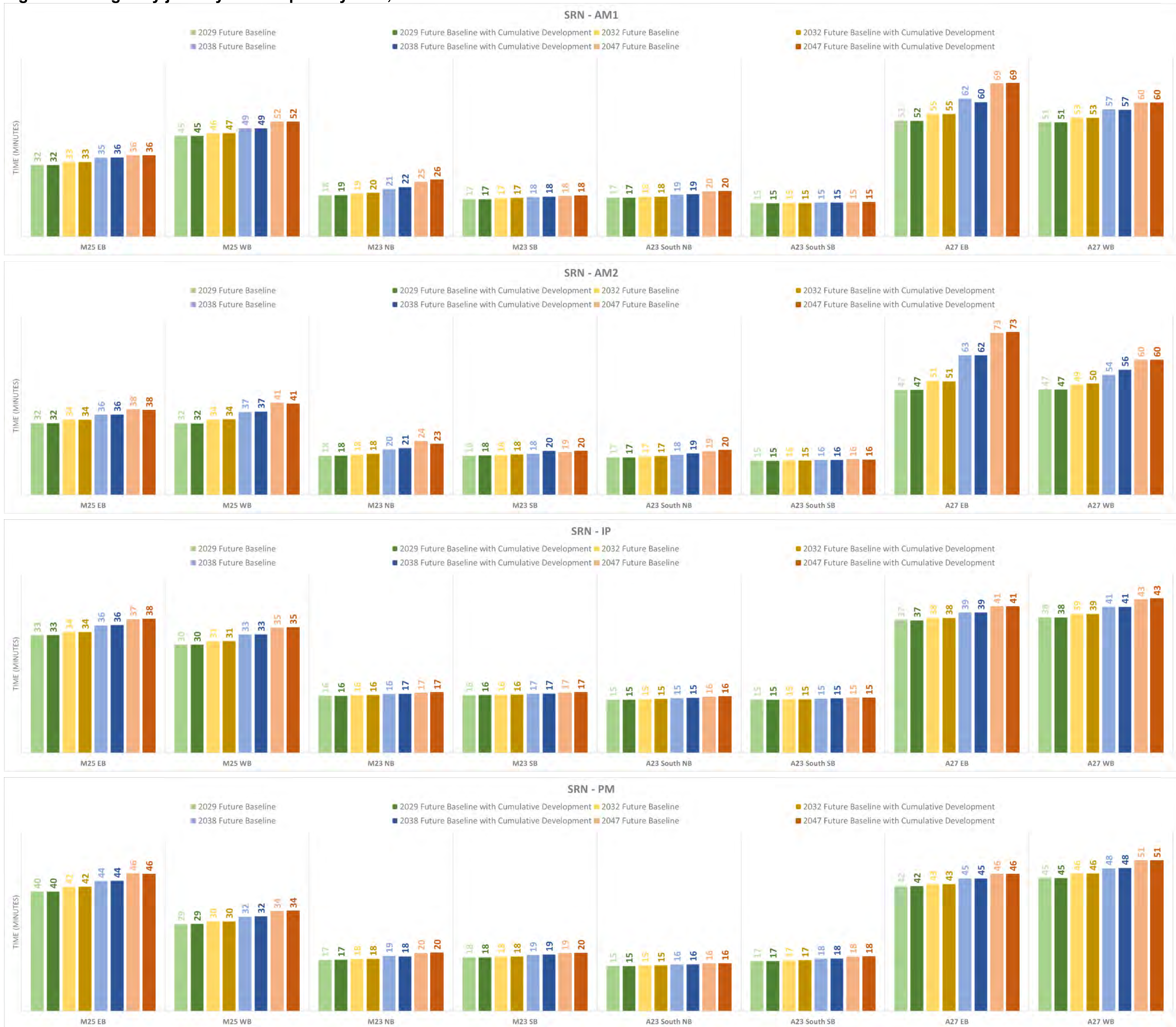
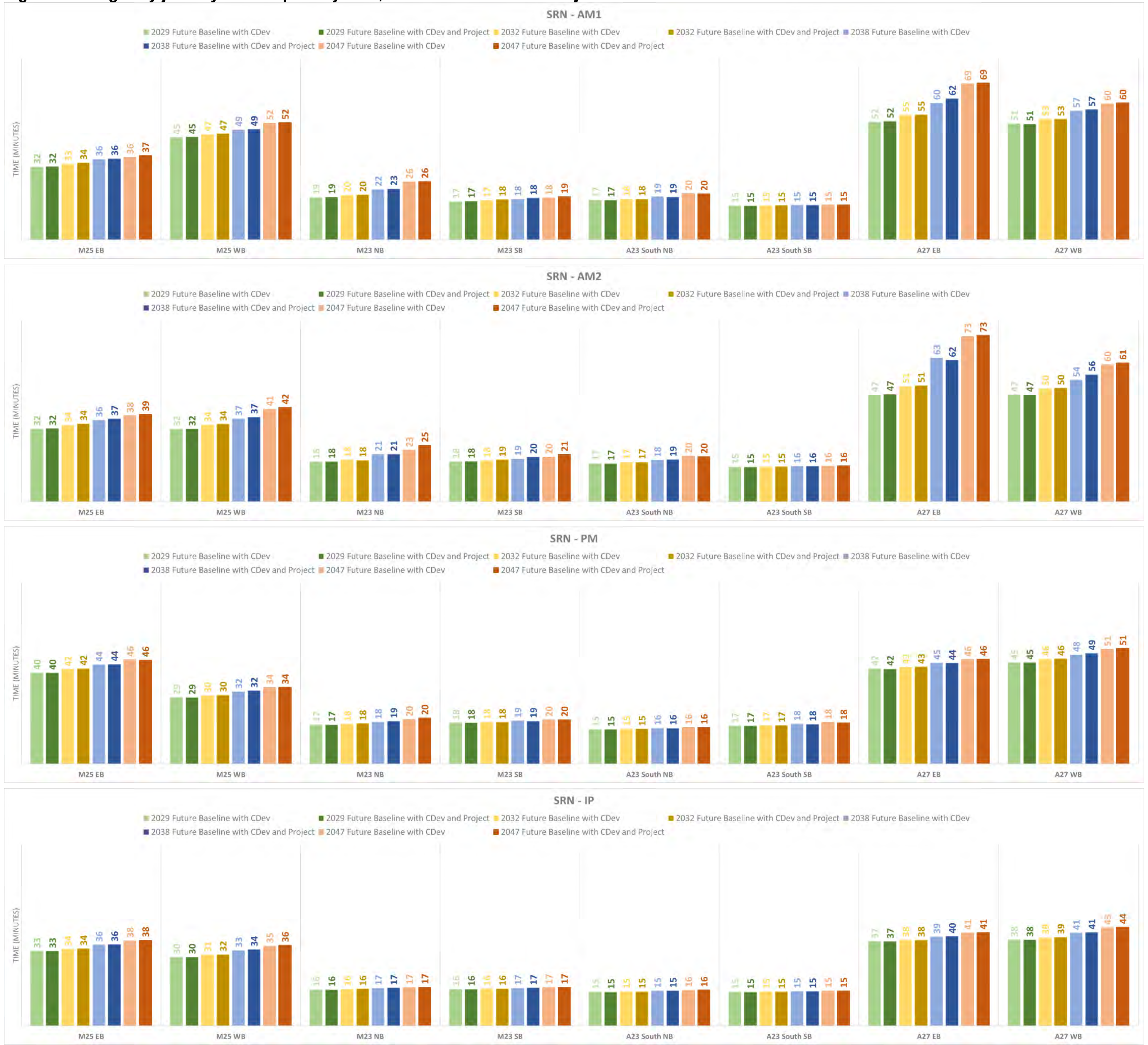


Figure 249: Highway journey times – primary SRN, CDev and CDev With Project



Volume/Capacity ratios for SRN

14.4.44 Volume/Capacity (V/C) ratios for the SRN were extracted from the model for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value has been selected from the four time periods. These are illustrated for each modelled year, (2029, 2032, 2038, and 2047) on Figure 250 to Figure 265 for the CDev and CDev With Project scenarios.

Cumulative Development Future baseline (CDev)

14.4.45 The maximum value across all time periods was selected to identify the highest value modelled and this is presented for each modelled year for the CDev scenarios in Figure 250 to Figure 253

14.4.46 The key points are:

- The modelling suggests that there are barely any occurrences of SRN links that have changed operational categories between the Future baseline and CDev scenarios across all assessment years.
- The exception forms the M23 Spur westbound arm, where the V/C ratio reaches 90% in 2032 and above 100% in 2038 and beyond because of additional demand of Horley Business Park.
- On and off slip roads at J9 experience an increasing V/C ratios above 80% in 2032 and beyond.

Cumulative Development With Project (CDev With Project)

14.4.47 The maximum V/C ratios across all time periods for the CDev With Project scenarios are presented in Figure 254 to Figure 257.

14.4.48 The key points are:

- The modelling suggests that there are no occurrences of SRN links that have changed operational categories between the CDev and CDev With Project scenarios across all assessment years.
- The exception is the M23 Spur South Terminal approach (westbound), which operates within capacity (80% < V/C < 90%) compared to the Core With Project scenario.

Figure 250: Maximum V/C - 2029, CDev – SRN

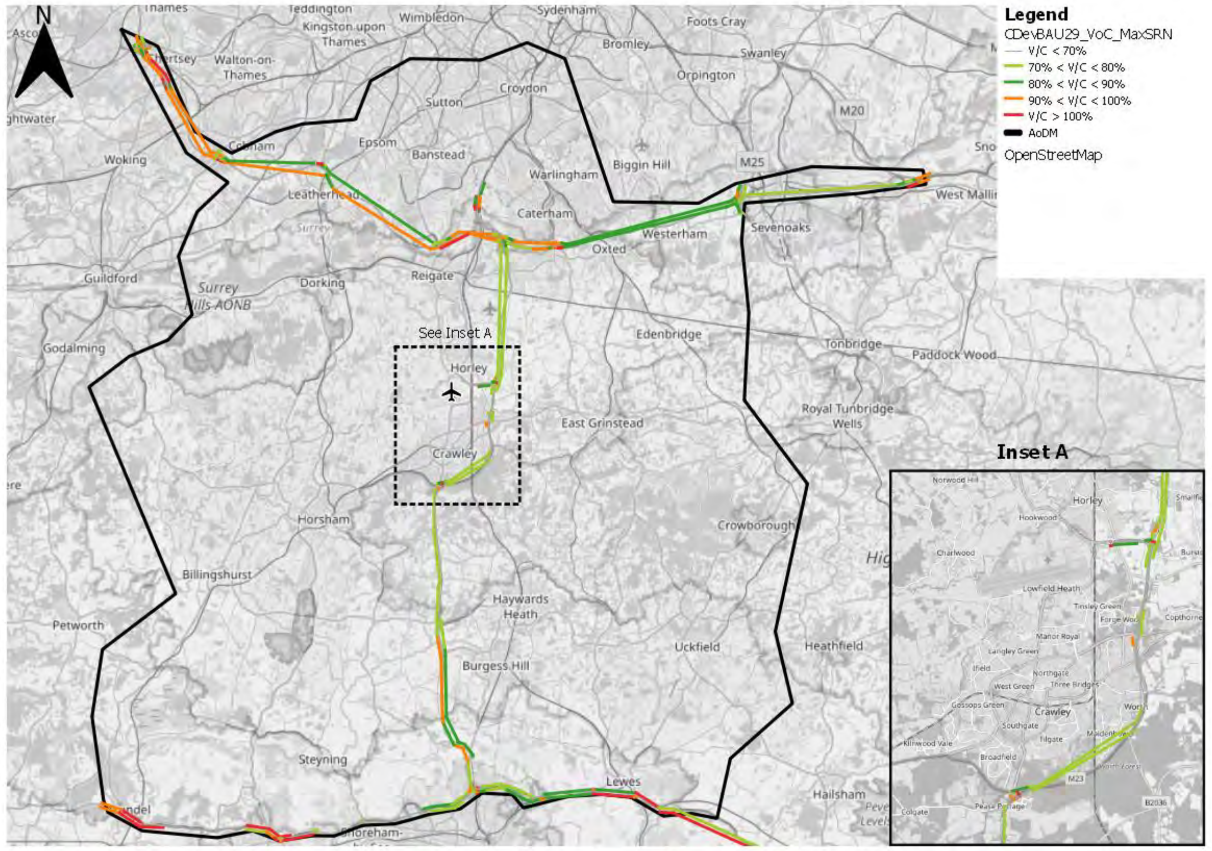


Figure 251: Maximum V/C - 2032, CDev – SRN

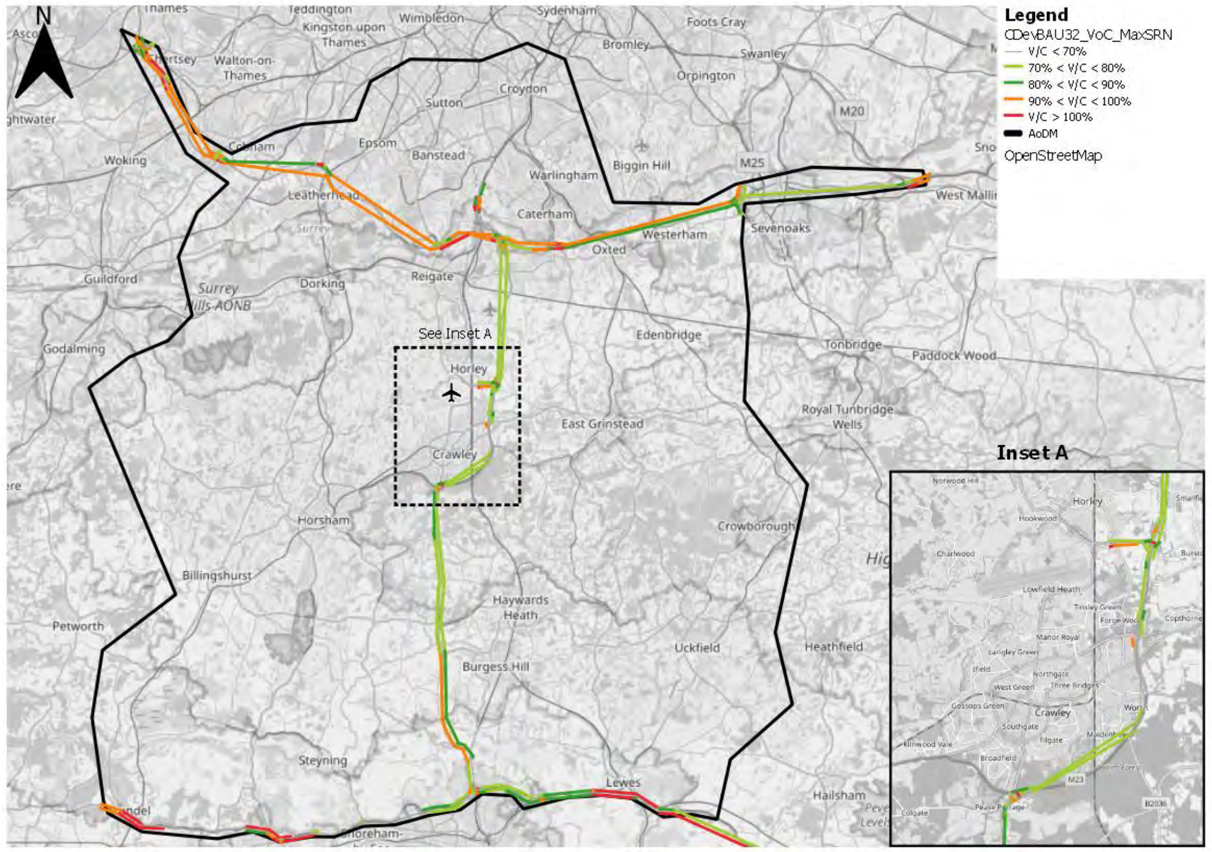


Figure 252: Maximum V/C - 2038, CDev – SRN

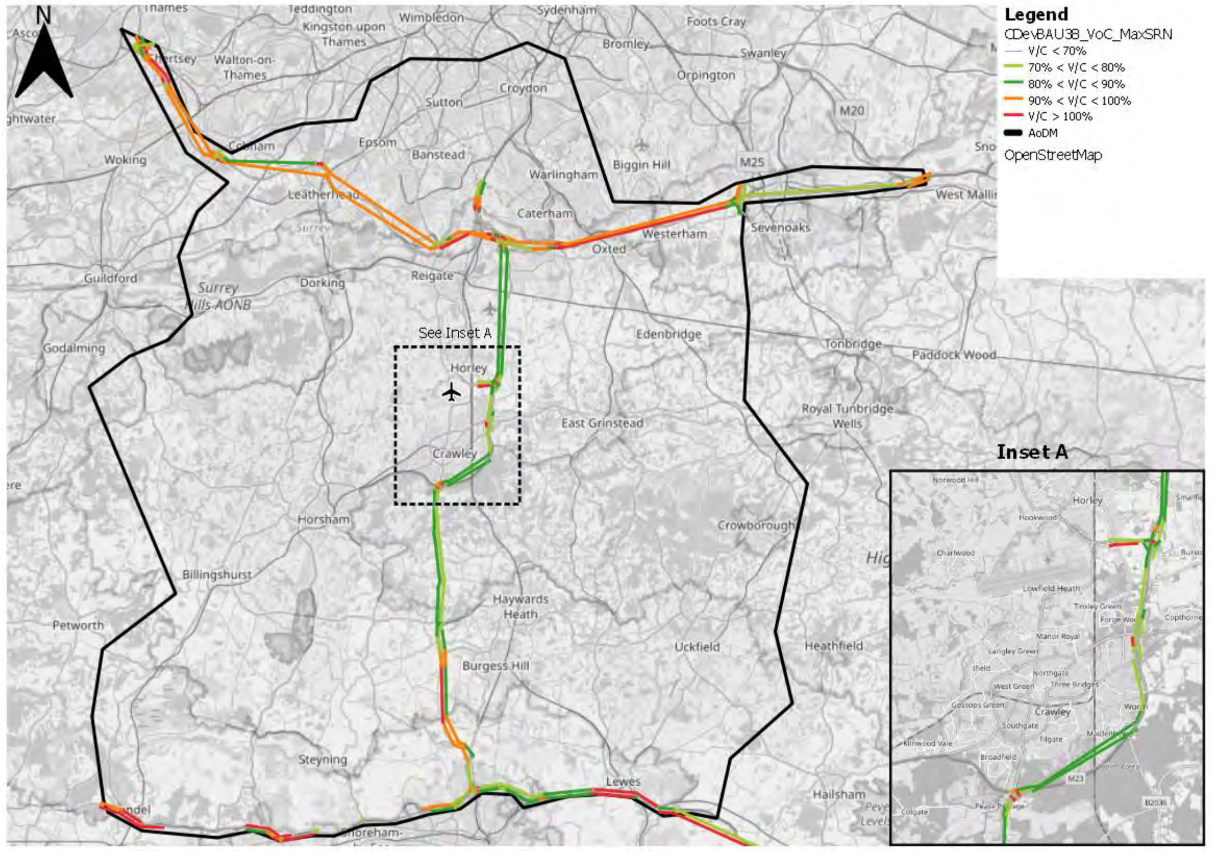


Figure 253: Maximum V/C - 2047, CDev – SRN

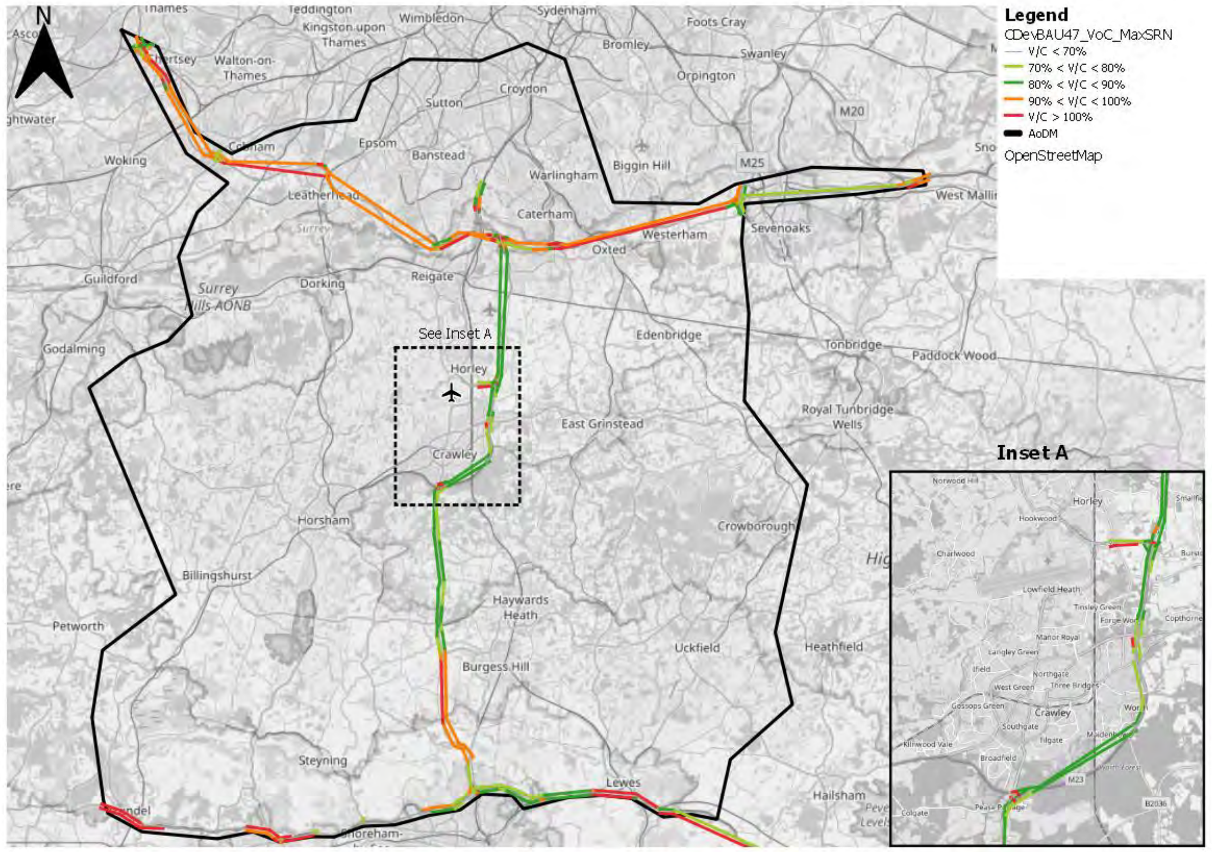


Figure 254: Maximum V/C - 2029, CDev With Project – SRN

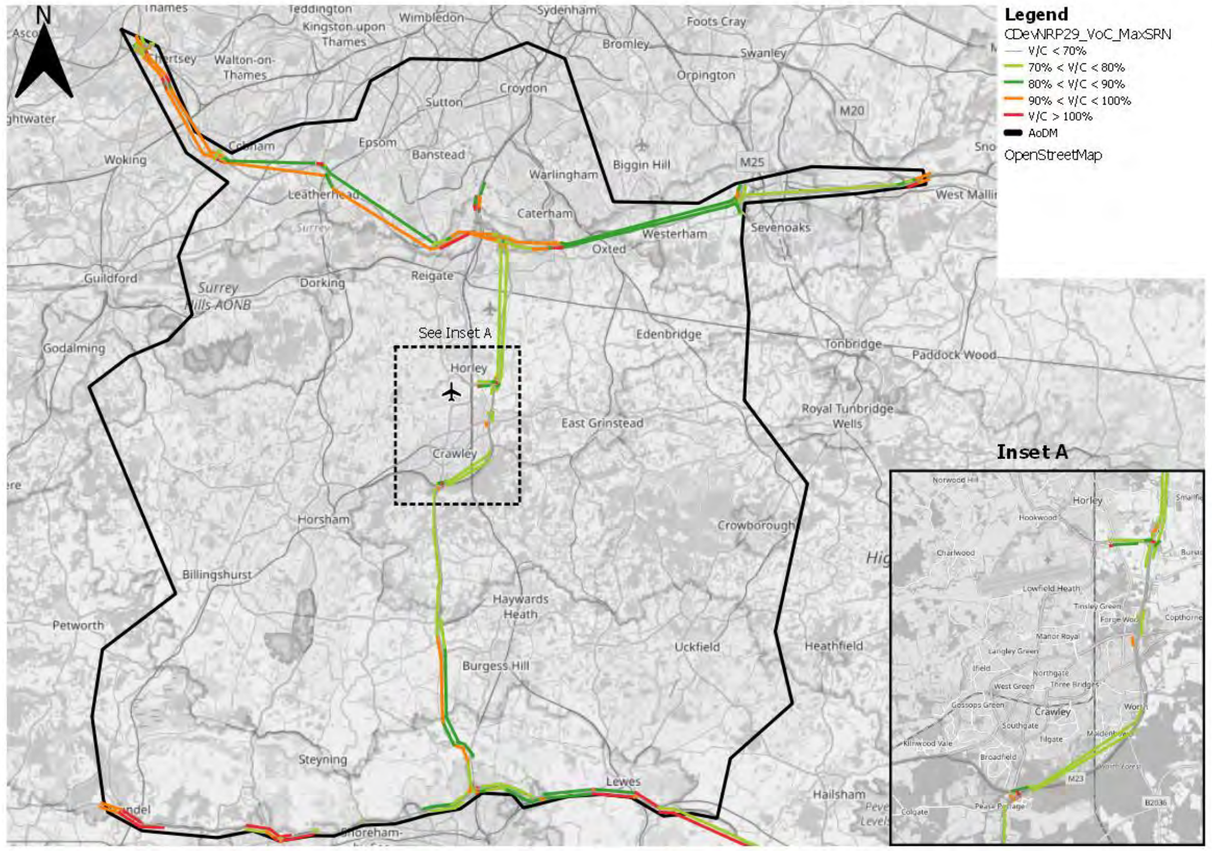


Figure 255: Maximum V/C - 2032, CDev With Project – SRN

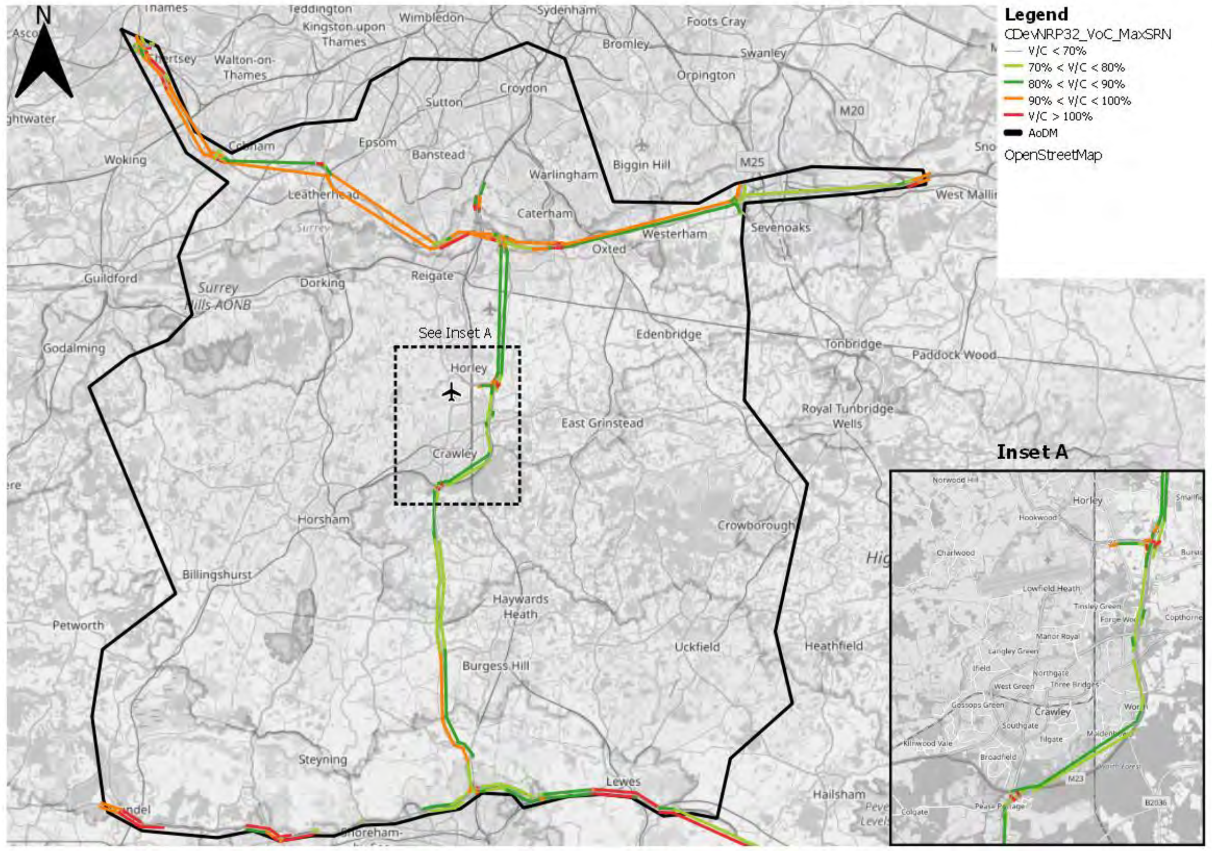


Figure 256: Maximum V/C - 2038, CDev With Project – SRN

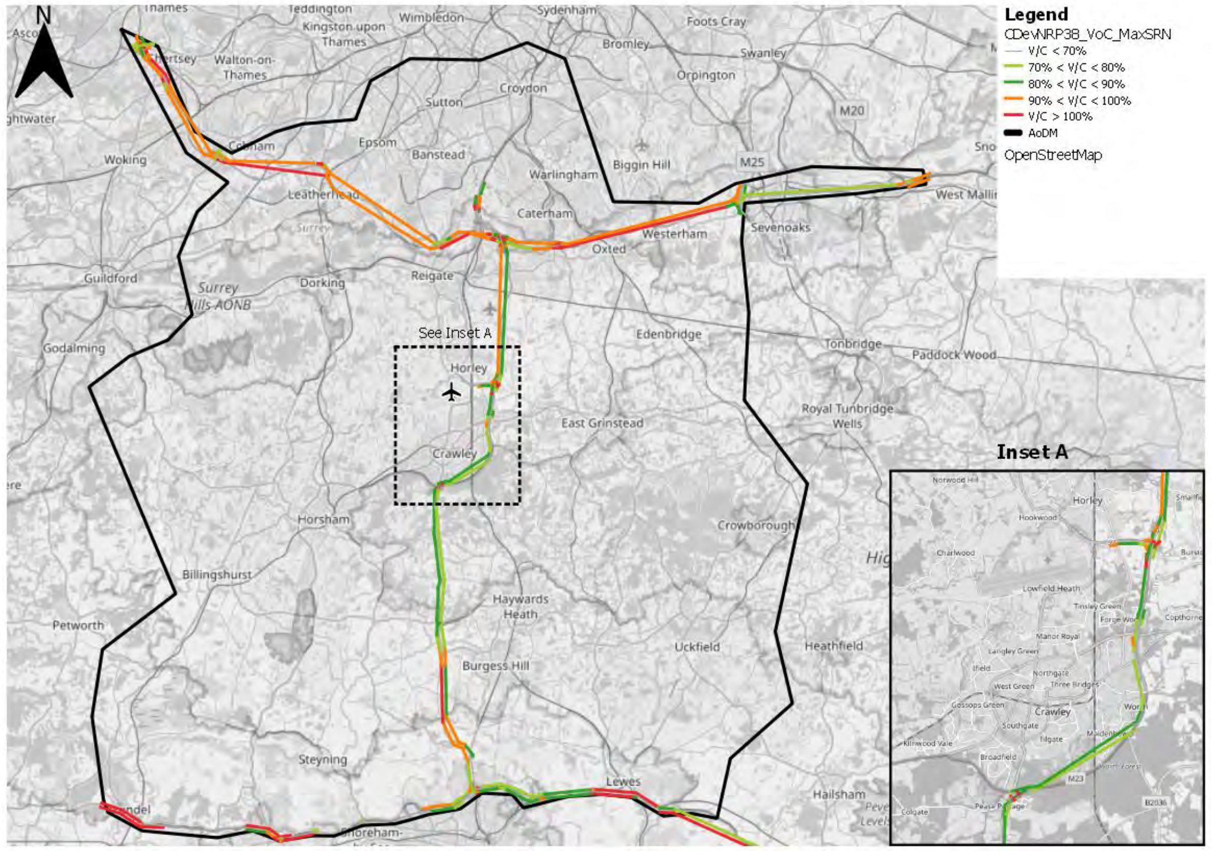
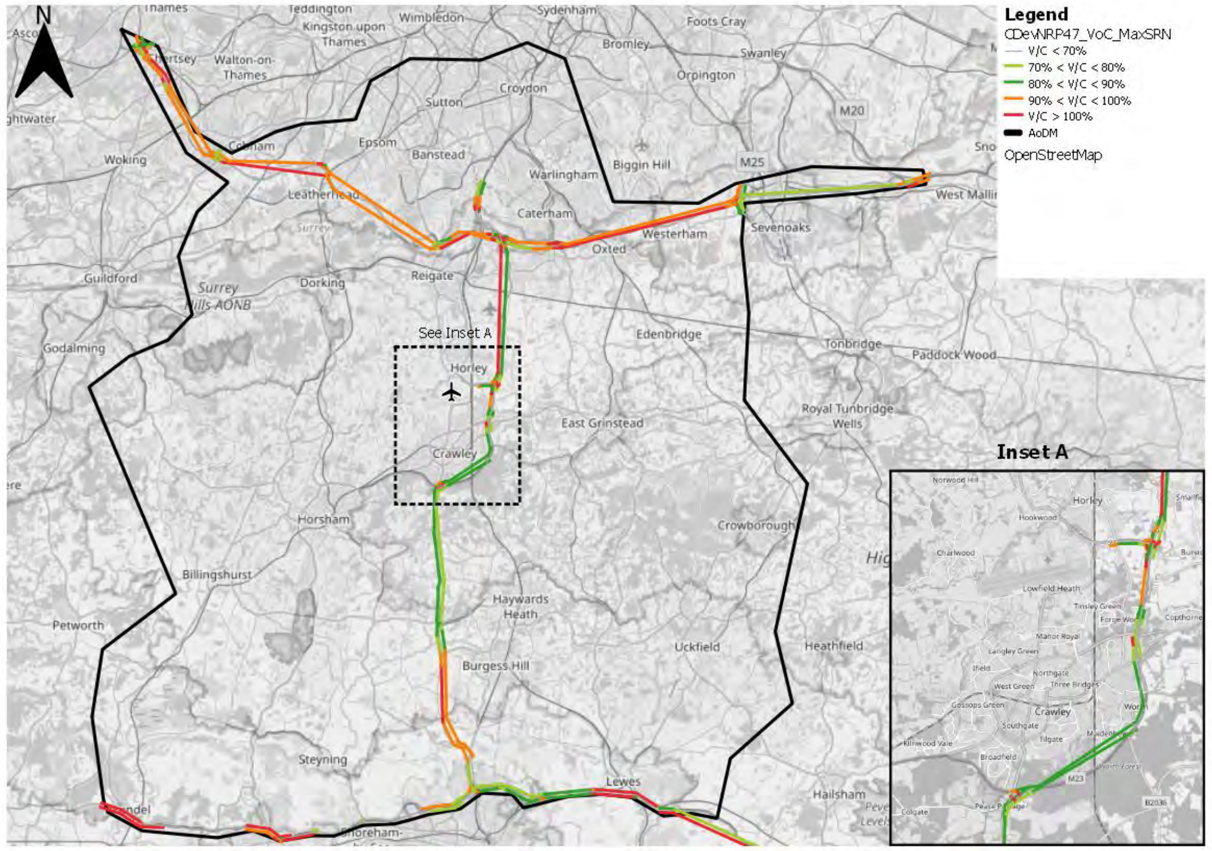


Figure 257: Maximum V/C - 2047, CDev With Project – SRN



Volume/Capacity ratios for highway links

14.4.49 Volume/Capacity (V/C) ratios for highway links were extracted from the model for each of the four modelled time periods. To understand the highest resulting V/C per link, the maximum V/C value has been selected from the four time periods. These are illustrated for each modelled year, (2029, 2032, 2038, and 2047) on Figure 258 to Figure 265 for the CDev and CDev with Project scenarios.

Cumulative Development Future Baseline (CDev)

14.4.50 Figure 258 to Figure 261 present the maximum values of modelled V/C ratios for the CDev scenarios for assessment years 2029, 2032, 2038 and 2047 respectively.

14.4.51 The key points are:

- The pattern of impact shown by this analysis is very similar to the patterns outlined in the core scenario modelling detailed in Section 11.
- Aside from the instances already covered in Section 11, Lowfield Heath Road and Charlwood Road in the periphery of the airport are operating with increased traffic than in Future baseline scenarios, exceeding capacity in 2029 whereas in the Future baseline scenarios capacity isn't reached until 2032.
- Smalls Hill Road (southbound) from Reigate to the airport switches from existing operational category to the two levels above, from green (70%<V/C<80%) to orange (90%<V/C<100%) in 2029 and 2038, and grey (V/C<70%) to dark green (80%<V/C<90%) in the assessment years of 2032 and 2047.
- The V/C ratios of the new western-link road to the West of Ifield reach 100% in 2038 and 2047, something which needs to be reviewed in more detail as the proposals for the development progress.
- The Balcombe Road northbound arm reaches capacity in 2038 and 2047, and the southbound arm follows with operational category of 90% < V/C < 100% after developments are fully built.

Cumulative Development With Project (CDev With Project)

14.4.52 Figure 262 to Figure 265 present the maximum values of modelled V/C ratios for the CDev With Project scenarios for assessment years 2029, 2032, 2038 and 2047 respectively.

14.4.53 The key points are:

- Most links do not change operational categories in the CDev With Project scenarios compared to the CDev scenarios.
- In the immediate vicinity of the airport, there is no occurrence of a change in category in 2029, except for the changes on the M23 Spur (westbound) as mentioned above.
- London Road (southbound) between Longbridge roundabout and North Terminal roundabout changes from grey (V/C<70%) to red (V/C>100%), whereas London Road (northbound) changes from dark green (80%<V/C<90%) to grey (V/C<70%) in 2032 and beyond. This highlights the increased conflict in movements between Longbridge roundabout and North Terminal access.
- The operational category of the western-link road to the West of Ifield changes from over-capacity to between 80% and 90% in 2038 in the CDev With Project scenario, which could be attributed to traffic switching from local roads to the M23 Spur in the CDev With Project scenario. However, the link is operating above capacity in both scenarios for assessment year 2047.
- Sections on Balcombe Road near the proposed access to Gatwick Green are not forecast to change operational categories across all assessment years in the CDev With Project scenario compared to the CDev scenarios.

Figure 258: Maximum V/C - 2029, CDev

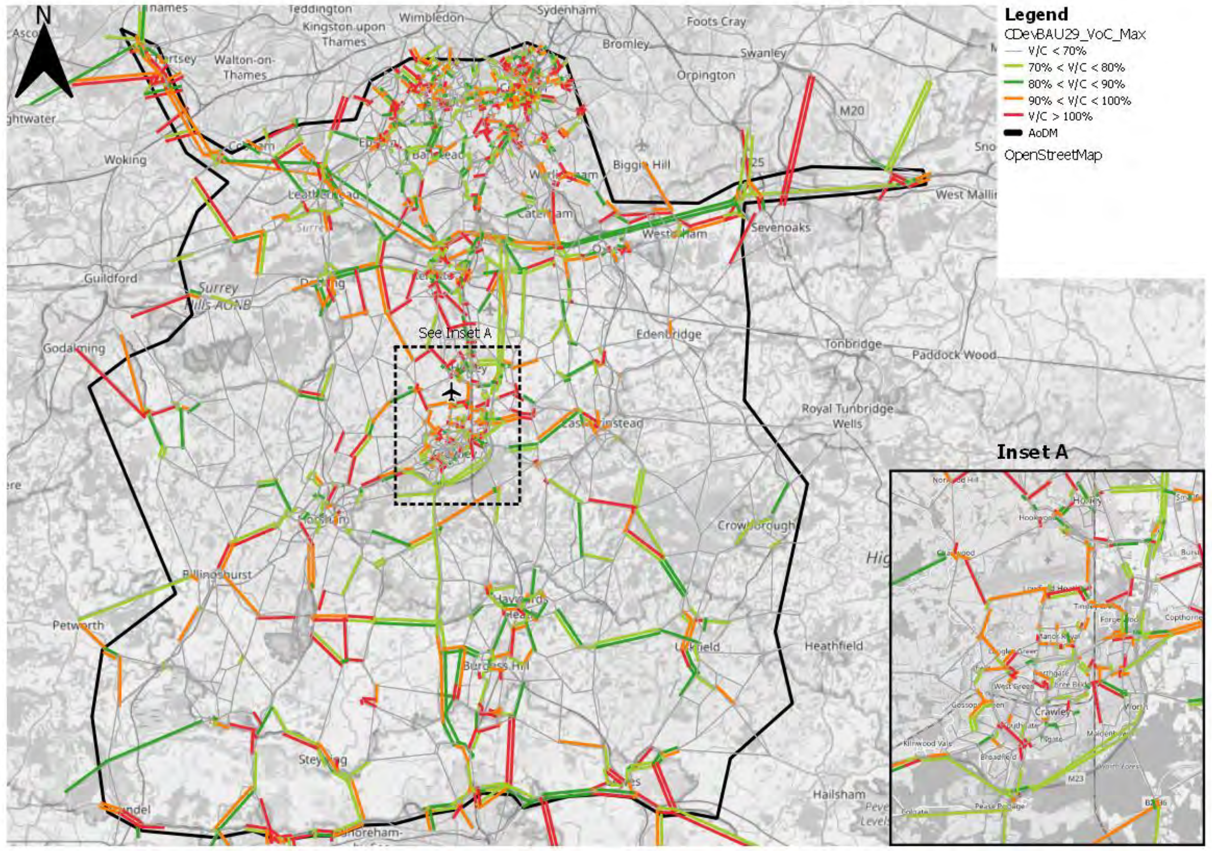


Figure 259: Maximum V/C - 2032, CDev

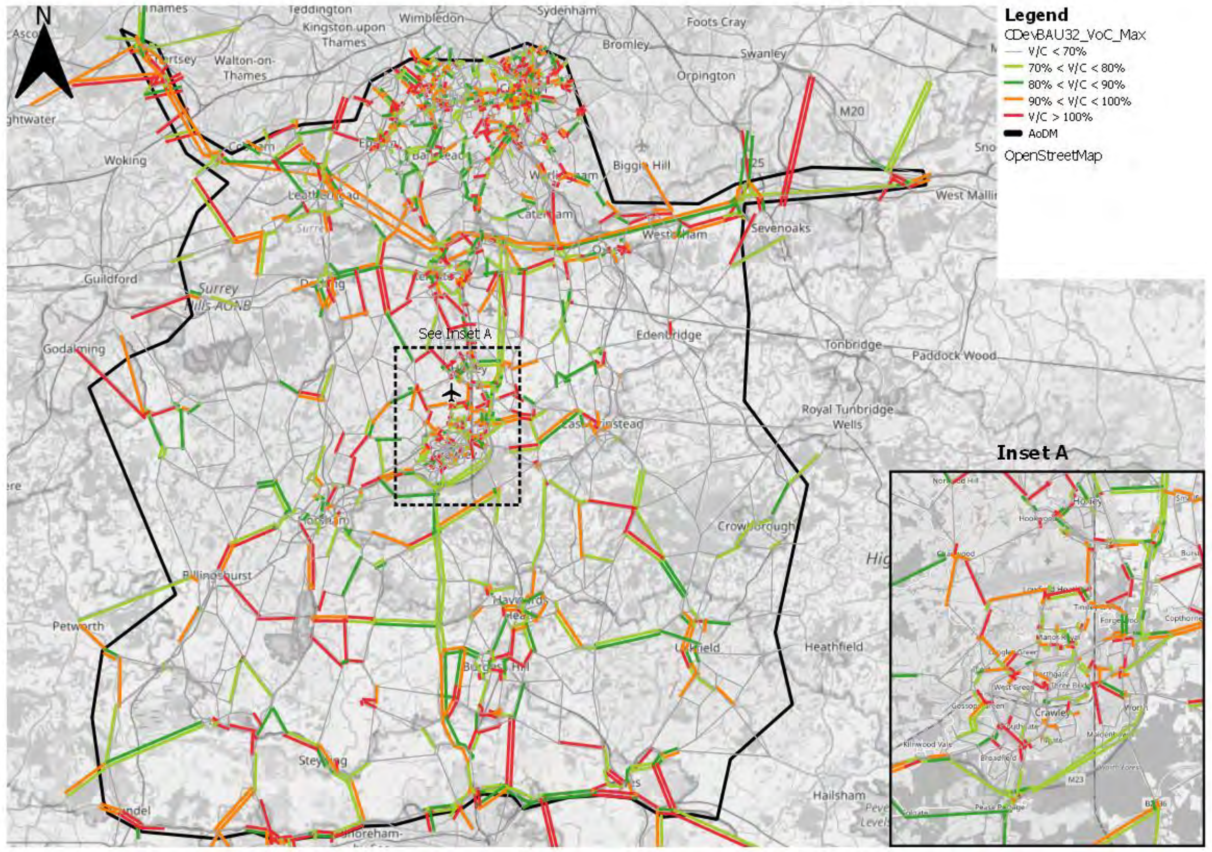


Figure 260: Maximum V/C - 2038, CDev

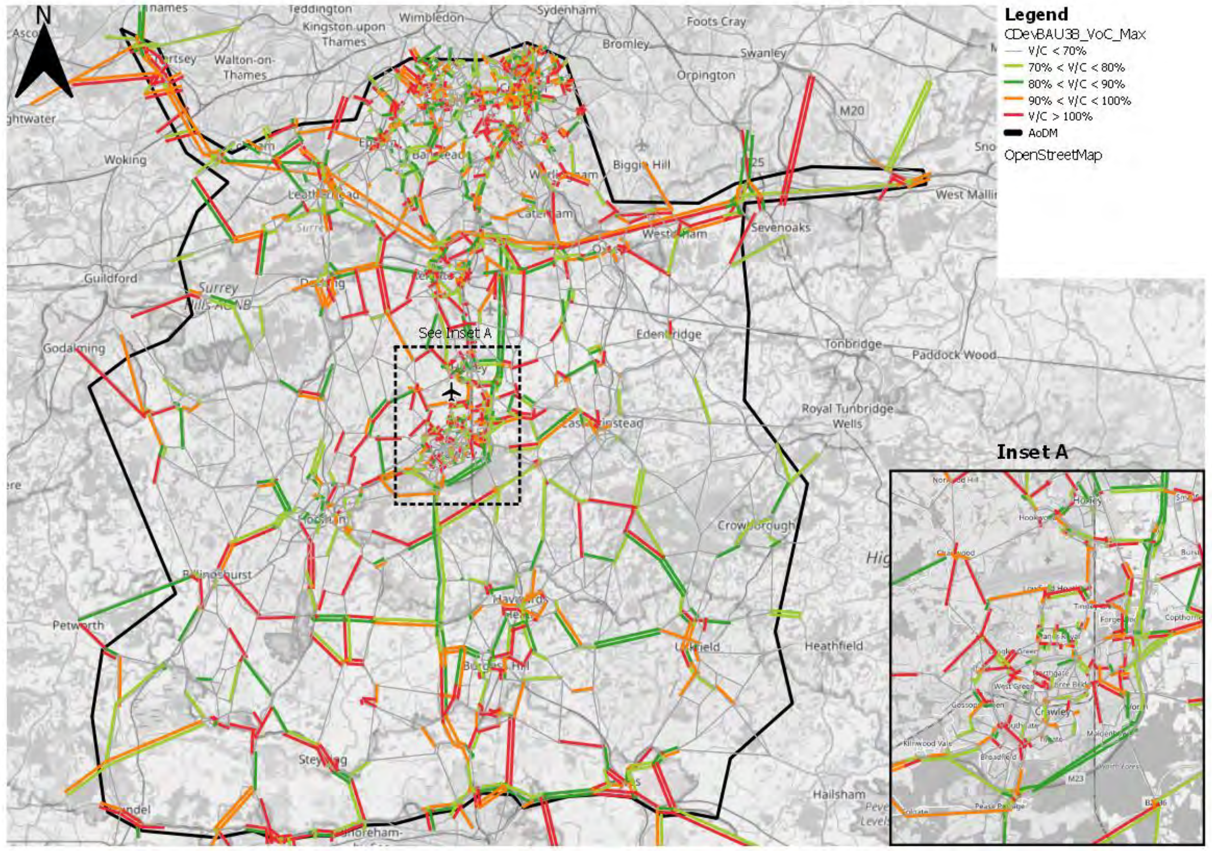


Figure 261: Maximum V/C - 2047, CDev

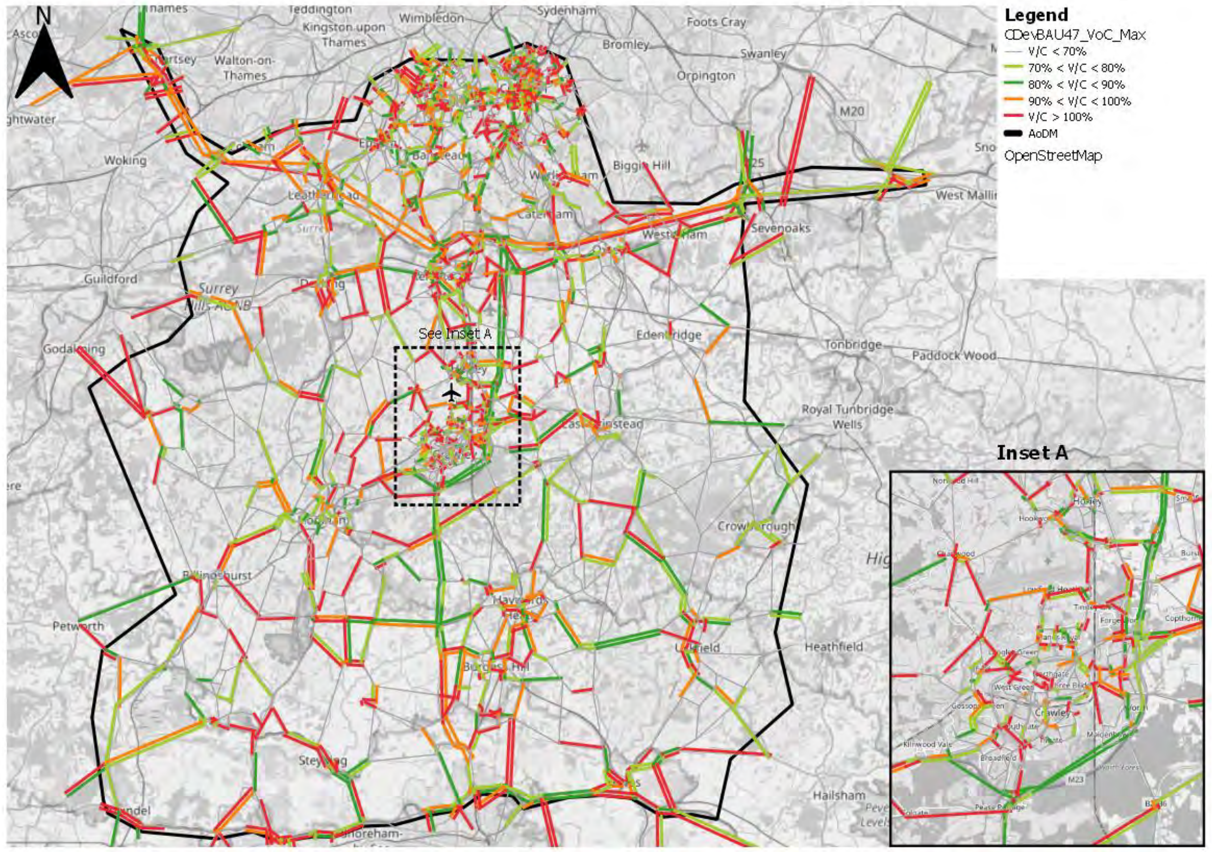


Figure 262: Maximum V/C - 2029, CDev With Project

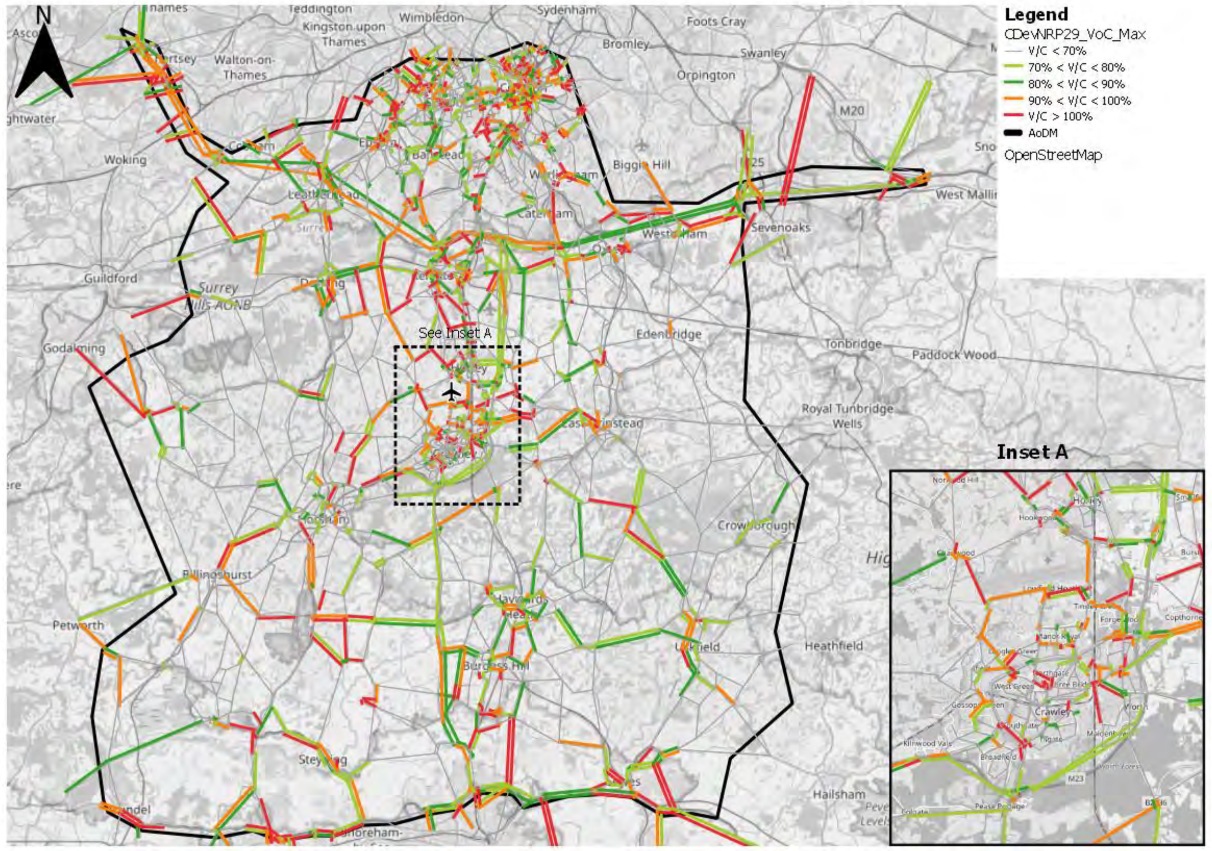


Figure 263: Maximum V/C - 2032, CDev With Project

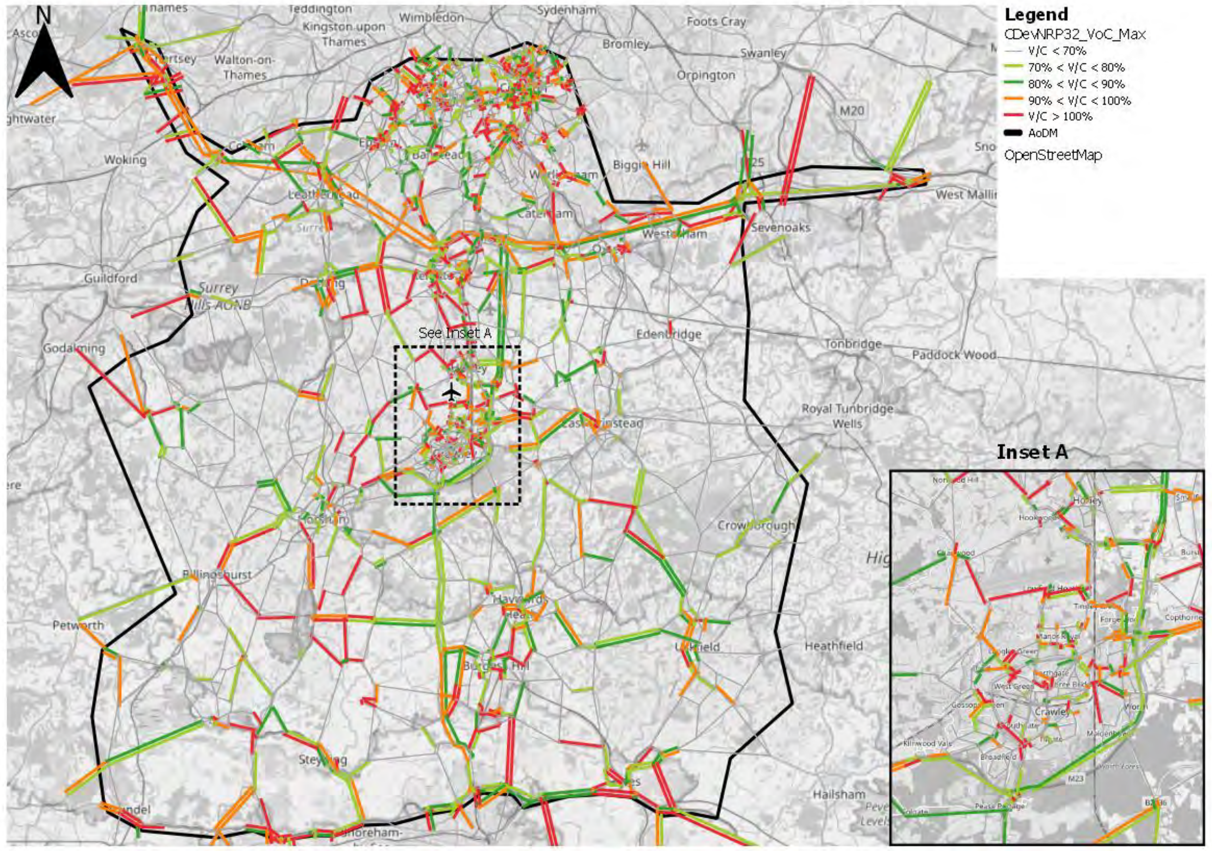


Figure 264: Maximum V/C - 2038, CDev With Project

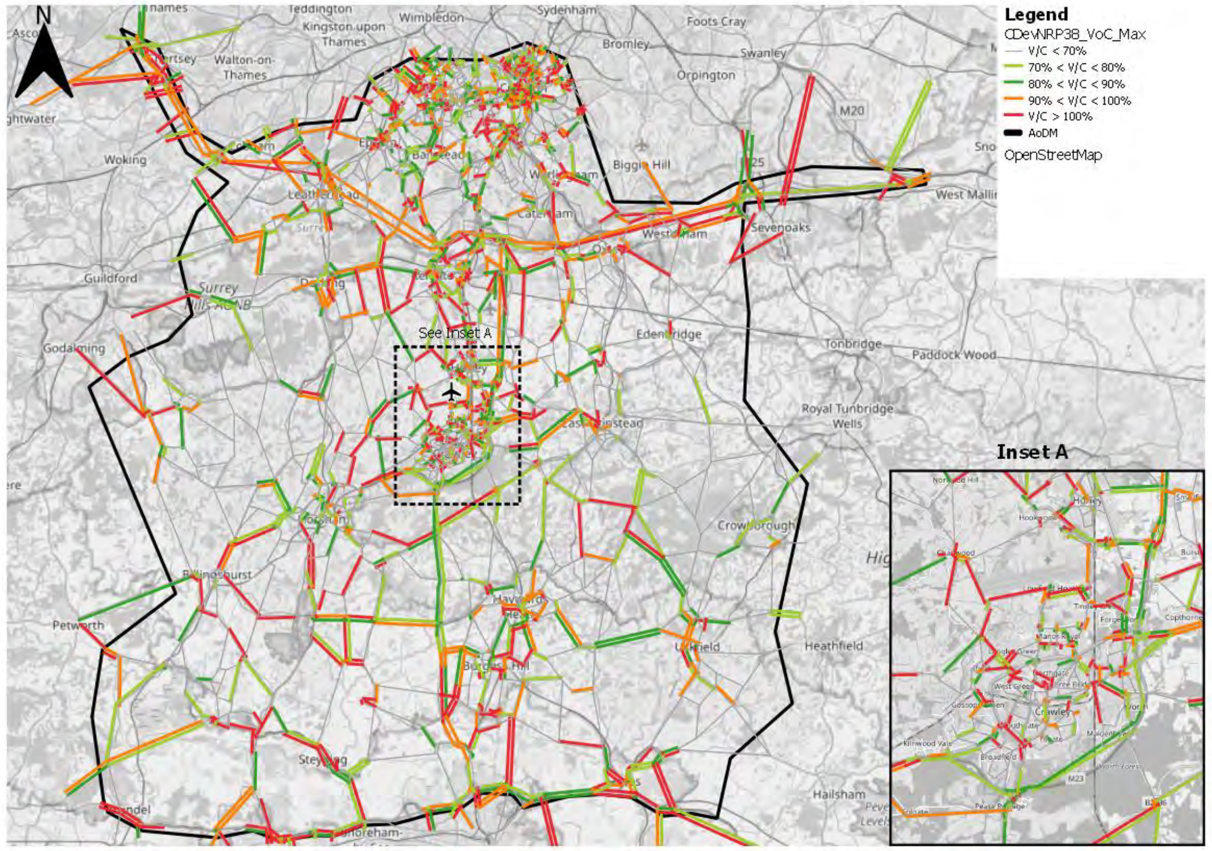
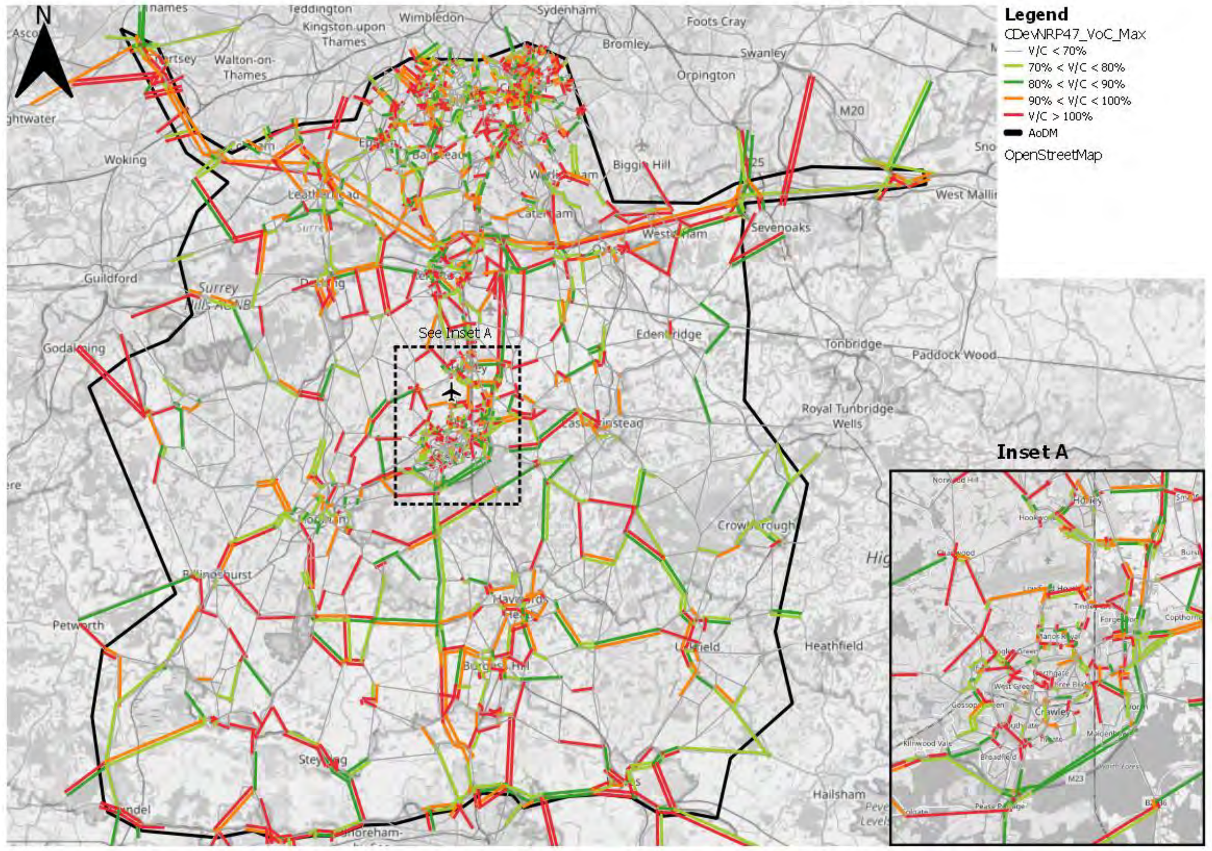


Figure 265: Maximum V/C - 2047, CDev With Project



Magnitude of Impact – nodes

14.4.54 This section identifies the magnitude of impact identified for nodes for each assessment year. The magnitude of impact is in accordance with the criteria specified in Section 6.12.

Cumulative Development Future baseline (CDev) against Future baseline

14.4.55 In accordance with the criteria specified in Section 6, this section elaborates on instances of 'High', 'Medium' and 'Low' impacts on nodes for each assessment year between Future baseline and CDev scenarios.

2029 Future baseline to Cumulative Development Future baseline (CDev)

14.4.56 Table 193 shows the magnitude of impacts on nodes form the 2029 Future baseline to the 2029 CDev scenarios. The table indicates there is a maximum of one 'High' and two 'Medium' magnitude impacts across the four time periods. Key points are:

- The 'High' magnitude impact occurs on junctions in the northern part of the AoDM: one part of the A253/A212 junction in Croydon and Dorking Road/Woodcote Road junction in Epsom. These two impacts are more likely the consequence of model noise in this part of the network owing to the congested state of the network rather than specifically from the three developments added.
- The junctions showing 'Medium' impacts in the AM peak periods are Gatwick Road roundabout and Morland Road/Lower Addiscombe Road. The Medium impact at Gatwick Road roundabout is important to note given the proximity to the airport and the three developments added to this.
- The junction showing a 'Medium' magnitude impact in the PM peak hour is the Gatwick Road roundabout.

14.4.57 Figure 266 shows the locations of impacts for all peak periods.

Table 193: Magnitude of Impacts: 2029 Future baseline to CDev

2029	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	216	307	102	158
Low	1	2	0	2
Medium	2	0	0	1
High	1	1	0	0

2032 Future baseline to Cumulative Development Future baseline (CDev)

14.4.58 Table 194 shows the magnitude of impacts on nodes form the 2032 Future baseline to the 2032 CDev scenarios. The table indicates that there is a maximum of one 'High' and two 'Medium' magnitude impacts across the four time periods.

14.4.59 The key points are:

- The High impact junction in the AM peak periods is on the periphery of the AoDM at the Wickham Road/Orchard Avenue junction and thus is not considered a real impact of the developments added.
- Medium impacts in the AM peak periods are shown at Gatwick Road roundabout, and at the left slip diverge on approach to Gatwick South Terminal. It is noted that signal timings at the South Terminal roundabout appear to cause blocking back, and thus causing the impact seen at the diverge. Optimisation of these signal timings could resolve this impact.
- The junction showing a 'Medium' magnitude impact in the PM peak hour is Gatwick Road roundabout.

14.4.60 Figure 267 shows the locations of impacts for all peak periods.

Table 194: Magnitude of Impacts: 2032 Future baseline to CDev

2032	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	250	687	308	180
Low	1	3	0	2
Medium	1	2	0	1
High	1	0	0	0

2038 Future baseline to Cumulative Development Future baseline (CDev)

14.4.61 Table 195 shows the magnitude of impacts on nodes form the 2038 Future baseline to the 2038 CDev scenarios. The table indicates that there is a maximum of six 'High' and five 'Medium' magnitude impacts across the four time periods.

14.4.62 The key points are:

- The increase in number of junctions with impacts between 2032 and 2038 is consistent with the fact that the build out of the three developments is assumed to start in 2027 for a ten-year period, so only half the growth will have occurred in 2032 whilst the full growth occurs by 2038, and the Future baseline becomes increasingly congested, so it does not take much more growth to cause junctions to show 'High' impacts.
- There are a couple of nodes at South Terminal roundabout: the same diverge flagged in 2032 but also the exit from the Horley Business Park shows 'High' impacts in the PM. There is considerable delay on the exit from Horley Business Park which causes the V/C ratio to show a large change compared to the Future baseline.

14.4.63 Figure 268 shows the locations of impacts for all peak periods.

Table 195: Magnitude of Impacts: 2038 Future baseline to CDev

2038	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	246	861	483	457
Low	3	16	0	2
Medium	3	5	0	3
High	1	6	0	2

2047 Future baseline to Cumulative Development Future baseline (CDev)

14.4.64 Table 196 shows the magnitude of impacts on nodes form the 2047 Future baseline to the 2047 CDev scenarios. The table indicates that there is a maximum of six 'High' and six 'Medium' magnitude impacts and these are presented.

14.4.65 The key points are:

- The network is increasingly congested by 2047.
- The overall number and locations of junctions showing High and Medium impacts similar to 2038.

14.4.66

14.4.67 Figure 269 shows the locations of impacts for all peak periods.

Table 196: Magnitude of Impacts: 2047 Future baseline to CDev

2047	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	329	815	479	378
Low	9	21	1	2
Medium	6	6	0	3
High	3	6	0	1

Figure 266: Magnitude of Impacts: 2029 Future baseline to CDev

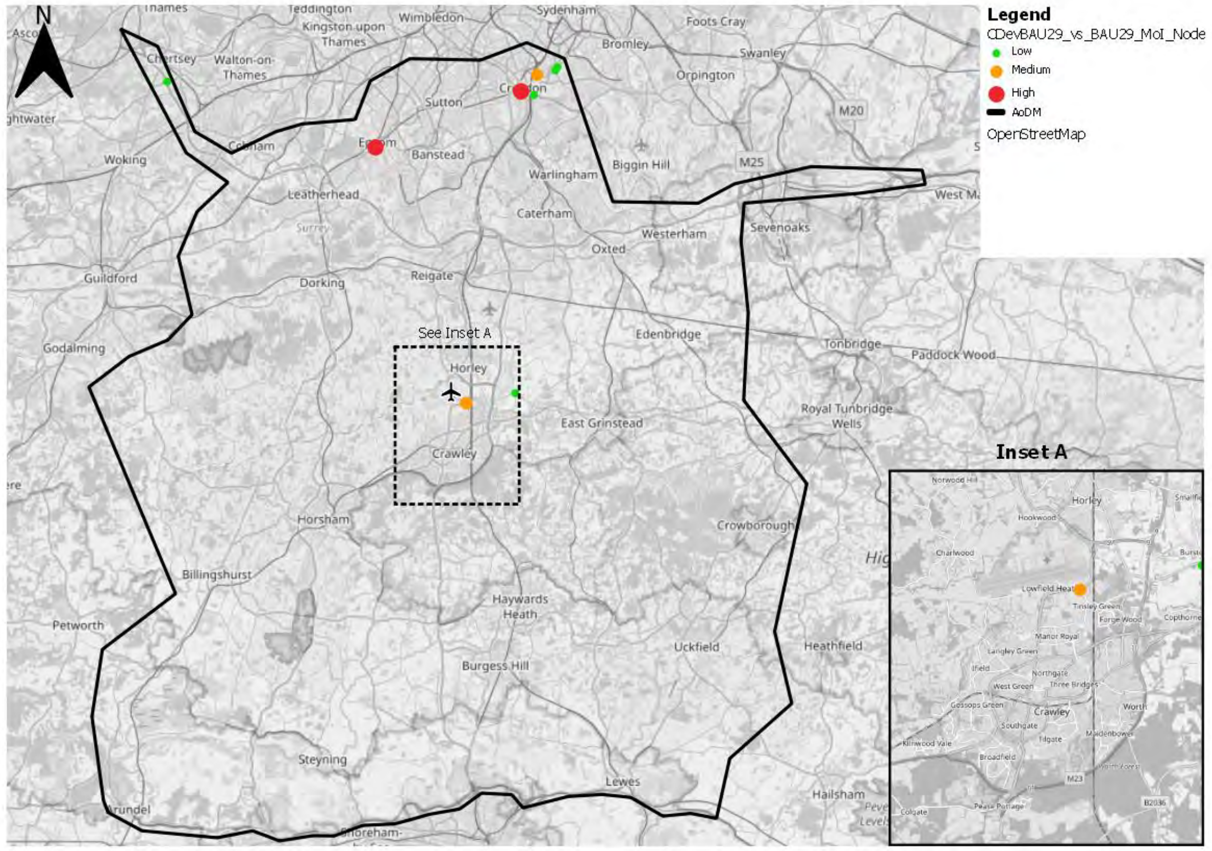


Figure 267: Magnitude of Impacts: 2032 Future baseline to CDev

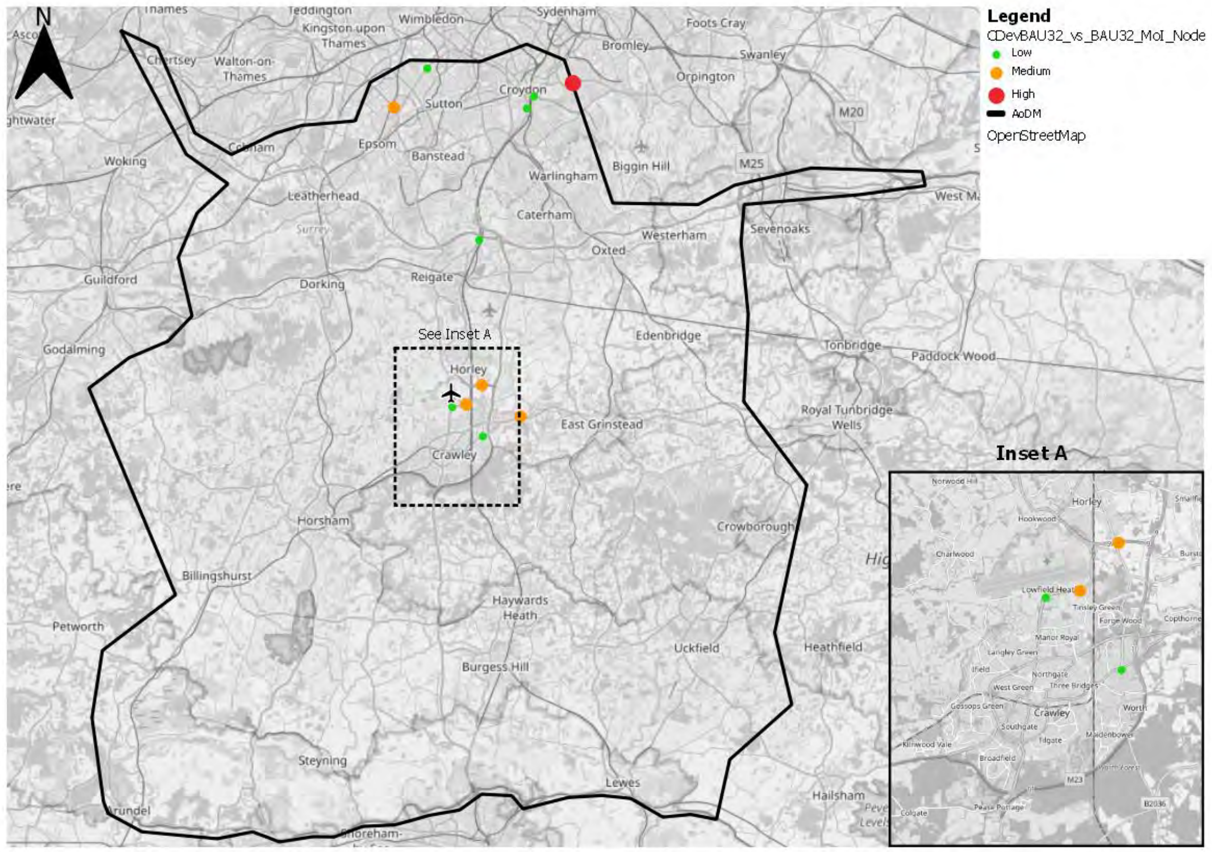


Figure 268: Magnitude of Impacts: 2038 Future baseline to CDev

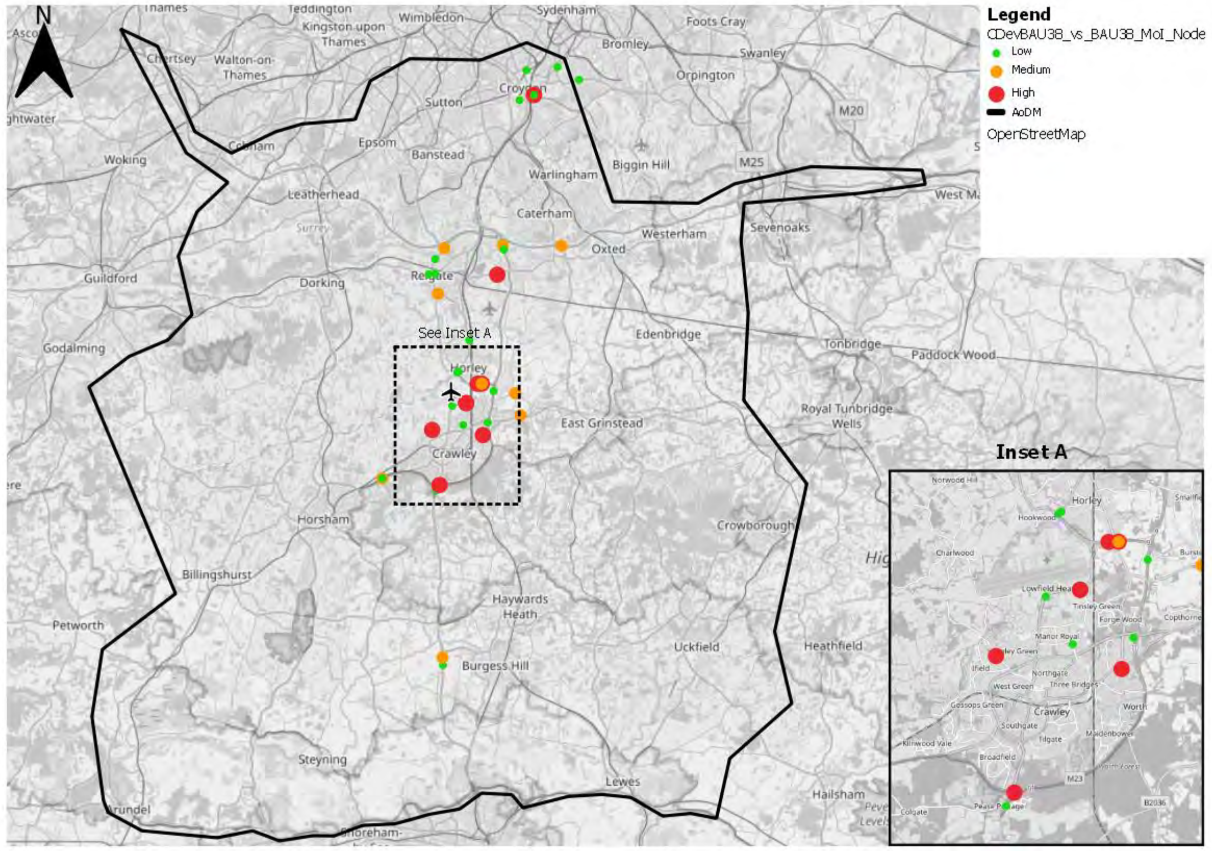
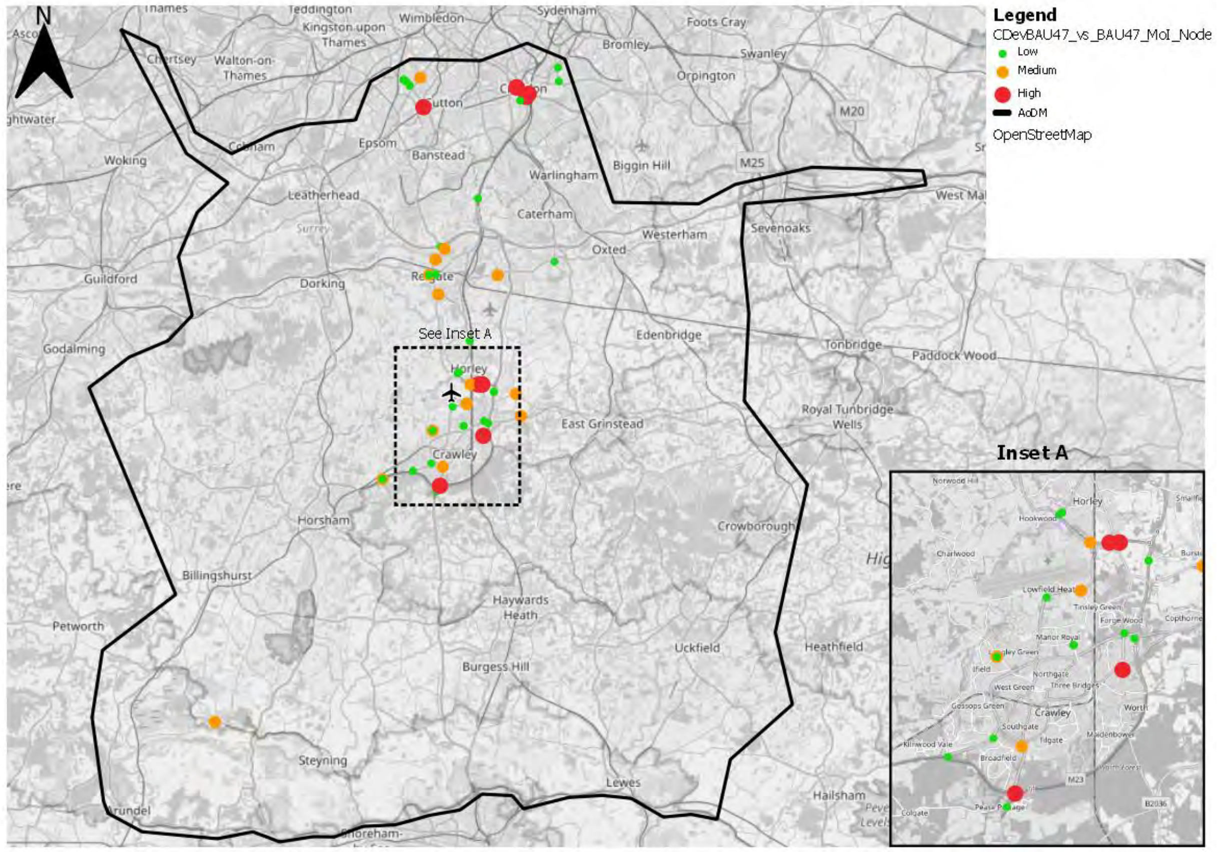


Figure 269: Magnitude of Impacts: 2047 Future baseline to CDev



Cumulative Development With Project (CDev With Project) against Cumulative Development Future baseline (CDev)

14.4.68 In accordance with the criteria specified in Section 6.12, this section elaborates on instances of 'High', 'Medium' and 'Low' impacts on nodes for each assessment year between the CDev and CDev With Project scenarios.

2029 Cumulative Development With Project (CDev With Project) to Cumulative Development Future baseline (CDev)

14.4.69 Table 197 shows the magnitude of impacts on nodes form the 2029 CDev With Project to the 2029 CDev scenarios. The table indicates that there is a maximum of one 'High', one 'Medium' and one 'Low' magnitude impact across the four time periods.

14.4.70 The key points are:

- 2029 is early on in the lifecycle of the Project so impacts are expected to be minimal.
- The High impact is at the junction of Stonecot Hill/Tudor Drive/Epsom Road/Sutton Common Road which is at the very northern tip of the AoDM. As such, it is considered that this impact is a model noise impact rather than a likely real impact of the Project itself.
- The Medium impact junction is Brighton Road/South End/Warham Road in Croydon and is also considered a model noise impact given the high levels of congestion in this part of the network.
- Neither of the two nodes are flagged in the equivalent core comparison as described in Section 1. These nodes could be considered an additional impact of the Project, however given their location in at periphery of the AoDM and a highly congested area of the network, more likely the product of model noise.

14.4.71 Figure 270 shows the locations of impacts for all peak periods.

Table 197: Magnitude of Impacts: 2029 CDev With Project to CDev

2029	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	169	197	63	34
Low	0	1	0	0
Medium	1	0	0	0
High	1	0	0	0

2032 Cumulative Development With Project (CDev With Project) to Cumulative Development Future baseline (CDev)

14.4.72 Table 198 shows the magnitude of impacts on nodes form the 2029 CDev With Project to the 2029 CDev scenarios. The table indicates that there are a maximum of four 'High', nine 'Medium' and seven 'Low' magnitude impacts across the four time periods

14.4.73 The key points are:

- Most of the growth of the Project occurs between 2029 and 2032, thus the increase in the number of junctions showing impacts as a consequence of the Project is not unexpected.
- In common with the core scenarios there are High and Medium impact junctions in the vicinity of Gatwick, such as at the M23 Junction 9. A merge on the southbound offslip and a merge on the northbound offslip of Junction 9 flagged in this scenario has not been flagged in the Core scenario.
- There are also impact clusters at the merges and diverges at the M23 J8/M25 J7 interchange.

14.4.74 Figure 271 shows the locations of impacts for all peak periods.

Table 198: Magnitude of Impacts: 2032 CDev With Project to CDev

2032	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	421	468	212	341
Low	7	4	0	3
Medium	9	6	0	1
High	4	4	0	0

2038 Cumulative Development With Project (CDev With Project) to Cumulative Development Future baseline (CDev)

14.4.75 Table 199 shows the magnitude of impacts on nodes form the 2038 CDev With Project to the 2038 CDev scenarios. The table indicates that there are a maximum of seven 'High', six 'Medium' and 14 'Low' magnitude impacts across the four time periods.

14.4.76 The key points are:

- The same High magnitude impact junctions are shown near the airport as those detailed in the core scenarios comparison in Section 1, with the addition of South Terminal roundabout.
- Merges and diverges at the M23 J8/M25 J7 show impacts generally in the same location as in the core scenarios but with greater magnitude (more 'High' impacts) as a consequence of the Project in addition to the cumulative developments.
- High and medium magnitude impacts are flagged in the northern part of the AoDM and these are considered a product of the high level of congestion in this part of the network and the model noise that arises from it.
- Gatwick Road roundabout flags a Medium impact in 2038, whereas in the core scenarios it does not flag impacts until 2047.

14.4.77 Figure 272 shows the locations of impacts for all peak periods.

Table 199: Magnitude of Impacts: 2038 CDev With Project to CDev

2038	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	532	747	287	325
Low	14	10	0	0
Medium	2	6	0	4
High	7	6	0	0

2047 Cumulative Development With Project (CDev With Project) to Cumulative Development Future baseline (CDev)

14.4.78 Table 200 shows the magnitude of impacts on nodes form the 2047 CDev With Project to the 2047 CDev scenarios. The table indicates that there are a maximum of 12 'High', eight 'Medium' and 14 'Low' magnitude impacts across the four time periods.

14.4.79 The key points are:

- As in 2038, the M23 J9, South Terminal, M23 J8/M25 J7, and parts of central Croydon all show High magnitude impact junctions as a consequence of the Project.
- Compared against the results from the core scenarios, the Project has a greater impact when the cumulative developments are in place. This is shown by the additional nodes flagging at the M23 J9 as well as the High impact at the South Terminal roundabout on approach from the M23 Spur which does not flag in the Core scenarios. This is a signalised node within the model, and in real life would operate on a demand actuated cycle, something the model cannot replicate. It should be noted that there is currently no scheme design for the Horley Business Park, and thus the design of the South Terminal roundabout, to enable a more detailed assessment.

14.4.80 Figure 273 shows the locations of impacts for all peak periods.

Table 200: Magnitude of Impacts: 2047 CDev With Project to CDev

2047	All Performance Areas - Nodes			
MoI	AM1	AM2	IP	PM
Negligible	507	651	238	328
Low	14	14	2	4
Medium	6	8	0	2
High	12	9	0	1

Figure 270: Magnitude of Impacts: 2029 CDev With Project to CDev

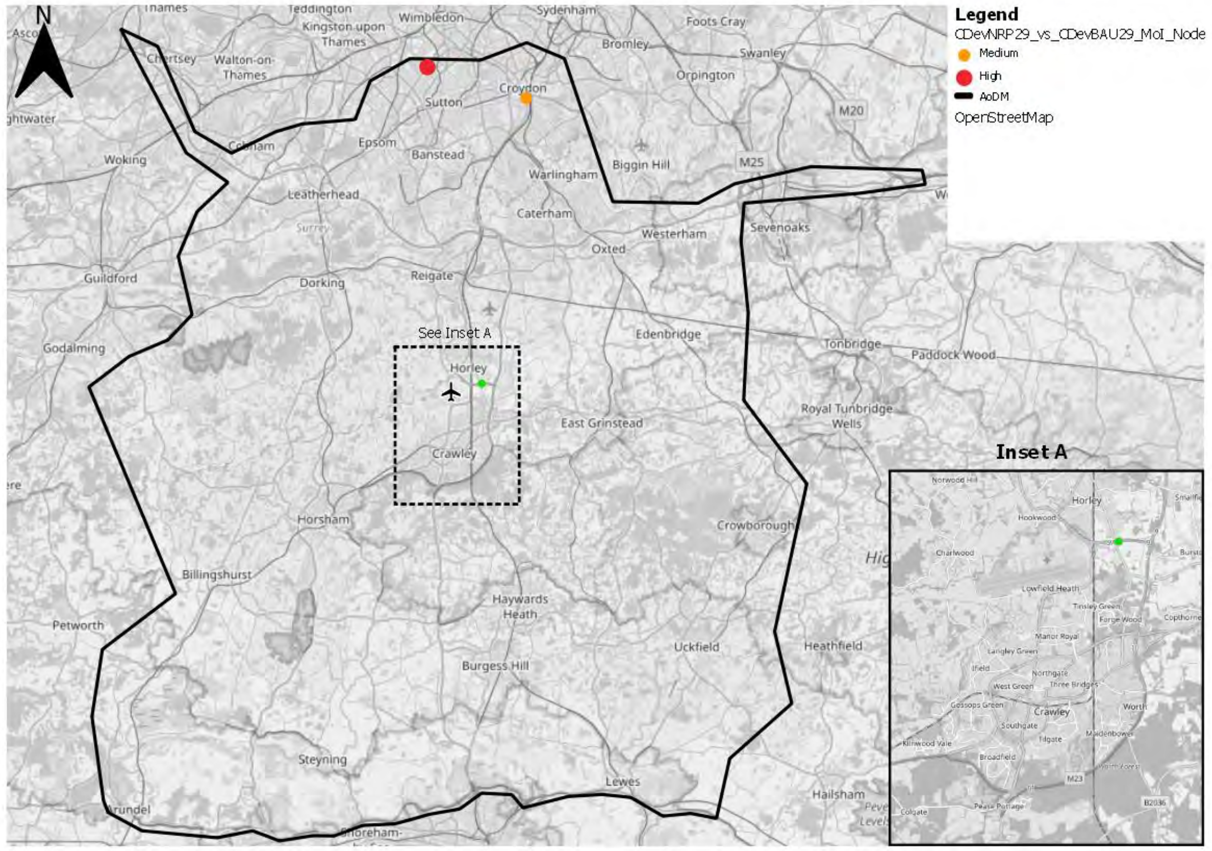


Figure 271: Magnitude of Impacts: 2032 CDev With Project to CDev

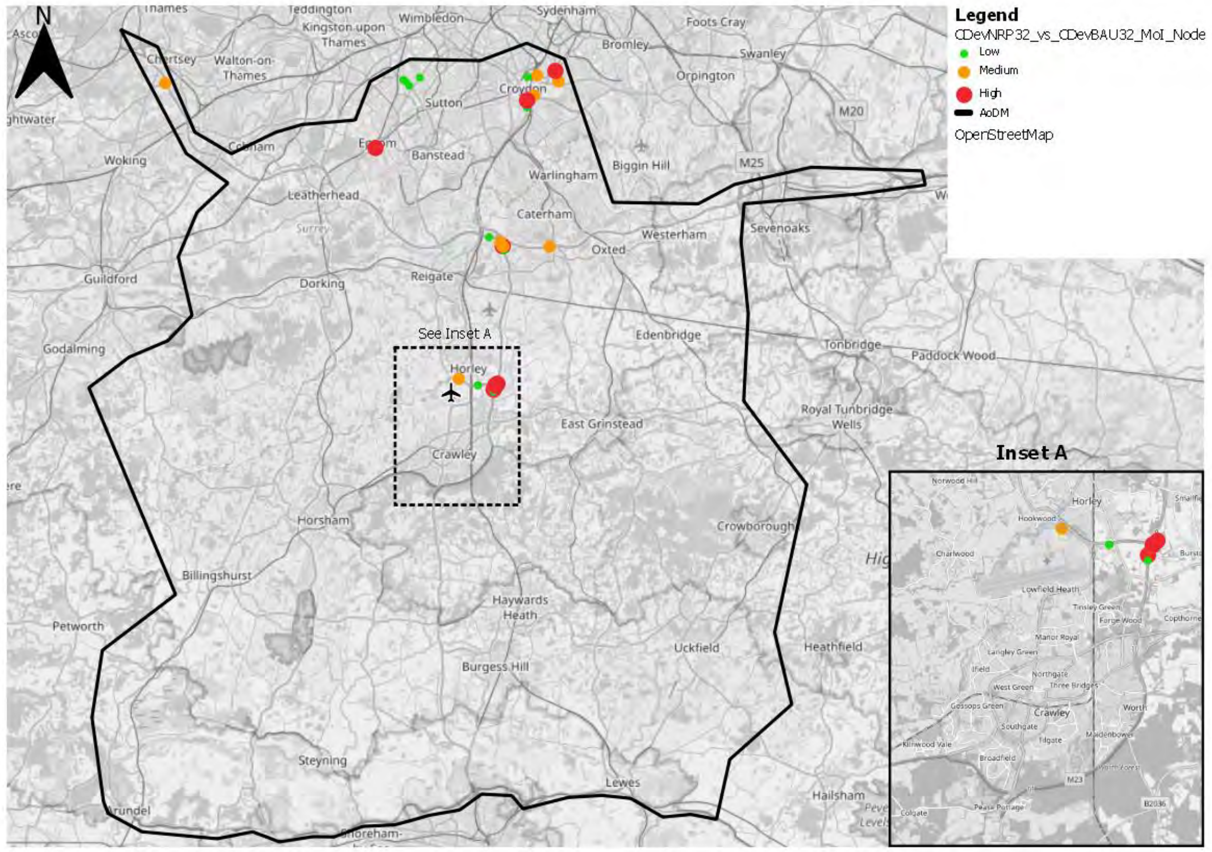


Figure 272: Magnitude of Impacts: 2038 CDev With Project to CDev

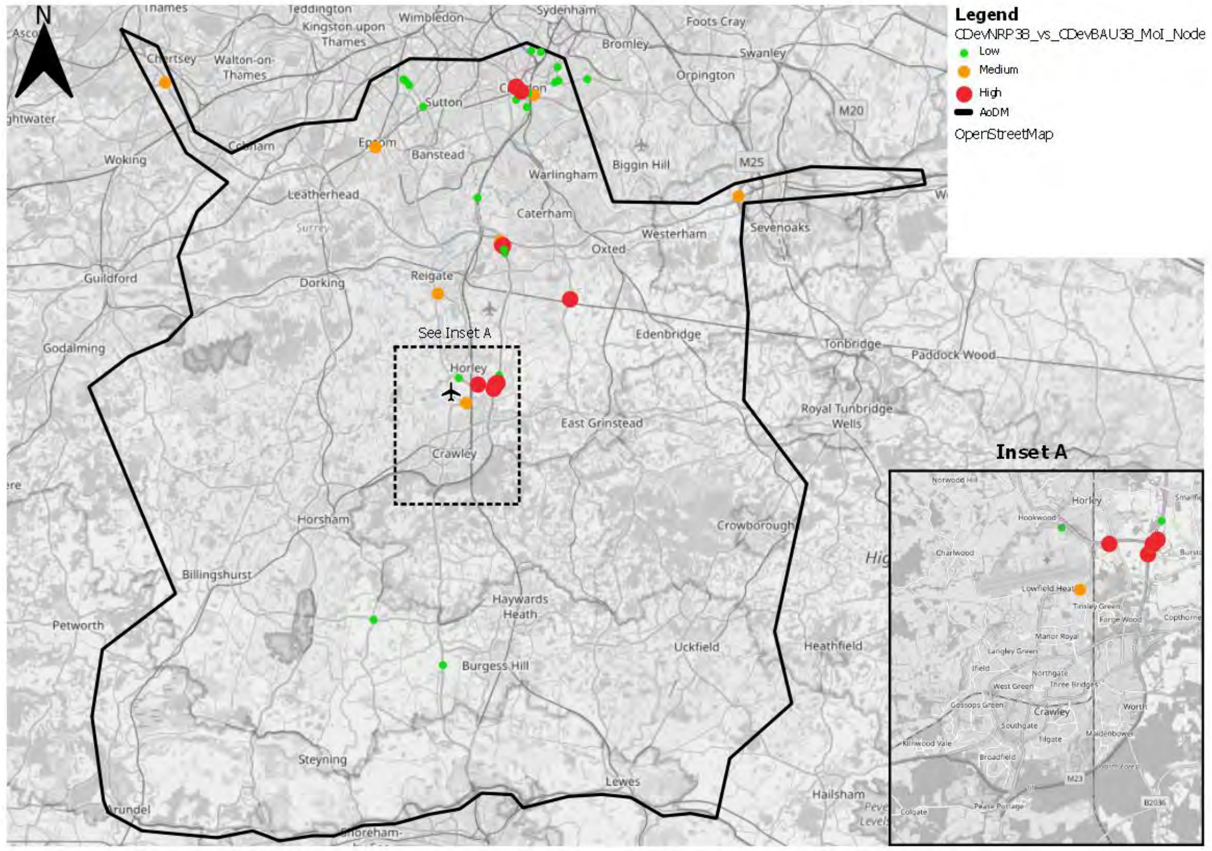
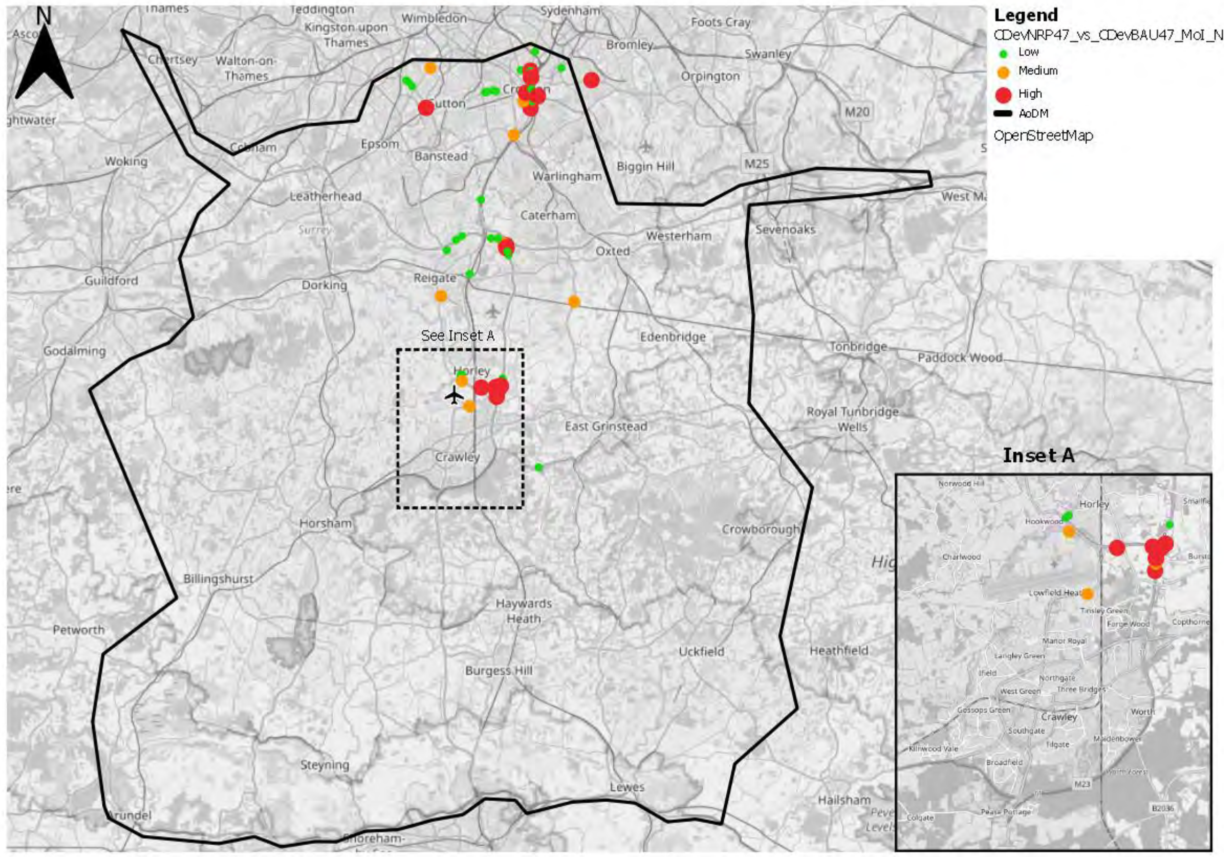


Figure 273: Magnitude of Impacts: 2047 CDev With Project to CDev



Comparison between core scenario impact and cumulative development impact

14.4.81 A comparison between the Magnitude of Impact analysis undertaken for the Core Scenarios outlined in Section 11 and Section 12 has been undertaken against the Magnitude of Impact for the Cumulative Development scenarios outlined in this section.

Cumulative Development With Project (CDev With Project) against With Project

14.4.82 Figure 274 and Figure 277 present the locations of nodes in 2029 to 2047 respectively for the Core and Cumulative Development With Project scenarios which have a medium or high impact in one of the scenarios and how this has changed in the CDev compared to With Project, either through a decrease in impact, increase in impact or is a new node in CDev.

14.4.83 Table 201 to Table 204 provides a detailed breakdown of the number of junctions with Low, Medium and High impacts in the Core Scenario and how this compares to the Cumulative Development Scenarios. The analysis shows that many of the nodes flagged in this analysis are north of the M25, in a part of the network which is heavily congested and shows model noise impacts over multiple scenarios. In Table 201 to Table 204, cells shaded in grey indicate where there is a higher impact in CDev With Project than With Project scenario, of particular note are those which showed negligible or reduction impacts in the With Project scenario but now show a Low/Medium/High impact.

Table 201: With Project and CDev With Project Impact Comparison 2029

		Impact in CDev			
	2029	Not Flagged as L/M/H	Low	Medium	High
Impact in Core	Not Flagged as L/M/H		0	1	1
	Low	5	1	0	0
	Medium	0	0	0	0
	High	2	0	0	0

Table 202: With Project and CDev With Project Impact Comparison 2032

		Impact in CDev			
	2032	Not Flagged as L/M/H	Low	Medium	High
Impact in Core	Not Flagged as L/M/H		6	6	4
	Low	5	4	1	0
	Medium	1	0	5	1
	High	0	0	0	2

Table 203: With Project and CDev With Project Impact Comparison 2038

		Impact in CDev			
	2038	Not Flagged as L/M/H	Low	Medium	High
Impact in Core	Not Flagged as L/M/H		13	4	3
	Low	9	6	0	0
	Medium	3	1	4	3
	High	1	0	1	5

Table 204: With Project and CDev With Project Impact Comparison 2047

		Impact in CDev			
	2047	Not Flagged as L/M/H	Low	Medium	High
Impact in Core	Not Flagged as L/M/H		12	4	6
	Low	6	10	2	2
	Medium	3	4	3	1
	High	0	0	3	8

14.4.84 The analysis shows that in 2029 there are 7 nodes, of varying impacts, which do not flag in the CDev With Project, but 2 new nodes which do. All of these are in the South London area.

14.4.85 In 2032 there are five nodes with Low impacts and one of Medium in the Core modelling that do not show in the CDev modelling, however, there are 18 nodes which show Low – High Impacts in CDev With Project that are at a higher level of impact than in the With Project scenario.

14.4.86 In 2038 there are nine nodes, all showing as Low Impact in the With Project scenario, but which are not showing this level of impact in CDev With Impact. Three nodes show Medium impact in the With Project scenario but negligible impact in CDev. One High Impact reduces to Medium Impact in CDev With Project. 23 nodes show higher levels of Impact in the CDev With Project than in the With Project scenario.

14.4.87 In 2047 there are nine nodes that show an impact in the With Project but do not in the Cumulative Development With Project. 27 nodes show a higher level of impact in the CDev With Project scenario. Many of these are Low impact nodes in the South London area and are deemed part of the model noise impacts.

Figure 274: CDev with Project against With Project MoI comparison 2029

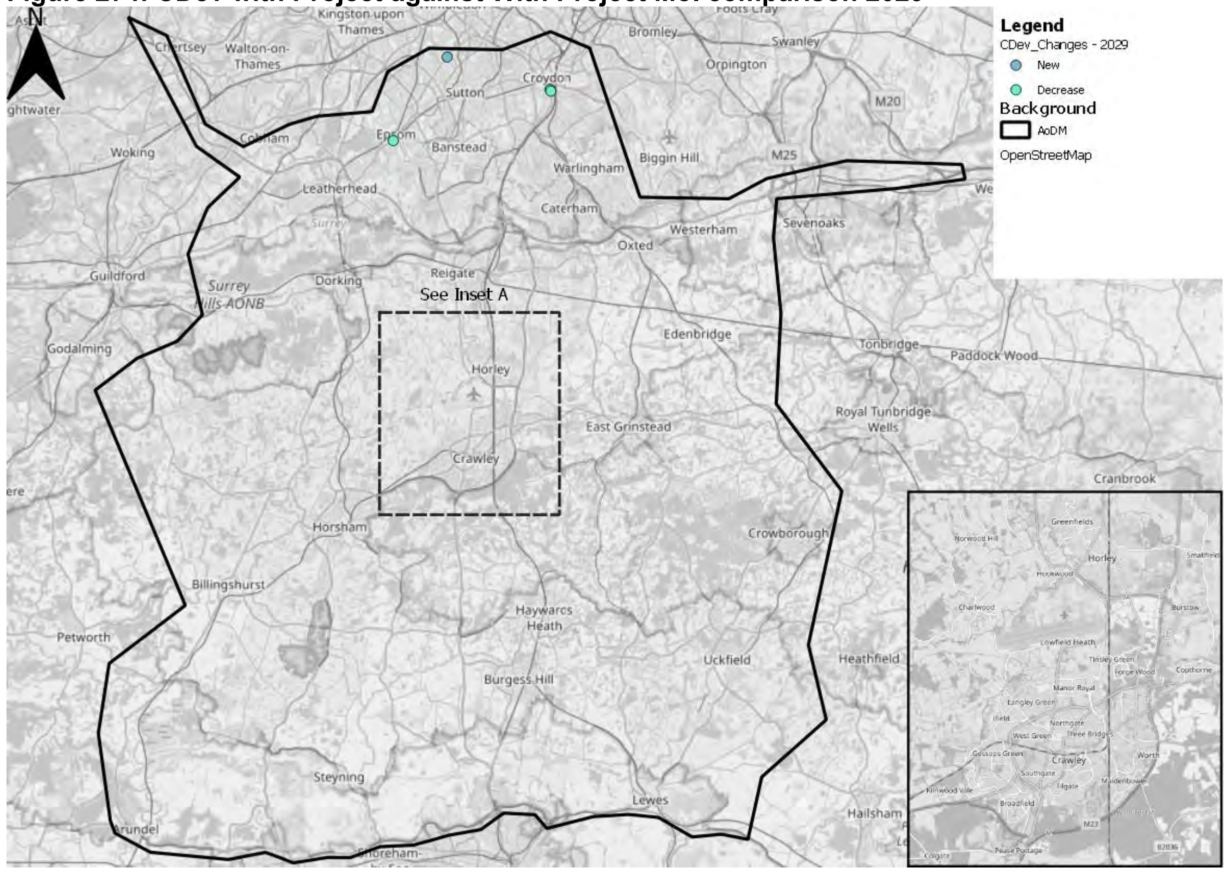


Figure 275: CDev with Project against With Project MoI comparison 2032

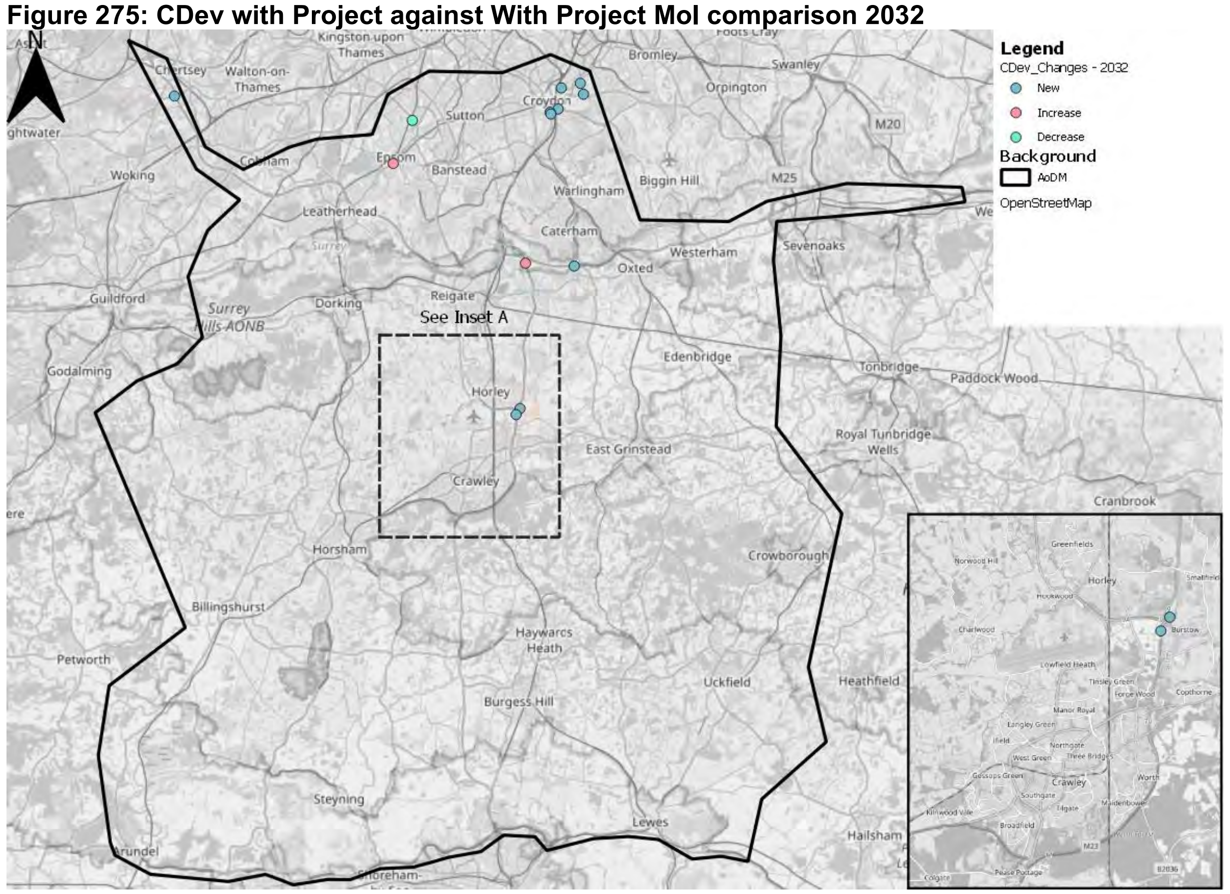


Figure 276: CDev with Project against With Project MoI comparison 2038

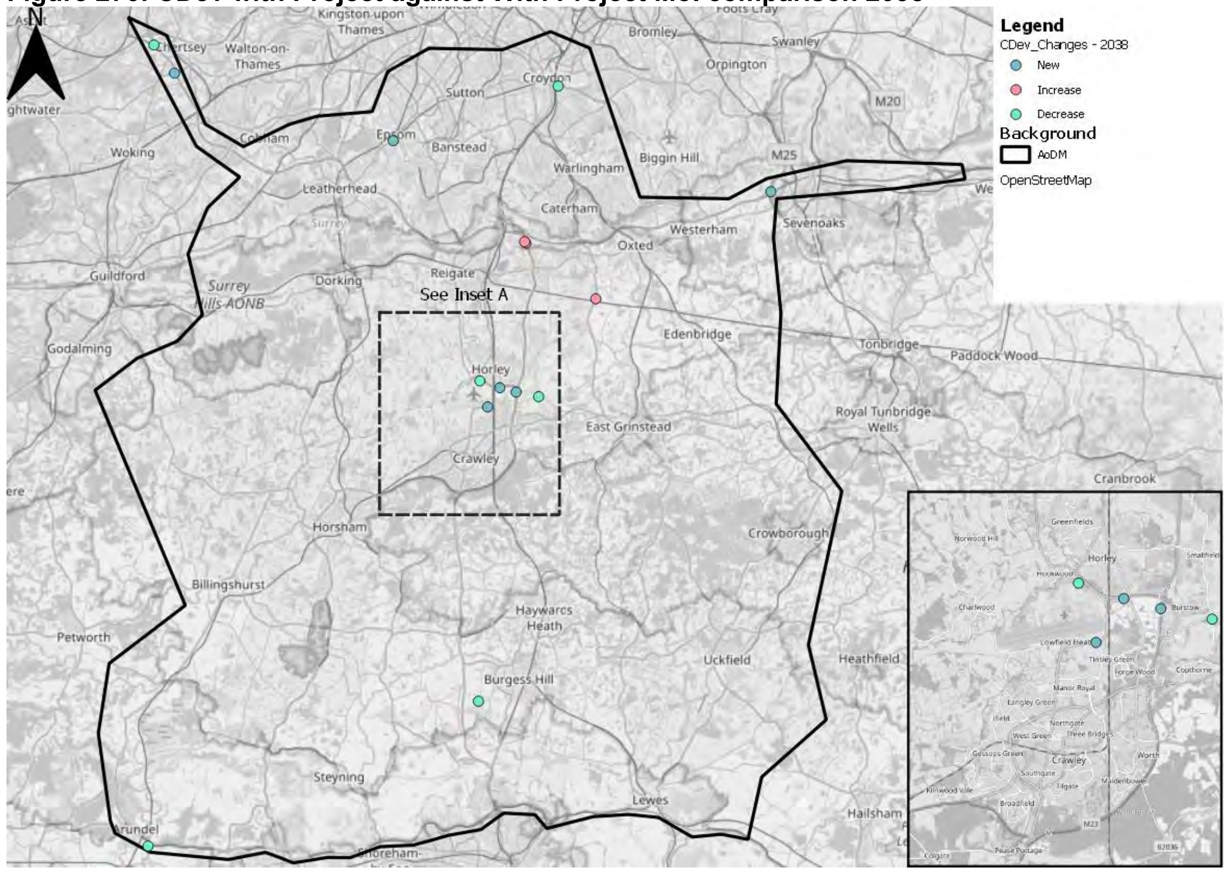
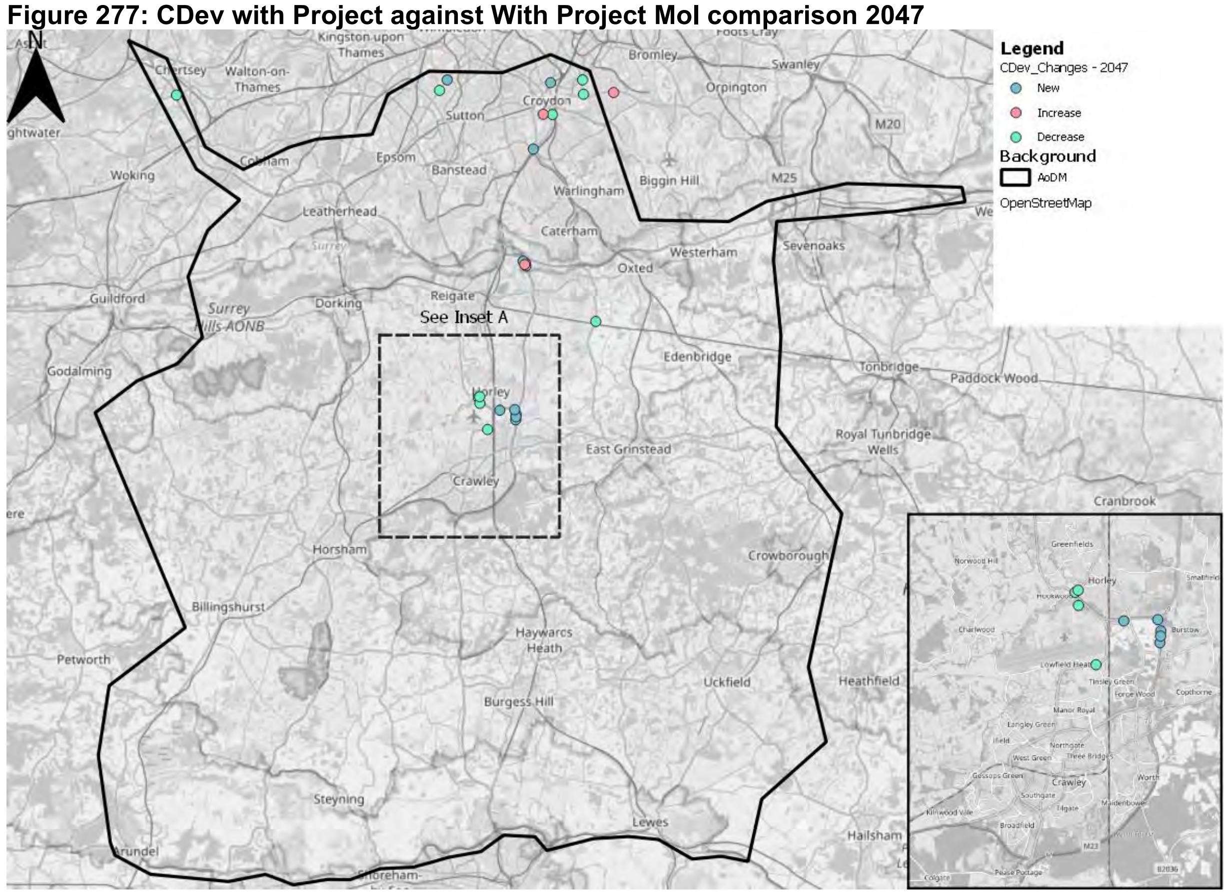


Figure 277: CDev with Project against With Project MoI comparison 2047



14.5 Public transport

14.5.1 The public transport shares and volumes along three corridors (Brighton Main, Arun Valley, North Downs) have been compared against the core scenarios (Sections 11 and 12). No material difference between the core scenarios and scenarios with CDev have been identified in each assessment year.

14.6 Convergence

14.6.1 The same standard of convergence has been achieved in the VDM, the highway model and in the crowded rail assignment model as was achieved for the core scenarios (Sections 11 and 12).

14.7 Summary and conclusions

14.7.1 This chapter has set out the highway and public transport analysis of the Cumulative Development Future baseline (CDev) on the Future Baseline scenarios reported on in Section 11 as well as the CDev With Project and CDev scenarios.

14.7.2 It is clear that the overall patterns and trends shown are very similar to the Core Scenario (Section 11) when the Cumulative Development travel demand is added, however, the impacts of the Project are greater, particularly in the AM1 time period.

Highway impacts

Cumulative Development

14.7.3 In the Future Baseline the additional impacts of the Cumulative Development are most noticeable in the traffic flow changes forecast in the Crawley area as a consequence of the additional traffic these developments provide.

14.7.4 The location of Horley Business Park means there are impacts at the South Terminal roundabout and in the vicinity of the airport in the Cumulative Development scenario.

14.7.5 Gatwick Green's location also leads to specific impacts on Balcombe Road.

Cumulative Development With Project

14.7.6 Cumulative Development With Project modelling shows some additional and some different nodes with Medium and High magnitude impacts in the forecast. There are some different nodes in South London which show impacts in the With Project scenarios. Given the locations, these are considered the product of localised route switching rather than of the Project. By 2047, the analysis shows that there are an additional six low impact, one medium, and six high impact nodes in the CDev With Project scenario compared to the core assessment set out in Section 1, although the analysis shows the location of nodes with impact differs between the scenarios.

14.7.7 Convergence results have been reviewed for each scenario which show the model converged. The network summary statistics show the model is providing logical responses over the modelled years.

Public transport impacts

14.7.8 There is no material difference in the public transport results between the Cumulative Development scenarios and the core scenarios set out in Sections 11 and 12.

14.7.9 No analysis of the effects of the cumulative development on Gatwick Railway Station has been undertaken given a lack of information on public transport volumes.

15 Summary and conclusion

15.1 Introduction

15.1.1 This report has set out analysis undertaken to support the assessment of Gatwick's Northern Runway Project. The Project seeks to increase airport capacity to 80.2 mppa, with improvements to the airport as well as improvements to the road network in the immediate vicinity.

15.1.2 This report sets out the assumptions, data and process undertaken in the development of the model, as well as assumptions and outcomes of forecast modelling undertaken using the GHOST suite – a strategic highway modelling suite. Associated microsimulation models have been used to consider the detailed operation the highway network in the immediate vicinity of Gatwick and this is reported on separately, as is the Legion station modelling.

15.1.3 Throughout the development of the models, stakeholders have been engaged to ensure assumptions are reviewed but also that this report covers key areas of interest.

15.2 Model overview

15.2.1 The GHOST HAM has been developed to simulate the performance of the network during an average weekday in June 2016. This has included multiple time periods to reflect both local and strategic network peak conditions and a network extent that reflects the area that is likely to be affected by growth proposals at Gatwick. 2016 was adopted as a base year as this reflected a relatively stable period of time pre COVID which was not adversely affected by roadworks on the M23, or significant service disruption on the Southern railway network.

15.2.2 The structure of the model includes specific segments for airport staff and passengers to enable more specific analysis of their behaviour on the network and ensure that changes to this can be reflected in the forecast models.

15.2.3 The development of the model is in line with TAG in how the model and its data sources have been assembled and how the model has been calibrated and validated.

15.3 Data

15.3.1 Data used to develop the model have been collected from a range of data sources to maximise the amount available to develop the GHOST HAM. The HAM networks (supply) used SERTM to provide a model-wide baseline of the road network, with additional detail added from other transport models including LOHAM and CLTM. The trip matrices (demand) for the model also used SERTM as a baseline, which was further enhanced with mobile phone data for London obtained as part of Project EDMOND. Additional detail related to the airport and study area were then added with the use of primary mobile phone network data collected specifically for this study and primary INRIX GPS data to aid the development of LGV and OGV matrices.

15.3.2 A range of directly observed transport data were obtained, reviewed, processed and adjusted to represent a typical weekday period in June 2016 for the purpose of model calibration and validation. This data was from a range of sources including WebTRIS, CLTM, TfL, SCC, WSCC and new primary data collection for this study. This included automatic traffic count data, manually classified link and turning counts, and journey time data. Full reviews of the consistency of data were undertaken to ensure its suitability for use within the model.

15.4 Networks

15.4.1 The model networks have been developed using a range of data sources to provide clear enhancements to the level of detail in the source SERTM networks. This has looked to increase the detail around the airport and in Crawley by using WSCCs CLTM. In London, TfLs LoHAM has been adopted to provide a detailed representation of the south London network that improves the fixed speed coding adopted in SERTM in the Croydon area, and the use of updated data for the fixed speeds across the remainder of London to align it with TfL models.

15.4.2 A common set of coding standards was adopted to ensure that a level of consistency between the coding styles was maintained when merging these different sources of data. More detailed zoning was included in the Study Area to reflect the increased level of network representation, helping to support more detailed assignment of trips to the network to reflect local travel conditions.

15.5 Forecast methodology

15.5.1 This report has outlined that the approach taken to dealing with future demand and supply side changes is in line with TAG and adopts an approach which is also proportionate, particularly with respect to the modelling of large developments. All forecasting is inherently uncertain and the methods used adopt standard approaches to address this. An Uncertainty Log of transport schemes and developments has been developed and reviewed by Stakeholders and underpins the forecasting. The forecast models are underpinned by validated base models.

15.5.2 The base year of the models is 2016 and since then the UK has been through the COVID-19 pandemic of 2020-2022 which has had significant implications for travel patterns and demand levels over the past few years. In the short term there was a collapse in demand across all modes: highway, rail and aviation. Demand has yet to recover to pre-pandemic levels. The modelling excludes any impact of the pandemic for modelled years 2029 onwards so may be overestimating the level of future baseline demand, if demand levels do not return to in the near future.

15.5.3 A set of Core Scenarios have been run alongside a set of Cumulative Development scenarios. These cover all four years 2029, 2032, 2038, and 2047 Future Baseline and With Project scenarios. In addition, airfield and highway construction scenarios have been run using 2029 models to understand the likely implications of constructing the Project.

15.5.4 The results from the modelling, both in the Future baseline but also the With Project have been assessed through considering changes in AADT, changes in time period based flows, changes in journey times, changes in operational performance (volume capacity ratios), and through a Magnitude of Impact assessment.

15.5.5 The results of the modelling have been processed into AAWT/AADT to support the Environmental Assessments (Air and Noise).

15.6 Northern runway assumptions

15.6.1 The Project, which involves some alterations to the existing standby runway and changes to planning conditions, is anticipated to increase airport capacity up to 80.2 mppa by 2047, compared to a maximum potential capacity based on existing facilities of 67.2 mppa within the same timescale. This represents an increase of approximately 13 mppa.

15.6.2 The modelling assumes that the potential Heathrow R3 does not come forward. This is considered a robust approach as Gatwick demand would likely reduce in the early period of a third runway opening, while by 2047 it is anticipated that demand at Gatwick would recover to be broadly similar with or without Heathrow R3.

15.6.3 Passenger demand at the airport is highly seasonal. Analysis has been conducted to understand how seasonality will change over the forecast and the impact of changes in market mix. The Core modelling, indeed the Base Year 2016 model also, adopts a June month as a robust baseline on which to pivot the forecasts from.

15.6.4 Alongside passenger growth, the modelling has considered growth in cargo and good vehicles as well as employment growth.

15.6.5 Car parking forms an important component of the assumptions underpinning the modelling. Car parking assumptions have been considered for on- and off- airport air passenger self-parkers, on- and off- airport valet car storage and on-airport employee parking separately. Growth in on-airport parking is for passengers only.

15.6.6 The Surface Access Commitments (SACs) document sets out the committed mode shares for improving Gatwick's position as a regional transport hub through improvements to bus, rail and sustainable transport. The headline commitment is to achieve 55% of air passenger journeys by public transport within three years of the opening of the new northern runway.

15.6.7 To support the growth of the airport the Project proposes upgrades to Gatwick Spur (Formerly M23 Spur), South Terminal Roundabout, North Terminal Roundabout and Longbridge Roundabout. These schemes are shown to mitigate against significant effects in this area whilst providing extra capacity across the corridor.

15.7 Reference Case forecasting

15.7.1 Information is provided on the reference case forecasts which represent the growth projections assuming travel behaviour remains fixed without any response to changes in travel costs (ie due to congestion or charges).

15.7.2 For the reference case background highway demand (non-airport), between 2016 and 2047 Future baseline scenarios there is a 26% growth in business trips, 22% growth in commuting trips, and 34% growth in 'other' trips. LGV trips grow by 47% and HGV trips grow 8% over the period.

15.7.3 Baseline air passenger trips that are car based rise by 33% and car based airport employee trips rise by 25%.

15.7.4 For reference air passengers, both rail and car access modes grow highest in the AM peak due to changes in the air schedule causing landside growth in the AM peak. Growth is higher for rail than for car because growth is more significant at times of high rail share. Employee related travel growth is estimated at 25% between 2016 and 2047, similar on both modes and in all time periods.

15.7.5 Overall growth in travel demand across all users in the network between 2016 and 2047 is 30% for highway and 29% for rail. This is an annual average growth rate on both networks of around 0.8% per year.

15.8 Future baseline/With Project

Mode shares

15.8.1 The air passenger and airport employee mode shares fall for car modes and rise for public transport modes compared with 2016 and 2019 observed mode shares. This is the consequence of deteriorating speeds on the highway network, improvements to bus and coach frequencies, and increased parking and forecourt access charges. This trend is consistent in both the Future baseline and With Project scenarios.

15.8.2 In the 2016 base, annual air passenger surface access mode shares at Gatwick are 37% rail, 6% bus/coach (43% public transport). By 2019 the public transport mode shares as recorded in CAA surveys have already risen to around 46%. This trend is forecast to continue as the public transport offer improves and as highway congestion grows, and is further strengthened by Gatwick policies supporting shift to public transport. In the Future baseline, the annual average public transport share for air passenger surface access is forecast to rise to 52%; and in the With Project case (where further investments are made in public transport and higher charges applied to car users) to 56% by 2047.

15.8.3 The employee car solo (single occupancy) share in 2016 was 55%. As improvements are made to local public transport and Gatwick charges are applied to single-occupancy commuter car parking (With Project case only), the car solo share is forecast to drop to 49% in Future baseline and 45% With Project.

Highway

SRN

15.8.4 From 2016 to 2047 there are forecast increases in traffic flows within the Future baseline scenarios. Consequently, congestion and travel times increase across the network, particularly on the SRN as a consequence of the growth projected and in the absence of further schemes introduced beyond those already committed in investment plans. This is particularly relevant for the latter part of the assessment period, eg 2038 and 2047.

15.8.5 The With Project scenario shows increases in flows on the M25 and M23 compared to the Future baseline. Despite this growth, the Project has minimal impact on journey times across the network, but also results in a reduction in some journey times on routes past the airport as a result of the introduction of the highway mitigation which provides a step change in capacity through the M23 Spur corridor.

Performance Area A

15.8.6 In Performance Area A, the model shows a number of impacts in the vicinity of the airport as a consequence of baseline growth. The Future baseline scheme at South Terminal and North Terminal plays a role in helping to mitigate these impacts but in spite of this. The microsimulation model provides useful insights on the operation of the network in this area.

15.8.7 With Project there are junction improvements at Longbridge Roundabout, North Terminal and South Terminal which facilitate both the Project growth but also provide benefits to existing users.

Performance Area B

15.8.8 In Performance Area B, the model shows that the majority of impacted nodes are on the M25 in both directions between J6 and J8, which is again due to significant forecast background growth increasing congestion through the corridor. There are also impacts shown in the model such as along the A25 in Redhill and on the A264 at Copthorne and East Grinstead.

Performance Area C

15.8.9 In Performance Area C, the model shows a large number of impacts along the M25 and in the Croydon and Sutton area due to the significant background growth in these areas. Reviews of the model in this area show that much of this is due to model noise in the area where traffic is switching between routes. This growth has also contributed to increased congestion in the area which has resulted in increased journey times on route though the area over the modelled period. However, there are few instances of Volume to Capacity ratios changing significantly on any links in the area between 2029 and 2047.

15.8.10 Impacts of the Project in Performance Area C are generally deemed model noise related due to the high levels of congestion in the Croydon area and limited changes in overall traffic generated by the Project. Despite this, the **Transport Assessment** looks at all the Medium and High magnitude impacts. The journey time increases seen, are the product of some of the localised re-routing.

Performance Area D

15.8.11 In Performance Area D, the model highlights potential impacts of the Future baseline growth ambitions at junctions in the Burgess Hill area.

15.8.12 Performance Area D shows only minimal impacts With Project: there are no significant journey time increases. In 2029, 2032, and 2047 there are no Medium or High magnitude impact nodes, and only two Medium in 2038.

Public transport

15.8.13 From 2016 to 2047 there is an increase in the rail and bus/coach share, and this is increased further With Project.

15.8.14 In the Future baseline, the rail related load factors increase such that there is increased standing on the Brighton Mainline, and for longer than is observed in the base. This increases in the With Project scenario, however, not significantly, and only from 2038 onwards northbound in the AM, and from 2032 in the southbound PM.

15.8.15 There are around 5 more standers per carriage forecast in the Project case than in the Baseline in the worst hour in the peak direction. The standing forecast is well within the standing capacity of the trains. The Thameslink Class 700 trains are designed for standing in the peaks. The demand forecast takes no account of short or longer term changes in public transport use resulting from the Covid pandemic and therefore the volumes of background rail demand may be over-stated in all future years.

15.8.16 There is no material crowding forecast for the Arun Valley Line and the North Downs Line.

15.9 Construction scenarios

Airfield construction

15.9.1 A scenario during Airfield construction has been developed assuming potential construction activity effects on road traffic capacity. The modelling has shown that there are minimal impacts as a consequence of the airfield construction, particularly within the vicinity of the airport.

Highway construction

15.9.2 A scenario during the highway construction works was undertaken assuming reduced road capacity related to construction works. The highway construction scenario highlights temporary, high magnitude impacts in the immediate vicinity around Gatwick.

15.9.3 The AADT changes are consistent with impact such road traffic management would have on the network with reductions in AADT past the airport and on the A23, indicative of the wider re-routing. There are AADT reductions as far as Pepworth (west of the Airport along the A272), the product of minor logical reductions in flows in the models. There are AADT increases along the M23, as well as, local roads such as Balcombe Road and Crawley Avenue (east of Hazelwick Roundabout).

15.9.4 The analysis shows a maximum of five nodes in the model which experience High impacts, in the AM2, and these are located primarily on the area of traffic management. A number of impacts are shown in the Croydon area which are deemed model noise effects and not impacts resulting from the Project.

15.10 Cumulative Development scenarios

15.10.1 The Cumulative Development scenarios consider the impact of the three reasonably foreseeable developments of Horley Business Park, Gatwick Green, and West of Ifield. Given this status they do not form part of the Core scenarios but their geographic locations and the potential scale of development mean they merit specific consideration.

15.10.2 Overall patterns and trends shown in the Core scenarios are retained on addition of the cumulative development with the Project showing further impact in these scenarios, particularly in the AM1. A review of the number of sites impacted in the CDev With Project compared to the With Project indicates that in 2047 there are nine nodes which showed impacts in the With Project scenario but do not in the CDev With Project. There are 27 nodes which show a higher level of impact in the CDev With Project scenario, although 12 of these are low level impacts.

Mode shares

15.10.3 When compared to the Core With Project air passenger mode share forecasts, the Cumulative Development With Project scenarios show a similar pattern.

15.10.4 Every mode has an increase in trips for air passengers between 2016 and 2047 and all mode share percentage over this time period remains the same with Rail having the highest mode share. The three developments do not have any impact on air passenger mode share (16% Car - park & fly, 13% Car - kiss & fly, 2% Car rental, 16% taxi, 45% rail and 8% bus/coach mode share in 2047 CDev With Project).

15.10.5 For airport employees, there is no change in mode share greater than 1.2 percentage points for each mode, with a small reduction in car mode share compared to With Project. In the 2047 CDev With Project scenario, car solo is 44%, car share 7%, company car 5%, 17% rail, bus/coach 22% and active mode 4%.

Highway impacts

15.10.6 The impact of the Project is similar in overall patterns and trends with some impacts shown in the immediate vicinity of the airport, at the M25 J8/M23 J7 interchange and impacts in central Croydon. The latter being considered mainly due to the congested nature of the area and route switching in the models.

15.10.7 The modelling also shows that with the cumulative development Gatwick Road Roundabout shows impacts from 2038 rather than 2047 like it does in the Core scenario.

15.10.8 There are large impacts to flows at South Terminal roundabout and adjacent roads as a consequence of the Horley Business Park development and the impact on movements this has at South Terminal Roundabout. However, in the absence of a full design for access arrangements to the Horley Business Park site the modelling assessment presented is inconclusive.

15.10.9 There are no With Project specific impacts in the immediate vicinity of the West of Ifield and Gatwick Green developments.

Public transport impacts

15.10.10 Public transport results for these scenarios were reviewed and showed no material difference to the Core scenarios and, as such, have not been reported on in this document.

15.11 Overall summary and conclusion

15.11.1 This report has set out the assessment of Gatwick's Northern Runway Project using the GHOST modelling suite. It has set out a robust set of assumptions used in the forecasting of demand growth and supply side changes. The modelling undertaken is considered a sound basis on which conclusions can be drawn of the impact of the Project.

15.11.2 This report has assessed the impact of the Project against numerous metrics. The modelling has shown the scheme to have localised impacts near Gatwick and on the M23 and the worst impacts are mitigated for through the proposed mitigation scheme.

15.11.3 Additional analysis of the forecast demand and effects is presented in the transport assessment and environmental statement which considers the impact of the Project in further detail.

16 Glossary

Acronyms	Full Name
AAGR	Annual Average Growth Rate
ANPR	Automatic Number Plate Recognition
ASAS	Airport Surface Access Strategy
AoDM	Area of Detailed Modelling
AONB	Area of Outstanding Natural Beauty
ARN	Affected Road Network
ATC	Automatic Traffic Count
ATMs	Air Traffic Movements
BAU	Business as Usual
CAA	Civil Aviation Authority
CIF	Common Interface File
CLTM	Crawley Local Transport Model
DCO	Development Consent Order
DfT	Department for Transport
DLR	Docklands Light Rail
DMRB	Design Manual for Roads and Bridges
ESCC	East Sussex County Council
FMA	Fully Modelled Area
GAP	Minimum gap (in seconds) accepted by a vehicle which gives way at priority junctions or traffic signals. N.B. This sets the universal default value which may be over-ridden at individual nodes.
GEH	The GEH statistic, which is a form of the Chi-squared statistic that incorporates both relative and absolute errors
GHOST	Gatwick Holistic Overview of Strategic Transport
GPS	Global Positioning System
GSAM	Gatwick Surface Access Model
GTFS	General Transit Feed Specification
GTR	Govia Thameslink Railway
HAM	Highway Assignment Model
HGV	Heavy Goods Vehicle
IEMA EIA	Institute of Environmental Management and Assessment, Environmental Impact Assessment
INRIX	Data analytics company
LA	Local Authority
LGA	London Gatwick Airport
LGV	Light Goods Vehicles
LMVR	Local Model Validation Report
LoHAM	London Highway Assignment Model
MCC	Manual Classified Count
MCTC	Manual Classified Turning Count
MND	Mobile Network Data
MPPA	Million Passengers Per Annum

Acronyms	Full Name
MSOA	Middle layer Super Output Areas
NDC	Nationwide Data Collection
NRP	Northern Runway Project
OGV	other goods vehicles
PCU	Passenger Car Unit – representing the amount of road space a vehicle occupies on the road network
PEIR	Preliminary Environmental Impact Report
PP	Percentage Point
PPK	Pence per kilometre
PPM	Pence per minute
R3	(Heathrow) Third Runway
RDG	Rail Delivery Group
RIS	Road Investment Strategy
SCC	Surrey County Council
SERTM	South East Regional Traffic Model
TAG	Transport Analysis Guidance
TEMPro	Trip End Model Presentation Program
TfL	Transport for London
TOCs	Train Operating Companies
VDM	Variable Demand Model
VOC	Vehicle Operating Costs
VoT	Value of Time
WebTRIS	National Highways Traffic Information System
WSCC	West Sussex County Council

Annex B: Strategic Transport Modelling Report

Transport Assessment Annex B – Strategic Transport Modelling Report - Appendices

Table of Contents

Appendix A

Demand Model Technical Note

Technical Note

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Project title	Gatwick Airport transport model development	Job number	264520-05
cc		File reference	
Prepared by	Arup	Date	17 May 2023
Subject	GSAM estimation - Final		

1 Introduction

This technical note describes the GSAM mode choice models of travel to/from Gatwick Airport. GSAM stands for Gatwick Surface Access Models. There are two parts:

- air passenger models called GapSAM (Gatwick air passenger Surface Access Model); and
- an employee access model called GemSAM (Gatwick employee Surface Access Model).

The GSAM model application is embedded within the overall strategic model that Arup has developed for Gatwick Airport Limited (GAL) to assess transport impacts arising from growth strategies at Gatwick Airport, to test mitigations of transport impacts such as highway congestion and rail crowding, and to provide the transport evidence for GAL to support Development Consent Order (DCO) applications to develop the airport.

It is expected that the model will be used to evaluate transport outcomes from the base year, 2016, and intermediate years to 2047 or thereabouts, for a variety of growth options and scenarios that could see an increase in air passengers from the pre-Covid base of ~45 mppa (million passengers per annum) to totals in the region of ~80 mppa.

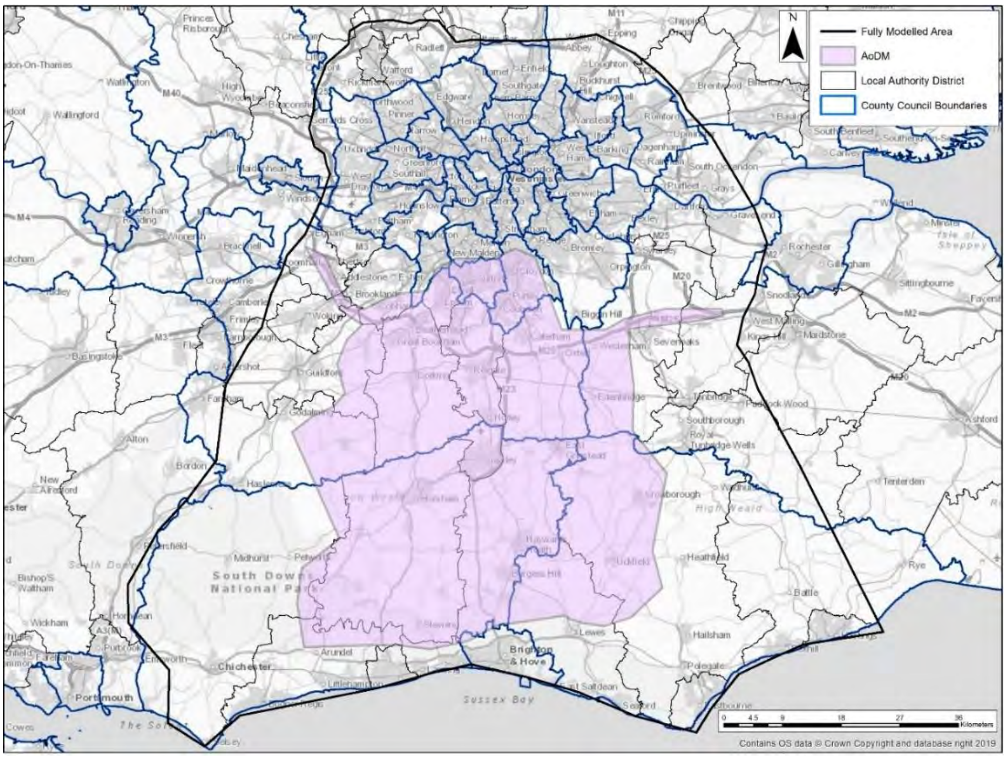
GSAM is a key component of the strategic model; its role is to forecast how the surface access mode choices of air passengers and airport employees change as transport supply times and costs change.

2 Strategic model overview

The strategic transport model has 1423 zones (1393 base, 15 for future year developments, and 15 spare) and comprises the following components:

- a SATURN highway model covering south-east England, derived from the Highways England (HE) South East Regional Transport Model (SERTM), with significant network and matrix enhancements added in the Gatwick Airport area. The area of detailed modelling is shown in Figure 1, with a coarser network extending over the rest of the London, South East and East of England regions;

Figure 1 - SATURN area of detailed modelling

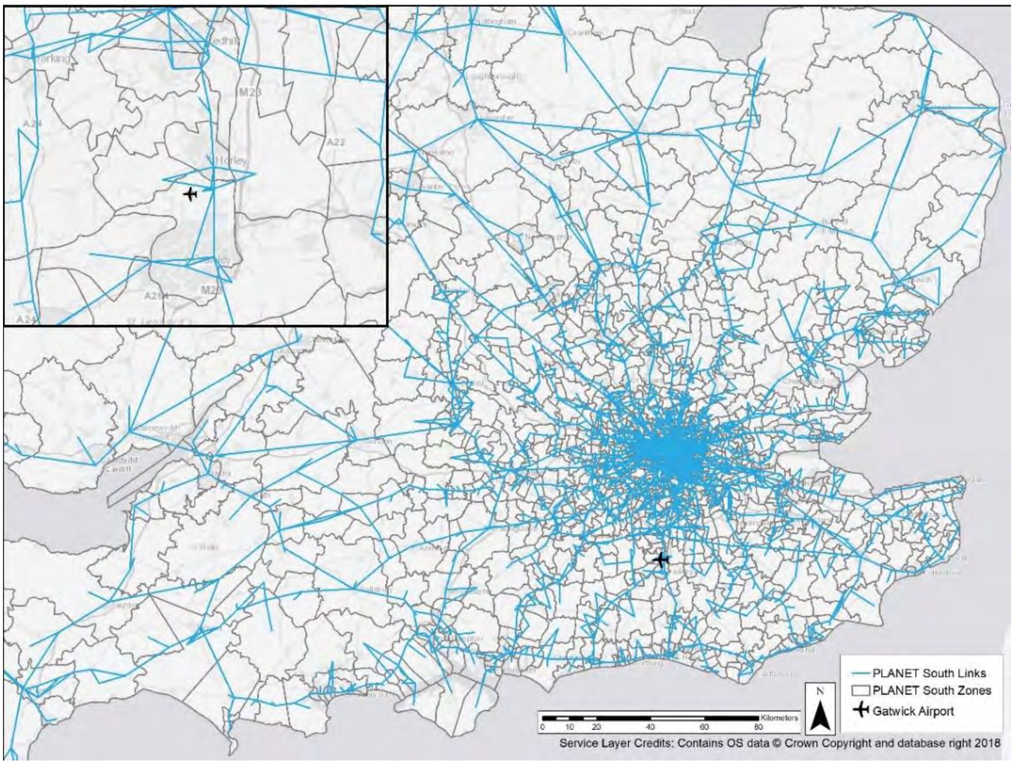


- a rail model, built in EMME software, based on the DfT PLANET South model, covering all of the London and SE (former LSE) area. The coverage is shown in Figure 2;
- a bus/coach model, in EMME, covering the entire GB coach network and local buses in the Gatwick, Horley and Crawley area;
- a Variable Demand Model (VDM) to calculate changes in trip distribution and mode choices for non-airport travel; and
- GSAM to calculate changes in mode choice for airport passengers and employees.

The highway, rail and bus/coach models provide trip assignment capability and zone-to-zone skim times and costs for the VDM and GSAM.

The VDM provides demand modelling for all trip purposes other than Gatwick airport passengers and employees. It is an incremental distribution / mode split model based on the guidance in TAG Unit M2 and is similar in scope to the demand models of the HE Regional Traffic Models (RTMs).

Figure 2 - Rail model coverage



In the rest of this technical note we describe the data used, process followed, and results obtained from estimation of the GSAM choice models. We then present validation of the choice models and discuss the elasticities obtained from realism/sensitivity tests, including comparison against LASAM[1] (a DfT airport surface access choice model for Gatwick and Heathrow airports), HeSAM (Heathrow employee Surface Access Model) and elasticity guidelines in TAG M2.

[1] London Airports Surface Access Model. It was the model used by Heathrow Airport Limited for the 3rd runway DCO application and expansion to 142 mppa. The Preliminary Transport Information Report was published in June 2019. It was developed using data for Stansted, Heathrow and Gatwick.

3 Existing airport surface access models

At the start of the project a review was made of available airport mode choice models and of the requirements for the current study. The DfT Aviation Modelling Suite was reviewed, which includes modules to forecast:

- national air passenger demand using 'National Air Passenger Demand Model' (NAPDM;
- choice of airport using 'National Air Passenger Allocation Model' (NAPAM); and
- access mode choice[2] using 'Son of South East Regional Air Service Model' (SoSERAS).

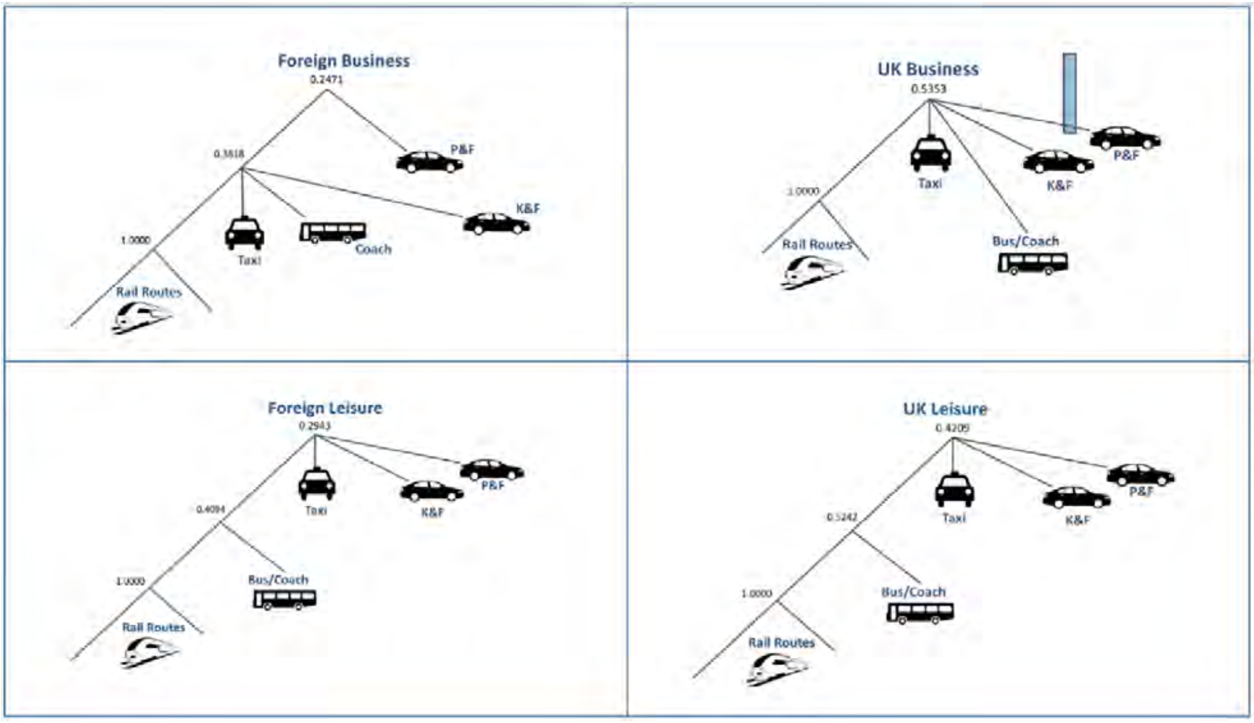
Responsibility for the first two bullet points above rests with other consultants engaged by GAL. Surface access mode choice is in Arup's scope. At the time of the review in early 2019, SoSERAS had only been completed recently. Arup reviewed the short summary report and considered that SoSERAS would be an appropriate model; and the initial plan was to replicate SoSERAS as GSAM. Subsequently, following discussions with DfT it was agreed that Arup would not use SoSERAS but would undertake new model estimation for GSAM.

The parameters, hierarchies and segmentations of SoSERAS (which are based on earlier airport surface access models SERAS, LASAM and HSAM) are shown in Figure 3.

For airport employees, there is a subsidiary model, 'SoSERASe' where the 'e' stands for employees. This has a single segment (all employees) and four modes: single occupancy car, car share, PT and Other. It has a flat choice structure and we do not have access to the choice parameters.

[2] Heathrow and Gatwick only

Figure 3 - SoSERAS choice structures and parameters: air passengers



4 GSAM overview

An overview comparison of GSAM (Gapsam for air pax; Gemsam for employees) versus SoSERAS and SoSERASe is given in Table 1.

Table 1 - Comparison of SoSERAS and GSAM models

Item	SoSERAS	GapSAM	SoSERASe	GemSAM
Zones	406 zones	1423 zones	473 zones	1423 zones
Base year	2012	2016	2012	2016
Modelling Periods	AM and IP	AM, IP, PM, OP1, OP2, OP3	AM and IP	AM, IP, PM, OP1, OP2, OP3
Base data source	NAPAM (derived from CAA surveys)	CAA surveys (2015-2018) and terminal counts (Jun 2016)	Gatwick employment survey 2012	Gatwick employment survey 2016
Highway skims	NAAM2 (IP) with factors to AM	Gatwick strategic highway model (AM, IP, PM, OP)	NAAM2 (IP) with factors to AM	Gatwick strategic highway model (AM, IP, PM, OP)
PT skims	NAAM2 (IP)	Gatwick rail and bus/coach models (AM, IP, PM, OP1, OP2, OP3)	NAAM2 (IP)	Gatwick rail and bus/coach models (AM, IP, PM, OP1, OP2, OP3)

The time periods referred to in Table 1 are AM (07:00-09:00), IP (09:00-16:00), PM (16:00-18:00), OP1 (18:00-24:00), OP2 (00:00-04:00), and OP3 (04:00-07:00).

SoSERAS and SoSERASe are applied as incremental logit models. The incremental approach to forecasting is generally favoured by DfT as it results in less error as forecast mode share changes are pivoted from a well-founded base position.

The incremental approach is also adopted for GSAM.

The process followed for specifying, estimating, and validating GSAM is summarised as follows:

- obtain behavioural data for the period around / including the model base year 2016 – databases were provided by GAL from the CAA rolling survey of departing airport passengers, and from the most recent periodic employee travel survey (Spring 2016);
- prepare a database of transport times and costs from the highway, rail and bus models and other sources such as rail fares databases, taxi rates etc and join to the behavioural data;
- set up the scripts to estimate models using Biogeme (v3.2.6);
- define utility functions, such as those in SoSERAS and other reasonable formulations;
- estimate model parameters for a multinomial logit model;

- assess the model, considering overall fit; significance; magnitudes and signs of the parameters; key ratios, eg the value of time; and other sensibility and reasonableness tests;
- vary the utility functions and apply corrections and transformations to inputs. Repeat above three steps, testing a range of alternative utility functions;
- when no further improvements can be found, test alternative hierarchies (nesting structures) for improved model fit and plausibility;
- run the final models on the survey database to check that observed mode shares are replicated with reasonable accuracy;
- implement the final models in the GSAM application and undertake base realism tests to check sensitivities (elasticities);
- compare the elasticities against benchmarks from other models and DfT guidance; and
- engage expert reviewer to advise on suitability and assist in finalisation.

5 Data sources

5.1 Introduction

There are two main data requirements for model estimation:

- behavioural surveys giving the details of trips made, modes selected, and other information that can be used in the utility functions or for segmentation, eg trip purpose, time of travel; and
- transport times and costs to/from Gatwick Airport by each mode in the choice set, for each record in the behavioural survey file.

5.2 Behavioural surveys

5.2.1 Air passengers: CAA survey

For the air passenger models (GapSAM), behavioural survey data was provided by GAL from the CAA continuous passenger surveys undertaken at Gatwick Airport. Four years of data were provided for January 2015 to December 2018. After removing transfer passengers (who do not make a surface access trip at Gatwick), around 100,000 records remained for input to estimation.

There was disruption on the rail networks that caused suppression of rail at Gatwick in 2015-2018 due to the Thameslink Programme, London Bridge station reconstruction and problems with introduction of new timetables on its completion. It is evident from the CAA surveys that there was a jump in rail use between 2018 and 2019 corresponding to the time when a reliable service was restored. As such we would expect estimated parameters based on 2015-2018 data to require adjustment for forecasting after 2018 when normal service was restored on the Brighton Main Line[3].

The CAA surveys were undertaken in the airport departures area and the questions relate only to the outward (departure) flight. The survey captures UK based passengers on their outward leg and Non-UK based passengers on their return leg. No data is collected for the other (arrivals) direction – the survey provides excellent data on airport surface access but nothing on airport surface egress.

The modes used in the non-surveyed direction are not known. We can see from the 18 hr gateline data at Gatwick Airport station that for the two years of data we have (2017, 2019) around 4% more people entered the station than exited the station between 05:00 and 23:00. Whether the 18 hour imbalance also applies over 24 hrs is not known (the gates are locked open 23:00-05:00). We are not aware of imbalances for other modes, but it is possible that some people chose different modes on their inward and outward journeys. Our lack of data on this is a limitation. Neither GAL nor CAA have undertaken surveys for the flight arrivals direction, so our only option is to assume that mode choices in the arrivals directions are similar to the departures direction.

[3] To address this, a 2019 calibration update was undertaken using CAA data to adjust rail and the other ASCs to accommodate the changes in mode share seen at the transition from the period of poor reliability 2015-2018 to normal reliability in 2019. The value of this was found to be equivalent to around 8 minutes of rail in-vehicle time.

Our understanding of the other major airport surface access models is that the behavioural models were developed using only departures data and that the application of the model was subsequently to both directions.

It would enhance the value of the CAA survey to transport planners if, in future, respondents were also asked for basic details of their surface access journey in the reverse direction.

The fields include home location, journey start location, trip purpose, travel mode to Gatwick, group size, trip duration, income, and a weight representing the expansion factor to the population.

5.2.2 Employees: Gatwick employee survey, 2016

For the employee model, behavioural survey data was obtained from the Gatwick Employee and Employment survey that GAL undertakes periodically of all employees who work within the airport. The last one, used in this study, was taken in Spring 2016. The fields include job type, work start and end times (for up to three shifts), home location and travel mode.

There were 5,323 usable responses from a total workforce of around 23,000. GAL also provided a survey report describing the findings[4].

[4] 2016 Travel to Work Survey Report

6 Survey data analysis

6.1 CAA survey

The CAA survey data is well coded, cleaned and presented. The main task to be completed before it could be used in model estimation was to impute (infill) missing data fields.

To match the CAA trip records to times/costs from the assignment models, the trip origin zone had to be identified. The postcode of 'journey start' was used for this. For records without a full postcode, a random postcode was drawn, consistent with whatever locational information was provided, eg if a complete outward code was provided but no inward code, a random postcode was drawn from the list of all postcodes in that outward code area, eg RH12 → RH12 4AQ.

If no postcode was provided, the local authority was used following a similar process, eg Horsham → RH12 4AQ. When all records have a full postcode, the model zones can be determined with appropriate transport times and costs joined to each record.

The records with infilled postcodes were flagged in the input database so that estimations with and without the infilled records could be compared. The main model estimations used all records and included the infilled data; to test for any bias, a sensitivity testing was undertaken with just the complete data records.

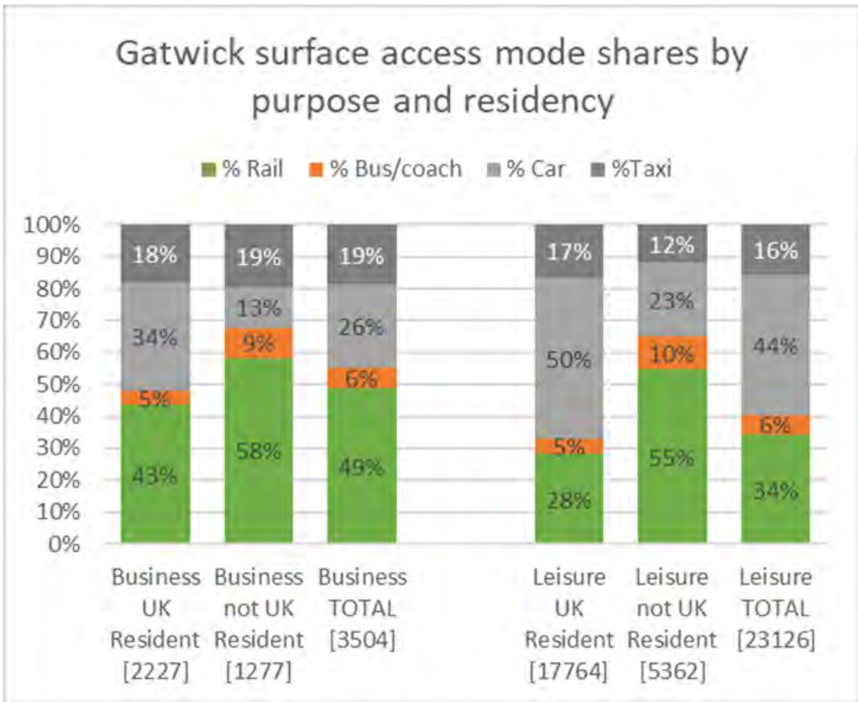
To expand and control four years of CAA data to June 2016 (the model base), a combination of the expansion weights provided in the CAA file (based on total passengers by airline route by quarter) and terminal departure counts provided by GAL were used. Some CAA expansion weights were capped to avoid unreasonable influence of large outliers. Further adjustments were made to ensure that surface access travel characteristics for June (trip purpose, residency etc) were obtained in the final weightings. The mode shares for surface access at Gatwick Airport in June 2016 were as follows:

- walk/cycle 0.1%
- rail 33.6%
- bus/coach 5.3%
- car (drop off) 16.5%
- car (parked) 27.2%
- taxi 17.3%.

The PT access mode share in June 2016 was around 39%; for 2016 as a whole the share was around 43%. This difference reflects a lower PT share in summer when travel is dominated by UK-based families taking holiday/leisure trips, which have lower PT shares than other segments, as shown in Figure 4. The expanded trips are shown in square brackets. UK Leisure makes up two-thirds of trips in June, with the other three segments combined making up the other one-third.

The expectation was that structure and segmentation of GSAM might match SoSERAS and the earlier models, but only if tests against data confirmed their suitability. Figure 4 confirms there is support for this segmentation as the mode shares are quite different. It was thus determined that the traditional purpose segmentation would be applied in GapSAM: UK business, Non-UK business, UK leisure, Non-UK leisure.

Figure 4 - CAA data, Gatwick, June 2016



A breakdown of the surface access mode shares by journey origin area is provided in Table 2 for a standard sectoral breakdown used by GAL; 40% of Gatwick Airport Users are from London, 40% from the eight South East counties and 20% from the remainder of the UK.

Table 2 – Gatwick trips and mode shares by origin

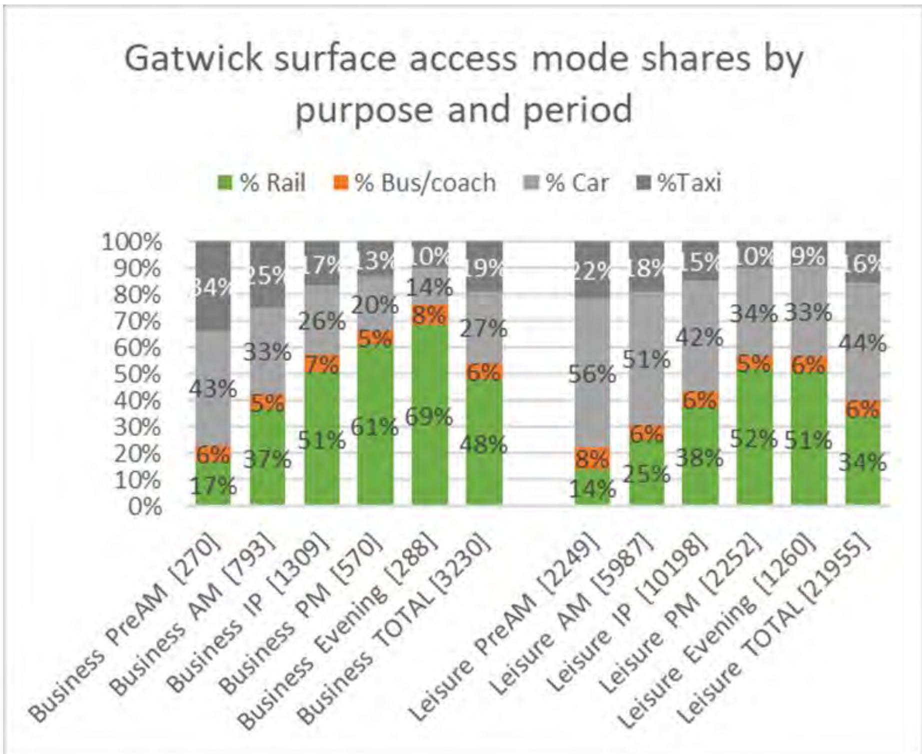
	Air Pax Trips (Jun 16, daily, departures)						Air Pax Mode Share (Jun 16)					
	Rail	Bus / Coach	K&F	P&F	Taxi	TOTAL	Rail	Bus / Coach	K&F	P&F	Taxi	TOTAL
Greater London	**14,576**	**1,153**	**2,432**	**2,671**	**4,770**	**25,601**	**57%**	**5%**	**9%**	**10%**	**19%**	**100%**
Inner LON	7,734	448	253	275	1,220	9,929	78%	5%	3%	3%	12%	100%
South LON	2,353	84	887	800	1,428	5,552	42%	2%	16%	14%	26%	100%
East LON	2,253	127	656	840	926	4,802	47%	3%	14%	17%	19%	100%
North LON	533	33	110	110	167	953	56%	3%	12%	12%	18%	100%
West LON	1,703	461	525	646	1,029	4,364	39%	11%	12%	15%	24%	100%
South East	**4,644**	**1,239**	**6,373**	**8,744**	**5,001**	**26,001**	**18%**	**5%**	**25%**	**34%**	**19%**	**100%**
Kent	448	73	1,315	2,387	987	5,210	9%	1%	25%	46%	19%	100%
West Sussex	677	213	1,295	896	1,053	4,135	16%	5%	31%	22%	25%	100%
Surrey	613	69	1,519	1,290	1,404	4,895	13%	1%	31%	26%	29%	100%
East Sussex	1,599	209	907	893	500	4,108	39%	5%	22%	22%	12%	100%
Hampshire	710	218	723	1,648	635	3,934	18%	6%	18%	42%	16%	100%
Berkshire	397	21	324	745	246	1,733	23%	1%	19%	43%	14%	100%
Oxfordshire	107	410	122	421	66	1,126	10%	36%	11%	37%	6%	100%
Buckinghamshire	92	26	168	464	110	860	11%	3%	20%	54%	13%	100%
East of England	**682**	**184**	**859**	**2,246**	**650**	**4,621**	**15%**	**4%**	**19%**	**49%**	**14%**	**100%**
South West	**593**	**343**	**367**	**1,554**	**307**	**3,164**	**19%**	**11%**	**12%**	**49%**	**10%**	**100%**
Wales	**95**	**132**	**57**	**355**	**32**	**671**	**14%**	**20%**	**9%**	**53%**	**5%**	**100%**
Midlands	**770**	**302**	**392**	**1,479**	**193**	**3,136**	**25%**	**10%**	**12%**	**47%**	**6%**	**100%**
Rest of UK	**405**	**93**	**110**	**320**	**85**	**1,012**	**40%**	**9%**	**11%**	**32%**	**8%**	**100%**
TOTAL	**21,764**	**3,444**	**10,590**	**17,370**	**11,038**	**64,205**	**34%**	**5%**	**16%**	**27%**	**17%**	**100%**

The rail mode dominates for travel from London and locations along the Brighton Main Line to East Sussex. There is also a high rail share from Berkshire which is directly connected to Gatwick via the North Downs Line. Coach is the dominant PT mode from Oxford which has excellent coach links to Gatwick.

Car drop off (referred to as Kiss and Fly) is highest within an hour travel time excluding London. Park and Fly dominates outside London and for longer trips. Taxi shares peak at 25-30% for relatively short trips from the local hinterland of West Sussex, Surrey and South London.

Mode shares for departing air passengers vary considerably by departure time, with rail increasing and car/taxi decreasing throughout the day (Figure 5).

Figure 5 – Gatwick mode shares by purpose and departure time



Based on the analysis of the CAA data, it was determined that the modes in GapSAM would be: Car Park+Fly (P+F), Car Kiss+Fly (K+F), Taxi, Rail, Bus/Coach. The walk/cycle share is only 0.1% and was therefore excluded.

The mode choice model application was developed for six time periods to capture the variations: AM (07:00-09:00), IP (09:00-16:00), PM (16:00-18:00), OP1 (18:00-00:00), OP2 (00:00-04:00), and OP3 (04:00-07:00); and bus and rail assignment models were created for each of these periods to feed the mode choice models with times and costs. The OP period has been divided into OP1 (evening), OP2 (night) and OP3 (early morning) because PT levels of service apply very differently in these periods.

6.1.1 Employees: Gatwick Employee Survey

The 5,323 surveyed employees were expanded to total workers by job category using data from the Gatwick Employment Survey that was undertaken concurrently. Around 23,800 people are registered to work at Gatwick, giving an average expansion factor of 4.5; varying from 1.8 for managerial staff to 9.0 for catering, cleaning and housekeeping. We estimate that around 13,200 of the 23,800 staff are on-site on any single weekday in June 2016.

For shift workers, up to three shifts were recorded in the survey. A new record was created for each shift, eg if there are three shifts, the record representing all three shifts was replaced with a record for each shift, each with weight of 1/3; while non-shift workers have a single record with weight 1.

A breakdown of the mode choices is provided in Table 3 for local authorities where more than 100 daily employee trips originate. Shares below 0.5% are hidden to make the table easier to read.

Table 3 – Gatwick employee mode shares by home location

Local Authority	Daily tours	Car - single occupancy	Car share	Motorbike	Company transport	Taxi/Minicab	Train	Bus/coach	Walk/run	Bicycle	TOTAL
Crawley	4356	44%	8%	1%	2%	1%	3%	39%	1%	2%	100%
Reigate and Banstead	1135	49%	8%	1%	1%	1%	12%	11%	7%	10%	100%
Horsham	1074	79%	8%	1%			6%	4%		1%	100%
Mid Sussex	1072	77%	4%	1%	2%	1%	13%	2%		1%	100%
Croydon	596	32%	4%	1%	1%		62%				100%
Brighton and Hove	582	51%	8%	1%	1%		29%	10%			100%
Wealden	285	70%	16%	2%	1%		9%	1%			100%
Tandridge	254	79%	3%	3%	2%	2%	3%	4%		4%	100%
Worthing	217	71%	17%				13%				100%
Lewes	200	67%	14%	1%	1%		15%	2%			100%
Arun	190	51%	26%	6%	3%		15%				100%
Mole Valley	187	79%	9%	1%		1%	1%	1%	5%	3%	100%
Adur	156	67%	20%	5%			7%	2%			100%
Eastbourne	155	56%	17%		2%		25%				100%
Sutton	130	79%	3%	1%			8%	9%			100%
Wandsworth	115	17%			2%		79%	1%			100%
Bromley	104	72%					23%	5%			100%
Everywhere else	2374	52%	5%	1%	24%		17%	2%			100%
TOTAL	13181	55%	8%	1%	5%	1%	13%	16%	1%	2%	100%

Overall shares are 16% bus/coach and 13% train, together making 29% PT. Bus is very well used in the local Crawley area, with rail dominating in the Brighton Main Line corridor, particularly Croydon and Wandsworth (where Clapham Junction is located) and locations on the south coast. Local areas that are not well connected to Gatwick by rail, eg Mole Valley and Tandridge, have very low rail share.

Walk, run and cycle together make up only 3% but this mode could be more important in future, therefore they are included in the model as a combined "Active" mode. Motorbike and Taxi make up 1% each and are absorbed into 'Car – solo' mode.

Company transport – cars or minibuses operated by companies for their staff – is quite significant for longer trips (24% of travel from 'everywhere else') and makes up 5% of all travel to work, so it has been included as a mode in GemSAM. However, it was excluded from model estimation as no relationship between transport times/ costs and company transport share could be detected. In summary, the GemSAM modes for estimation are: Car – solo, Car – share, Bus/coach, Rail, and Active.

7 Estimation inputs

7.1 Data fields

Table 4 provides information on the columns in the GapSAM estimation database. Money values are discounted to a 2010 price base. Column names prefixed with an asterisk, eg *RailFare, are cost damped in the models[5].

Table 4 - GapSAM estimation database data fields

Column Name	Description	Source	Units / assumptions
Gat_zone	Trip origin zone (non-airport end)	CAA data / Arup analysis	
Gat	Trip destination zone (airport end): either a terminal or car park location	CAA data / Arup analysis	
TRIPS	Total trips	CAA data	Trips/day
Capped_weight	Trip weight (expansion factor) capped at 95th percentile	CAA data	Not used
Choice	1 - Car Park & Fly (includes rental and valet) 2 - Car Kiss & Fly 3 – Taxi 4 – Rail 5 – Bus / Coach	CAA data	
PersonTypeF	1 – UK Business 2 – Non-UK Business 3 – UK Leisure 4 – Non-UK Leisure	CAA data	
*RailFare	Rail single fare	BR fares / TfL Oyster fares	£
RDist	Rail distance	Rail model	Km
*RailGC	Rail Generalised Cost	Rail model	Not used
*RailIVT	Rail In Vehicle Time	Rail model	Mins
*RailAuxT	Rail Out of Vehicle Time	Rail model	Mins
*RailWaitT	Rail Waiting time	Rail model	Mins
RailNoB	Number of boardings	Rail model	

[5] See Section 8 for an explanation of cost damping.

Column Name	Description	Source	Units / assumptions
RailBoard	Number of national rail boardings	Rail model	
TTRail	Transfer time at Gatwick (rail)	Estimate	Mins; Travel time from rail station to terminal, ST=0, NT=8
*BusFare	Bus fare	Coach company websites	
*BusGC	Bus Generalised Cost	Bus model	Not used
*BusIVT	Bus In Vehicle Time	Bus model	Mins
*BusAuxT	Bus Out of Vehicle Time	Bus model	Mins
*BusWaitT	Bus Waiting time	Bus model	Mins
BusNoB	Number of bus boardings	Bus model	
*HWYIVT	Car In Vehicle Time	Highway model	Mins
HWYDist	Car Distance	Highway model	Km
*HWYToll	Car Tolls	Highway model	Pence
*HWYVOC	Car vehicle fuel cost	TAG databook v1.12, May19	HWYDist * £0.0572
TTPF	Transfer time (highway)	Estimate	Mins; Travel time from car park/rental to terminal
*TaxiFare	Taxi Fare	Websites of operators	£
Park	Parking costs	Websites of LGW and off-site operators	£; zero for Non-UK segments as assumed to use car rental
PF_AV	Park and Fly availability indicator	Modeller	Set to 1 for all records
KF_AV	Kiss and Fly availability indicator	Modeller	Set to 1 for all records
TAXI_AV	Taxi availability indicator	Modeller	Set to 1 if distance < 150km
RAIL_AV	Rail availability indicator	Modeller	Set to 1 if rail is available
BUS_AV	Bus/coach availability indicator	Modeller	Set to 1 if bus/coach is available
Min Dist	Distance in IP by car (most direct route)	Highway model	Km
DistDamp	Minimum of HWYDist and Min_Dist	Calculated	Km; used for cost damping
RailTransfer	Number of rail transfers	Calculated	Max(0,RailNoB -1)

Column Name	Description	Source	Units / assumptions
RailOnlyTransfer	Number of national rail transfers	Calculated	Max(0,RailBoards -1)
BusTransfer	Bus transfers	Calculated	Max(0,BusBoards -1)

Table 5 provides information on the columns in the GemSAM estimation database. Money values are discounted to a 2010 price base.

Table 5 - GemSAM estimation database data fields

Column Name	Description	Source	Units / assumptions
RespondentID	Unique ID for each respondent	2016 Emp survey	
Zone	Trip origin zone (non-airport end)	2016 Emp survey / Arup analysis	
Choice	1 - Car / Motorbike 2 - Car Share 3 – Train 4 – Bus / Coach 5 – Active (Walk/Cycle) 6 – Company Transport 7 – Taxi / Minicab 8 – Plane	2016 Emp survey	Categories 1-5 used in the estimation
ShiftWorker	0 - Non-shift worker 1 - Shift worker	2016 Emp survey	
CFDist	Crow fly distance from Home to Airport	Arup analysis	Km
AirportZone	Car park location for modes 1,2 otherwise work location	Arup analysis	
*RailFare	Rail fare	BR fares / TfL Oyster fares	£
RDist	Rail distance	Rail model	Km
*RailGC	Rail Generalised Cost	Rail model	Not used
*RailIVT	Rail In Vehicle Time	Rail model	Min
*RailAuxT	Rail Out of Vehicle Time	Rail model	Min
*RailWaitT	Rail Waiting time	Rail model	Min
RailNoB	Number of boardings	Rail model	
RailBoard	Number of national rail boardings	Rail model	

Column Name	Description	Source	Units / assumptions
TTRail	Transfer time (rail)	Arup analysis	Mins; Travel time from rail station to work location, via combination of employee shuttle buses, public buses, terminal shuttle and walk
*BusFare	Bus fare	Bus company websites	£
*BusGC	Bus Generalised Cost	Bus model	Not used
*BusIVT	Bus In Vehicle Time	Bus model	Mins
*BusAuxT	Bus Out of Vehicle Time	Bus model	Mins
*BusWaitT	Bus Waiting time	Bus model	Mins
BusNoB	Number of bus boardings	Bus model	
*HWYIVT	Car In Vehicle Time	Highway model	Mins
HWYDist	Car Distance	Highway model	Km
*HWYToll	Car Tolls	Highway model	Pence
*HWYVOC	Car VOC	TAG databook v1.12, May19	HWYDist * £0.0572
TTHWY	Transfer time (highway)	Arup analysus	Travel time from car park to work location, via combination of employee shuttle buses, public buses, terminal shuttle and walk
CAR_AV	Car solo availability indicator	Modeller	Set to 1 for all records
CARSHARE_AV	Car share availability indicator	Modeller	Set to 1 for all records
RAIL_AV	Rail availability indicator	Modeller	Set to 1 if rail is available
BUS_AV	Bus availability indicator	Modeller	Set to 1 if bus is available
ACTIVE_AV	Active availability indicator	Modeller	Set to 1 for all records
Min Dist	Distance in IP by car (most direct route)	Highway model	Km
DistDamp	Minimum of HWYDist and Min_Dist	Calculated	Km; used for cost damping
RailTransfer	Number of rail transfers	Calculated	Max(0,RailNoB -1)
RailOnlyTransfer	Number of national rail transfers	Calculated	Max(0,RailBoards -1)
BusTransfer	Bus transfers	Calculated	Max(0,BusBoards -1)

7.2 Input data definitions

In the GemSAM database the values represent a single trip and are calculated as the average of the two directions.

In the GapSAM database, the time/cost data represents a single trip to the airport, while the money costs (eg taxi fares) are the average of the costs to-airport and from-airport. Times and costs are attached to the behavioural (trip) records based on the destination zone at Gatwick:

- for rail, bus/coach, taxi, and K+F options, times/costs are joined based on the airport terminal;
- where P+F is the chosen option, highway costs are joined based on the car park location, which may be on- or off-airport; and
- for P+F as an 'unchosen' option, P+F transfer time between car park and terminal is a weighted average based on the person type and terminal.

For each record, the times/costs of a one-way journey specific to the stated time of day is selected. The rail and bus times are available from the assignment models for six periods (AM, IP, PM, OP1, OP2, OP3) and the car times are for four periods (AM, IP, PM, OP).

7.2.1 Rail Fare

Rail ticket prices from all GB stations to Gatwick Airport were extracted from brfares.com, the majority for 2017, with some for 2019 that were deflated to 2017 to match. Yield (ie the weighted average fare) would have been better than ticket price but we did not have access to industry sources providing the yield (GAL, as a private sector organisation, is not a party to such information). GAL has no control over rail fares therefore in the model application the only changes we anticipate being modelled will be RPI+X% type annual increases.

From the fares database the cheapest ticket from a reasonable range of ticket options was selected. No railcard discount or concession was applied, and advance purchases fares were not included. In principle, this combination of upward and downward influences on fare could offset each other to result in a reasonable average fare. There are more than 100 different fares just between Gatwick and London, so a simple approach is taken.

The following fares were extracted: SOR (anytime return), SVR (off peak return), SDS (anytime single), SDR (anytime day return), CDR (off peak day return), PAP (oyster peak fare) and POP (oyster off-peak fare). Return fares were divided by two to create a single fare.

Peak fares were applied for journeys that arrive/depart Gatwick in the AM or PM peak. At other times of the day, off-peak fares were used.

For GemSAM, the minimum of the SOR, SDS, SDR and PAP fares was used for journey legs made in the peaks, and the minimum of all fares for the off peaks.

For GapSAM, the minimum of the SOR, SDS and PAP fares was used for peak. The off peak fare was minimum of SOR, SVR, SDS, PAP, and POP fares. SDR and CDR fares were excluded from this calculation on the basis that air passengers cannot, in general, make use of day returns.

To map stations to zones, the closest station was identified for each zone centroid. If no fare was available from the closest station, the 2nd or 3rd closest station was used.

The 2017 rail fares were deflated/inflated from 2017 to the years of the survey data (2015, 2016, 2017 and 2018) using the Office of Rail and Road (ORR) Rail fare index, Table 1.81 All Operators Standard Class regulated, and then discounted to a 2010 price base using the TAG GDP Deflator.

The employee rail fares included the 25% discount offered by the Gatwick Travel Pass if the origin zone is within the employee discount zone. This pass offers a 25% discount for employees on Thameslink, Gatwick Express, Southern and First Great Western as far as Wokingham[6]. This scheme existed in 2016 and remains in place today.

For zones north of the Thames within Greater London, an Oyster fare to Victoria was added to the London-Gatwick fare unless the origin was within 1000m of Victoria, a Thameslink station or any national rail station on West London Line, where people could walk directly to the national rail station.

7.2.2 Bus Fare

Fares on local bus services (Metrobus, Southdown PSV) and coach services (easybus, Megabus, National Express, and Oxford Airline) in 2019 were obtained from websites along with the approximate distance by road, to create a relationship between fare and distance.

The fares for local bus services were obtained from operator websites (Metrobus operates almost all services at Gatwick) which provide the fare zones; representative stops within these zones were used to determine fares.

For GB-wide coach, a sample was taken from a mix of locations with direct Gatwick service and indirectly served locations requiring interchange at Victoria or Heathrow. Fares between 09:00 and 16:00 were taken where possible, although some long distance coaches may only have one daily service.

Local bus and coach fares were analysed separately comparing to the distance and flagging any particular outliers, which were removed for the final fare calculation. The following relationships for coach and local bus were established, with R^2 values of 0.87 and 0.82 respectively:

$$Coach\ fare = 0.126 \times distance + 4.43$$

$$Local\ bus\ fare = 0.186\ \times distance + 1.21$$

These relationships were used to generate bus/coach fares. Distances were obtained from the highway model. The fares were deflated using CPI Index[7] to convert 2019 fares to survey year (2015-2018), then discounted to the 2010 price base using the TAG GDP deflator.

Local bus network area

For GemSAM, employees are able to buy travelcards allowing unlimited travel on the Metrobus and Southdown PSV services within the wider network that serves Gatwick airport. The weekly

[6] https://www.gatwickairport.com/business-community/careers/why-work-at-gatwick/staff-travel/
[7] https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/d7bt/mm23

pass is £19.50. The assumption was made that a weekly pass is used for 5 return trips a week, meaning that a single trip costs £1.94.

For GapSAM, the local bus fare formula, given above, was applied.

London and rest of UK

For zones within 1500m of Victoria Coach Station, people are assumed to take the coach from there at a cost of £5.55. From other locations in London, people are assumed to incur an off peak tube fare from their home location to Victoria plus £5.55.

For trips to/from the rest of the UK, the coach fare formula, given above, was used.

7.2.3 Taxi Fare

Taxi fares in 2019 from a sample of locations to Gatwick Airport were extracted for Uber and minicabs ([redacted]. It is our understanding that very few people hail a black cab for a trip to the airport therefore these fares were not used in the taxi fare calculations.

A minimum and maximum for Uber journeys provides a per minute and per mile fare that is added to the base fare, which is £10 from Gatwick and £2.50 to Gatwick.

For minicabs, a line was fitted to a scatter of data points (fare, distance). This was compared against the Uber fares and found to be generally similar for trips longer than 20 miles.

Given the predominance of minicab for Gatwick taxi trips (83% in 2018 according to the CAA survey data), and the similarity between minicab and Uber fares, the average of the minicab costs to and from Gatwick was used in the taxi fare function, with an R^2 value of 0.93:

$$Taxi\ fare = 0.71\ \times distance + 0.71$$

Taxi fares were then deflated using the CPI Index to convert 2019 fares to survey year (2015-2018) and discounted to a 2010 price base using the TAG GDP deflator.

7.2.4 Public transport skims

The following data fields, or "skim matrices", were obtained for each of the six time periods for rail (RDist, RailGC, RailIVT, RailAuxT, RailWaitT, RailNoB, RailBoard, RailTransfer, RailOnlyTransfer) and for bus/coach (BusGC, BusIVT, BusAuxT, BusWaitT, BusNoB, BusTransfer). These fields are explained in Table 5.

The skim matrices are between all model zones and the two Gatwick terminals. The commute and business purposes were used for AM and PM, and the 'Other' purpose for IP and the three OP periods.

The rail in-vehicle times in the AM and PM peaks include crowding penalties in accordance with the crowding functions of PLANET South (the rail assignment model from which the rail times are sourced). Outside of the peaks there is no material crowding so that pure in-vehicle times are used.

Wait time includes both the initial wait and any interchange waiting. The rail wait times are sourced from assignment models that calculate multiple paths so there is no concept of a single headway, only the path-weighted overall wait times are available (which includes both initial and interchange waits). In all cases, the estimation uses the same definition of the variables as what the model application will be using for forecasting.

7.2.5 Car skims

The following data fields were obtained from the base highway models for four periods (AM, IP, PM and OP) for: HWYIVT, HWYDist, HWYToll, HWYVOC, Min_Dist. For the three off peaks periods, OP1, OP2 and OP3, OP highway times were used. The highway skims take highway congestion into account at the time of day that the journey is made.

The Pence Per Km (PPK) values for 2016 are from TAG v1.12 May19 databook as used in the highway model assignment. Only the fuel component of vehicle operating costs was included in HWYVOC, a value of 5.72 pence per km.

7.2.6 Parking

There is no parking cost for the airport employees.

For the air passengers, on-airport parking costs for durations of 1 to 9 days were obtained from the Gatwick website for long stay, valet and short stay parking at north and south terminals. Data was collected for November, early December, February, April and June to examine seasonal variation.

An average cost for each duration of stay was calculated for each type of parking and by P+F and valet categories. For P+F the long and short stay parking costs have been weighted by the proportion of passengers using short and long stay car parks (20:80) to provide an average weighted cost. For valet parkers the average of the valet and premium valet was used. The costs for on-airport parking are as follows (where x is number of days parked):

$On\ airport\ parking\ cost\ = 23.46 \ln(x) + 18.45$ ($R^2 = 0.99$)

$On\ airport\ valet\ parking\ cost\ = 59.16\ x^{0.14}$ ($R^2 = 0.97$)

Offsite parking costs have been collected in a similar manner for ‘park and ride’ and ‘meet and greet’ (park and fly and valet categories). These have been weighted to provide the following costs:

$Off\ airport\ parking\ cost = 25.7\ x^{0.26}$ ($R^2 = 0.78$)

$Off\ airport\ valet\ parking\ cost = 50.19x^{0.17}$($R^2 = 0.95$)

To generate parking costs for P+F as the unchosen option:

- if trip duration is stated, allocate a parking cost based on the duration of trip and trip purpose; and
- if trip duration is not stated, allocate an average parking cost based on purpose.

There are no parking costs for Non-UK resident air passengers as they are assumed to use car rentals rather than their own vehicles, hence they would not pay a parking fee.

Parking costs are adjusted from 2019 to the survey year (2015-2018) and converted to 2010 price base using the TAG GDP deflator.

7.2.7 Transfer times

Transfer times represent the time taken to travel between the rail station (TTRail) or the car parking location (TTPF, TTHWY) and the terminal for air passengers or the employment area for employees. Eight minutes has been assumed as the transfer time from the Rail station to North Terminal and zero minutes to the South Terminal as the station is located here.

7.2.8 Availability Indicators

On each data record is an availability indicator for each mode. The chosen modes[8] are set as available (because the person did in fact choose it). For the unchosen modes:

- park-and-fly and kiss-and-fly options are set as available (there is no segmentation into car-available/no-car-available or lift available/ no-lift-available[9]);
- taxi is available if the journey is under 150 km, this is judged to be a reasonable upper limit;
- rail and bus/coach are available unless there is no service at the time of the day that the trip takes place; for example, rail is not available at night (period OP2) for most places; and
- in the Gatwick Airport local area (within a radius of around 15km), rail has been set as unavailable in zones with no reasonable rail option.

8 Cost Damping

Cost damping has been applied to some of the times and costs. The method followed was taken from TAG M2 §3.3.

Cost damping equation: $G' = \left({}^{d}/_{k}\right)^{-\alpha}.G$

Where:

- G' is the damped cost;
- d is the distance in km;
- k is a the distance in km at which G'/G is unity, typically 30 km (to be calibrated);
- $\propto$ controls the shape of the curve, typically 0.5 (to be calibrated);
- G is the undamped cost; and

The minimum highway distance was taken as the distance for this function.

In choosing this definition of cost damping, we are guided by the strategic modelling advice in TAG. A range of both higher and lower values of alpha and k have been tested, and in the business models the alpha and k have been altered from the TAG guideline values. Alpha and k were also defined as parameters to be estimated. Figure 6 is a plot of the functions used in the final models.

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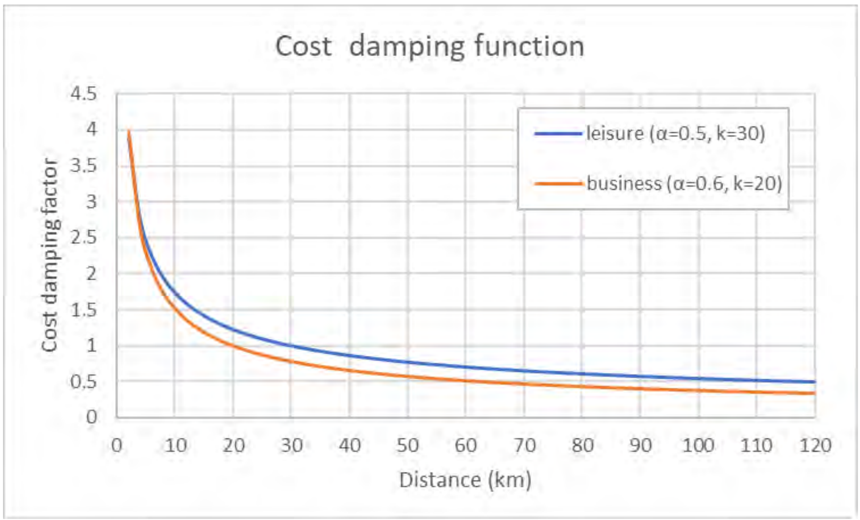
8 Times/costs are required for the chosen mode and the unchosen modes

9 The air passenger (CAA) and employee surveys do not record car ownership or availability.

Figure 6 – Cost damping curves



This is the only functional form we tested. This has become widespread in model applications, taking over from the short/medium/long segmentations seen formerly. The function was applied to in-vehicle time, fuel cost, PT fare, wait time and auxiliary (walking and other access) time. It was not applied to PT boardings / interchanges.

There is no additional variation of Values of time with distance (eg see TAG M2.1 §3.3.6). The TAG advice in TAG M2.1 §3.3.6 is on the basis that VoT rises with trip distance, but this does not seem appropriate in the context of an airport surface access trip, where higher income travellers might be expected to favour local airports and lower income travellers to favour cheap air fares from airports that on average are more distant.

9 Shared costs

For one of the GapSAM segments, UK Leisure, the model fit was significantly improved when out-of-pocket costs for car and taxi (fuel cost, taxi fare and parking fee) were shared among the vehicle occupants. For the other segments the fit was not improved[10]. Therefore, sharing of fuel cost, taxi fare and parking fee has been accepted for UKL and rejected for other segments. There is no information in the survey data of whether costs are in fact shared or not.

For UK Leisure the costs were divided by the group size where this was coded in the survey data, but capped at 4 to avoid implausible outlier records that exceed the capacity of a single vehicle (some groups come in two or more cars). For records where no occupancy was provided a weighted average was used.

For Kiss and Fly, estimations were undertaken in which the car driver's times, costs (individually and together) incurred on the 'empty' leg as well as the 'loaded' leg were included in the utility. This significantly worsened model fit in all cases and was rejected.

For GemSAM, we have assumed that costs for the 'car share' option are split among the car occupants.

[10] Rho bar squared values with/without sharing of costs: UKB 0.252/0.255; NUKB 0.372/0.373; UKL 0.172/0.158; NUKL 0.276/0.275.

10 GapSAM estimation

10.1 Introduction

Model estimation was in undertaken in three phases corresponding with:

- stages in development of the assignment models that provide the times and costs (phases 1 and 2); and
- following an independent review (phase 3).

In Phase 1, the rail, bus/coach, and highway models were only partially developed. In Phase 2, the models were close to completion and times and costs considered robust. Following external review of the Phase 2 estimations, revisions and updates were made to improve and finalise the models in Phase 3. In this note we document the Phase 3 models.

10.1.1 Outliers and capping

It was found in Phase 2 estimations that wait and auxiliary time coefficients were too low – they were lower than the in-vehicle time coefficients, which is not usual: experience elsewhere indicates that wait and auxiliary time coefficients are 1.5 to 2.5 times the size of in-vehicle time coefficient. Inspection of the input times and costs, checking range, average, min, and max indicated that outliers with very high values – generally movements in the night or early morning where rail and coach services are infrequent or not available at all (hence long access journey to find a rail service) – had an undue influence. To remedy this, time and cost inputs were capped as shown in Table 6. In general, these capped values related to the unchosen modes.

Table 6 - Capping of inputs: GapSAM

Item	Capped at
Wait time	90 mins
Auxiliary time	90 mins

The wait time does not cover just the time spent literally waiting on the platform or at the bus stop, it also conveys the inconvenience of infrequent services – causing passengers to wait, in effect, at home, or to make the journey earlier or later than preferred.

Some auxiliary times may justifiably be quite long either due to long journeys to reach rail and especially coach in rural areas, or because at night and early morning when local stations may be closed, and a more distant station must be used.

Other outliers were removed from the estimation dataset:

- taxi journeys over 150 km; and
- bus, coach and rail journeys requiring 5+ boardings.

Large in-vehicle times and fares were not removed or capped as they were found to be reasonable reflections of the distances travelled.

10.2 Estimation results

The estimation statistics for the final Phase 3 models (BM1-4), estimated parameters, t-ratios (in brackets) and key ratios, such as value of time, are given in Table 7. With the exception of one ASC[11] in the UK Leisure model the t-ratios are all highly significant.

Table 7 – Final GapSAM models

	UK Business Model BM1	Non-UK Business Model BM2	UK Leisure Model BM3	Non-UK Leisure Model BM4
Estimation statistics				
Estimated params	10	10	10	10
Sample size (records)	6927	4046	67890	19489
Initial LL	-11091	-6496	-108574	-31284
Final LL	-8071	-4001	-87240	-22316
Rho bar square	0.271	0.383	0.196	0.286
Parameter estimates				
ASC_PF	0	0	0	0
ASC_KF	-2.16 (-23.6)	-0.991 (-8.44)	-1.78 (-94.9)	-0.254 (-5.48)
ASC_TAXI	-0.283 (-3.94)	1.17 (3.92)	-0.812 (-51.4)	0.942 (8.1)
ASC_RAIL	0.368 (4.93)	1.71 (11)	0.305 (15.3)	1.92 (26.8)
ASC_BUS	-0.32 (-3.11)	1.6 (11.4)	-0.0454 (-1.6 n/s)	1.84 (26.7)
A_IVT	-0.0255 (-11.7)	-0.0177 (-7.73)	-0.0216 (-32.1)	-0.0163 (-16.8)
B_WAIT	-0.0431 (-7.97)	-0.0415 (-5.98)	-0.0454 (-26.4)	-0.0529 (-15.9)
C_AUX	-0.0422 (-10.2)	-0.0388 (-8.08)	-0.0466 (-33.4)	-0.0427 (-19.9)
L_LONDON	0.982 (15.2)	0.972 (11.7)	0.98 (40.8)	0.849 (23.4)
M_MONEY	-0.0483 (-9.82)	-0.04 (-4.43)	-0.0655 (-45.2)	-0.0417 (-14)
NEST_PT_PF	1.62 (16.1)	1.76 (14)	1.45 (47.2)	1.48 (31.3)
Key ratios				
VOT	£31.68/hr	£26.55/hr	£19.79/hr	£23.45/hr
Mins per transfer (fixed)	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail
Wait time weight	1.69	2.34	2.10	3.25

[11] An insignificant ASC is of no consequence, it can be considered as zero.

	UK Business Model BM1	Non-UK Business Model BM2	UK Leisure Model BM3	Non-UK Leisure Model BM4
Aux time weight	1.65	2.19	2.16	2.62
Inner London rail constant (time equiv)	-38.5	-54.9	-45.3	-52.1

10.2.1 ASCs

The alternative specific constants represent the preference (or aversion) for a mode when the utilities are equal, relative to the 'base' mode which in this study is CarPF. We find that UK travellers prefer rail; while Non-UK travellers prefer taxi, bus/coach and rail over Car PF. The ASCs play no part in the model application as it has an incremental formulation. The ASCs for KF have the lowest value in all segments which we believe is because a lift to/from the airport will not be an option for all travellers. Strong ASCs are evident for taxi, rail and bus for the non-UK segments because these travellers do not have access to their own car and would need to hire one.

10.2.2 Time, money, value of time

The coefficient on time ranges between -0.016 and -0.026. This is in the typical range for strategic models in which time is counted in minutes, as here. The values of time are calculated from the ratio of the time and money parameters; they are in the range £20-£32 per hour. The UK business values of time are 60% higher than the leisure values; while for Non-UK segments the difference is smaller, at 13%. For comparison, the LASAM values of time (2012)[12] are £69 (Business) and £27 (Leisure). Business VoT in HSAM is (with growth to 2016) ~£29/hr.

In TAG, the business values are in the region of £18/hr for car to £29/hr for rail; while the values for leisure and commuting are around £4.50/hr and £10/hr, although it is doubtful whether TAG values are applicable to air travellers, whose VoTs are expected to be higher because of higher than average incomes and because catching a plane is a journey purpose that would be expected to have a higher value of time as people will be willing to pay more to reduce the chance of missing a flight, which could be highly inconvenient and costly.

For UK Leisure, shared costs (taxi fare, fuel cost, park charge) are divided by group size, improving model fit. For the business models, the fit did not improve and division by group size was rejected.

10.2.3 Wait, auxiliary and transfers

The wait time weights are in the range 1.7 to 3.3 with value of 2.1 for the dominant UKL segment. For comparison, TAG guidance quotes IHT Guidelines in the range 1.5 to 2.5.

The auxiliary time weights are in the range 1.6 to 2.6. Auxiliary time is "out of vehicle time" for PT trips. This includes walk time and motorised access between home and rail or coach station. TAG guidance quotes a range of 1.5 to 2.

[12] Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/371821/4-surface-access--lhr-nwr-appendices.pdf - page 9, accessed on 31/3/21

For interchange penalties, plausible values could not be estimated. Attempts were made using boardings, interchanges (ie boardings minus 1) and a binary 1/0 representing interchange required/not required. Instead, they were fixed at the equivalent of 7.5 in-vehicle minutes for rail and 10 for bus, representing respectively the mid-point and high- points of the TAG guidance quoted for interchange penalties (5-10 mins). LASAM interchange penalties[13], for comparison, are 5 mins.

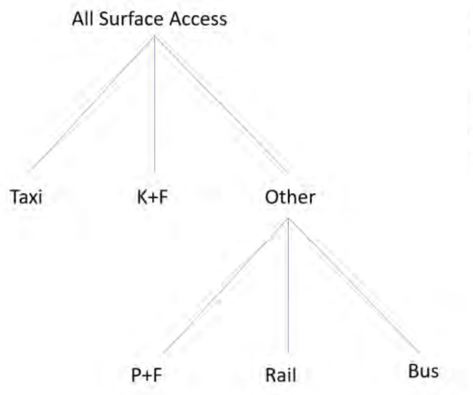
10.2.4 London dummy

The Phase 2 models indicated that rail was under-forecast for Inner London, therefore in Phase 3 a dummy variable on rail was specified for Inner London. The calibrated parameters on this variable are equivalent to 38-55 minutes in-vehicle time. A dummy on rail for London has also been included in previous London airport access models, eg HSAM. The need for this could be due to travellers with higher VoT (higher income / rail is the fastest mode), lower car availability, congestion charging zone, expensive/restricted parking, journey time variability, etc.

10.2.5 Model hierarchy

A variety of model nesting structures were tested, the one that worked consistently and gave plausible results was the two level model shown in Figure 7. This structure implies more sensitivity to switching between P+F, Bus and Rail (the modes that are grouped) than between modes that are not grouped, eg P+F and Taxi. It is perhaps indicative of the fact that K+F and Taxi are more likely to be driven by personal circumstances than by pure transport times/costs. This structure was statistically significant for all segments and with acceptable nesting parameter. The thetas (nesting parameters) for the model application, where costs are normalised at the bottom level and passed upwards, are shown in Figure 7.

Figure 7 - Model nesting



	Run	Theta
UKB	V1	0.62
NUKB	T2	0.57
UKL	T3	0.69
NUKL	T4	0.68

[13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/371821/4-surface-access--lhr-nwr-appendices.pdf, Page 28

10.2.6 Sensitivity tests

A sensitivity test (BL3) was carried out in which records with infilled postcodes were removed from the estimation data set. Results are shown in Table 8. This sensitivity was done on the version of the model that was current at the time (BK3). The parameter estimates are generally similar.

Table 8 - Sensitivity test with partial postcodes excluded

	Model BK3	Sensitivity test BL3
Estimation statistics		
Estimated params	10	10
Sample size (records)	67890	56857
Initial LL	-108574	-90903
Final LL	-87206	-73280
Rho bar square	0.197	0.194
Parameter estimates		
ASC_PF	0	0
ASC_KF	-1.8 (-94.4)	-1.82 (-85.8)
ASC_TAXI	-0.824 (-52.8)	-0.812 (-47.9)
ASC_RAIL	0.297 (14.8)	0.284 (12.7)
ASC_BUS	-0.0569 (-1.99)	-0.0791 (-2.44)
A_IVT	-0.0217 (-32.2)	-0.0225 (-29.5)
B_WAIT	-0.0458 (-26.4)	-0.0458 (-23.8)
C_AUX	-0.0468 (-33.4)	-0.0493 (-30.7)
L_LONDON	0.982 (40.8)	0.959 (36)
M_MONEY	-0.0668 (-45.3)	-0.0685 (-41.8)
NEST_PT_PF	1.44 (47.4)	1.4 (42.9)
Key ratios		
VOT	£19.49/hr	£19.71/hr
Mins per transfer	10 Bus / 7.5 Rail (fixed)	10 Bus / 7.5 Rail (fixed)
Wait time weight	2.11	2.04
Aux time weight	2.16	2.19
Inner London rail constant	-45.3	-42.6

In the preferred models, wait time is capped at 90 minutes. In sensitivity tests BM3a and BM3b, capping values were changed to 60 and 120 minutes respectively. Results are shown in Table 9. This suggests that a wide range of values produces a similar model, with impact on parameters other than wait time being small.

Table 9 - Sensitivity test with wait time capping at 60 and 120 mins

	Sensitivity test BM3a (wait time cap 60 min)	Model BM3 (wait time cap 90 min)	Sensitivity test BM3b (wait time cap 120 min)
Estimation statistics			
Estimated params	10	10	10
Sample size (records)	67890	67890	67890
Initial LL	-108574	-108574	-108574
Final LL	-87178	-87240	-87270
Rho bar square	0.197	0.196	0.196
Parameter estimates			
ASC_PF	0	0	0
ASC_KF	-1.79 (-95.1)	-1.78 (-94.9)	-1.78 (-94.8)
ASC_TAXI	-0.807 (-51)	-0.812 (-51.4)	-0.813 (-51.5)
ASC_RAIL	0.346 (16.8)	0.305 (15.3)	0.288 (14.6)
ASC_BUS	-0.0 (0.02 n/s)	-0.0454 (-1.6 n/s)	-0.068 (-2.4)
A_IVT	-0.0213 (-31.9)	-0.0216 (-32.1)	-0.0218 (-32.3)
B_WAIT	-0.052 (-27.4)	-0.0454 (-26.4)	-0.0429 (-25.8)
C_AUX	-0.0465 (-33.3)	-0.0466 (-33.4)	-0.0466 (-33.4)
L_LONDON	0.979 (40.6)	0.98 (40.8)	0.98 (40.8)
M_MONEY	-0.0661 (-45.6)	-0.0655 (-45.2)	-0.0653 (-45.1)
NEST_PT_PF	1.44 (47.5)	1.45 (47.2)	1.45 (47.2)
Key ratios			
VOT	£19.33/hr	£19.79/hr	£20.03/hr
Mins per transfer	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail
Wait time weight	2.44	2.10	1.97
Aux time weight	2.18	2.16	2.14

	Sensitivity test BM3a (wait time cap 60 min)	Model BM3 (wait time cap 90 min)	Sensitivity test BM3b (wait time cap 120 min)
Inner London rail constant	-46.0	-45.3	-45.0

In the preferred model, if more than four PT boardings were required by bus or rail the mode was flagged as unavailable as such a journey is considered too onerous for most people for the journey to an airport. Sensitivity tests with lower (3) and higher (5) maxima are presented in Table 10. The sensitivity is not great because there are relatively few people with >3 boardings on their journey to Gatwick (the changes in sample size can be seen in the 2nd row of Table 10).

Table 10 - Sensitivity test with PT boardings capped at 3 and 5

	Sensitivity test BM3c (Up to 3 PT boardings)	Model BM3 (Up to 4 PT boardings)	Sensitivity test BM3d (Up to 5 PT boardings)
Estimation statistics			
Estimated params	10	10	10
Sample size (records)	66890	67890	67945
Initial LL	-106968	-108574	-108662
Final LL	-85306	-87240	-87423
Rho bar square	0.202	0.196	0.195
Parameter estimates			
ASC_PF	0	0	0
ASC_KF	-1.81 (-93.8)	-1.78 (-94.9)	-1.78 (-94.8)
ASC_TAXI	-0.8 (-51.7)	-0.812 (-51.4)	-0.812 (-51.2)
ASC_RAIL	0.306 (14.9)	0.305 (15.3)	0.296 (14.9)
ASC_BUS	0.063 (2.17)	-0.0454 (-1.6 n/s)	-0.068 (-2.39)
A_IVT	-0.0224 (-32.6)	-0.0216 (-32.1)	-0.0216 (-32)
B_WAIT	-0.0517 (-27.8)	-0.0454 (-26.4)	-0.0439 (-25.9)
C_AUX	-0.0495 (-34.3)	-0.0466 (-33.4)	-0.0465 (-33.3)
L_LONDON	1.01 (41.4)	0.98 (40.8)	0.983 (40.8)
M_MONEY	-0.0681 (-46.3)	-0.0655 (-45.2)	-0.0652 (-45)
NEST_PT_PF	1.45 (48.1)	1.45 (47.2)	1.45 (47.1)
Key ratios			
VOT	£19.74/hr	£19.79/hr	£19.88/hr

	Sensitivity test BM3c (Up to 3 PT boardings)	Model BM3 (Up to 4 PT boardings)	Sensitivity test BM3d (Up to 5 PT boardings)
Mins per transfer	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail	10 Bus / 7.5 Rail
Wait time weight	2.31	2.10	2.03
Aux time weight	2.21	2.16	2.15
Inner London rail constant	-45.1	-45.3	-45.5

11 GapSAM model validation

There are two steps to the validation:

- apply the final GapSAM models to the survey data set and compare observed against modelled mode shares – this is a test of applying the model in the 'absolute' form in which it was estimated; and
- code the models into the forecasting application and run 'base realism' tests to obtain elasticities for comparison against benchmarks – this is a test of applying the model in its incremental form, per the intended design.

11.1 Application of the models to the survey data

Table 11 shows a comparison of observed and modelled base mode shares.

Table 11 - Modelled versus observed mode shares

		Shares	
Segment	Mode	Observed	Modelled
UKB	PF	23%	26%
	KF	10%	11%
	Taxi	19%	17%
	Rail	45%	43%
	Bus/coach	3%	3%
	TOTAL	100%	100%
NUKB	PF	8%	7%
	KF	6%	6%
	Taxi	22%	18%
	Rail	57%	60%
	Bus/coach	7%	9%
	TOTAL	100%	100%
All Business	PF	18%	20%
	KF	9%	10%
	Taxi	20%	17%
	Rail	49%	48%
	Bus/coach	4%	5%
	TOTAL	100%	100%

		Shares	
Segment	Mode	Observed	Modelled
UKL	PF	33%	35%
	KF	18%	18%
	Taxi	17%	15%
	Rail	27%	27%
	Bus/coach	4%	5%
	TOTAL	100%	100%
NUKL	PF	9%	10%
	KF	14%	14%
	Taxi	13%	12%
	Rail	56%	55%
	Bus/coach	9%	9%
	TOTAL	100%	100%
All Leisure	PF	28%	30%
	KF	17%	17%
	Taxi	16%	15%
	Rail	33%	33%
	Bus/coach	5%	6%
	TOTAL	100%	100%

		Shares	
Segment	Mode	Observed	Modelled
All UK	PF	32%	34%
	KF	18%	17%
	Taxi	17%	15%
	Rail	29%	28%
	Bus/coach	4%	5%
	TOTAL	100%	100%
All Non-UK	PF	9%	9%
	KF	12%	12%
	Taxi	14%	13%
	Rail	56%	56%
	Bus/coach	9%	9%
	TOTAL	100%	100%
ALL	PF	27%	29%
	KF	16%	16%
	Taxi	16%	15%
	Rail	35%	34%
	Bus/coach	5%	6%
	TOTAL	100%	100%

The mode shares are replicated closely[14] by the estimated models, though shares are slightly high for PF and slightly low for taxi, but overall car share is replicated (Table 12).

[14] The modelled mode shares exactly match the observed shares for the estimation database – the ASCs ensure this is the case. Tables 11-13 present the result of applying the models to all the data (as will be the case in the application) including records and modes that were excluded as outliers or set as unavailable in the estimation.

Table 12 - Modelled versus observed mode shares

		Shares	
Segment	Mode	Observed	Modelled
UKB	Car	52%	54%
	PT	48%	46%
	TOTAL	100%	100%
NUKB	Car	36%	31%
	PT	64%	69%
	TOTAL	100%	100%
All Business	Car	47%	47%
	PT	53%	53%
	TOTAL	100%	100%

		Shares	
Segment	Mode	Observed	Modelled
UKL	Car	68%	68%
	PT	32%	32%
	TOTAL	100%	100%
NUKL	Car	35%	36%
	PT	65%	64%
	TOTAL	100%	100%
All Leisure	Car	61%	61%
	PT	39%	39%
	TOTAL	100%	100%

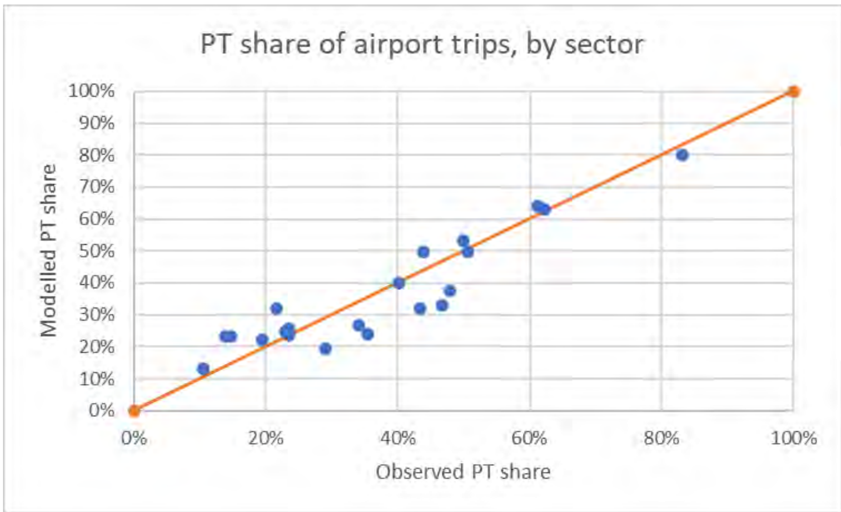
		Shares	
Segment	Mode	Observed	Modelled
All UK	Car	67%	67%
	PT	33%	33%
	TOTAL	100%	100%
All Non-UK	Car	35%	35%
	PT	65%	65%
	TOTAL	100%	100%
ALL	Car	60%	60%
	PT	40%	40%
	TOTAL	100%	100%

A breakdown of observed and modelled PT shares by area is shown in Table 13 and Figure 8. The modelled PT shares within the area covered by the strategic model (London, South East and East of England) are reasonably close. For long distance trips from outside the modelled area (South West, Wales, Midlands, Rest of UK) the modelled PT percentages are slightly low, though we note that the model will be applied incrementally –it is the observed PT shares from the left hand table that are pivoted.

Table 13 - Modelled versus observed PT shares by area

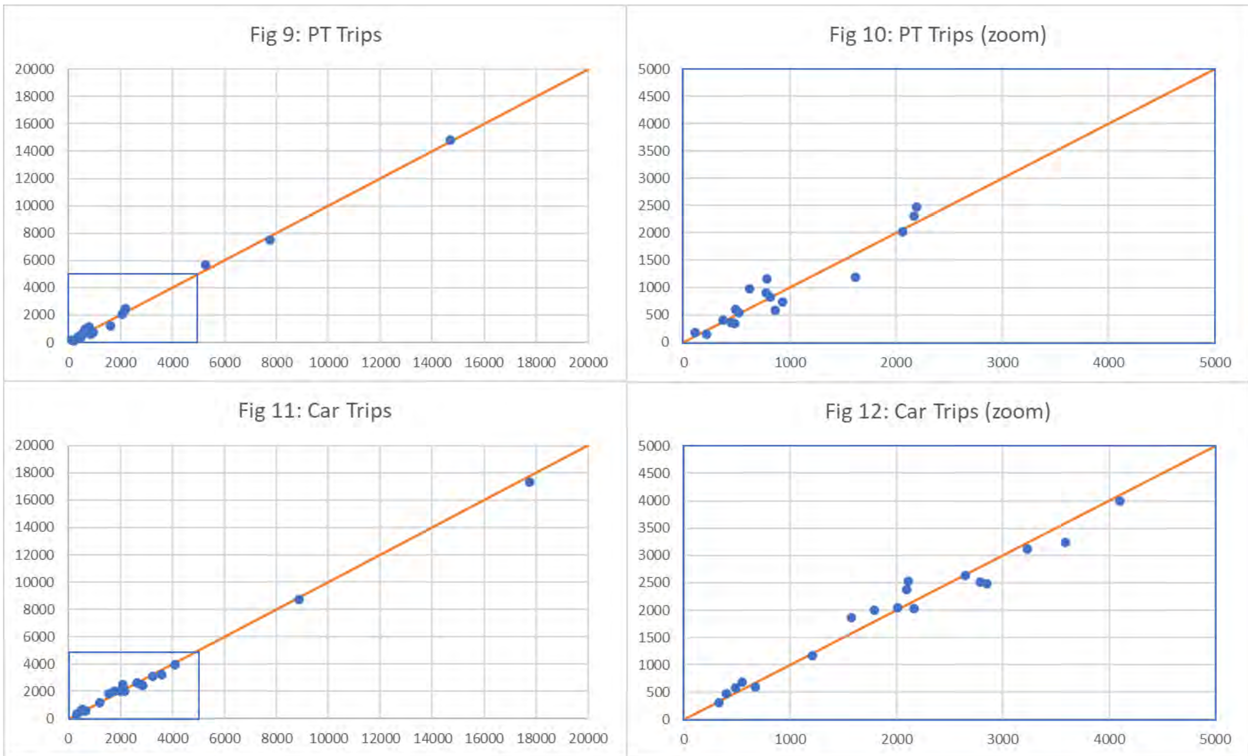
	OBSERVED				MODELLED			
	PT	Car	Total	PT Share	PT	Car	Total	PT Share
Greater London	**14690**	**8879**	**23569**	**62%**	**14815**	**8754**	**23569**	**63%**
Inner LON	7750	1573	9322	83%	7465	1857	9322	80%
South LON	2191	2792	4983	44%	2475	2508	4983	50%
East LON	2167	2169	4336	50%	2306	2030	4336	53%
North LON	522	331	853	61%	545	308	853	64%
West LON	2061	2014	4075	51%	2024	2051	4075	50%
South East	**5278**	**17738**	**23016**	**23%**	**5686**	**17331**	**23016**	**25%**
Kent	485	4106	4591	11%	602	3989	4591	13%
West Sussex	787	2855	3642	22%	1166	2476	3642	32%
Surrey	621	3595	4216	15%	978	3237	4216	23%
East Sussex	1615	2109	3724	43%	1192	2532	3724	32%
Hampshire	813	2651	3463	23%	823	2641	3463	24%
Berkshire	371	1206	1577	24%	405	1172	1577	26%
Oxfordshire	477	545	1022	47%	338	684	1022	33%
Buckinghamshire	109	672	781	14%	181	600	781	23%
East of England	**777**	**3233**	**4010**	**19%**	**897**	**3113**	**4010**	**22%**
South West	**858**	**2098**	**2956**	**29%**	**577**	**2379**	**2956**	**20%**
Wales	**219**	**397**	**616**	**36%**	**148**	**468**	**616**	**24%**
Midlands	**932**	**1795**	**2728**	**34%**	**729**	**1999**	**2728**	**27%**
Rest of UK	**446**	**484**	**929**	**48%**	**350**	**580**	**929**	**38%**
TOTAL	**23201**	**34624**	**57825**	**40%**	**23201**	**34624**	**57825**	**40%**

Figure 8 - Scatter plot of PT shares by area



Figures 9, 10, 11, 12 show comparisons of observed and predicted trips by car and PT for every sector-to-sector combination. The figures on the right hand side are zoomed-in to make it easier to see the cluster of points between 0 and 5000.

Figures 9, 10, 11, 12



The table and figures shown above indicate a reasonably good alignment of observed and modelled, evidenced by data points clustered around the x=y line. Key observations are that:

- PT share is estimated accurately for Inner London and the quadrants of London;
- PT share is slightly overestimated for the Gatwick local area: Surrey and West Sussex;

- PT share is slightly underestimated for long distance (SW, Wales, Midlands, Rest of UK), though this shortfall only amounts to ~2% of the PT demand; and
- PT share is slightly low for East Sussex and Oxfordshire (possibly because Brighton and Oxford have higher PT use generally, compared to other regional cities).

Having mode shares in roughly the right sections of the mode share curves is the main aim (as it will be applied incrementally in the forecasting model) and, overall, we believe this has been achieved without need for further area based constants at Oxford, Surrey etc.

The conclusion is that the models produce mode shares by segment and by geography that are broadly right. We now move on to testing of model sensitivities by running base realism tests and examining the elasticity of responses.

11.2 Base realism tests

11.2.1 Application overview

GapSAM is applied as an incremental logit model, operating along the following lines:

- base air passenger surface access mode shares are calculated from the survey data for the strategic model zoning system;
- times and costs for base and forecast (altered) state are obtained from the bus, rail and highway network models or other source as appropriate;
- utilities are calculated and difference in utility (forecast minus base) is input to an incremental logit model along with base shares; and
- the incremental change in the mode shares is calculated and applied to the forecast matrices.

This is the same formulation seen in all airport surface access choice models of south-east England and reflects DfT advice to apply choice models incrementally where possible (TAG M2).

11.2.2 Reasonableness tests

The model structure (nesting), utility functions and model parameters of GapSAM have been determined by an estimation process involving statistical and sensibility tests at each step to ensure that models are both statistically valid and reasonable when tested against guidance, logic, and past experience, eg with coefficients in reasonable ranges and with key ratios between model parameters in line with experience.

This process of sensibility and reasonableness testing must also be applied to the model application to check if sensitivities and elasticities are in a plausible/reasonable range by running standard realism tests (eg car in-vehicle time +20%) and assessing the elasticities for reasonableness and benchmarking against experience, guidance, and comparable models.

Table 14 shows the sensitivity / realism tests were run; in each case the item was increased by 20% and direct and cross-elasticities calculated.

Table 14 - GSAM sensitivity tests

	In vehicle time	Fare	Fuel cost	Parking cost	Waiting time	Auxiliary time	Number of boards
Car	✓		✓	✓			
Taxi	✓	✓					
Rail	✓	✓			✓	✓	✓
Bus/coach	✓	✓			✓	✓	✓

11.2.3 Elasticity benchmarking

Table 15 shows direct elasticities from Gapsam (air passenger) base realism runs and the equivalent values from LASAM, for comparison.

Table 15 – GapSAM surface access elasticities

		UK Business		Non-UK Business		UK Leisure		Non-UK Leisure		OVERALL		
Elasticity (20% increase in variable)		LASAM	GapSAM	LASAM	GapSAM	LASAM	GapSAM	LASAM	GapSAM	LASAM (mean)	GapSAM	Notes
Rail to rail fare		-0.20	-0.09	-0.22	-0.05	-0.28	-0.33	-0.20	-0.11	-0.23	-0.22	similar
Bus/coach to bus/coach fare		-0.20	-0.21	-0.21	-0.10	-0.29	-0.46	-0.28	-0.21	-0.25	-0.36	higher
Taxi to taxi fare		-0.59	-0.47	-0.59	-0.27	-0.77	-0.67	-0.80	-0.75	-0.69	-0.63	similar
Car (parked/rental) to fuel cost		-0.09	-0.03	-0.05	-0.06	-0.02	-0.04	-0.01	-0.06	-0.04	-0.04	similar
Parking to park cost		-0.63	-0.38	-	-	-1.94	-0.51	-	-	-1.29	-0.50	much lower
Rail to rail time		-0.52	-0.19	-0.37	-0.09	-0.50	-0.45	-0.38	-0.18	-0.44	-0.32	lower
Bus/coach to bus/coach time		-1.03	-0.97	-0.72	-0.41	-0.75	-1.36	-0.54	-0.79	-0.76	-1.12	higher
Rail to rail wait		-	-0.08	-	-0.04	-	-0.23	-	-0.11	-	-0.16	-
Rail to rail aux		-	-0.10	-	-0.05	-	-0.29	-	-0.13	-	-0.20	-
Rail to rail boards		-	-0.12	-	-0.06	-	-0.24	-	-0.10	-	-0.17	-
Bus/coach to bus/coach wait		-	-0.43	-	-0.22	-	-0.75	-	-0.60	-	-0.66	-
Bus/coach to bus/coach aux		-	-0.54	-	-0.28	-	-0.94	-	-0.58	-	-0.78	-
Bus/coach to bus/coach boards		-	-0.31	-	-0.12	-	-0.35	-	-0.19	-	-0.29	-
Car to car time	Parked/rental	-	-0.21	-	-0.34	-	-0.28	-	-0.37	-	-0.28	-
	K+F	-	-0.14	-	-0.12	-	-0.16	-	-0.18	-	-0.16	-
	Taxi	-	-0.17	-	-0.17	-	-0.19	-	-0.36	-	-0.21	-
	All Car	-0.23	-0.19	-0.24	-0.17	-0.39	-0.22	-0.42	-0.29	-0.32	-0.23	lower

Full details are provided in Appendix A1, including elasticities by time period and cross-elasticities.

In-vehicle time elasticities are lower in GapSAM than LASAM for rail (-0.32 vs LASAM -0.44) and for car (-0.24 vs LASAM -0.32) and much higher for bus/coach (-1.12 vs LASAM -0.76). The reason that bus/coach is higher is because average journey time by bus/coach is around 2.5 hours, compared to around 1 hour by rail, taxi and car. Thus a 20% increase amounts to 30 minutes for bus/coach, compared to only 12 mins for the other modes. In the logit model (which works on time differences, not ratios) with generic IVT parameters, a higher bus/coach elasticity and lower car/taxi/rail elasticities result.

Waiting and auxiliary time elasticities are higher for coach than rail because coach services are much less frequent than rail, and because access times to coach are much higher, reflecting limited coach network access locations.

Elasticities to cost/fare are similar in GapSAM and LASAM for rail (-0.22 vs -0.23) but GapSAM has the higher bus/coach fare elasticity (-0.36 vs LASAM -0.24). Elasticities to taxi fare are similar (-0.63 vs LASAM -0.69) . The taxi fare from central London to Gatwick is over £100 so a 20% increase is above £20, a large increment compared to bus and rail sensitivity tests where it is no more than £3.50. This is why sensitivity is higher to taxi fare than to bus or rail fare. Both GapSAM and LASAM models show very low elasticity to car fuel cost (-0.04 in both models).

For all the tests undertaken, the sensitivity to money is lower in GapSAM for the business segments than it is for the leisure segments.

The rail time elasticities are less elastic for business than leisure. This may be because business has a London focus where PT levels of service are of highest quality and average in-vehicle time for business (68 mins) is less than for leisure (80 mins).

In GapSAM the parking charge elasticity at -0.5 means that raising parking costs raises revenue. This contrasts with the LASAM elasticity of -1.94 for leisure meaning that parking revenue would fall significantly if airport parking charges were to be raised.

The change in mode share for each sensitivity test is shown in Table 16. The impact of an elasticity on actual mode share varies depending on what the base share starting value is. In each case the change is caused by a 20% increase in the value, eg increasing rail fare by 20% causes rail mode share for segment UKL to fall from 26.7% to 25.1%.

Table 16 - GapSAM – impact on own mode share of 20% increase in the explanatory variable

Change in air pax mode share due to 20% increase in fare/cost/time		**UKB**	**NUKB**	**UKL**	**NUKL**	**All Air Pax**
Rail to rail fare		44.1% to 43.4%	54% to 53.5%	26.7% to 25.1%	55.4% to 54.3%	**34.6% to 33.2%**
Bus/coach to bus/coach fare		2.1% to 2.1%	7.2% to 7%	4.8% to 4.4%	8.7% to 8.4%	**5.3% to 5%**
Taxi to taxi fare		19.9% to 18.3%	31.5% to 30%	16.8% to 14.9%	12% to 10.5%	**16.8% to 15%**
Car (parked/rental) to fuel cost		26.1% to 26%	1.7% to 1.6%	32.2% to 31.9%	10% to 9.9%	**26.4% to 26.2%**
Parking to park cost		24.1% to 22.5%	-	31.7% to 28.9%	-	**24.1% to 21.9%**
Rail to rail time		44.1% to 42.6%	54% to 53.1%	26.7% to 24.6%	55.4% to 53.7%	**34.6% to 32.6%**
Bus/coach to bus/coach time		2.1% to 1.8%	7.2% to 6.6%	4.8% to 3.7%	8.7% to 7.5%	**5.3% to 4.3%**
Rail to rail wait		44.1% to 43.5%	54% to 53.6%	26.7% to 25.6%	55.4% to 54.3%	**34.6% to 33.5%**
Rail to rail aux		44.1% to 43.4%	54% to 53.5%	26.7% to 25.3%	55.4% to 54.1%	**34.6% to 33.3%**
Rail to rail boards		44.1% to 43.2%	54% to 53.4%	26.7% to 25.5%	55.4% to 54.4%	**34.6% to 33.5%**
Bus/coach to bus/coach wait		2.1% to 2%	7.2% to 6.9%	4.8% to 4.2%	8.7% to 7.8%	**5.3% to 4.7%**
Bus/coach to bus/coach aux		2.1% to 1.9%	7.2% to 6.8%	4.8% to 4%	8.7% to 7.8%	**5.3% to 4.6%**
Bus/coach to bus/coach boards		2.1% to 2%	7.2% to 7%	4.8% to 4.5%	8.7% to 8.4%	**5.3% to 5%**
Car to car time	Parked/rental	26.1% to 25.1%	1.7% to 1.6%	32.2% to 30.5%	10% to 9.4%	**26.4% to 25.1%**
	K+F	7.6% to 7.4%	5.6% to 5.5%	19.6% to 19%	13.8% to 13.4%	**16.9% to 16.4%**
	Taxi	19.9% to 19.3%	31.5% to 30.6%	16.8% to 16.3%	12% to 11.3%	**16.8% to 16.2%**
	All Car	53.7% to 51.9%	38.8% to 37.7%	68.6% to 65.9%	35.9% to 34%	**60.1% to 57.7%**

Full details of the time and cost elasticity tests are provided in Appendix A1. This includes the cross-elasticities (eg elasticity of rail demand to, say, car time). The ‘all air pax’ cross-elasticities for rail are strongest with Bus/coach and weakest were with CarKF. This seems reasonable given that Bus/coach is, like rail, a public transport mode and that Car KF is not an option for all and therefore is less sensitive to changes in costs.

For bus/coach the cross-elasticities for all modes are generally weak but Car rental and off-site self park are slightly stronger than the others. For taxi fare the cross-elasticities with other modes are of similar magnitude.

We do not have data from the other airport surface access models against which to compare the cross-elasticities. In conclusion, we are comfortable with the responses that GapSAM shows to the sensitivity tests.

12 GemSAM estimation

12.1 Introduction

The estimation of the airport employee access models also proceeded in three phases. The results from Phase 3 are provided in this section.

12.1.1 Outliers and capping

Outliers in the employee dataset were adjusted by capping as shown in Table 17. These caps are less than in GapSAM as journeys to work are shorter than air passenger access trips.

Table 17 - Capping of inputs: GemSAM

Item	Capped at
Wait time	45 mins
Auxiliary time	45 mins

12.2 Discussion of results

The estimation statistics, estimated parameters, t-ratios (in brackets) and key ratios such as value of time for the preferred model (BT) are given in Table 18.

Table 18 – Final GemSAM models

Item	Value
Estimation statistics	
Estimated params	11
Sample size (records)	4874
Initial LL	-7734
Final LL	-4557
Rho bar square	0.409
Parameter estimates	
ASC_CAR	0
ASC_CARSHARE	-2.18 (-35.1)
ASC_RAIL	-0.334 (-3.06)
ASC_BUS	1.46 (12)
ASC_ACTIVE	-0.0604 (-0.175 n/s)

Item	Value
A_IVT	-0.0399 (-10.5)
B_WAIT	-0.0784 (-9.51)
C_AUX	-0.0801 (-12.8)
M_MONEY	-0.246 (-6.96)
L_LON	2.02 (14.3)
H_DIST (walk distance)	-0.582 (-6.26)
NEST	1.25 (12.5)
Key ratios	
VOT	£9.73/hr
Mins per transfer : rail	5 (fixed)
Mins per transfer : bus	7.5 (fixed)
Wait time weight	1.96
Aux time weight	2.01

12.2.1 ASCs

The ASCs indicate preference (or aversion) relative to 'car – solo' when the utilities are otherwise equal. The preference among Gatwick employees is for bus. This reflects that most employees live locally and the exceptionally good 24hr network operated by Metronet which is very cheap and well used by airport employees. The active mode ASC is insignificant because the walk/cycle distance (H_DIST) contains all the explanatory power.

12.2.2 Time, money, value of time

The coefficient on time, at -0.04, is in the range seen in many transport models for journey to work (where the units are minutes). The value of time is £9.73, close to the commute value in TAG of ~£10. This is based on fuel and fares – there are no parking charges for employees.

12.2.3 Wait, auxiliary and transfers

The wait and auxiliary (walk) time weights are close to 2, which are typical values seen in many other PT models, and within the ranges suggested as reasonable in TAG (1.5 to 2.5).

For interchange, no reasonable values could be estimated (small, wrong sign), therefore interchange penalties were fixed at the equivalent of 7.5 in-vehicle minutes for bus and 5 for rail representing, respectively, the mid- and low- end of the guidance 5-10 minute range in TAG.

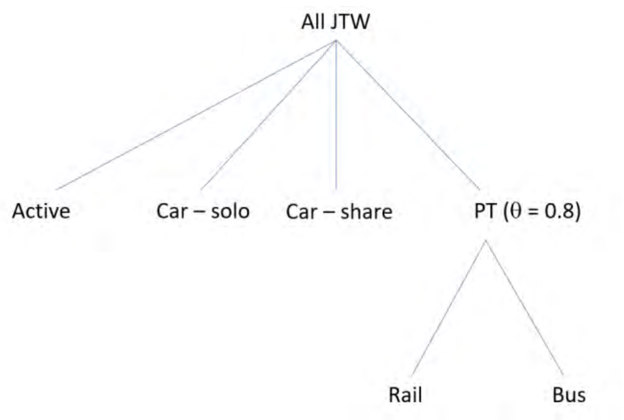
12.2.4 Inner London dummy

As for the air passengers, we found there is an additional preference for rail to/from Inner London that is not captured by the other terms in the utility. A dummy was applied to rail for Inner London and found to be highly significant, equivalent to 50 in-vehicle minutes, a similar magnitude to that seen in GapSAM, though not many employees actually live (or start their JTW) in Inner London.

12.2.5 Model hierarchy

The best fit to data was found to be with nesting of the PT modes, rail and bus/coach (Figure 13).

Figure 13 - GemSAM model hierarchy



12.2.6 Sensitivity Tests

In the preferred models, wait time is capped at 45 minutes. In sensitivity tests BT1 and BT2, capping values were changed to 30 and 60 minutes respectively. Results are shown in Table 19. While there was a better model fit for BT1 (capped at 30 mins) than BT (45 mins cap) this assumption is a bit low for adoption. The three values produce a similar model.

Table 19 - Sensitivity test with wait time capping at 60 and 120 mins

Item	Model BT1 (wait time cap 30)	Model BT (wait time cap 45)	Model BT2 (wait time cap 60)
Estimation statistics			
Estimated params	11	11	11
Sample size (records)	4874	4874	4874
Initial LL	-7734	-7734	-7734
Final LL	-4546	-4557	-4560
Rho bar square	0.411	0.409	0.409

Item	Model BT1 (wait time cap 30)	Model BT (wait time cap 45)	Model BT2 (wait time cap 60)
Parameter estimates			
ASC_CAR	0	0	0
ASC_CARSHARE	-2.17 (-35.2)	-2.18 (-35.1)	-2.19 (-35.3)
ASC_RAIL	-0.21 (-1.96)	-0.334 (-3.06)	-0.367 (-3.38)
ASC_BUS	1.51 (12.5)	1.46 (12)	1.45 (12)
ASC_ACTIVE	-0.066 (-0.19 n/s)	-0.0604 (-0.175 n/s)	-0.0589 (-0.17 n/s)
A_IVT	-0.0383 (-10.2)	-0.0399 (-10.5)	-0.0409 (-10.8)
B_WAIT	-0.0937 (-11)	-0.0784 (-9.51)	-0.0736 (-8.72)
C_AUX	-0.0779 (-12.3)	-0.0801 (-12.8)	-0.0812 (-13)
M_MONEY	-0.246 (-6.69)	-0.246 (-6.96)	-0.25 (-7.15)
L_LON	2 (14.2)	2.02 (14.3)	2.02 (14.3)
H_DIST (walk distance)	-0.576 (-6.23)	-0.582 (-6.26)	-0.576 (-6.23)
NEST	1.27 (13)	1.25 (12.5)	1.24 (12.6)
Key ratios			
VOT	£9.82/hr	£9.73/hr	£9.82/hr
Mins per transfer : rail	5 (fixed)	5 (fixed)	5 (fixed)
Mins per transfer : bus	7.5 (fixed)	7.5 (fixed)	7.5 (fixed)
Wait time weight	2.45	1.96	1.80
Aux time weight	2.03	2.01	1.99

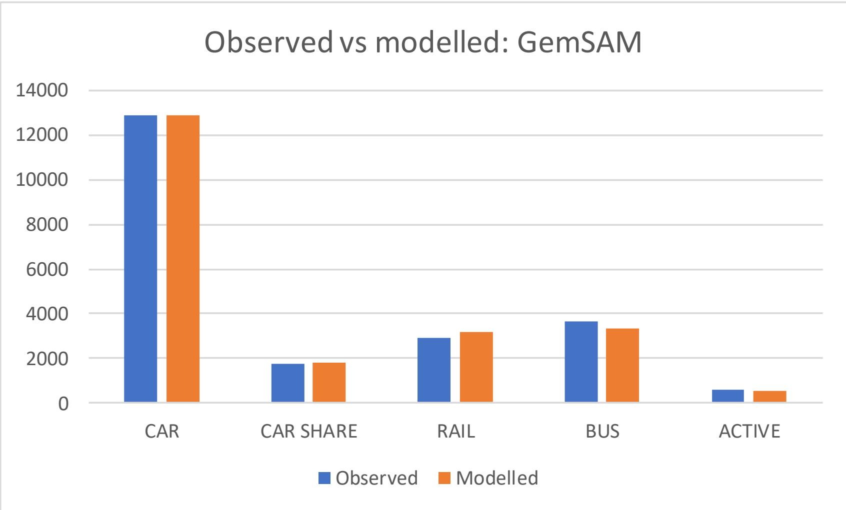
13 GemSAM model validation

As with the air passenger models, validation of the GemSAM model covers two stages: applying the model in 'absolute' form to the survey data set (comparing observed against modelled mode shares); and running base realism tests in the incremental choice model application to obtain elasticities that can be compared against experience and other airport employee access models.

13.1 Application of the models to the survey data

Figure 14 shows the comparison of observed and modelled employee trips and mode shares.

Figure 14 - Comparison of observed and modelled: GemSAM



	Trips	
	Observed	Modelled
CAR	12870	12873
CAR SHARE	1772	1819
RAIL	2924	3158
BUS	3635	3362
ACTIVE	584	573
TOTAL	21785	21785

	Shares	
	Observed	Modelled
CAR	59.1%	59.1%
CAR SHARE	8.1%	8.4%
RAIL	13.4%	14.5%
BUS	16.7%	15.4%
ACTIVE	2.7%	2.6%
TOTAL	100.0%	100.0%

The mode shares are replicated reasonably closely by the models. The differences seen for bus and rail are because trips excluded from estimation where bus or rail time could not be determined (short trips that the models assign as walk-all-the-way). But the overall PT mode share is well replicated at 30.1% observed, 29.9% modelled.

A breakdown of mode shares by local authority district is shown in Table 20. In general, there is more variation between modelled and observed than we saw with the air passengers, reflecting the qualities of estimation datasets. Seventy percent of employees live in the top six (Crawley, Reigate & Banstead, Horsham, Mid Sussex, Croydon, Brighton & Hove). For five of these the model produces a reasonable match to observed; the sixth, Brighton and Hove, has significantly different observed and modelled PT shares (39% vs 22%) – this was also seen in the air passenger models – but if we take the south coast local authorities as a group the error is less: 24% observed, 22% modelled.

Modelled PT shares for employees from Greater London (54%) and the South East region (26%) are a close match to the observed.

As with the GapSAM model, any errors at local authority (or individual zone) level will essentially be eliminated through incremental application of the model, and for this reason we did not seek to improve fit with further dummy variables for Brighton etc.

Table 20 - Observed and modelled mode shares by LA

	Observed						Modelled							
	Employee Trips						**Employee Trips**							
Local Authority	**Car - single**	**Car - shared**	**Rail**	**Bus**	**Active**	**TOTAL**	**Car - single**	**Car - shared**	**Rail**	**Bus**	**Active**	**TOTAL**	**Observed PT share**	**Modelled PT Share**
Crawley	3,413	586	258	2,983	159	7,399	3,887	466	384	2,367	295	7,399	44%	37%
Reigate and Banstead	999	160	228	233	348	1,968	1,059	128	123	443	215	1,968	23%	29%
Horsham	1,502	150	118	84	19	1,873	1,437	194	147	93	2	1,873	11%	13%
Mid Sussex	1,467	78	226	47	17	1,835	1,287	167	312	45	23	1,835	15%	19%
Croydon	337	40	644	3	0	1,024	286	40	672	26	0	1,024	63%	68%
Brighton and Hove	540	87	285	108	0	1,020	690	105	188	36	0	1,020	39%	22%
Wealden	361	84	39	7	0	491	381	59	30	22	0	491	9%	11%
Tandridge	366	13	15	17	13	424	332	42	21	12	17	424	8%	8%
Worthing	268	68	43	0	0	379	249	41	86	3	0	379	11%	23%
Lewes	249	50	51	7	0	357	266	42	38	10	0	357	16%	14%
Arun	180	98	47	4	0	329	217	38	73	1	0	329	16%	23%
Mole Valley	262	29	3	12	28	334	240	30	15	29	20	334	4%	13%
Adur	199	58	21	5	0	283	194	31	54	4	0	283	9%	20%
Eastbourne	158	50	58	0	0	266	158	30	60	19	0	266	22%	30%
Sutton	190	7	27	11	0	235	136	19	20	61	0	235	16%	34%
Wandsworth	31	3	151	3	0	188	33	5	147	2	0	188	82%	80%
Bromley	133	0	39	9	0	181	133	20	23	5	0	181	27%	15%
London	1,190	112	1,361	76	0	2,739	1,100	170	1,291	178	0	2,739	52%	54%
South East	11,415	1,660	1,494	3,522	584	18,675	11,652	1,608	1,693	3,149	573	18,675	27%	26%
TOTAL	**12,870**	**1,772**	**2,924**	**3,635**	**584**	**21,785**	**12,873**	**1,819**	**3,158**	**3,362**	**573**	**21,785**	**30%**	**30%**

13.2 Base realism tests

We have compared elasticities from a series of realism / sensitivity tests on GemSAM against the elasticities reported from HeSAM (Heathrow employee Surface Access Model). We also comment on the recommended elasticity ranges given in TAG M2 for commuter trips where possible.

A comparison of GemSAM and HeSAM elasticities is shown in Table 21.

Table 21 - Comparison of GemSAM and HeSAM elasticities

		Employees		
Elasticity		HeSAM	GemSAM	Notes
Rail to rail fare		-0.26 (PT)	-0.63	higher
Bus/coach to bus/coach fare			-0.31	similar
Car to fuel cost	Car Solo	-	-0.08	-
	Car Share	-	0.05	-
	All Car	-0.04	-0.06	similar
Rail to rail time		-0.48 (PT)	-0.46	similar
Bus/coach to bus/coach time			-0.58	higher
Rail to rail wait		-	-0.41	-
Rail to rail aux		-	-0.40	-
Rail to rail boards		-	-0.17	-
Bus/coach to bus/coach wait		-	-0.37	-
Bus/coach to bus/coach aux		-	-0.45	-
Bus/coach to bus/coach boards		-	-0.23	-
Car to car time	Car Solo	-	-0.19	-
	Car Share	-	-0.17	-
	All Car	-0.14	-0.19	similar

Fuller detail is provided in Appendix A1, including elasticities by time period and cross-elasticities.

The GemSAM bus fare elasticity (-0.31) is similar to HeSAM ‘all PT’ fare elasticity (-0.26). The rail elasticity is higher (-0.63) while the combined PT elasticity is midway between these values, well within the benchmark range of -0.2 to -0.9 suggested in TAG M2 (6.4.2).

GemSAM has similar weak sensitivity to car fuel cost (-0.06) as HeSAM (-0.04). The advice in TAG M2 is that elasticity of car commuting trips to changes in fuel cost is around -0.3. This is higher than the sensitivity seen in GemSAM but the TAG value is for vehicle kms rather than trips and includes redistribution. The value here is trip-based, and represents mode switch only, so a value below -0.1 would appear to be in the reasonable range.

The elasticity of demand with respect to rail and bus/coach time is in the region of -0.4 to -0.6, which is similar to HeSAM. There is no guidance on this in TAG.

Car journey time elasticities are similar in GemSAM (-0.19) and HESAM (-0.14). For comparison, TAG M2 Table A1 quotes indicative home-based work car journey time elasticities for models that exclude time-switching as -0.14 in circumstances of low modal competition and -0.22 for high competition.

In Table 22 we give the change in the mode share for each test. This is to accompany the elasticity table because the impact of an elasticity on actual mode share varies depending on what the base share starting value is, so this context is useful. In each case the change is caused by a 20% increase in the value eg Increasing rail fare by 20% causes rail mode share for employees to fall from 12.8% to 11.4%.

Table 22 - GemSAM – impact on own mode share of 20% increase in the explanatory variable

Change in employee commute mode share due to 20% increase in fare/cost/time		All Emp
Rail to rail fare		**12.8% to 11.4%**
Bus/coach to bus/coach fare		**15.7% to 14.8%**
Car to fuel cost	Car Solo	**54.7% to 53.9%**
	Car Share	**7.6% to 7.7%**
	All Car	**62.3% to 61.6%**
Rail to rail time		**12.8% to 11.8%**
Bus/coach to bus/coach time		**15.7% to 14.1%**
Rail to rail wait		**12.8% to 11.9%**
Rail to rail aux		**12.8% to 11.9%**
Rail to rail boards		**12.8% to 12.4%**
Bus/coach to bus/coach wait		**15.7% to 14.6%**
Bus/coach to bus/coach aux		**15.7% to 14.4%**
Bus/coach to bus/coach boards		**15.7% to 15%**
Car to car time	Car Solo	**54.7% to 52.8%**
	Car Share	**7.6% to 7.4%**
	All Car	**62.3% to 60.2%**

We are comfortable with the responses that GemSAM shows to the sensitivity tests.

14 Calibration update to 2018/19

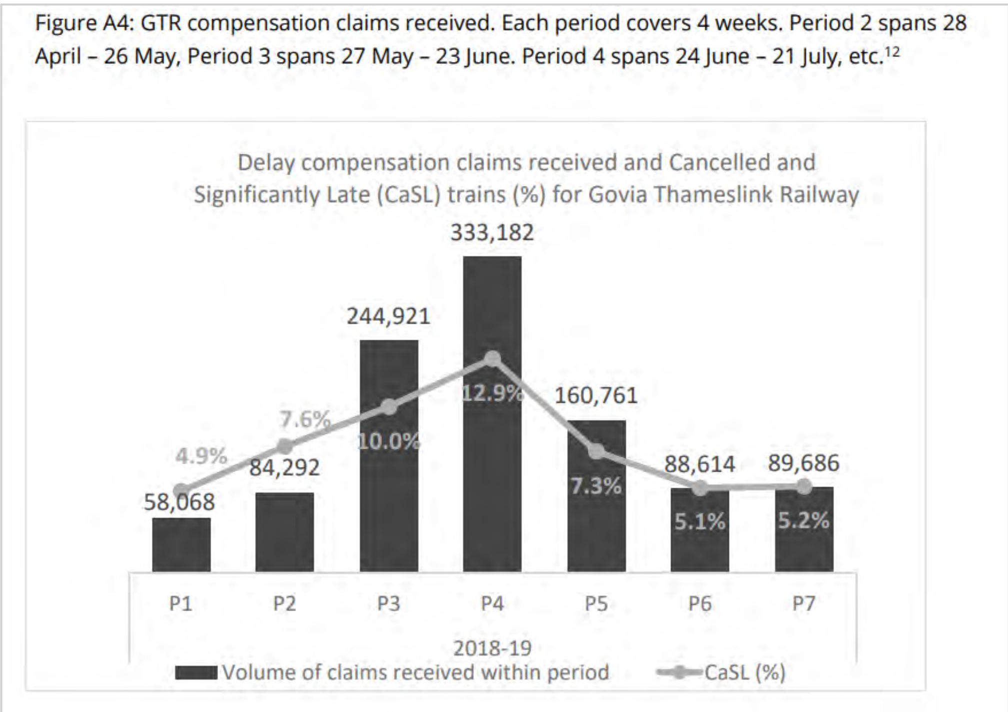
14.1 Disruption of rail system

In the preceding sections of this Technical Note, the estimations of airport passenger and airport employee mode choice models to 2016 datasets were described. When the estimation datasets were collected, there was significant disruption on the Brighton Main Line caused by the Thameslink Programme and reconstruction of London Bridge station, when train services were reduced and diverted, making travel to Gatwick via London Bridge more difficult.

London Bridge reconstruction, trackwork to enable new destinations north of London, and other works enabling up to 24 trains per hour per direction (tphpd) in the Thameslink core were completed by February 2018. A new timetable to take advantage of the new infrastructure was introduced in May 2018 with 20 tphpd (the plan was to further raise frequency to 24 tphpd in the December 2018 timetable) with all new Class 700 rolling stock.

It is well documented that the May 2018 timetable was not a success[15], resulting in widespread cancellations and disruption to GTR services. Within 6 weeks, the May timetable was replaced by an emergency timetable, followed by a recovery/interim timetable with fewer services in a bid to improve timetable reliability. This had the intended effect and by September 2018 (rail accounting period P6), normal levels of reliability had been restored, as shown in Figure 15.

Figure 15 - GTR CaSL and compensation claims



[15] See https://www.orr.gov.uk/sites/default/files/om/inquiry-into-may-2018-timetable-disruption-september-2018-findings.pdf and https://www.orr.gov.uk/sites/default/files/om/inquiry-into-may-2018-timetable-disruption-december-2018-report-grayscale.pdf and https://publications.parliament.uk/pa/cm201719/cmselect/cmtrans/1163/116304.htm

Source: https://www.orr.gov.uk/sites/default/files/om/inquiry-into-may-2018-timetable-disruption-december-2018-report-grayscale.pdf

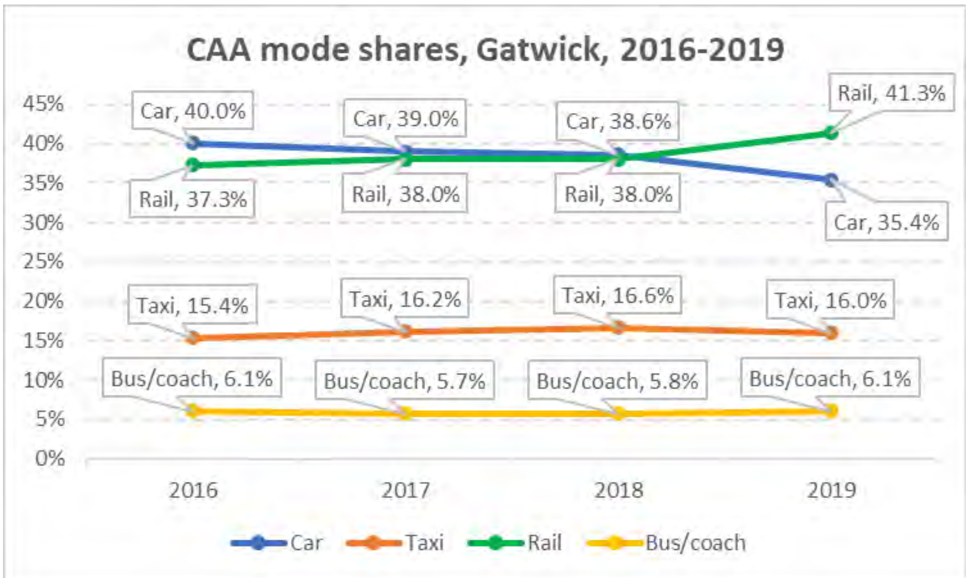
At the next scheduled timetable change in December 2018 the intended timetable enhancements had been scaled back from 24 tphpd to a maximum of around 20 tphpd.

Given this history, GAL's reasonable expectation was that rail demand at Gatwick Airport was suppressed between 2016 and the end of 2018; and starting to return to normal trend thereafter.

14.2 Evolution of air passenger mode shares

To investigate the evidence, we compared the CAA surveyed mode shares at Gatwick for years 2016, 2017, 2018 and 2019 (the last pre-Covid dataset), provided by GAL. The mode shares are shown in Figure 16. There is also a category 'other modes', not shown in the figure, with a share of between 0.2% and 0.35%. The totals (including other) sum to between 99.1% and 99.3%. It is not stated why the totals sum to less than 100%.

Figure 16 - Gatwick air passenger surface access mode shares



It is clear from Figure 16 that there was a jump in rail use from 2018 to 2019 of about 3.3 percentage points. This coincided with the return of the more reliable GTR services.

Interpretation and commentary:

- the step change in rail share was probably caused by the change from an unreliable and disrupted train service to a reliable train service towards the end of 2018;
- the Gapsam model would not be able to replicate the rail share boost because reliability is not an explanatory variable in the rail generalised costs;
- however, the mode constants can be recalibrated to capture the benefit of the reliability improvement and, more generally, to rebase mode shares to the latest data;

- the recalibrated mode constants can be used for 2018/19 runs to obtain mode shares that align with the observed outcome;
- it would be reasonable to continue using the recalibrated mode constants for future years, so long as the reliability changes are permanent; and
- however, given the significant size of the jump in rail share (and because it is only one data point, and could not be confirmed in 2020 due to Covid), it was considered prudent to target the situation in 2018/19 (ie averaging two data points: 2018 and 2019) rather than 2019.

14.3 Recalibration

There are four modes in Figure 16 so we can get all four mode shares to their target values by changing three of the mode constants; and leaving one at its base value. The mode left at its base value was determined to be car.

The 2018/19 mode share targets calculated from the CAA published data are shown in the rightmost column of Table 23.

Table 23 - Target mode shares 2018/19

	2018 CAA	2019 CAA	Target (average)
Car	38.6%	35.4%	37.0%
Taxi	16.6%	16.0%	16.3%
Rail	38.0%	41.3%	39.7%
Bus/coach	5.8%	6.1%	5.9%

The process to recalibrate:

- run a 2018/19 forecast with the base mode constants and review the forecast mode shares;
- adjust mode constants for taxi, rail and bus/coach to get a better match between modelled and target mode shares; and
- repeat (following a trial-and-error process) until the mode shares are a good match to target values

Table 24 shows the results of the Base 16, the PreCal 18/19 (base mode constants) and the final Cal 18/19 run (adjusted mode constants). The target values for 18/19 are also shown for reference.

Table 24 - Calibration results

	Base 16	Target 18/19	PreCal 18/19	Cal 18/19
Car	41.5%	37.0%	40.5%	37.8%
Taxi	15.9%	16.3%	15.7%	16.5%
Rail	36.9%	39.7%	38.1%	39.8%

	Base 16	Target 18/19	PreCal 18/19	Cal 18/19
Bus/coach	5.8%	5.9%	5.7%	5.9%

Between the Base and PreCal, the modelled rail share rises from 36.9% to 38.1%, a rise of 1.2 percentage points, driven mainly by the improved train timetable; however, as noted above, the improvement in reliability is not modelled. Another 1.6 percentage points rise in the modelled rail mode share is needed to hit the 18/19 target of 39.7%.

In the Cal 18/19 run, mode constants were adjusted to shift some extra trips from car to rail, and to a lesser extent, to taxi and bus/coach. The final Cal 18/19 model has a rail share of 39.8%, which is close to the 39.7% target. Taxi and bus/coach have also moved close to their target values. Car still appears to be slightly high but, as noted above, the CAA observed shares only sum to 99.1% with no explanation for the remaining 0.9% - if we assume these are car then modelled and target shares match closely for all four modes.

The changes made to mode constants in Cal 18/19 are summarised in Table 25, together with the values of the changes in equivalent minutes.

Table 25 - Mode constant adjustments

	Change in mode constant	Equivalent minutes
Car Park & Fly	-	-
Car Kiss &Fly	-	-
Taxi	Add 0.17	Subtract 7.7
Rail	Add 0.18	Subtract 8.1
Bus/coach	Add 0.13	Subtract 5.9

The equivalent minutes were calculated with reference to the in-vehicle time coefficients (Table 7). One minute is valued at:

- 0.0255 units of utility for UK business; and
- 0.0216 units of utility for UK leisure.

The ratio of business to leisure is 14:86, therefore the weighted average is:

- 0.0221 units of utility for average passenger (0.14*0.0255+0.86*0.0216=0.0221).

Therefore, for rail, we divide the 0.18 by 0.0221 to give a value equivalent to subtracting 8.1 minutes. The interpretation is that the reliability improvement is worth about 8 minutes of in-vehicle time on a journey that generally takes 30-40 mins to London.

For taxi there is a utility gain equal to 7.7 minutes, this may be linked to the rise in Uber since 2016. The change in the bus/coach constant is minor in comparison to its overall generalised cost.

There was no data available for changes in airport employee mode shares, so the employee mode constants have been left at their base (estimated) values.

Technical Note

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A1 GSAM base realism tests (detailed results)

Rail in-vehicle time

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.19	0.25	0.27	0.29	0.13	0.15	0.23
Car self park (on)	0.17	0.24	0.19	0.18	0.08	0.06	0.17
Car self park (off)	0.21	0.19	0.17	0.14	0.06	0.06	0.14
Car rental	0.23	0.30	0.22	0.24	0.12	0.04	0.24
Car K&F	0.12	0.14	0.11	0.11	0.06	0.05	0.11
Taxi	0.13	0.17	0.13	0.13	0.06	0.06	0.12
Rail	-0.23	-0.22	-0.13	-0.14	-0.26	-0.39	-0.19
Bus/coach	0.24	0.25	0.26	0.24	0.19	0.11	0.22
Car	0.15	0.20	0.16	0.15	0.07	0.06	0.15
PT	-0.21	-0.20	-0.12	-0.13	-0.22	-0.31	-0.17

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.20	0.25	0.22	0.23	0.10	0.08	0.19
Car self park (on)	0.19	0.25	0.22	0.22	0.09	0.07	0.19
Car self park (off)	0.18	0.23	0.21	0.20	0.09	0.07	0.17
Car rental	0.25	0.29	0.22	0.26	0.14	0.10	0.24
Car K&F	0.12	0.14	0.14	0.13	0.05	0.04	0.11
Taxi	0.14	0.16	0.15	0.14	0.07	0.06	0.13
Rail	-0.53	-0.45	-0.37	-0.36	-0.60	-0.80	-0.45
Bus/coach	0.25	0.30	0.28	0.29	0.13	0.12	0.25
Car	0.16	0.19	0.18	0.17	0.08	0.06	0.15
PT	-0.38	-0.35	-0.29	-0.28	-0.38	-0.43	-0.34

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.18	0.27	0.29	0.27	0.20	0.22	0.26
Car K&F	0.06	0.10	0.08	0.08	0.05	0.02	0.08
Taxi	0.08	0.11	0.09	0.09	0.05	0.03	0.09
Rail	-0.10	-0.10	-0.07	-0.07	-0.13	-0.14	-0.09
Bus/coach	0.11	0.17	0.21	0.20	0.11	0.12	0.17
Car	0.08	0.12	0.10	0.10	0.06	0.03	0.10
PT	-0.06	-0.07	-0.05	-0.05	-0.08	-0.06	-0.06

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.26	0.29	0.22	0.24	0.14	0.11	0.24
Car K&F	0.13	0.16	0.14	0.14	0.08	0.05	0.14
Taxi	0.21	0.24	0.22	0.20	0.12	0.09	0.20
Rail	-0.21	-0.18	-0.15	-0.14	-0.24	-0.27	-0.18
Bus/coach	0.31	0.33	0.33	0.34	0.22	0.16	0.31
Car	0.19	0.22	0.19	0.19	0.11	0.08	0.19
PT	-0.12	-0.11	-0.09	-0.09	-0.14	-0.13	-0.11

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.20	0.25	0.23	0.23	0.10	0.08	0.19
Car self park (on)	0.19	0.24	0.22	0.22	0.09	0.07	0.18
Car self park (off)	0.18	0.23	0.20	0.20	0.09	0.07	0.17
Car rental	0.25	0.29	0.22	0.24	0.14	0.11	0.24
Car K&F	0.12	0.15	0.13	0.13	0.05	0.04	0.11
Taxi	0.15	0.17	0.15	0.14	0.07	0.06	0.13
Rail	-0.38	-0.32	-0.24	-0.25	-0.44	-0.59	-0.32
Bus/coach	0.26	0.30	0.29	0.29	0.15	0.13	0.26
Car	0.16	0.20	0.17	0.17	0.08	0.06	0.15
PT	-0.28	-0.25	-0.18	-0.19	-0.29	-0.33	-0.24

Airport employees	AM	IP	PM	OP1	OP2	OP3	24 hr
Car solo	0.08	0.07	0.09	0.07	0.07	0.07	0.08
Car share	0.07	0.07	0.07	0.06	0.06	0.07	0.07
Company	0.09	0.07	0.09	0.07	0.07	0.08	0.08
Rail	-0.44	-0.47	-0.43	-0.46	-0.51	-0.49	-0.46
Bus/coach	0.04	0.04	0.04	0.03	0.04	0.04	0.04
Active	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Car	0.08	0.07	0.09	0.07	0.07	0.07	0.07
PT	-0.19	-0.18	-0.20	-0.17	-0.19	-0.18	-0.18
GAL "sustainable"	-0.10	-0.09	-0.10	-0.09	-0.10	-0.09	-0.09
Car solo + share	0.08	0.07	0.09	0.07	0.07	0.07	0.07

Rail fare

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.10	0.12	0.15	0.12	0.05	0.06	0.11
Car self park (on)	0.09	0.11	0.12	0.09	0.03	0.02	0.08
Car self park (off)	0.11	0.09	0.11	0.06	0.03	0.03	0.07
Car rental	0.15	0.16	0.17	0.16	0.07	0.02	0.15
Car K&F	0.07	0.07	0.06	0.05	0.03	0.02	0.05
Taxi	0.06	0.08	0.07	0.06	0.02	0.03	0.06
Rail	-0.12	-0.10	-0.08	-0.07	-0.10	-0.16	-0.09
Bus/coach	0.17	0.14	0.17	0.12	0.08	0.05	0.12
Car	0.08	0.09	0.10	0.08	0.03	0.02	0.07
PT	-0.11	-0.09	-0.07	-0.06	-0.08	-0.12	-0.08

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.17	0.18	0.19	0.16	0.06	0.05	0.14
Car self park (on)	0.16	0.18	0.19	0.16	0.06	0.05	0.14
Car self park (off)	0.17	0.18	0.19	0.15	0.06	0.05	0.13
Car rental	0.24	0.22	0.18	0.20	0.09	0.07	0.18
Car K&F	0.10	0.10	0.11	0.09	0.03	0.03	0.08
Taxi	0.11	0.12	0.12	0.10	0.04	0.04	0.09
Rail	-0.45	-0.33	-0.31	-0.26	-0.38	-0.53	-0.33
Bus/coach	0.24	0.23	0.26	0.22	0.09	0.09	0.20
Car	0.13	0.14	0.15	0.12	0.05	0.04	0.11
PT	-0.33	-0.25	-0.24	-0.20	-0.23	-0.28	-0.25

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.11	0.13	0.17	0.13	0.08	0.08	0.13
Car K&F	0.03	0.05	0.05	0.05	0.02	0.01	0.04
Taxi	0.04	0.06	0.05	0.05	0.02	0.02	0.05
Rail	-0.06	-0.06	-0.04	-0.04	-0.06	-0.07	-0.05
Bus/coach	0.06	0.09	0.12	0.11	0.05	0.06	0.09
Car	0.05	0.06	0.06	0.05	0.03	0.02	0.05
PT	-0.03	-0.04	-0.03	-0.03	-0.04	-0.03	-0.03

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.20	0.18	0.16	0.14	0.07	0.06	0.15
Car K&F	0.08	0.10	0.10	0.08	0.04	0.03	0.08
Taxi	0.14	0.15	0.15	0.13	0.06	0.05	0.12
Rail	-0.14	-0.11	-0.10	-0.09	-0.13	-0.15	-0.11
Bus/coach	0.21	0.20	0.22	0.20	0.11	0.09	0.19
Car	0.13	0.14	0.13	0.12	0.06	0.05	0.12
PT	-0.09	-0.07	-0.06	-0.06	-0.07	-0.07	-0.07

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.17	0.17	0.19	0.16	0.06	0.05	0.14
Car self park (on)	0.15	0.17	0.18	0.15	0.05	0.04	0.13
Car self park (off)	0.17	0.17	0.19	0.15	0.06	0.04	0.13
Car rental	0.20	0.18	0.17	0.15	0.08	0.06	0.16
Car K&F	0.09	0.10	0.11	0.09	0.03	0.03	0.08
Taxi	0.11	0.12	0.11	0.10	0.04	0.04	0.09
Rail	-0.31	-0.22	-0.19	-0.17	-0.26	-0.37	-0.22
Bus/coach	0.22	0.21	0.24	0.20	0.09	0.08	0.19
Car	0.13	0.14	0.14	0.12	0.05	0.04	0.11
PT	-0.22	-0.17	-0.15	-0.13	-0.17	-0.21	-0.16

Airport employees	AM	IP	PM	OP1	OP2	OP3	24 hr
Car solo	0.12	0.09	0.12	0.09	0.09	0.09	0.10
Car share	0.09	0.08	0.09	0.07	0.07	0.08	0.08
Company	0.16	0.10	0.16	0.10	0.09	0.10	0.12
Rail	-0.64	-0.63	-0.62	-0.63	-0.62	-0.64	-0.63
Bus/coach	0.06	0.06	0.06	0.05	0.05	0.06	0.06
Active	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Car	0.12	0.09	0.12	0.09	0.08	0.09	0.10
PT	-0.27	-0.23	-0.28	-0.23	-0.22	-0.23	-0.24
GAL "sustainable"	-0.13	-0.12	-0.13	-0.11	-0.11	-0.12	-0.12
Car solo + share	0.11	0.09	0.12	0.09	0.08	0.09	0.10

Bus/coach in-vehicle time

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.07	0.05	0.03	0.05	0.04	0.11	0.05
Car self park (on)	0.02	0.03	0.02	0.02	0.03	0.02	0.02
Car self park (off)	0.04	0.04	0.02	0.02	0.02	0.01	0.02
Car rental	0.06	0.04	0.02	0.02	0.03	0.05	0.03
Car K&F	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Taxi	0.02	0.01	0.02	0.01	0.01	0.01	0.01
Rail	0.02	0.02	0.01	0.01	0.03	0.04	0.02
Bus/coach	-1.12	-1.06	-0.97	-0.91	-0.86	-0.76	-0.97
Car	0.02	0.03	0.02	0.02	0.02	0.02	0.02
PT	-0.03	-0.02	-0.01	-0.01	-0.05	-0.08	-0.02

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.09	0.09	0.07	0.07	0.06	0.07	0.08
Car self park (on)	0.09	0.08	0.07	0.07	0.06	0.07	0.07
Car self park (off)	0.12	0.11	0.10	0.10	0.08	0.09	0.10
Car rental	0.13	0.11	0.13	0.09	0.10	0.16	0.12
Car K&F	0.04	0.04	0.03	0.03	0.02	0.03	0.03
Taxi	0.04	0.03	0.03	0.03	0.02	0.03	0.03
Rail	0.08	0.07	0.06	0.06	0.07	0.11	0.07
Bus/coach	-1.50	-1.50	-1.32	-1.31	-0.99	-1.29	-1.36
Car	0.07	0.06	0.05	0.05	0.05	0.05	0.06
PT	-0.16	-0.11	-0.09	-0.08	-0.22	-0.38	-0.13

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car rental	0.08	0.14	0.10	0.11	0.10	0.01	0.11
Car K&F	0.03	0.02	0.02	0.01	0.02	0.01	0.02
Taxi	0.04	0.03	0.02	0.02	0.02	0.02	0.03
Rail	0.03	0.03	0.02	0.03	0.04	0.07	0.03
Bus/coach	-0.31	-0.44	-0.49	-0.46	-0.31	-0.26	-0.41
Car	0.04	0.04	0.02	0.02	0.02	0.02	0.03
PT	-0.03	-0.02	-0.01	-0.01	-0.03	-0.03	-0.02

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.11	0.13	0.11	0.09	0.10	0.12	0.11
Car K&F	0.04	0.04	0.04	0.04	0.03	0.04	0.04
Taxi	0.05	0.05	0.05	0.04	0.04	0.05	0.05
Rail	0.08	0.07	0.07	0.06	0.08	0.11	0.07
Bus/coach	-0.76	-0.84	-0.85	-0.82	-0.61	-0.54	-0.79
Car	0.07	0.07	0.07	0.06	0.05	0.06	0.06
PT	-0.04	-0.03	-0.03	-0.03	-0.06	-0.09	-0.04

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.09	0.08	0.06	0.07	0.06	0.07	0.08
Car self park (on)	0.08	0.07	0.07	0.06	0.05	0.06	0.07
Car self park (off)	0.12	0.11	0.10	0.09	0.08	0.09	0.10
Car rental	0.11	0.12	0.11	0.08	0.09	0.12	0.11
Car K&F	0.04	0.04	0.03	0.03	0.02	0.03	0.03
Taxi	0.04	0.03	0.03	0.03	0.02	0.03	0.03
Rail	0.07	0.06	0.05	0.05	0.07	0.10	0.06
Bus/coach	-1.20	-1.20	-1.09	-1.09	-0.87	-1.06	-1.12
Car	0.06	0.06	0.05	0.05	0.04	0.05	0.05
PT	-0.11	-0.07	-0.05	-0.05	-0.16	-0.27	-0.08

Airport employees	AM	IP	PM	OP1	OP2	OP3	24 hr
Car solo	0.11	0.11	0.10	0.11	0.10	0.11	0.11
Car share	0.13	0.12	0.14	0.12	0.10	0.11	0.12
Company	0.06	0.06	0.05	0.06	0.06	0.06	0.06
Rail	0.07	0.08	0.06	0.09	0.08	0.09	0.08
Bus/coach	-0.61	-0.58	-0.60	-0.59	-0.52	-0.56	-0.58
Active	0.08	0.10	0.07	0.10	0.09	0.10	0.09
Car	0.11	0.11	0.10	0.11	0.10	0.10	0.11
PT	-0.27	-0.28	-0.25	-0.29	-0.26	-0.27	-0.27
GAL "sustainable"	-0.12	-0.14	-0.12	-0.14	-0.13	-0.13	-0.13
Car solo + share	0.11	0.11	0.11	0.11	0.10	0.11	0.11

Bus/coach fare

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Car self park (on)	0.01	0.01	0.01	0.01	0.01	0.00	0.01
Car self park (off)	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Car rental	0.02	0.01	0.00	0.00	0.01	0.01	0.01
Car K&F	0.01	0.01	0.01	0.00	0.01	0.01	0.01
Taxi	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Bus/coach	-0.24	-0.23	-0.20	-0.20	-0.19	-0.16	-0.21
Car	0.01	0.01	0.00	0.00	0.00	0.00	0.01
PT	-0.01	-0.01	0.00	0.00	-0.01	-0.02	-0.01

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.03	0.03	0.02	0.03	0.02	0.03	0.03
Car self park (on)	0.03	0.03	0.03	0.03	0.02	0.03	0.03
Car self park (off)	0.04	0.04	0.04	0.04	0.04	0.03	0.04
Car rental	0.05	0.04	0.05	0.03	0.04	0.06	0.04
Car K&F	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Taxi	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Rail	0.03	0.02	0.02	0.02	0.03	0.04	0.02
Bus/coach	-0.50	-0.49	-0.43	-0.45	-0.39	-0.44	-0.46
Car	0.03	0.02	0.02	0.02	0.02	0.02	0.02
PT	-0.06	-0.04	-0.03	-0.03	-0.09	-0.14	-0.05

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.02	0.03	0.03	0.03	0.03	0.00	0.03
Car K&F	0.01	0.01	0.01	0.00	0.01	0.00	0.01
Taxi	0.01	0.01	0.00	0.01	0.01	0.01	0.01
Rail	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Bus/coach	-0.08	-0.11	-0.12	-0.11	-0.08	-0.07	-0.10
Car	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PT	-0.01	-0.01	0.00	0.00	-0.01	-0.01	-0.01

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.03	0.04	0.03	0.03	0.03	0.04	0.03
Car K&F	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Taxi	0.02	0.02	0.01	0.01	0.01	0.02	0.01
Rail	0.02	0.02	0.02	0.02	0.02	0.03	0.02
Bus/coach	-0.20	-0.22	-0.21	-0.21	-0.17	-0.15	-0.21
Car	0.02	0.02	0.02	0.02	0.02	0.02	0.02
PT	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.01

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.03	0.03	0.02	0.03	0.02	0.03	0.03
Car self park (on)	0.03	0.03	0.02	0.02	0.02	0.02	0.03
Car self park (off)	0.04	0.04	0.04	0.04	0.03	0.03	0.04
Car rental	0.03	0.04	0.03	0.03	0.03	0.04	0.03
Car K&F	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Taxi	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Rail	0.02	0.02	0.02	0.02	0.02	0.03	0.02
Bus/coach	-0.38	-0.37	-0.32	-0.35	-0.32	-0.36	-0.36
Car	0.02	0.02	0.02	0.02	0.02	0.02	0.02
PT	-0.04	-0.03	-0.02	-0.02	-0.06	-0.10	-0.03

Airport employees	AM	IP	PM	OP1	OP2	OP3	24 hr
Car solo	0.05	0.06	0.05	0.06	0.06	0.06	0.05
Car share	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Company	0.03	0.04	0.03	0.04	0.04	0.04	0.04
Rail	0.04	0.06	0.04	0.06	0.06	0.06	0.05
Bus/coach	-0.30	-0.31	-0.29	-0.31	-0.31	-0.31	-0.31
Active	0.05	0.07	0.04	0.07	0.07	0.07	0.06
Car	0.05	0.06	0.05	0.06	0.06	0.06	0.05
PT	-0.13	-0.15	-0.12	-0.15	-0.15	-0.15	-0.14
GAL "sustainable"	-0.06	-0.07	-0.05	-0.07	-0.07	-0.07	-0.07
Car solo + share	0.05	0.06	0.05	0.06	0.06	0.06	0.06

Car in-vehicle time

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.29	-0.29	-0.28	-0.28	-0.14	-0.20	-0.26
Car self park (on)	-0.25	-0.28	-0.25	-0.21	-0.10	-0.07	-0.20
Car self park (off)	-0.32	-0.25	-0.21	-0.17	-0.08	-0.08	-0.18
Car rental	-0.38	-0.37	-0.31	-0.34	-0.17	-0.07	-0.33
Car K&F	-0.19	-0.18	-0.13	-0.13	-0.08	-0.07	-0.14
Taxi	-0.23	-0.23	-0.19	-0.17	-0.08	-0.09	-0.17
Rail	0.29	0.22	0.14	0.14	0.23	0.37	0.20
Bus/coach	0.60	0.41	0.37	0.34	0.41	0.36	0.41
Car	-0.24	-0.25	-0.21	-0.19	-0.09	-0.08	-0.19
PT	0.31	0.22	0.15	0.15	0.25	0.37	0.21
Car parked/rental	-0.27	-0.28	-0.25	-0.23	-0.10	-0.07	-0.21

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.40	-0.34	-0.31	-0.30	-0.15	-0.14	-0.28
Car self park (on)	-0.38	-0.34	-0.32	-0.29	-0.14	-0.14	-0.27
Car self park (off)	-0.42	-0.37	-0.34	-0.31	-0.17	-0.15	-0.29
Car rental	-0.55	-0.42	-0.37	-0.37	-0.22	-0.26	-0.38
Car K&F	-0.22	-0.19	-0.19	-0.16	-0.07	-0.07	-0.16
Taxi	-0.27	-0.23	-0.22	-0.19	-0.09	-0.11	-0.19
Rail	0.63	0.41	0.35	0.32	0.50	0.70	0.42
Bus/coach	0.90	0.63	0.57	0.56	0.63	0.73	0.66
Car	-0.32	-0.27	-0.26	-0.23	-0.12	-0.11	-0.22
PT	0.68	0.44	0.38	0.35	0.54	0.71	0.46
Car parked/rental	-0.40	-0.35	-0.32	-0.30	-0.16	-0.14	-0.28

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	-0.31	-0.39	-0.37	-0.33	-0.25	-0.15	-0.34
Car K&F	-0.12	-0.15	-0.12	-0.11	-0.07	-0.03	-0.12
Taxi	-0.21	-0.20	-0.16	-0.16	-0.09	-0.07	-0.17
Rail	0.15	0.11	0.08	0.08	0.13	0.12	0.10
Bus/coach	0.15	0.13	0.11	0.10	0.12	0.09	0.12
Car	-0.20	-0.21	-0.16	-0.16	-0.09	-0.06	-0.17
PT	0.15	0.11	0.08	0.08	0.13	0.11	0.10
Car parked/rental	-0.31	-0.39	-0.37	-0.33	-0.25	-0.15	-0.34

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	-0.50	-0.43	-0.35	-0.33	-0.22	-0.21	-0.37
Car K&F	-0.22	-0.21	-0.20	-0.18	-0.11	-0.08	-0.18
Taxi	-0.47	-0.42	-0.41	-0.34	-0.20	-0.18	-0.36
Rail	0.22	0.15	0.13	0.12	0.19	0.22	0.15
Bus/coach	0.26	0.20	0.19	0.18	0.23	0.23	0.21
Car	-0.39	-0.34	-0.31	-0.28	-0.17	-0.15	-0.29
PT	0.23	0.16	0.13	0.13	0.20	0.22	0.16
Car parked/rental	-0.50	-0.43	-0.35	-0.33	-0.22	-0.21	-0.37

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.39	-0.34	-0.31	-0.29	-0.15	-0.14	-0.28
Car self park (on)	-0.36	-0.33	-0.31	-0.28	-0.14	-0.13	-0.26
Car self park (off)	-0.42	-0.36	-0.33	-0.31	-0.17	-0.14	-0.29
Car rental	-0.49	-0.42	-0.35	-0.34	-0.22	-0.21	-0.37
Car K&F	-0.22	-0.19	-0.19	-0.16	-0.08	-0.07	-0.16
Taxi	-0.29	-0.25	-0.23	-0.21	-0.10	-0.11	-0.21
Rail	0.46	0.30	0.23	0.22	0.37	0.53	0.30
Bus/coach	0.68	0.46	0.41	0.42	0.52	0.59	0.49
Car	-0.32	-0.28	-0.25	-0.23	-0.12	-0.11	-0.23
PT	0.50	0.32	0.25	0.24	0.41	0.55	0.32
Car parked/rental	-0.39	-0.35	-0.32	-0.30	-0.16	-0.14	-0.28

Airport employees	AM	IP	PM	OP1	OP2	OP3	24 hr
Car solo	-0.24	-0.18	-0.21	-0.18	-0.17	-0.17	-0.19
Car share	-0.21	-0.16	-0.19	-0.15	-0.14	-0.15	-0.17
Company	0.36	0.32	0.28	0.34	0.33	0.32	0.33
Rail	0.45	0.38	0.39	0.39	0.37	0.37	0.39
Bus/coach	0.28	0.22	0.24	0.23	0.22	0.21	0.23
Active	0.20	0.17	0.18	0.18	0.17	0.17	0.18
Car	-0.19	-0.14	-0.17	-0.14	-0.13	-0.13	-0.15
PT	0.36	0.29	0.32	0.30	0.28	0.28	0.30
GAL "sustainable"	0.25	0.21	0.22	0.22	0.21	0.21	0.22
Car solo + share	-0.23	-0.18	-0.21	-0.18	-0.17	-0.17	-0.19

Fuel cost

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.04	-0.05	-0.04	-0.05	-0.03	-0.04	-0.04
Car self park (on)	-0.04	-0.04	-0.03	-0.03	-0.02	-0.02	-0.03
Car self park (off)	-0.04	-0.04	-0.03	-0.03	-0.02	-0.02	-0.03
Car rental	-0.03	-0.04	-0.03	-0.03	-0.03	-0.03	-0.04
Car K&F	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Taxi	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Rail	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Bus/coach	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Car	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.01
PT	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Car parked/rental	-0.04	-0.04	-0.03	-0.03	-0.02	-0.02	-0.03

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.05	-0.05	-0.04	-0.05	-0.03	-0.04	-0.04
Car self park (on)	-0.05	-0.05	-0.04	-0.05	-0.03	-0.04	-0.04
Car self park (off)	-0.05	-0.05	-0.04	-0.04	-0.03	-0.03	-0.04
Car rental	-0.05	-0.05	-0.05	-0.05	-0.04	-0.04	-0.05
Car K&F	0.03	0.02	0.02	0.02	0.02	0.03	0.02
Taxi	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Rail	0.02	0.02	0.01	0.01	0.02	0.03	0.02
Bus/coach	0.03	0.03	0.03	0.03	0.03	0.04	0.03
Car	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01
PT	0.02	0.02	0.02	0.02	0.03	0.03	0.02
Car parked/rental	-0.05	-0.05	-0.04	-0.04	-0.03	-0.03	-0.04

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	-0.04	-0.06	-0.06	-0.06	-0.04	-0.02	-0.06
Car K&F	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Taxi	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bus/coach	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Car	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Car parked/rental	-0.04	-0.06	-0.06	-0.06	-0.04	-0.02	-0.06

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	-0.07	-0.07	-0.06	-0.06	-0.04	-0.05	-0.06
Car K&F	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Taxi	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Rail	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Bus/coach	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Car	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
PT	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Car parked/rental	-0.07	-0.07	-0.06	-0.06	-0.04	-0.05	-0.06

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.05	-0.05	-0.04	-0.05	-0.03	-0.04	-0.04
Car self park (on)	-0.05	-0.05	-0.04	-0.04	-0.03	-0.03	-0.04
Car self park (off)	-0.05	-0.05	-0.04	-0.04	-0.03	-0.03	-0.04
Car rental	-0.06	-0.07	-0.05	-0.05	-0.04	-0.04	-0.06
Car K&F	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Taxi	0.02	0.01	0.01	0.01	0.01	0.02	0.01
Rail	0.02	0.01	0.01	0.01	0.02	0.02	0.01
Bus/coach	0.02	0.02	0.02	0.02	0.03	0.03	0.02
Car	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01
PT	0.02	0.01	0.01	0.01	0.02	0.02	0.01
Car parked/rental	-0.05	-0.05	-0.04	-0.04	-0.03	-0.03	-0.04

Airport employees	AM	IP	PM	OP1	OP2	OP3	24 hr
Car solo	-0.09	-0.08	-0.08	-0.08	-0.07	-0.07	-0.08
Car share	0.05	0.05	0.04	0.06	0.06	0.06	0.05
Company	0.11	0.12	0.09	0.12	0.12	0.12	0.11
Rail	0.16	0.14	0.14	0.14	0.14	0.14	0.14
Bus/coach	0.09	0.07	0.08	0.08	0.07	0.07	0.08
Active	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Car	-0.06	-0.05	-0.05	-0.05	-0.04	-0.04	-0.05
PT	0.12	0.10	0.11	0.11	0.10	0.10	0.11
GAL "sustainable"	0.10	0.09	0.09	0.10	0.09	0.09	0.09
Car solo + share	-0.07	-0.06	-0.07	-0.06	-0.06	-0.06	-0.06

Parking cost

UK Business							
	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.42	-0.53	-0.44	-0.50	-0.35	-0.46	-0.48
Car self park (on)	-0.41	-0.48	-0.38	-0.40	-0.22	-0.27	-0.38
Car self park (off)	-0.42	-0.41	-0.30	-0.29	-0.18	-0.21	-0.31
Car rental	-0.42	-0.57	-0.39	-0.46	-0.35	-0.32	-0.48
Car K&F	0.18	0.20	0.16	0.18	0.22	0.24	0.20
Taxi	0.14	0.13	0.10	0.11	0.09	0.13	0.12
Rail	0.12	0.13	0.08	0.09	0.14	0.19	0.12
Bus/coach	0.27	0.29	0.21	0.22	0.30	0.19	0.26
Car	-0.10	-0.15	-0.13	-0.12	-0.06	-0.04	-0.11
PT	0.13	0.14	0.09	0.09	0.16	0.19	0.12
Car parked/rental	-0.42	-0.48	-0.38	-0.40	-0.23	-0.27	-0.39
Car parked	-0.41	-0.48	-0.38	-0.39	-0.22	-0.27	-0.38

UK Leisure							
	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.56	-0.60	-0.52	-0.56	-0.38	-0.43	-0.53
Car self park (on)	-0.56	-0.61	-0.53	-0.55	-0.38	-0.44	-0.53
Car self park (off)	-0.53	-0.58	-0.51	-0.52	-0.34	-0.40	-0.49
Car rental	-0.63	-0.65	-0.59	-0.58	-0.47	-0.48	-0.59
Car K&F	0.26	0.24	0.20	0.21	0.23	0.29	0.24
Taxi	0.22	0.20	0.18	0.18	0.19	0.23	0.20
Rail	0.24	0.22	0.17	0.17	0.28	0.35	0.21
Bus/coach	0.40	0.38	0.32	0.33	0.40	0.47	0.38
Car	-0.12	-0.14	-0.12	-0.12	-0.07	-0.06	-0.11
PT	0.27	0.24	0.18	0.18	0.32	0.40	0.24
Car parked/rental	-0.55	-0.60	-0.53	-0.54	-0.37	-0.42	-0.52
Car parked	-0.55	-0.60	-0.52	-0.54	-0.36	-0.42	-0.51

n/a

n/a

All air pax							
	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	-0.55	-0.60	-0.52	-0.55	-0.38	-0.43	-0.52
Car self park (on)	-0.54	-0.59	-0.51	-0.53	-0.36	-0.41	-0.51
Car self park (off)	-0.53	-0.57	-0.50	-0.51	-0.34	-0.40	-0.48
Car rental	-0.10	-0.12	-0.11	-0.12	-0.08	-0.11	-0.11
Car K&F	0.22	0.19	0.16	0.17	0.20	0.26	0.20
Taxi	0.17	0.15	0.12	0.13	0.15	0.19	0.15
Rail	0.15	0.13	0.09	0.10	0.18	0.24	0.13
Bus/coach	0.27	0.23	0.18	0.21	0.30	0.34	0.25
Car	-0.10	-0.12	-0.10	-0.10	-0.06	-0.05	-0.10
PT	0.17	0.14	0.10	0.11	0.21	0.28	0.14
Car parked/rental	-0.50	-0.54	-0.45	-0.48	-0.33	-0.40	-0.47
Car parked	-0.54	-0.59	-0.51	-0.53	-0.35	-0.41	-0.50

n/a

Taxi fare

UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.16	0.19	0.12	0.16	0.20	0.25	0.18
Car self park (on)	0.18	0.13	0.10	0.13	0.09	0.17	0.13
Car self park (off)	0.14	0.12	0.07	0.09	0.07	0.08	0.10
Car rental	0.11	0.11	0.07	0.08	0.09	0.19	0.10
Car K&F	0.16	0.15	0.10	0.13	0.11	0.15	0.14
Taxi	-0.52	-0.59	-0.46	-0.46	-0.28	-0.35	-0.47
Rail	0.12	0.10	0.06	0.07	0.11	0.25	0.09
Bus/coach	0.22	0.14	0.17	0.15	0.12	0.23	0.16
Car	-0.09	-0.11	-0.08	-0.09	-0.04	-0.05	-0.08
PT	0.12	0.10	0.06	0.07	0.11	0.25	0.10
Car parked/rental	0.17	0.13	0.09	0.12	0.09	0.16	0.13
Car parked	0.17	0.13	0.10	0.13	0.09	0.15	0.13

UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.15	0.14	0.12	0.14	0.13	0.16	0.14
Car self park (on)	0.16	0.14	0.12	0.14	0.12	0.15	0.14
Car self park (off)	0.15	0.13	0.11	0.13	0.11	0.15	0.13
Car rental	0.15	0.13	0.11	0.12	0.14	0.13	0.13
Car K&F	0.16	0.15	0.12	0.13	0.12	0.17	0.14
Taxi	-0.73	-0.75	-0.66	-0.66	-0.50	-0.62	-0.67
Rail	0.13	0.10	0.08	0.08	0.12	0.23	0.10
Bus/coach	0.12	0.10	0.08	0.10	0.10	0.13	0.11
Car	-0.06	-0.06	-0.05	-0.05	-0.02	-0.03	-0.05
PT	0.13	0.10	0.08	0.08	0.12	0.19	0.10
Car parked/rental	0.15	0.14	0.12	0.13	0.12	0.15	0.14
Car parked	0.15	0.14	0.12	0.13	0.12	0.15	0.14

Non-UK Business	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.16	0.19	0.14	0.13	0.14	0.03	0.16
Car K&F	0.14	0.15	0.09	0.10	0.12	0.09	0.12
Taxi	-0.26	-0.34	-0.24	-0.25	-0.15	-0.12	-0.27
Rail	0.13	0.12	0.08	0.09	0.14	0.13	0.11
Bus/coach	0.21	0.21	0.15	0.16	0.19	0.16	0.19
Car	-0.20	-0.24	-0.17	-0.19	-0.11	-0.08	-0.19
PT	0.14	0.13	0.08	0.10	0.15	0.14	0.12
Car parked/rental	0.16	0.19	0.14	0.13	0.14	0.03	0.16

Non-UK Leisure	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park							
Car self park (on)							
Car self park (off)							
Car rental	0.10	0.09	0.05	0.07	0.08	0.13	0.08
Car K&F	0.10	0.10	0.06	0.08	0.08	0.10	0.09
Taxi	-0.78	-0.90	-0.78	-0.73	-0.48	-0.47	-0.75
Rail	0.12	0.10	0.07	0.07	0.13	0.20	0.10
Bus/coach	0.13	0.11	0.09	0.10	0.13	0.18	0.11
Car	-0.20	-0.21	-0.16	-0.17	-0.11	-0.13	-0.18
PT	0.12	0.10	0.07	0.08	0.13	0.19	0.10
Car parked/rental	0.10	0.09	0.05	0.07	0.08	0.13	0.08

All air pax	AM	IP	PM	OP1	OP2	OP3	24 hr
Car valet park	0.15	0.14	0.12	0.14	0.13	0.17	0.14
Car self park (on)	0.16	0.14	0.11	0.13	0.12	0.16	0.14
Car self park (off)	0.15	0.13	0.11	0.13	0.10	0.15	0.13
Car rental	0.11	0.10	0.06	0.08	0.09	0.13	0.09
Car K&F	0.16	0.14	0.11	0.12	0.11	0.16	0.13
Taxi	-0.68	-0.72	-0.60	-0.61	-0.45	-0.55	-0.63
Rail	0.13	0.10	0.07	0.08	0.13	0.22	0.10
Bus/coach	0.13	0.11	0.09	0.10	0.11	0.15	0.11
Car	-0.08	-0.09	-0.07	-0.07	-0.03	-0.04	-0.07
PT	0.13	0.10	0.07	0.08	0.12	0.20	0.10
Car parked/rental	0.15	0.13	0.11	0.13	0.11	0.15	0.13
Car parked	0.16	0.14	0.11	0.13	0.11	0.15	0.14

n/a

Appendix B

Full List of Highway Schemes

Note: Some schemes are not included in the future year scenarios as suggested in the correspondence with local authorities, due to duplication, not suitable to be modelled or no sufficient information available.

Table 1: Schemes identified within simulation area

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
National Highways								
1	A1(M) Junctions 6-8: Smart Motorway	Hwy	2025	Work paused in August 2020	National Highways	Motorway Widening	More Than Likely	No
2	A27 Arundel Bypass	Hwy	2022	Committed for RP2, PRA, PCF3	National Highways	New Bypass	More Than Likely	No
3	A2 Bean & Ebbsfleet Junction Improvement Scheme	Hwy	2022	Under Construction	National Highways	Junction Improvement	Near Certain	Yes
4	M11 Junction 7 junction upgrade			Committed for RP2	National Highways		Reasonably Foreseeable	No
5	M20 Junctions 3-5: Smart Motorways		2019	Completed	National Highways	New Junction	Near Certain	Yes
6	M23 Junctions 8-10: Smart Motorways	Hwy	2020	Completed	National Highways	Motorway Wideing	Near Certain	Yes
7	M25 Junction 25 Improvement	Hwy	2025	Committed for RP2, PCF3	National Highways	Junction Improvement	More Than Likely	Yes
8	M25 Junction 30 expansion	Hwy	2016	Completed, PCF7	National Highways	Junction Improvement	Near Certain	Yes
9	M3 Junction 2 - 4A SMP	Hwy	2017	Completed	National Highways	Carriageway Widening	Near Certain	Yes
10	A21 Tonbridge to Pembury	Hwy	2017	Completed, PCF7	National Highways	Carriageway Widening	Near Certain	Yes
11	A21 Tonbridge to Pembury	Walking, Cycling	2017	Completed, PCF7	National Highways	Carriageway Widening	Near Certain	No
12	A27 East of Lewes	Hwy	2022	Under construction, PCF4, RP2	National Highways	Corridor improvement	More Than Likely	No
13	M25 Junction 28 Improvement	Hwy	2024	Committed for RP2, PCF3	National Highways	Junction Improvement	More Than Likely	Yes
14	M25 Junction 10-16 Smart Motorway	Hwy	2025	PCF3	National Highways	Motorway widening	More Than Likely	Yes
15	A27 Worthing and Lancing improvement	Transport	2025	Committed for RP2, PCF3 (on hold), open to traffic in RP3	National Highways		Reasonably Foreseeable	No
16	A27 Chichester		2038	Cancelled, RIS3 pipeline, PCF2 (On Hold)	National Highways		Hypothetical	No
17	A12 whole-route technology upgrade		2038	PCF1 On Hold	National Highways	Technology Upgrade	Hypothetical	No
18	M25 Junction 10/A3 Wisely Interchange	Hwy	2025	Committed for RP2, PCF4	National Highways	Junction Improvement	More Than Likely	Yes
19	Lower Thames Crossing - new link	Hwy	2029	Committed for RP2, pre DCO	National Highways	New Link	More Than Likely	Yes
20	A3 Guildford - carriageway widening	Hwy	2020	PCF0	National Highways	Carriageway widening	Hypothetical	Yes
21	Junction 3 M25 Swanley junction improvement	Hwy	2038	On Hold	National Highways	Junction improvement	Hypothetical	No
22	Junction 3 M25 Swanley junction improvement	Walking, Cycling	2038	On Hold	National Highways	Junction improvement	Hypothetical	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
23	Junction 3 M25 Swanley junction improvement	PT	2038	On Hold	National Highways	Junction improvement	Hypothetical	No
24	A27, Station Road & Alfriston Road (Drusilla's Roundabout improvments)	Hwy	2021	NH Proposal, planned	National Highways	Junction improvement	More Than Likely	Yes
25	Junction improvement and access	Hwy		Shortlisted waste sites	National Highways	Junction upgrade, lane adding, HGV movements	Reasonably Foreseeable	No
26	M25 South West Quadrant	Hwy		No scheme committed. Under review by the ongoing strategic study.	National Highways	Capacity improvements	Hypothetical	No
27	A120 Braintree to A12	Hwy		RIS3 pipeline	National Highways	Upgrade	Hypothetical	No
Crawley								
28	Three Bridges Station accesss improvements	PT	2028	Infrasructure Plan, Application submission imminent	Crawley	Station accesss improvements	More Than Likely	No
29	Crawley bus, zero emission hydrogen electric fuel cell buses used on Fastway services by Metrobus	PT	2020		Crawley	Bus		No
30	Radford Rd/ Steers lane and Balcombe Road / Steers lane access to Forge Wood	Hwy	2020	Complete	Crawley	Signals and Link	Near Certain	Yes
31	Crawley Station and Car Parks upgrade	PT	2029	Permitted	Crawley	120 car park, vehicle drop-off lay-by and associated highway works Upgrade - wider Station Gateway scheme and Crawley Growth Programme	Near Certain	No
32	Crawley Station and Car Parks upgrade	Hwy	2029	Permitted	Crawley	120 car park, vehicle drop-off lay-by and associated highway works Upgrade - wider Station Gateway scheme and Crawley Growth Programme	Near Certain	Yes
33	Crawley Station and Car Parks upgrade	Walking	2029	Permitted	Crawley	120 car park, vehicle drop-off lay-by and associated highway works Upgrade - wider Station Gateway scheme and Crawley Growth Programme	Near Certain	No
34	Site of Former Ifield Community College, L ady Margaret Rd - Vehicular access, speed limit	Hwy	Pre 2019	Complete	Crawley	Vehicular access, speed limit	Near Certain	No
35	Site of Former Ifield Community College, L ady Margaret Rd - Vehicular access, speed limit	Walking, Cycling	Pre 2019	Complete	Crawley	Vehicular access, speed limit	Near Certain	No
36	Thales, Gatwick Road - Signalisation, additional lane	Hwy	2020	Under Construction	Crawley	Signalisation, additional lane	Near Certain	Yes
37	Thales, Gatwick Road - Signalisation, additional lane	PT	2020	Under Construction	Crawley	Signalisation, additional lane	Near Certain	No
38	Thales, Gatwick Road - Signalisation, additional lane	Walking	2020	Under Construction	Crawley	Signalisation, additional lane	Near Certain	No
39	A2011 / A2004 - Carriageway widening	Hwy	2026	Consented	Crawley	Carriageway widening	Near Certain	Yes
40	A23 Crawley Avenue / Ifield Avenue - Linked Signal Arrangement	Hwy	2026	Under Construction	Crawley	Linked signal arrangement	Near Certain	Yes
41	M23 Junction 9, north bound slip road - Carriageway widening	Hwy	2026	Local Plan	Crawley	Carriageway widening	Reasonably Foreseeable	No
42	M25 Junction 10-16 Smart Motorway	Hwy	2023	Consented Scheme	Crawley	Junction improvements, Signal, carriageway widening	Near Certain	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
43	Balcombe Rd devt access junctions	Cycling	2026	Consented Scheme	Crawley		Near Certain	No
44	Steers Lane / Balcombe Road - signals	Hwy	2026	Consented Scheme	Crawley	Signals	Near Certain	No
45	Balcombe Road / Antlands Lane - modifications to existing roundabout	Hwy	2026	Consented Scheme	Crawley		Near Certain	Yes
46	Radford Road appraoch to Gatwick Road	Hwy	2023	Consented Scheme	Crawley		Near Certain	Yes
47	Kilnwood Vale (land west of Bewbush) - Main Access - roundabout, secondary access - left in/out	Hwy	2016	Complete	Crawley	Main Access - roundabout, secondary access - left in/out	Near Certain	Yes
48	A264 Crawley Road/A2220 Horsham Road, Kilnwood Vale - Speed change	Hwy	2026	Consented Scheme	Crawley	Speed change	Near Certain	Yes
49	A23 Crawley Ave / A2220 Horsham Rd - Carriageway widening	Hwy	2016	Complete	Crawley	Junction improvement - segregated left slip	Near Certain	Yes
50	Kilnwood Vale (land west of Bewbush) - Roundabout slip Lane	Hwy	2019	Consented	Crawley	Roundabout slip Lane - this was at Cheals junction, same location as scheme GIS ID 446	Near Certain	Yes
51	Former Thales Site On Gatwick Road - Junction improvements	Hwy	2026	Consented Scheme	Crawley	Junction improvements	Near Certain	No
52	Gatwtick Rd / Fleming Way - junction improvement	Hwy	2026	Consented Scheme	Crawley	Junction improvement	Near Certain	No
53	Gatwick Rd / Beehive Ring Road - junction improvement	Hwy	2026	Consented Scheme	Crawley	Junction improvement	More Than Likely	No
54	Fernlands, Fernhill Road - park and ride	Hwy		Expired	Crawley			No
	West sussex county council							
55	A259 Bognor Regis Relief Road (eastern section at Felpham).	Hwy	2016	Completed	WSCC	New link	Near Certain	No
56	A259 Littlehampton Phase 1 - Carriageway Widening	Hwy	2022	Under construction	WSCC	Dualling	Near Certain	Yes
57	A259 Littlehampton Phase 1 - Carriageway Widening	Walking, Cycling	2022	Under construction	WSCC	Dualling	Near Certain	No
58	Lyminster Bypass	Hwy	2021	Consent + CPO & SRO confirmed	WSCC	New bypass	Near Certain	Yes
59	M23 J11 signalisation and widening scheme	Hwy	2018	Complete	WSCC	Signalisation and road widening	Near Certain	Yes
60	Crawley Growth Programme (Manor Royal elements)	Hwy	2028	Under Construction	WSCC	Bus lane, road layout change	Near Certain	Yes
61	Church Lane/Foster Lane junction, Ashington car park	Hwy	2028		WSCC	Car park		No
62	A24 south of Ashington First School, Ashington speed management	Hwy	2028		WSCC	Speed management		No
63	London Road, Ashington speed management	Hwy	2023		WSCC	Speed management		No
64	Ashington street light	Hwy	2028		WSCC	Street light		No
65	Rectory Lane/Meiros Way, Ashington junction improvements	Hwy	2028	non-infrastructure plan prioritisation	WSCC	Junction improvements	Reasonably Foreseeable	No
66	A24, Ashington noise reduction	Hwy	2023		WSCC	Noise reduction		No
67	Broadbridge Heath to Oakhill cycle route	Cycling	2019		WSCC	Cycle route		No
68	Broadbridge Heath major highways improvements - new link	Hwy	2016		WSCC	New link	Near Certain	No
69	Land south of Broadbridge Heath - provision of new grade-separated junction on the A24	Hwy	2016		WSCC	New junction	Near Certain	No

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70	A24 Farthings Hill, Broadbridge Heath - widened shared footways	Hwy	2020	Complete	WSCC	Signalisation	Near Certain	No
71	A24 Farthings Hill, Broadbridge Heath - widened shared footways	Walking, Cycling	2020	Complete	WSCC	Widened shared footways, widened shared footways	Near Certain	No
72	Broadbridge Heath major highways improvements	Hwy	2028	Complete	WSCC	Re-route	Near Certain	Yes
73	Broadbridge Heath major highways improvements	Hwy	2020	Complete	WSCC	Access improvement	Near Certain	No
74	Broadbridge Heath major highways improvements	Walking, Cycling	2020	Complete	WSCC	Access improvement	Near Certain	No
75	Broadbridge Heath Downs Link Improvement	Walking, Cycling	2019		WSCC	Link improvement	Near Certain	No
76	A29, Billingshurst lighting	Walking, Cycling	2028		WSCC	Lighting		No
77	Marringdean Road to Natts Lane, Billingshurst pedestrian improvements	Walking, Cycling	2028		WSCC	Pedestrian improvements		No
78	Billingshurst bus	PT	2028		WSCC	Bus		No
79	Billingshurst travel plan improvement	Transport	2028		WSCC	Travel plan improvement		No
80	Five Oaks roundabout A264/A29, Billingshurst	Hwy	2038		WSCC		Reasonably Foreseeable	No
81	St. Nicholas' Church, Bramber footpath upgrade	Walking	2028		WSCC	Footpath upgrade		No
82	Downs Link, Bramber road surfacing	Hwy	2028		WSCC	Road surfacing		No
83	Downs Link A283 crossing, Bramber link improvements	Hwy	2028		WSCC	Link improvements		No
84	Bramber speed management	Hwy	2028		WSCC	Speed management	Reasonably Foreseeable	No
85	Maudlyn Lane to Soper Lane, Bramber footway	Walking	2028		WSCC	Footway		No
86	Forest Road, Colgate traffic management	Hwy	2028		WSCC	Traffic management	Hypothetical	No
87	Henfield speed management	Hwy	2022		WSCC	Speed management		No
88	Henfield car park	Hwy	2020		WSCC	Car park		No
89	High Street/Church Street, Henfield junction improvement	Hwy	2019		WSCC	Junction improvement	Reasonably Foreseeable	No
90	London Road, Henfield VAS sign	Hwy	2019		WSCC	VAS sign		No
91	St Peter's CE Primary School, Henfield school safety zone	Transport	2028		WSCC	School safety zone		No
92	Deer Park and the Downs Link, Henfield cycle link	Cycling	2020		WSCC	Cycle link		No
93	Horsham Town cycle network	Cycling	2028		WSCC	Cycle network		No
94	A24/A264 Great Daux Roundabout, Horsham Town - junction improvement	Hwy	2028	Detailed design on hold	WSCC	Junction improvement	More Than Likely	Yes
95	A24/B2237 Robin Hood Roundabout, Horsham Town - junction improvement	Hwy	2028	Complete	WSCC	Junction improvement	Near Certain	Yes
96	A264 Faygate Roundabout - Crawley Rd/Faygate Lane/Tower Rd	Hwy	2033	Consented	WSCC	Junction improvement	More Than Likely	No

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97	Great Daux roundabout to Surrey Border, Horsham Town Route safety scheme	Hwy	2028		WSCC	Route safety scheme		No
98	Pulborough	Hwy	2023		WSCC			No
99	A283 Stopham Road railway bridg, Pulborough pedestrian enhancements	Walking	2028		WSCC	Pedestrian enhancements		No
100	A283 by railway station (east of Station Approach), Pulborough pedestrian enhancements	Walking	2028		WSCC	Pedestrian enhancements		No
101	Rudgwick junction improvement	Hwy	2023		WSCC	Junction improvement	Hypothetical	No
102	Rudgwick car park	Hwy	2023		WSCC	Car park		No
103	Shermanbury pedestrian enhancements	Walking	2028		WSCC	Pedestrian enhancements		No
104	Shermanbury pedestrian enhancements	Walking	2028		WSCC	Pedestrian enhancements		No
105	Shipley lane improvement	Hwy	2028		WSCC	Lane improvement	Reasonably Foreseeable	No
106	Shipley lighting	Hwy	2028		WSCC	Lighting		No
107	Shipley lighting	Hwy	2028		WSCC	Lighting		No
108	Shipley route safety	Hwy	2028		WSCC	Route safety		No
109	Slinfold speed sign	Hwy	2028		WSCC	Speed sign		No
110	Southwater crossing bridge	Walking, Cycling	2023		WSCC	Crossing bridge		No
111	Southwater bus shelter	PT	2019		WSCC	Bus shelter		No
112	Southwater cycle route	Walking, Cycling	2028		WSCC	Cycle route		No
113	A24/B2237 Hop Oast, Southwater - junction improvement	Hwy	2021	Complete	WSCC	Junction improvement	Near Certain	Yes
114	Southwater cycle route	Cycling	2028		WSCC	Cycle route	hypothetical	No
115	Southwater cycle facility	Cycling	2028		WSCC	Cycle facility		No
116	Southwater footpath	Walking	2028		WSCC	Footpath		No
117	Southwater capacity	Hwy	2028		WSCC	Capacity	Reasonably Foreseeable	No
118	southwater junction widening	Hwy	2038		WSCC	Junction widening	Hypothetical	No
119	Washington car park	Hwy	2028		WSCC	Car park		No
120	Washington junction improvement	Hwy	2028		WSCC	Junction improvement	Hypothetical	No
121	West Chiltington bus shelter	PT	2028		WSCC	Bus shelter		No
122	West Chiltington footpath	Walking	2028		WSCC	Footpath		No
123	West Chiltington speed	Walking	2028		WSCC	Speed	Hypothetical	No
124	West Chiltington parking	Hwy	2028		WSCC	Parking	Hypothetical	No
125	Warnham traffic calming	Hwy	2028		WSCC	Traffic calming		No
126	Warnham speed limit	Hwy	2028		WSCC	Speed limit	Hypothetical	No
127	Warnham traffic calming	Hwy	2028		WSCC	Traffic calming		No
128	Warnham speed	Hwy	2028		WSCC	Speed	Hypothetical	No
129	Warnham signal crossing	Walking	2028		WSCC	Signal crossing	Hypothetical	No

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130	Warnham safety	Hwy	2028		WSCC	Safety		No
131	Warnham cycle route	Cycling	2028		WSCC	Cycle route		No
132	Warnham traffic calming	Hwy	2028		WSCC	Traffic calming		No
133	Warnham pavement	Hwy	2028		WSCC	Pavement		No
134	Warnham speed	Hwy	2028		WSCC	Speed		No
135	Warnham traffic calming	Hwy	2028		WSCC	Traffic calming		No
136	A22/A264 , Felbridge junction improvement	Hwy	2032	Local Plan Examination in remission: possibility of being found unsound	WSCC	Junction improvement	Reasonably Foreseeable	Yes
137	The Eastern Gateway scheme, Crawley	Hwy	2022	Under construction	WSCC	Roadnetwork	Near Certain	No
138	Burgess Hill Northern Arc Land - Highways (A2300), bridges	Hwy	2029	Outline Application Pending, Strategic Allocation	WSCC	Highways (A2300), bridges	More Than Likely	Yes
139	Land at and Adjacent To The Former Sewage Treatment - Carriageway widening, new bridge	Hwy	2029	Application Pending	WSCC	Carriageway widening, new bridge	More Than Likely	No
140	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing) - Junction improvement	Hwy	2021	Completed	WSCC	Junction improvement	Near Certain	No
141	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing) - Junction improvement	Hwy	2021	Completed	WSCC	Junction improvement	Near Certain	No
142	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing) - Junction improvement	Hwy	2021	Completed	WSCC	Junction improvement	Near Certain	No
143	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing) - Junction improvement	Hwy	2021	Completed	WSCC	Junction improvement	Near Certain	No
144	Land East of Kingsway Burgess Hill (phase 1 & 2) - junction improvement	Hwy	2021	Site Under Construction	WSCC	Junction improvement	Near Certain	No
145	Land East of Kingsway Burgess Hill (phase 1 & 2) - station road corridor improvements	Hwy	2021	Site Under Construction	WSCC		Near Certain	No
146	Land East of Kingsway Burgess Hill (phase 1 & 2)	Hwy	2026	Under Construction	WSCC		Near Certain	No
147	Land East of Kingsway Burgess Hill (phase 1 & 2)	Hwy	2026	Under Construction	WSCC		Near Certain	No
148	Hill Place Farm, Turners Hill Road, East Grinstead - New Access	Hwy	2029	Outline Application Approved, Reserved Matters Pending	WSCC	New access	More Than Likely	Yes
149	Land to the south of Rocky Lane and Weald Rise, Haywards Heath - site access	Hwy	2029	Outline Application Approved	WSCC	Site access	More Than Likely	No
150	Land South of Rocky Lane, Haywards Heath (Phase 1) - New roundabout	Hwy	2017	Completed	WSCC	New roundabout	Near Certain	No
151	Penland Farm, Balcombe Road, Hayward Heath - Roundabout Redesign	Hwy	2020	Under Consrtuction	WSCC	Roundabout redesign	Near Certain	Yes
152	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath - new link	Hwy	2029	Outline Application Pending, Neighbourhood Plan Allocation	WSCC	New link	More Than Likely	No

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153	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath - carriageway widening	Hwy	2029	Outline Application Pending, Neighbourhood Plan Allocation	WSCC	Carriageway widening	More Than Likely	No
154	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath - lane	Hwy	2029	Outline Application Pending, Neighbourhood Plan Allocation	WSCC	Lane	More Than Likely	No
155	Land south of Scamps Hill Lindfield - site access	Hwy	2029	Outline Application Refused, Appeal against Refusal Allowed	WSCC	Site access	More Than Likely	No
156	Land west of Copthorne, Copthorne Way - bus service	PT	2026	Application Approved	WSCC	Bus service	Near Certain	No
157	Land west of Copthorne, Copthorne Way - New roundabout	Hwy	2026	Application Approved	WSCC	New roundabout	Near Certain	Yes
158	East Lodge Farm Malthouse Lane Hurstpierpoint Hassocks - new access	Hwy	2026	Application Approved	WSCC	New access	Near Certain	No
159	Land South Of A2300 Burgess Hill - new access	Hwy	2029	Outline Application Approved	WSCC	New access	More Than Likely	No
160	Land South Of A2300 Burgess Hill - carriageway widening	Hwy	2029	Outline Application Approved	WSCC	Carriageway widening	More Than Likely	No
161	Land South Of A2300 Burgess Hill - new bus stop	PT	2029	Outline Application Approved	WSCC	New bus stop	More Than Likely	No
162	A2300 corridor improvements scheme	Hwy	2022	Under Construction - near to complete	WSCC	Dualling	Near Certain	Yes
163	Hardriding Farm, Pease Pottage Phase 3 (housing) and transport for the whole site - site access, signalisation, gyratory	Walking, Cycling	2024	Reserved Matters Approved, Under Construction	WSCC	Site access, signalisation, gyratory	Near Certain	No
164	Land north of A264 at Junction 10 of M23 residential phase 3 - site access	Hwy	2021	Reserved Matters Approved, Under Construction	WSCC	Site access	Near Certain	No
165	Hurst Farm, Hurstwood Lane, Haywards Heath	Hwy	2029	Allocations with resolution to grant permission subject to S106	WSCC	Carriageway widening, junction improvement	More Than Likely	No
166	Land east of Billingshurst - New Road	Hwy	2021	Complete	WSCC	New road	Near Certain	Yes
167	Land West of Horsham (W) - Wickhurst Green - Dual Carriageway, highway linkages, bus service	Hwy	2019	Complete	WSCC	Dual Carriageway, highway linkages, bus service	Near Certain	No
168	Land west of Horsham - New Access	Hwy	2032	Under Construction	WSCC	New access	Near Certain	Yes
169	Land west of Horsham - New Access	Walking, Cycling	2032	Under Construction	WSCC	New access	Near Certain	No
170	Brook, North Horsham - Parkway rail station and associated uses	Hwy	2038	Outline Application Permitted with All Matters Reserved	WSCC	Parkway rail station and associated uses	Reasonably Foreseeable	Yes
171	Brook, North Horsham - Parkway rail station and associated uses	Walking, Cycling	2038	Outline Application Permitted with All Matters Reserved	WSCC	Parkway rail station and associated uses	Reasonably Foreseeable	No
172	Brook, North Horsham - Parkway rail station and associated uses	PT	2038	Outline Application Permitted with All Matters Reserved	WSCC	Parkway rail station and associated uses	Reasonably Foreseeable	No

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173	Land at Stane Street, Pulborough - Access	Hwy	2023	Application and Reserved Matters Permitted	WSCC	Access	More Than Likely	No
174	Land at Stane Street, Pulborough - Access	Hwy	2023	Application and Reserved Matters Permitted	WSCC	Access	More Than Likely	No
175	Land at Brinsbury Fields Stane Street Brinsbury Pulborough - bus service	PT	2026	Full Application Permitted	WSCC	Bus service	Near Certain	No
176	Land at Mill Straight Southwater - Site Access	Hwy	2021	Completed	WSCC	Site access	Near Certain	No
177	Former de Burgh School, Chetwode Road, Preston - site access	Hwy	2021	Under Construction with part completed	WSCC	Site access	Near Certain	No
178	Langhurstwood Road	Hwy	2032	Consented	WSCC		More Than Likely	Yes
179	Rusper Road roundabout	Hwy	2022	Under construction	WSCC	Junction improvement + dualling to new site access roundabout on Rusper Rd	Near Certain	Yes
180	East of Rusper Road	Hwy		Consented	WSCC		More Than Likely	No
181	Great Daux roundabout	Hwy	2029	Consented - contribution to scheme A24/A264 Great Daux Roundabout, Horsham Town - junction improvement (GIS ID 184)	WSCC	Junction improvement - contribution	More Than Likely	Yes
182	Moorhead Roundabout	Hwy	2029	Consented	WSCC		More Than Likely	Yes
183	Somerley Drive/Crawley Avenue - New junction	Hwy	2026	Committed	WSCC	New junction	Near Certain	Yes
184	London Rd/Crawley Avnue - Roundabout improvement	Hwy	2026	Committed	WSCC	Roundabout improvement	Near Certain	Yes
185	A273 London Rd / B2116 Keymer Rd, Hassocks - Junction improvement	Hwy	2026	Committed	WSCC	Junction improvement	Near Certain	Yes
186	Barn Cottage, Scaynes Hill - New access, change of lanes	Hwy	2026	Committed	WSCC	New access, change of lanes	Near Certain	No
187	North Street, Turners Hill - New roundabout	Hwy	2026	Committed	WSCC	New roundabout	Near Certain	Yes
188	Brinsbury Fields, Adversane - New access	Hwy	2026	Committed or proposed	WSCC	New access	Near Certain	No
189	A29 Realignment Scheme: phase 1	Hwy	2025	Phase 1 funded, planning consented	WSCC	New Bypass and strategic development access	Near Certain	Yes
190	A27/A29/Fontwell Avenue - Roundbaout improvement	Hwy	2026	Construction starts March 2022	WSCC	Roundbaout improvement	Near Certain	Yes
191	New Monks Farm, Lancing - Junction improvement	Hwy	2026	Under construction	WSCC	Junction improvement	Near Certain	No
192	A27 / A283 Steyning Road Roundabout - Mitigation	Hwy	2026	proposed	WSCC	Mitigation	Near Certain	Yes
193	A27 Old Shoreham Road / A2025 Grinstead Lane - Mitigation	Hwy	2026	consented + S106	WSCC	Mitigation	More Than Likely	Yes
194	A27 / Busticle Lane - Mitigation	Hwy	2026	proposed	WSCC	Mitigation	Reasonably Foreseeable	Yes
195	A27 Sompting Bypass / Upper Brighton Road - Mitigation	Hwy	2026	proposed	WSCC	Mitigation	Reasonably Foreseeable	No
196	West Sompting Traffic calming	Hwy	2026	proposed: S106 expected to be signed by end March 2022	WSCC	Traffic calming	Near Certain	No

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197	A23/A2300 Hickstead interchange improvements	Hwy	2031	Site Allocation DPD at Examination	WSCC	Junction improvement	Reasonably Foreseeable	No
198	A2300/Cuckfield road improvement with site access from Cuckfield Rd	Hwy	2031	Site Allocation DPD at Examination	WSCC	Junction improvement and site access	Reasonably Foreseeable	No
199	A2300/Northern Arc Link Road improvement	Hwy	2031	Site Allocation DPD at Examination	WSCC	Link	Reasonably Foreseeable	No
200	A272/B2036 Ansty roundabout	Hwy	2031	Site Allocation DPD at Examination	WSCC	Junction improvement	Reasonably Foreseeable	No
201	A23/A272 London Rd/Cowfold Road, Bolney - junction widening and access to Marylands Devt	2025	Consented	WSCC	Junction improvement and site access	More than likely	No	
202	A264/B2028 Dukes Head roundabout, nr Copthorne	Hwy	2024	Consented	WSCC	Junction improvement	Near Certain	Yes
203	A283 - Land at Glebe Farm, Steyning - Proposed housing development circa 300 homes - new RBT on Steyning By-Pass	Hwy	2023	Outline Application not yet determined	WSCC	New junction and associated jcn imps along local networt	Reasonably Foreseeable	No
204	B2113 Keymer Rd / Folders Lane	Hwy	2023	Consented	WSCC	Junction improvement - mini roundabout	Near Certain	No
205	College Road, The Boulevard & others, Eastern Gateway Scheme	Walking, Cycling, PT, Public Realm	2022	Under Construction	WSCC	Reconfiguration of public highway space for town centre sustainable access improvements	Near Certain	No
206	Station Way & Friary Way, Station Gateway scheme	Walking, Cycling, PT, Public Realm		Proposed	WSCC	Reconfiguration of public highway space for town centre sustainable access improvements	Reasonably Foreseeable	No
207	A23/A2004 Brighton Rd/Southgate Avenue	Hwy	2023	Consented Scheme	WSCC	Junction improvement - roundabout	Near Certain	No
208	A2004 Southgate Avenue/Ashdown Drive	Hwy	2023	Consented Scheme	WSCC	Junction improvement - traffic signals	Near Certain	No
Surrey county council								
209	Runnymede Roundabout Project	Hwy	2018	Completed	SCC	Carriageway widening	Near Certain	Yes
210	A22/ A264 Junction, Surrey Junction improvement	Walking	2038		SCC	Junction improvement	Reasonably Foreseeable	No
211	A264/ Crawley Down Road junction, Surrey Junction improvement	Hwy	2038		SCC	Junction improvement	Reasonably Foreseeable	No
212	B2028 Felbridge A22/ A264 Route diversion	Hwy	2038		SCC	Route diversion	Reasonably Foreseeable	No
213	Mole Valley District Wide traffic management	Hwy			SCC	Traffic management		No
214	Dene Street, Dorking - link improvement	Hwy	2017		SCC	Link improvement	Near Certain	Yes
215	Dorking sustainable transport package	Hwy	2023		SCC	Traffic management		No
216	Leatherhead congestion fixing measures	Hwy	2023		SCC	Congestion fixing	Reasonably Foreseeable	No
217	SRN1 - M25 Junction 9 bottleneck relief	Hwy	2023	Scheme identification	SCC	Improve journey time reliability, improve safety	Reasonably Foreseeable	No
218	A24 Strategic Maintenance	Hwy	2019	Scheme identification	SCC	Carriageway reconstruction	Reasonably Foreseeable	No
219	Howard of Effingham approaches cycle path	Cycling			SCC	Cycle path		No
220	Pump Corner signal improvements. - signals optimisation	Hwy	2018		SCC	Signals optimisation	Near Certain	No
221	A25/Vincent Lane signal optimisation	Hwy	2017		SCC	Signals optimisation	Near Certain	No

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222	A240/Great Tattenhams Junction - crossing improvement	Walking, Cycling	2029	Feasibility/Preliminary Design	SCC	Crossing improvement	More Than Likely	No
223	A240 Reigate Road / Fir Tree Road Junction - crossing signalisation	Hwy	2029	Feasibility/Preliminary Design	SCC	Crossing signalisation	More Than Likely	Yes
224	A240 Reigate Road / Fir Tree Road Junction - crossing signalisation	Walking	2029	Feasibility/Preliminary Design	SCC	Crossing signalisation	More Than Likely	No
225	A23/Three Arch Road/Maple Road junction improvements	Hwy	2029	Feasibility/Preliminary Design	SCC	Junction improvement	Reasonably Foreseeable	No
226	A23/Three Arch Road/Maple Road junction improvements	PT	2029	Feasibility/Preliminary Design	SCC	Junction improvement	Reasonably Foreseeable	No
227	A23/Three Arch Road/Maple Road junction improvements	Walking, Cycling	2029	Feasibility/Preliminary Design	SCC	Junction improvement	Reasonably Foreseeable	No
228	A23 access road to NWS and signals.	Hwy	2021	Outline application	SCC	New link	More Than Likely	Yes
229	A217 access road to NWS and roundabout.	Hwy	2017	completed	SCC	New link	Near Certain	Yes
230	M23 link to Horley Business Park.	Hwy	2036	Feasibility/Preliminary Design	SCC	New link	Reasonably Foreseeable	No
231	Copthorne (West Sussex) Junction Improvements	Hwy	2033	Committed	SCC	Junction improvement	Near Certain	Yes
232	A22 Corridor - M25 Junction 6 improvements	Hwy	2029		SCC	Junction improvement	More Than Likely	Yes
233	A22 Corridor	Hwy	2032		SCC	Junction improvement	Reasonably Foreseeable	No
234	A22 Corridor - A22/Bone Mill Lane Improvement	Hwy	2032		SCC	Realignment and enlarge of junction, additional entry lane	Reasonably Foreseeable	No
235	A22 Corridor - A22/Miles Lane Improvement	Hwy	2032		SCC	Additional entry lane	More Than Likely	Yes
236	A22/ Tilburstow Hill Road link improvement	Hwy	2032		SCC	Link improvement	Reasonably Foreseeable	No
237	A22 Corridor - A22/Ray Lane Improvement	Hwy	2032		SCC	Junction upgrade	More Than Likely	Yes
238	A22 / B2028 Newchapel Roundabout	Hwy	2032		SCC	Elongated gyratory	More Than Likely	Yes
239	Garden Community, Tandridge new link	Hwy	2033		SCC	New link	Reasonably Foreseeable	No
240	Outwood Lane/A25 link signalisation	Hwy	2038		SCC	Link signalisation	Reasonably Foreseeable	No
241	Plough Road/Redehall Road/Chapel Road/Wheelers Lane junction improvement	Hwy	2032		SCC	Junction improvement	Reasonably Foreseeable	No
242	Chaldon Road/High Street Mini Roundabout/ junction upgrade	Hwy	2038		SCC	Junction upgrade	Reasonably Foreseeable	No
243	Buxton Lane pedestrian signalised crossing	Walking	2032		SCC	Pedestrian signalised crossing	Reasonably Foreseeable	No
244	Station Avenue/Croydon Road/Godstone Road road improvement	Hwy	2038		SCC	Road improvement	Reasonably Foreseeable	No
245	Crescent Road road change	Hwy	2038		SCC	Road change	Reasonably Foreseeable	No
246	Godstone/Clareville Road junction improvement, pedestrian signalised crossing upgrade	Walking	2038		SCC	Junction improvement, pedestrian signalised crossing upgrade	Reasonably Foreseeable	No
247	Burntwood Lane/Whyteleafe Road junction improvement	Hwy	2038		SCC	Junction improvement	Reasonably Foreseeable	No
248	Station Road/Mutton Hill/Wilderwick Road, Dormansland Roundabout	Hwy	2038		SCC	Roundabout	Reasonably Foreseeable	No

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249	High Street/Plough Road/Dormans Road/Hollow Lane, Dormansland Traffice calming	Hwy			SCC	Traffice calming		No
250	Felbridge Road/Crawley Down Road junction improvement	Hwy	2038		SCC	Junction improvement	Reasonably Foreseeable	No
251	Felbridge A264/Crawley Down Road Signalization	Hwy	2038		SCC	Signalization	Reasonably Foreseeable	No
252	A25 Westerham Road junction with B269 High Street Limpsfield/Wolfs Row junction improvement	Hwy	2038		SCC	Junction improvement	Reasonably Foreseeable	No
253	Mill Lane/Hurst Green Road road improvement	Hwy	2038		SCC	Road improvement	Reasonably Foreseeable	No
254	A25/Church Lane Signalisation	Hwy	2038		SCC	Signalisation	Reasonably Foreseeable	No
255	West of Oxted speed	Hwy			SCC	Speed		No
256	Crewes Close, Warlingham road widening	Hwy	2038		SCC	Road widening	Reasonably Foreseeable	No
257	Whyteleafe Roundabout approach remodelling	Hwy			SCC	Approach remodelling		No
258	Wapses Lodge Roundabout, whyteleafe signalisation	Hwy	2038		SCC	Signalisation	Reasonably Foreseeable	No
259	Wapses Lodge Roundabout, whyteleafe signalisation	Walking	2038		SCC	Signalisation	Reasonably Foreseeable	No
260	Succombs Hill, whyteleafe traffic flow	Hwy			SCC	Traffic flow		No
261	Epsom town centre improvements	Hwy	2029		SCC	Junction improvement, new signal phase	More Than Likely	Yes
262	Epsom town centre improvements	Walking	2029		SCC	Junction improvement, new signal phase	More Than Likely	No
263	Kiln Lane / East Street junction improvement	Hwy	2020	Under construction	SCC	Junction improvement	Near Certain	No
264	Kiln Lane / East Street junction improvement	Walking	2020	Under construction	SCC	Junction improvement	Near Certain	No
265	East Street / Church Road junction improvement	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
266	East Street / Church Road junction improvement	Walking	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
267	A240 Reigate Road	Hwy			SCC	Signage		No
268	Chessington Road junction with Longmead Road	Cycling		Scheme identification	SCC	Remodelling and signalisation for cycling		No
269	A240 junction with B284 Worcester Park Road	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
270	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
271	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
272	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
273	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
274	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
275	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
276	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
277	A240	Hwy	2038	Scheme identification	SCC	Junction improvement	Reasonably Foreseeable	No
East sussex county council								
278	Ditchling village traffic management scheme	Hwy			ESCC	Traffic calming		No
279	Primary Road Network (MASHH)	Hwy	2026	Concept Scheme	ESCC	Junction signalisation	Reasonably Foreseeable	No
280	Eastbourne, Polegate, Hailsham bus frequency	PT	2026	Feasibility/Preliminary Design	ESCC	Bus frequency	More Than Likely	No
281	Improvements to A26 / B2192 junction (Earwig Corner)	Hwy	2023	Detailed Design	ESCC	Increase capacity	More Than Likely	Yes
282	Improvements to A26 Malling Hill / Church Lane junction.	Hwy	2023	Options Design works completed	ESCC	Junction improvement	Reasonably Foreseeable	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
283	A277/A275 junction (Prison Crossroads) junction improvement	Hwy	2028	Concept Scheme	ESCC	Junction improvement	Reasonably Foreseeable	No
284	A259 to land owned by Newhaven Port & Properties (Port Access Road) New access	Hwy	2020	Detailed Design	ESCC	New access	Near Certain	No
285	A259, including the town centre ring road and the A26 junction, Newhaven junction improvement	Hwy	2028	Preliminary Design	ESCC	Junction improvement	Reasonably Foreseeable	No
286	A259/ Telscombe Cliffs Way and A259/Sutton Avenue junctions junction improvement	Hwy	2026	Concept Scheme	ESCC	Junction improvement	Reasonably Foreseeable	No
287	A22/Hempstead Lane - Roundabout improvement	Hwy	2023	WLP Transport Study 2018	ESCC	Roundabout improvement	More Than Likely	No
288	A27/A2270 junction - Capacity Improvements	Hwy	2021	WLP Transport Study 2018, Preliminary Design	ESCC	Capacity improvements	Near Certain	Yes
289	Dittons Road/Lion Hill signalised junction	Hwy	2038	WLP Transport Study 2018, Feasibility Design	ESCC	Layout improvements	Reasonably Foreseeable	No
290	A22/A295 South Road Roundabout - Layout Improvements	Hwy	2023	WLP Transport Study 2018, Preliminary Design	ESCC	Layout improvements	More Than Likely	Yes
291	Wealden - A27 and The Street - Layout Improvements	Hwy	2020	Transport Study	ESCC	Layout improvements	Hypothetical	No
292	Wealden - A27 and Common Lane - Junction improvements	Hwy	2029	Transport Study	ESCC	Junction improvements	Hypothetical	No
293	Wealden - A22, A267 and A271 Boship roundabout - Roundabout improvement	Hwy	2022	Transport Study	ESCC	Roundabout improvement	More Than Likely	Yes
294	Wealden - A2270 Eastbourne Road and The Triangle North	Hwy	2038	Transport Study	ESCC	Junction improvements	Reasonably Foreseeable	No
295	Wealden - A22 and AB2124 Golden Cross	Hwy	2038	Transport Study	ESCC	Junction improvements	Reasonably Foreseeable	No
296	Wealden - A22 and Coldharbour Road	Hwy	2038	Transport Study	ESCC	Junction improvements	Reasonably Foreseeable	No
297	A27/A22 Cophall Roundabout - Junction improvements	Hwy	2022	WLP Transport Study 2018, Preliminary Design	ESCC	Junction improvements	Near Certain	Yes
298	Wealden - Cophall roundabout	Hwy	2038	Transport Study	ESCC	Junction improvements	Hypothetical	No
299	Wealden - A27 and A22 Golden Jubilee Way roundabout, A22/Dittons Rd Roundabout - Layout Improvements	Hwy	2024	Transport Study	ESCC	Layout improvements	More Than Likely	Yes
300	Wealden wider area - Hwy improvements	Hwy		0	ESCC	Hwy improvements	No	
301	Wealden wider area - Hwy improvements	Walking		0	ESCC	Hwy improvements		No
302	Wealden wider area - Hwy improvements	PT		0	ESCC	Hwy improvements		No
303	Hailsham, Polegate and Eastbourne Transport Corridor - Junction improvements, signal improvement, speed limit change, bus lane/stop improvement	Hwy	2026	Consultation completed, commence soon	ESCC	Junction improvements, signal improvement, speed limit change, bus lane/stop improvement	Near Certain	No
304	Hailsham, Polegate and Eastbourne Transport Corridor - Junction improvements, signal improvement, speed limit change, bus lane/stop improvement	PT	2026	Consultation completed, commence soon	ESCC	Junction improvements, signal improvement, speed limit change, bus lane/stop improvement	Near Certain	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
305	Hailsham, Polegate and Eastbourne Transport Corridor - Junction improvements, signal improvement, speed limit change, bus lane/stop improvement	Walking	2026	Consultation completed, commence soon	ESCC	Junction improvements, signal improvement, speed limit change, bus lane/stop improvement	Near Certain	No
306	Uckfield town centre improvements - junction improvements	PT	2026	0	ESCC	Road	Near Certain	No
307	Terminus Rd, Cornfield Rd, Gildrege Rd, South St	Walking	2026	0	ESCC	Pedestrian enhancement	Near Certain	No
Kent county council								
308	M20 Junction 4, Leybourne Eastern overbridge widening	Hwy	2017	Completed	KCC	Carriageway widening	Near Certain	Yes
309	Swanley Transport Improvement Measures lane widening	Hwy	2038		KCC	Lane widening	Reasonably Foreseeable	No
310	Swanley Transport Improvement Measures lane widening	Walking, Cycling	2038		KCC	Lane widening	Reasonably Foreseeable	No
311	Crockenhill Lane / Wested Lane new access	PT	2038		KCC	New access	Reasonably Foreseeable	No
312	Localised widening of roads south of New Ash Green and junction improvements of A20/South Ash Road increase capacity	Hwy			KCC	Increase capacity		No
313	Kemsing - localised highway widening / passing places /visibility improvements and junction improvements along the rural road network increase capacity	Hwy			KCC	Increase capacity		No
314	Junction improvements to Bat & Ball junction improvement	Hwy	2031		KCC	Junction improvement	Reasonably Foreseeable	No
315	Cycle route - Otford to Sevenoaks junction improvement	Cycling			KCC	Junction improvement		No
316	Capacity improvements to mini roundabouts at Riverhead increase capacity	Hwy	2038		KCC	Increase capacity	Reasonably Foreseeable	No
317	Edenbridge - junction improvements increase capacity	Hwy			KCC	Increase capacity	Reasonably Foreseeable	No
Croydon and Sutton								
318	Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street	Hwy	2031	Local Plan (adopted 2018)	Croydon	Public car park	Reasonably Foreseeable	No
319	Multi-storey car park, Lansdowne Road	Hwy	2026	Local Plan	Croydon	Car park	Reasonably Foreseeable	No
320	West Croydon station and shops, 176 North End	PT	2031	Local Plan	Croydon	Remodelling of Station and Interchange Improvements	Reasonably Foreseeable	No
321	Whitgift Shopping Centre And Surrounding Land Croydon	Hwy	2029	Lapsed permission	Croydon	Car park	Hypothetical	No
322	Sutton - Enhance local connections to Crossrail 2	PT	2038	Local Plan	Sutton	Local connection enhancement (tramlink extension)	Hypothetical	No
323	Sutton - new link connecting end of High Street and Marshals Road using Burnell Road and Lewis Rd	Hwy	2038	Local Plan	Sutton	Road link	Reasonably Foreseeable	No
324	Lonon Cancer Hub S107 transport proposals of junction improvement	Hwy	2025	Application for School was gratned and the school is now completed. The London Cancer Hub Medical / research floorspace will be	Sutton	Junction improvements	Reasonably Foreseeable	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
				delivered in waves over the next 20 years.				
325	Wandle Valley Trading Estate, Goat Rd/Mill Green Rd, Hackbridge	Hwy	2021	Under construction	Sutton	Parking spaces	Near Certain	No
326	Wandle Valley Trading Estate, Goat Rd/Mill Green Rd, Hackbridge	Cycling	2021	Under construction	Sutton	Cycle spaces	Near Certain	No
327	Beddington Lane Road (B272) - Road Improvement	Hwy	2026	On going	Sutton	Road improvement	Near Certain	No
328	Beddington Lane Road (B272) - Road Improvement	PT	2026	On going	Sutton	Road improvement	Near Certain	No
329	Carshalton traffic Management Scheme	Hwy	2038	Local Plan	Sutton	Traffic management	Hypothetical	No
330	Improvements at junctions following Sutton Town Centre Transport Options Appraisal Study 2016 and highway approvals	Hwy	2038	Local Plan	Sutton	Transport proposals	Reasonably Foreseeable	No
331	S108. Schemes of Worcester Park transport corridor.	Transport	2038	Local Plan	Sutton	Transport proposals	Reasonably Foreseeable	No
332	24-34 Sutton Court Road, Sutton	PT	2021	Under Construction	Sutton		Near Certain	No
Transport bodies (tfl, Network Rail)								
333	Northern District Transport Improvements – North West of District / boundary to Greater London Authority & TfL area rail	PT			TfL	Rail		No
334	Sutton Town Centre	PT	2038	Local Plan	TfL	Tramlink extension	Hypothetical	No
335	A23/A232 Fiveways area - Road link	Hwy	2022	0	TfL	Road	Reasonably Foreseeable	No
336	Dingwall Loop	PT	2021	Complete	TfL	Tram route causes road changes	Near Certain	No
337	Dingwall Loop	Hwy	2021	Complete	TfL	Tram route causes road changes	Near Certain	No
338	New Gatwick Station concourse	PT	2028		Network Rail	Concourse	Near Certain	No
339	Haywards Heath Railway Station rail station (car park, access, improved interchange)	PT	2020	Completed	Network Rail	Rail station (car park, access, improved interchange)	Near Certain	No
340	Thameslink, Mid Sussex rail - new trains investment programme	PT	2038		Network Rail	Rail	Reasonably Foreseeable	No
341	Horsham Town rail station - new railway station	PT	2028		Network Rail	Rail station		No
342	North Downs Line rail capacity and interchange	PT	2022	Feasibility/Preliminary Design	Network Rail	Rail capacity and interchange	Reasonably Foreseeable	No
343	Reigate Railway Station Platform 3 Capacity Increase	PT	2038	Scheme identification	Network Rail	Rail capacity improvement	Reasonably Foreseeable	No
344	Crowhurst Chord rail line – enabling train services to London/Tonbridge via Oxted	PT			Network Rail	Rail line		No
345	Tandridge rail line - improvements to Brighton Mainline 6 - 10 yr	PT	2032		Network Rail	Rail line	Reasonably Foreseeable	No
346	Tandridge rail line - Redhill-Tonbridge Line improvements to include reintroduction of Kent to Gatwick service	PT			Network Rail	Rail line		No
347	Ewell East Railway Sation rail station access improvement - bus integration	PT			Network Rail	Rail station access improvement		No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
348	Ewell East Railway Sation rail station access improvement - car parks	Hwy			Network Rail	Rail station access improvement		No
349	Ewell East Railway Sation rail station access improvement - cycling and walking	Walking, Cycling			Network Rail	Rail station access improvement		No
350	Rail network Uckfield – Lewes Link	PT	2031	Concept Scheme	Network Rail	Rail line	Hypothetical	No
351	Sutton - Rail network, extension of London Overground from West Croydon and improvement on Thameslink service frequencies	PT	2038	Local Plan	Network Rail	Rail	Hypothetical	No
Other								
352	M11 Junction 8 Improvements	Hwy	2026	Permitted Status Received from UDC	Essex	Junction improvement	Near Certain	No
353	Eastern Link Road (south), Aylesbury	Hwy	2038	Preliminary Design	Buckinghamshire	New link	Reasonably Foreseeable	No
354	M25 J8 Improvement Scheme	Hwy	2020	Detailed Design Completed	Other	Junction improvement	Near Certain	Yes
355	A23 Brighton Road Hooley junctiion improvements	Hwy	2021	Went through consultation - delayed	Other	Junction improvement	Reasonably Foreseeable	No
356	Old Wickhurst Lane, Broadbridge Heath cycle route	Cycling	2023		Other	Cycle route		No
357	Hills Farm Lane, Broadbridge Heath new access	Hwy	2028		Other	New access	Reasonably Foreseeable	No
358	Broadbridge Heath traffic management	Hwy	2028		Other	Traffic management		No
359	Warnham Lanes, Broadbridge Heath traffic management	Hwy	2028		Other	Traffic management		No
360	Broadbridge Heath bus	PT	2028		Other	Bus		No
361	A29 Oakhurst Lane, Billingshurst junction improvements	Hwy	2038		Other	Junction improvements	Reasonably Foreseeable	No
362	Railway station, Billingshurst rail station	PT	2028		Other	Rail station		No
363	East Street, Billingshurst traffic management	Hwy	2028		Other	Traffic management		No
364	Railway station, Billingshurst rail station (car park)	Hwy	2038		Other	Rail station (car park)	Hypothetical	No
365	A24, Colgate crossing	Walking, Cycling	2028		Other	Crossing		No
366	south side of A264 from Holmbush Farm, Colgate pedestrian scheme	Walking	2028		Other	Pedestrian scheme		No
367	A264 Faygate to Crawley, Colgate route safety scheme	Transport	2028		Other	Route safety scheme		No
368	Cowfold Cycling facicilities	Cycling	2023		Other	Cycling facicilities		No
369	either side of A272 / A281 double mini roundabout, Cowfold air quality study	Hwy	2030		Other	Air quality study		No
370	A281 southbound entrance to Cowfold speed management	Hwy	2028		Other	Speed management		No
371	A281 (Hare and Hounds Public House southwards), Cowfold footway	Walking	2028		Other	Footway		No
372	A281/A230 (north of village), Cowfold footway	Walking	2028		Other	Footway		No
373	Horsham Town cycle facilities	Cycling	2028		Other	Cycle facilities		No
374	Horsham Town cycle route	Walking, Cycling	2028		Other	Cycle route		No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
375	Horsham Town PT enhancement	PT	2028		Other	PT enhancement		No
376	A264/Rusper Road, Horsham Town junction improvement	Hwy	2028		Other	Junction improvement	More Than Likely	Yes
377	A264/B2195 Moorhead Roundabout, Horsham Town junction improvement	Hwy	2028		Other	Junction improvement	More Than Likely	Yes
378	Pulborough air quality management	Transport	2023		Other	Air quality management		No
379	Rusper rail station	PT	2023		Other	Rail station		No
380	Southwater bus route	PT	2023		Other	Bus route		No
381	Southwater cycle facility	Walking, Cycling	2028		Other	Cycle facility		No
382	Southwater PT enhancement	PT	2028		Other	PT enhancement		No
383	Southwater junction improvement	Hwy	2028		Other	Junction improvement	Reasonably Foreseeable	No
384	Storrington and Sullington air quality management	Hwy			Other	Air quality management		No
385	West Chiltington bus route	PT	2028		Other	Bus route		No
386	Warnham cycle path	Cycling	2028		Other	Cycle path		No
387	Warnham footpath	Walking	2028		Other	Footpath		No
388	Dorking congestion-fixing package	Hwy	2024		Other	Congestion fixing	Reasonably Foreseeable	No
389	Dorking Sustainable Transport packages	PT	2019		Other	Walking, cycling, bus,rail	Near Certain	No
390	Dorking Sustainable Transport packages	Walking, Cycling	2019		Other	Walking, cycling, bus,rail	Near Certain	No
391	A24 Capel	Hwy	2023		Other	Corridor improvement	Reasonably Foreseeable	No
392	A24 Leatherhead Road / Grange Road junction improvement	Hwy	2038	Scheme identification	Other	Junction improvement	Reasonably Foreseeable	No
393	A24 Pedestrian Bridge south of Deepdene Roundabout, Dorking Pedestrian bridge	Walking	2038		Other	Pedestrian bridge		No
394	A217 Corridor (Banstead) Junctions: - A217 Brighton Road signalled junction with A2022 Winkworth Road (Banstead crossroads) - A217 Brighton Road signalled roundabout to Bonsor Drive (Tadworth roundabout) northbound approach - A217 Belmont Rise roundabout junction with B2230 Brighton Road (Belmont roundabout) - B290 Station Approach signalled junction with B2220 Tadworth Street - A2022 Winkworth Road roundabout junction with B2218 Links - A217 Belmont Rise - B2230 Brighton Road - B2220 Tadworth Street	Hwy	2029	Feasibility/Preliminary Design for tadworth street approach	Other	Junction improvement, link improvement	More Than Likely	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
	- Shelvers Way junction improvement, link improvement							
395	Preston/Tattenhams Junctions: - A240 Reigate Road signalled junction with A2022 Fir Tree Road (Driftbridge) Links - A2022 Fir Tree Road - A240 Reigate Road - B2221 Great Tattenhams/Tattenham Way traffic signal upgrade	Hwy			Other	Traffic signal upgrade		No
396	Long Walk and Broad Walk next to Chetwode Road lane	Hwy	2038	Scheme identification	Other	Lane	Reasonably Foreseeable	No
397	A23 Corridor (Merstham/Redhill/Horley) Junctions: - A23 Brighton Road signalled junction with Star Lane - A23 Brighton Road priority junction with Dean Lane - A23 Horley Road junction with Three Arch Road and Maple Road (Three Arch Road/East Surrey Hospital junction) - A23 London Road South junction with School Hill - A23 Brighton Road roundabout junction with B2036 Balcombe Road (Chequers roundabout) Links: - A23 London Road South - A23 Brighton Road - A23 Horley Road - A23 London Road - B2036 Balcombe Road	Hwy	2038	Scheme identification	Other	Signal control, junction improvement, new link	Reasonably Foreseeable	No
398	A23 Corridor (Merstham/Redhill/Horley) Junctions: - A23 Brighton Road signalled junction with Star Lane - A23 Brighton Road priority junction with Dean Lane - A23 Horley Road junction with Three Arch Road and Maple Road (Three Arch Road/East Surrey Hospital junction) - A23 London Road South junction with School Hill - A23 Brighton Road roundabout junction with B2036 Balcombe Road (Chequers roundabout) Links:	PT	2038	Scheme identification	Other	Signal control, junction improvement, new link	Reasonably Foreseeable	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
	- A23 London Road South - A23 Brighton Road - A23 Horley Road - A23 London Road - B2036 Balcombe Road							
399	A23 Corridor (Merstham/Redhill/Horley) Junctions: - A23 Brighton Road signalled junction with Star Lane - A23 Brighton Road priority junction with Dean Lane - A23 Horley Road junction with Three Arch Road and Maple Road (Three Arch Road/East Surrey Hospital junction) - A23 London Road South junction with School Hill - A23 Brighton Road roundabout junction with B2036 Balcombe Road (Chequers roundabout) Links: - A23 London Road South - A23 Brighton Road - A23 Horley Road - A23 London Road - B2036 Balcombe Road	Walking, Cycling	2038	Scheme identification	Other	Signal control, junction improvement, new link	Reasonably Foreseeable	No
400	A217 Corridor (Reigate) Junctions: - A217 Brighton Road signalled approach arm to the M25 J8 grade separated junction - A217 Reigate Hill priority junction with Wray Lane - A217 Dovers Green Road signalled junction with Woodhatch Road and Prices Lane (Woodhatch/Angel crossroads) Links: - A217 north and south of the town - A217 Cockshot Hill - A2044 Woodhatch Road signal control, wideining carriageway, increase staking capacity (M25 J8)	Hwy			Other	Signal control, wideining carriageway, increase staking capacity (M25 J8)		No
401	Redhill-Reigate (inc. A25 corridor) Links: - A25 Bancroft Road - A25 Reigate Road - A25 West Street - A25 Nutfield Road - A25 Redstone Hill	Hwy			Other	Junction improvement, link expansion		No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
	- Linkfield Lane - A242 Croydon Road/Gatton Park Road - Cormongers Lane junction improvement, link expansion							
402	Redhill-Reigate (inc. A25 corridor) Links: - A25 Bancroft Road - A25 Reigate Road - A25 West Street - A25 Nutfield Road - A25 Redstone Hill - Linkfield Lane - A242 Croydon Road/Gatton Park Road - Cormongers Lane junction improvement, link expansion	Walking, Cycling			Other	Junction improvement, link expansion		No
403	Horley Masterplan	PT			Other	Bus service improvement, infrastructure improvement, link improvement		No
404	Horley Masterplan	Cycling			Other	Bus service improvement, infrastructure improvement, link improvement		No
405	School Hill/A23 junction, East Merstham junction improvement	Hwy	2038	Scheme identification	Other	Junction improvement	Reasonably Foreseeable	No
406	School Hill/A23 junction, East Merstham junction improvement	Walking	2038	Scheme identification	Other	Junction improvement	Reasonably Foreseeable	No
407	Prices Lane/A217 Dovers Green Road, Reigate junction improvement	Hwy	2038		Other	Junction improvement	Hypothetical	No
408	A23 Salfords/Lodge Lane Signalisation	Hwy	2038	Scheme identification	Other	Signalisation	Reasonably Foreseeable	No
409	A23 Brighton Road junction with Woodroyd Avenue lane	Hwy	2038	Scheme identification	Other	Lane	Reasonably Foreseeable	No
410	Transport dev in the development sites				Other			No
411	Segro West, Manor Royal	Walking, Cycling	2018	Under Construction	Other	Cycle/pedestrian	Near Certain	No
412	Former County Oak Business Centre, Betts Way	Hwy	2026	Full Application Permitted	Other	Site access	Near Certain	No
413	Manor Royal Opportunity Area, Welland Medical Site	Hwy	2026	Full Application Permitted	Other	Site access	Near Certain	No
414	Turners Hill Road, Crawley	Walking		0	Other	Puffin crossing	No	
415	Woodfield Road	Hwy		0	Other	Junction improvements	No	
416	Billinton Drive	Hwy		0	Other	Changes in traffic calming arrangements	No	
417	Balcombe Rd / Hazelwick Junction	Hwy	2026	Consented Scheme	Other	Junction improvements	Near Certain	No
418	Balcombe Rd devt access junctions	PT	2026	Consented Scheme	Other	Bus service	Near Certain	No
419	Hassocks Golf Club, London Road, Hassocks	Hwy	2029	Application Approved	Other	Site access	More Than Likely	No

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
420	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath	Walking	2029	Outline Application Pending, Neighbourhood Plan Allocation	Other	Puffing crossing	More Than Likely	No
421	Land Gravleye Lane and Scamps Hill	Hwy	2026	Outline Application and Reserved Matters Approved	Other	Site access	Near Certain	No
422	Land south of Scamps Hill Lindfield	Hwy	2029	Outline Application Refused, Appeal against Refusal Allowed	Other	Traffic calming	More Than Likely	No
423	Land west of Freeks Lane Burgess Hill	Hwy	2024	Reserved Matters Approved, Under Construction	Other	Site access, bus stop	Near Certain	No
424	Nowhurst Business Park Guildford Road Broadbridge Heath, Slinfold	PT	2024	Outling Application Permitted with Matters Reserved	Other	Bus service improvement	More Than Likely	No
425	Star Road Trading Estate, West Grinstead	Hwy	2026	Under Construction	Other	Access	Near Certain	No
426	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Hwy	2037	Allocated Site	Other	Site access	Reasonably Foreseeable	No
427	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	PT	2037	Allocated Site	Other	Site access	Reasonably Foreseeable	No
428	Gasholder Site, Balcombe Road, Horley	Walking	2022	Approved with conditions	Other	Road amendments	Near Certain	No
429	Bradbourne Car Park, Bradbourne Park Road, Sevenoaks		2026	Approved	Other	Car park	Near Certain	No
430	Wealden - A27 between Lewes and Polegate	Hwy	2038	Transport Study	Other	Link improvement	Hypothetical	No
431	Bexhill Hastings high speed rail	PT	2038	0	Other	Rail	Reasonably Foreseeable	No
432	Land Bounded By George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Hwy	2027	Application Permitted	Other	Car parking	More Than Likely	No
437	A2220 Station Way / A2004 Southgate Avenue - Correct modelled signal arrangement	Hwy		0	Other	Signal	Near Certain	No
438	Horsham Enterprise Park New access	Hwy	2026		Other	New access	Near Certain	No
439	Train Lengthening - Sevenoaks line	PT	2019		Other	Train capacity	Near Certain	No
440	Expansion of Sevenoaks Station Car Park	Hwy			Other	Car park		No
441	Modernising Sevenoaks Town Centre Bus Station	PT	2026		Other	Bus station	Reasonably Foreseeable	No
442	New roundabout at Polhill/Crow Drive junction, Fort Halstead	Hwy	2022		Other	Roundabout	Near Certain	No
443	A20 traffic signals associated with Pedham Place	Hwy			Other	Signal	Reasonably Foreseeable	No
444	A21/Sevenoaks Road traffic signals re Broke Hill development	Hwy			Other	Signal	Hypothetical	No
445	Capacity improvements to mini roundbaouts on A25 at Riverhead	Hwy			Other	Capacity improvements	Hypothetical	No
446	Nowhurst Business Park Guildford Road Broadbridge Heath, Slinfold	Hwy	2024	Outling Application Permitted with Matters Reserved	Other	Site access	More Than Likely	No
447	Land west of Uckfield - Site SD1	Hwy	2021	Development under Construction	Other	Site access	Near Certain	Yes

Index	Scheme Name	Type	Opening Year Final	Planning Status	Scheme Promoter	Type of Scheme	Uncertainty	Included in FY Hwy Model
448	1-5 Lansdowne Road And Voyager House, 30-32 Wellesley Road	Hwy	2030	Application Permitted with 106 legal Ag.	Other	Site access	More Than Likely	No
449	Land Adjoining East Croydon Station, Bounded By George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road And Including Land To The North Of Lansdowne Road, Croydon	Hwy	2028	Application Permitted with 106 legal Ag.	Other	Site access	Near Certain	No
450	Whitgift Shopping Centre And Surrounding Land Croydon	Hwy	2028	Outline Application Granted with 106 legal Ag.	Other	Site access	Reasonably Foreseeable	No
451	Land Bounded By George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Hwy	2028	Application Permitted	Other	B1a	More Than Likely	No
452	Land at London Road and Fleming Way (Elekta)	Hwy	2023	Permitted	Other	B1a	Near Certain	No
453	Northwood Park, Gatwick Road, Northgate, Crawley	Hwy	2028	Application Permitted	Other	Site access	Near Certain	No
454	A264 Broadbridge Heath Link Rd/Grade Separated Junction (New) with A24 Horsham Bypass	Hwy						No
455	A2011 Crawley Aveneue / B2036 Balcombe Road - Carriageway widening	Hwy						Yes
456	A2300 corridor improvements scheme	Walking/ Cycling	2022	Under Construction - near to complete		Dualling	Near Certain	No

Appendix C

Full List of Developments

Note: Values in "("")" are assumed values. It includes sites scoped out as suggested in the correspondence with local authorities, due to duplication, not suitable to be modelled or not sufficient information available.

Table 2: Developments Identified in Uncertainty Log

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
Sites within scope									
Crawley									
1	Southern Counties, 27 – 45 Ifield Road	Housing			148		Complete	Mixed Housing	Near Certain
2	Forge Wood Neighbourhood	Housing			1,635		Under Construction	C3	Near Certain
3	Forge Wood Neighbourhood	Industry	5,000	3.45		329	Complete	B1/B2/B8	Near Certain
4	Forge Wood Neighbourhood	Retail	2,500				Under Construction	A	Near Certain
5	Tinsley Lane Playing Fields	Housing			120		Strategic allocation in Local Plan	C3	More Than Likely
6	Land adjacent to Desmond Anderson, Tilgate	Housing			150		Local Plan Key Site	C3	More Than Likely
7	Telford Place/Haslett Avenue	Housing			300		SHLAA site, Local Plan Key site	Mixed Housing	More Than Likely
8	Telford Place/Haslett Avenue	Office/Retail	800			76	SHLAA site, Local Plan Key site	A,B	More Than Likely
9	Crawley Station and Car Parks (Eastern Gateway Scheme)	Housing			308		Outline Application Permitted. Applications for detailed/reserved matters consent are pending determination: CR/2019/0660/FUL &CR/2019/0602/ARM	C3	More Than Likely
10	Crawley Station and Car Parks (Eastern Gateway Scheme)	Office	-4,905			(-359)	Outline Application Permitted, Detailed Application Expected druing 2019	B1a	More Than Likely
11	Town Hall, the Boulevard, Northgate	Housing			182		Outline Application Permitted	C3	More Than Likely
12	Land North of the Boulevard, Northgate	Office	4,173			180	Outline Application Permitted	B1a	More Than Likely
13	Town Centre (Broad Location)	Housing			112		SHLAA site, Local Plan Key site	C3	Reasonably Foreseeable
14	Land to the South East of Heathy Farm	Housing			150		SHLAA site, Local Plan Key site	C3	Reasonably Foreseeable
15	Site of Former Ifield Community College, L ady Margaret Rd	Housing			193		Complete	C3	Near Certain
16	11 the Boulevard, Northgate, Crawley	Housing			185		Complete	C3	Near Certain
17	Astral Towers/The White House, Betts Way (marketed as Nova)	Storage	2,961	2.7		0	Complete	B8	Near Certain
18	Former BOC Edwards site, Manor Royal and residual land Harwoods Jaguar	Sui generis	4,051			74	Complete	Sui Generis	Near Certain
19	Thales (Parcel 1 and Parcel 2), Gatwick Road	Office	11,254			1,558	Complete	B1/B8	Near Certain
20	Thales (Parcel 1 and Parcel 2), Gatwick Road	Storage	1,011				Complete	B8	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
21	Thales (Parcel 3), Gatwick Road	Restaurant and cafes	295				Vaccant Site	A3	More Than Likely
22	Southways (Planning Permission)	Office	3,241	2.83		308	Application Permitted	B	More Than Likely
23	Tilgate Forest Business Centre Vacant Plots	Office	4,630	0.9		468	Application Permitted	B1a	More Than Likely
24	Wingspan Club Residual Land	Industry	2,787	0.64		(55)	ELAA site	B	Reasonably Foreseeable
25	Sutherland House (Eastern Section) Russel Way	Office		1.64		507	Commenced/Complete	B1a	Hypothetical
26	Sutherland House (Eastern Section) Russel Way	Housing			136		Complete	C3	Near Certain
27	Premiere House, Betts Way	Retail	2,481			25	Complete	B1a	Near Certain
28	Former County Oak Business Centre, Betts Way	Retail	3,005			120	Complete	A1	Near Certain
29	Rackspace, Former GSK site (south east land parcel)	Storage	2,954	3.295		(216)	Approval of Reserved Matters	B8	Near Certain
30	E2 Crawley Business Quarter	Employment	23,050	1.43		823	Complete	B1a	Near Certain
31	Land at Jersey Farm (Site A)	Storage	2,095				SHLAA site	B8	Near Certain
32	Former Pasta Reale Site, Fleming Way	Industry	3,192			65	Complete	B2	Near Certain
33	Stonerhouse, Kilnmead	Housing			137		Complete		Near Certain
34	Gatwick Park (Site G2) BCL House, Gatwick Road, Northgate, Crawley	Office	5,523	4.476		470	Permission Expired	B1a	Hypothetical
35	Land West of Uniform Taxiway in the North West Zone at Gatwick Airport	Other	18,933			130	Permitted		Near Certain
36	2-14 Crompton Way, Northgate, Crawley RH10 9QN	Industry	4,434	0.9		(58)	Complete	B2/B8	Near Certain
37	2-14 Crompton Way, Northgate, Crawley RH10 9QN	Office	486	0.9		(35)	Complete	B1a	Near Certain
38	Land at Rowley Farm (Not Safeguarded)	Employment		1.25					Hypothetical
39	Land at London Road and Fleming Way (Elekta)	Office	16,173	2.06		979	Permitted	B1a	Near Certain
40	Northwood Park, Gatwick Road, Northgate, Crawley	Office	10,690			1,000	Permission Expired	B1a	Hypothetical
41	Units XA1 and XA2, Sussex Manor Business Park	General Industry	1,688			(45)	Application Permitted (Subject to S106)	B2	Near Certain
42	County Buildings, Northgate Avenue	Housing	5,200	1.04	100		SHLAA site & Local Plan Town Centre Key Opportunity Site		More Than Likely
43	Land south of Southways	Employment		3.13			ELAA site	B1/B2/B8	Hypothetical
44	Longley House, East Park, Southgate	Housing			121		Local Plan Key Site	C3	More Than Likely
45	MOKA, Station Way, Northgate	Housing			152		Approved	C3	Near Certain
46	Land at Steers Lane	Housing			185		Under Construction	C3	Near Certain
47	Crawley College	Housing			400		SHLAA site, proposed for allocation in 2021 draft Local Plan	C3	Reasonably Foreseeable
48	Space Gatwick (BOC Edwards Residual Land)	Employment	11,309			85	Complete	B2/B8/Sui Generis	Near Certain
49	Former GSK Site (north and west land parcel)	Storage	32,822	5.296		(426)	Partly Complete	B8	Near Certain
50	Former GSK Site (north and west land parcel)	Office	2,954	5.296		(216)	Application Permitted	B1a	Near Certain
51	Land East of London Road, Northgate	Housing			171		Crawley Local Plan 2030 (Adopted)	C3	Reasonably Foreseeable
52	Hangerwood Farm, Foxhole Lane, Bolney	Housing			240		SHELAA site		Hypothetical
53	Vanguard and Victory House, Churchill Court	Employment	7,521	1.57		110	Permitted	B2/B8	Near Certain
54	The Office, Crawley Businesss Quarter	Storage	6,978	3		67	Permitted	B8	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
55	Land at Faraday Road & Manor Royal	Storage	7,397	1.45		0	Permitted	B8	Near Certain
56	The Base, Fleming Way	Storage	21,422	4.2		0	Permitted	B8	Near Certain
57	Former GSK, Manor Royal	Storage	14,938	2.91		225	Permitted	B8	Near Certain
Mid Sussex									
58	Burgess Hill Northern Arc Land North And North West Of Burgess Hill Between Bedelands Nature Reserve In The East And Goddard's Green Waste Water Treatment Works In The West	Housing			3,040		Outline Application Permitted, Strategic Allocation	C3	More Than Likely
59	Burgess Hill Northern Arc Land North And North West Of Burgess Hill Between Bedelands Nature Reserve In The East And Goddard's Green Waste Water Treatment Works In The West	Business	24,000			1,084	Outline Application Permitted, Strategic Allocation	B1/B2	More Than Likely
60	Burgess Hill Northern Arc Land North And North West Of Burgess Hill Between Bedelands Nature Reserve In The East And Goddard's Green Waste Water Treatment Works In The West	Retail	3,880				Outline Application Permitted, Strategic Allocation	A1-A5	More Than Likely
61	Burgess Hill Northern Arc Land North And North West Of Burgess Hill Between Bedelands Nature Reserve In The East And Goddard's Green Waste Water Treatment Works In The West	Non-Residential Institutions	22,870				Outline Application Permitted, Strategic Allocation	D1	More Than Likely
62	Burgess Hill Northern Arc Land North And North West Of Burgess Hill Between Bedelands Nature Reserve In The East And Goddard's Green Waste Water Treatment Works In The West	Assembly and Leisure	400				Outline Application Permitted, Strategic Allocation	D2	More Than Likely
63	Land Adjacent to Packway House, Bolney	Housing			150		SHELAA site	C	Hypothetical
64	Aurora Ranch Caravan Park, London Road, Bolney	Housing			155		SHELAA site		Hypothetical
65	Gleblands Field, Lodge Lane, Bolney	Housing			749		SHELAA site		Hypothetical
66	Station yard/car park Chanctonbury Ward Burgess Hill	Housing			150		SHELAA Commitments, Local Plan Allocation	C	Reasonably Foreseeable
67	Land At And Adjacent To The Former Sewage Treatment Fairbridge Way Burgess Hill West Sussex RH15 8BF	Housing			315		Outline Application Approved, Reserved Matters approved	C3	More Than Likely
68	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing)	Housing			125		Complete, strategic allocation	C3	Near Certain
69	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing)	Office	320			(23)	Complete, strategic allocation in Local Plan	B1a	Near Certain
70	Keymer Tile Works Nye Road (Phase 1 Housing and other non-housing)	General Industry	4,320			(114)	Complete, strategic allocation	B2	Near Certain
71	Keymer Tile Works Nye Road Burgess Hill (Phase 2 Housing)	Housing			170		Full Planning Permission under construction, strategic allocation in Local Plan		Near Certain
72	Keymer Tile Works Nye Road Burgess Hill (Phase 3 Housing)	Housing			180		Full Planning Permission under construction, strategic allocation in Local Plan	C3	Near Certain
73	Land East of Kingsway Burgess Hill (phase 1 & 2)	Housing			167		Complete	C3	Near Certain
74	Land East of Kingsway Burgess Hill (phase 1 & 2)	Retail	280				Under Construction	A	Near Certain
75	Land East of Kingsway Burgess Hill (phase 1 & 2)	Assembly and Leisure	140				Under Construction	D2	Near Certain
76	Land East of Kingsway Burgess Hill (Phase 3c onwards)	Housing			204		Full planning application, pending decision	C3	Near Certain
77	Burgess Hill Town Centre, Civic Way, Burgress Hill	Housing			142		Application Approved, commenced	C3	More Than Likely
78	Burgess Hill Town Centre, Civic Way, Burgress Hill	Office	-1,960			(-144)	Application Approved, commenced	B1a	More Than Likely
79	Burgess Hill Town Centre, Civic Way, Burgress Hill	Non-Residential Institutions	-1,891				Application Approved, commenced	D1	More Than Likely

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
80	Burgess Hill Town Centre, Civic Way, Burgess Hill	Assembly and Leisure	8,343				Application Approved, commenced	D2	More Than Likely
81	Burgess Hill Town Centre, Civic Way, Burgess Hill	Shops	7,005				Application Approved, commenced	A1	More Than Likely
82	Burgess Hill Town Centre, Civic Way, Burgess Hill	Restaurant and cafes	1,684				Application Approved, commenced	A3	More Than Likely
83	Burgess Hill Town Centre, Civic Way, Burgess Hill	Drinking establishments	-209				Application Approved, commenced	A4	More Than Likely
84	The Brow, Burgess Hill	Housing			100		SHELAA Commitments, Neighbourhood Plan Allocation	C3	Reasonably Foreseeable
85	Land south of Folders Lane and east of Keymer Road, Burgess Hill (excluding site 738)	Housing			300		Site Allocation DPD at Examination	C	Reasonably Foreseeable
86	Land at Wheatsheaf Lane, Cuckfield	Housing			165		SHELAA site	C	Hypothetical
87	Land at Copyhold Lane, Cuckfield	Housing			120		SHELAA site	C	Hypothetical
88	Land to East of Polestub Lane, Cuckfield	Housing			120		SHELAA site	C	Hypothetical
89	Superdrug, 78 London Road, East Grinstead	Retail	-545				Application Approved	A1	Near Certain
90	Martells Store, 1-4 Normans Road, Queens Road, East Grinstead	Housing			129		Complete	C3	Near Certain
91	Imberhorne School, Windmill Lane, East Grinstead	Housing			200		Neighbourhood Plan allocation	Mixed Housing	Reasonably Foreseeable
92	Hill Place Farm, Turners Hill Road, East Grinstead	Housing			200		Planning Permitted	C3	More Than Likely
93	Land adj. Great Harwood Farm House off Harwoods Lane, East Grinstead	Housing			400		SHELAA site	C	Hypothetical
94	Land south of Crawley Down Road, Felbridge, East Grinstead	Housing			200		Site Allocation DPD at Examination	C	Reasonably Foreseeable
95	Land to the west of East Grinstead (land at Imberhorne Farm)	Housing			2,000		SHELAA site	C	Hypothetical
96	Hassocks Golf Club, London Road, Hassocks	Housing			165		Application Approved, commenced	C	More Than Likely
97	Land at The Ham, London Road, Hassocks	Housing			129		Under Construction, Completion Imminent	C3	Near Certain
98	Land north of Clayton Mills, Hassocks	Housing			500		Reserved Matters approved	C3	More Than Likely
99	Fairlight lodge and 2 Fairlight Cottage, Holtye Road, East Grinstead	Housing			150		SHELAA site	C3	Hypothetical
100	Land to the East of Russetts, Holtye Road, East Grinstead	Housing			150		SHELAA site	C3	Hypothetical
101	Open Space, north of Clayton Mills, Hasscoks (Previously known as site 753, April 2016)	Housing			246		SHELAA site	C3	Hypothetical
102	Land to the north of Shepherds Walk Hassocks	Housing			130		Outline Planning Permitted, Reserved Matters Pending	C	More Than Likely
103	Land to the south of Rocky Lane and Weald Rise, Haywards Heath	Housing			343		Under Construction	C3	Near Certain
104	Land South of Rocky Lane, Haywards Heath (Phase 2)	Housing			134		Under Construction	C3	Near Certain
105	Bolnore Village Phase 4b	Housing			105		Complete	C3	Near Certain
106	Bolnore Village Phase 4a	Housing			192		Complete	C3	Near Certain
107	Penland Farm, Balcombe Road, Hayward Heath	Housing			210		Under Consrtuction	C3	Near Certain
108	Land at Gamblemead, Fox Hill, Haywards Heath	Housing			150		Under Consrtuction	C3	Near Certain
109	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath	Housing			350		Application Withdrawn, Neighbourhood Plan Allocation	C3	Reasonably Foreseeable
110	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath	Retail	500				Application Withdrawn, Neighbourhood Plan Allocation	A1	More Than Likely

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
111	Land To The East And West Of Hurst Farm Hurstwood Lane, Haywards Heath	Facilities	4,000				Application Withdrawn, Neighbourhood Plan Allocation	D1	More Than Likely
112	37 -39 Perrymount Road, Haywards Heath	Housing			145		Under Construction	C3	More Than Likely
113	37 -39 Perrymount Road, Haywards Heath	Office	-1,200			(-58)	Under Construction	B1a	More Than Likely
114	Land at North Colwell Farm, Lewes Road, Haywards Heath	Housing			150		SHELAA site	C3	Hypothetical
115	Haywards Heath Golf Course, High Beech Lane, Haywards Heath	Housing			630		SHELAA site	C	Hypothetical
116	Land to north of Little Park Farm, Hurstpierpoint	Housing			140		Under Construction	C3	Near Certain
117	Land north east of Hurstpierpoint	Housing			540		SHELAA site	C	Hypothetical
118	Land west of Kemps, Hurstpierpoint	Housing			114		SHELAA site	C	Hypothetical
119	Land east of College Lane, Hurstpierpoint	Housing			165		SHELAA site		Hypothetical
120	Kingsland Laines Reeds Lane Sayers Common Hassocks	Housing			120		Planning Permitted, Under Construction	C3	Near Certain
121	Phase 2, Barratt and David Wilson Homes, Gravelye Lane	Housing			148		Complete	C3	Near Certain
122	Land Gravleye Lane and Scamps Hill	Housing			130		Outline Application and Reserved Matters Approved, Under Construction	C3	Near Certain
123	Land south of Scamps Hill Lindfield	Housing			200		Outline Application Refused, Appeal against Refusal Allowed, Under Construction	C3	More Than Likely
124	Little Walstead Farm, East Mascalls Lane, Lindfield	Housing			400		SHELAA site		Hypothetical
125	Land north east of Lindfield	Housing			300		SHELAA site	C	Hypothetical
126	Land west of Truggers, Handcross	Housing			130		SHELAA site	C	Hypothetical
127	Hardriding Farm, Pease Pottage Phase 1,2,3 (non-housing)	Residential institutions	6,116				Application and Reserved Matters Approved	C2	Near Certain
128	Hardriding Farm, Pease Pottage Phase 1,2,3 (non-housing)	Shops	195			208	Application and Reserved Matters Approved	A1	Near Certain
129	Hardriding Farm, Pease Pottage Phase 1,2,3 (non-housing)	Restaurant and cafes	163				Application and Reserved Matters Approved	A3	Near Certain
130	Hardriding Farm, Pease Pottage Phase 1,2,3 (non-housing)	Non-Residential Institutions	2,588				Application and Reserved Matters Approved	D1	Near Certain
131	Land at Lower Tilgate, East of Pease Pottage, Slaugham	Housing			1,800		SHELAA site	C	Hypothetical
132	Land to the West of Woodhurst Farm, Old Brighton Road South, Pease Pottage	Housing			660		SHELAA site	C	Hypothetical
133	Woodhurst Farmhouse, Old Brighton Road South, Pease Pottage	Housing			150		SHELAA site	C	Hypothetical
134	Land south of Warninglid Primary School, Slaugham Lane, Warninglid	Housing			240		SHELAA site	C	Reasonably Foreseeable
135	Land west of Copthorne, Copthorne Way	Housing			500		Application Approved, Under Construction	C3	Near Certain
136	Land west of Copthorne, Copthorne Way	Light Industrial	15,500	54.2		300	Complete	B1c	Near Certain
137	Land west of Copthorne, Copthorne Way	Non-Residential Institutions	500				Application Approved	D1	Near Certain
138	East Lodge Farm Malthouse Lane Hurstpierpoint Hassocks	Office	2,420	0.57		31	Application Approved	B1	Reasonably Foreseeable
139	Windfall Allowance for Trajectory (small sites)	Housing			562		Local Plan	C	Reasonably Foreseeable
140	Land South Of A2300 Burgess Hill	Research and development	5,000	14.96		(85)	Outline Application Approved	B1b	More Than Likely
141	Land South Of A2300 Burgess Hill	Light Industrial	5,000			(85)	Outline Application Approved	B1c	More Than Likely
142	Land South Of A2300 Burgess Hill	General Industry	20,000			(528)	Outline Application Approved	B2	More Than Likely

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
143	Land South Of A2300 Burgess Hill	Storage or distribution	20,000			(260)	Outline Application Approved	B8	More Than Likely
144	Marylands Nursery, Cowfold Road	Storage	9,894	2.5		118	Application approved	B8	Near Certain
145	Ricebridge Works Brighton Road Bolney	Office	620	1.9		98	Application Approved	B1a	Near Certain
146	Ricebridge Works Brighton Road Bolney	General Industry	1,860				Application Approved	B2	Near Certain
147	Ricebridge Works Brighton Road Bolney	Storage or distribution	620				Application Approved	B8	Near Certain
148	Bolney Grange Business Park	Industry		9.6			SELAA Site	B1b/B1c/B2/B8	Reasonably Foreseeable
149	Bolney Grange Business Park Expansion 2, Bolney	Industry					Site Allocation DPD at Examination	B1c/B2/B8	Reasonably Foreseeable
150	Bolney Grange Business Park Expansion 3, Hurstpierpoint and Sayers Common	Industry		0.75			Site Allocation DPD at Examination	Other	Hypothetical
151	Russell Nursery, Hurst Road, Hassocks	Office		3.46			SELAA Site	B1a, B1b, B1c	Reasonably Foreseeable
152	Tates (South Downs Garden Centre), Brighton Road, Hassocks	Industry		3.4/2.1 (vacant)			SELAA Site	B1c/B2/B8	Reasonably Foreseeable
153	Broad Location to the West of Burgess Hill, Hurstpierpoint and Sayers Common	Comprehensive Development					SELAA Site	B1, B2, B8 as part of a comprehensive development in the next plan period	Reasonably Foreseeable
154	Freshfield Lane, Danehill, Horsted Keynes	Industry					SELAA Site, WSCC Monitoring	B1/B2/B8	Reasonably Foreseeable
155	Valley Farm Business Park	Industry		1.63			SELAA Site	B1c/B2/B8	Reasonably Foreseeable
156	Land To The South Of Pease Pottage Services (Land Parcel At 526143 133007) Brighton Road Pease Pottage West SussexLand	General Industry	1,759	1.23		40	Complete	B2	Near Certain
157	Cedars Brighton Road Pease Pottage Crawley West Sussex RH11 9AD	Office	836	2.2		(50)	Application Approved	B1a	Near Certain
158	Cedars Brighton Road Pease Pottage Crawley West Sussex RH11 9AD	Office	2,515	2.2			Application Approved	B1a	Near Certain
159	Cedars Brighton Road Pease Pottage Crawley West Sussex RH11 9AD	Office	4,282	2.2			Application Approved	B1a	Near Certain
160	Pease Pottage Nurseries, Brighton Road	Industry		2.3			Site Allocation DPD at Examination	B1/B2/B8	Hypothetical
161	Handcross Garden Centre, London Road, RH17 6BA	Industry	5,001	8.63		(155)	Complete	B1c/B2/B8	Near Certain
162	Crabbet Park, Old Hollow, Near Crawley, Worth	Housing			2,300		SHELAA site	C	Hypothetical
163	Land east of Stuart Way, East Grinstead	Housing			120		SHELAA site	C	Hypothetical
164	Land at Foxhole Farm, Bolney	Housing			130		SHELAA site	C	Hypothetical
165	Land east of Beeches Lane, Ashurst Wood	Housing			210		SHELAA site	C3	Hypothetical
166	Land to west of Turners Hill Road, Crawley Down	Housing			300		SHELAA site	C3	Hypothetical
167	Land to the rear of The Martins (south of Hophurst Lane), Crawley Down	Housing			180		SHELAA site	C3	Hypothetical
168	Woodhurst Farmhouse, Old Brighton Road South, Pease Pottage	Housing			150		SHELAA site	C3	Hypothetical
169	Land to the west of Kings Business Centre, Reeds Lane, Sayers Common	Housing			100		SHELAA site	C3	Hypothetical
170	Land north of Old Vicarage Field, Lion Lane, Turners Hill	Housing			130		SHELAA site	C3	Hypothetical
171	Hardriding Farm, Pease Pottage Phase 1	Housing			156		Complete	C3	Near Certain
172	Hardriding Farm, Pease Pottage Phase 3 (housing) and transport for the whole site	Housing			200		Reserved Matters Approved, Under Construction	C3	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
173	Hardriding Farm, Pease Pottage Phase 4 onwards	Housing			244		Reserved Matters Approved, Under Construction	C3	Near Certain
174	Land north of A264 at Junction 10 of M23 residential phase 3	Housing			197		Outline permission	C3	More Than Likely
175	Land at Hyde Estate, Handcross (total)	Housing			129		Complete	C3	Near Certain
176	Land west of Freeks Lane Burgess Hill	Housing			460		Reserved Matters Approved, Under Construction	C3	Near Certain
177	St Wilfids School Burgess Hill	Housing			200		Site Allocation DPD at Examination	C3	Reasonably Foreseeable
178	Barns Court And Friday Farm Turners Hill Road Crawley Down West Sussex	Light Industrial	4,952			46	Outline Application Submitted. Resolution to Grant Permission	B1c	More Than Likely
179	Barns Court And Friday Farm Turners Hill Road Crawley Down West Sussex	Storage	1,654				Outline Application Submitted. Resolution to Grant Permission	B8	More Than Likely
180	Goddards Green Science&Technology Park, land North of A2300, Burgess Hill, West Sussex	Business				2325-5280	Site Allocation DPD at Examination	B1a, B1b, B1c	Reasonably Foreseeable
181	Land to south and west of Imberhorne Upper School, Imberhorne Lane East Grinstead	Housing			550		Site Allocation DPD at Examination	Mixed Housing Education	Reasonably Foreseeable
182	Woodpeckers (whole site), Snowhill	Housing			300		SHELAA site	C3	Hypothetical
183	Woodpeckers (whole site), Snowhill	Business					SHELAA site	B8, E(g)	Hypothetical
184	Whitemans Green south of Taylor Barn	Housing			173		SHELAA site	C3	Hypothetical
185	Hill Place Parcel 2	Housing			100		SHELAA site	C3	Hypothetical
186	Land at Brook House Farm, Turners Hill Road	Housing			120		SHELAA site	C3	Hypothetical
187	Land adjacent to London Road	Housing			500		SHELAA site	C3	Hypothetical
188	Copyhold Lane - East	Housing			268		SHELAA site	C3	Hypothetical
189	Copyhold Lane - West	Housing			633		SHELAA site	C3	Hypothetical
190	Land at Sugworth Farm, Borde Hill Lane	Housing			130		SHELAA site	C3	Hypothetical
191	Lucas Farm, Birchgrove Road, Horsted Keynes	Housing			250		SHELAA site	C3	Hypothetical
192	Grange Farm, Bullfinch Lane, Hurstpierpoint	Housing			150		SHELAA site	C3	Hypothetical
193	Land at Cuckfield Road, Hurstierpoint	Housing			153		SHELAA site	C3	Hypothetical
194	Land at Old Brighton Road (south), Pease Pottage	Housing			200		SHELAA site	C3	Hypothetical
195	Extension south west Meadow View, Sayers Common	Housing			250		SHELAA site	C3	Hypothetical
196	Extension south west Meadow View, Sayers Common	Employment					SHELAA site	E(g)	Hypothetical
197	Land north of Mill Lane, Sayers Common	Employment					SHELAA site	B2, B8 E(g)	Hypothetical
198	Land south of Mill Lane, Sayers Common	Employment					SHELAA site	B2, B8 E(g)	Hypothetical
199	West Hoathly Brickwork, Hamsey Road (large), Sharpthorne	Housing			150		SHELAA site		Hypothetical
200	Land south of Pookbourne Lane, Twineham				100		SHELAA site		Hypothetical
201	Land at Copthorne Hotel, Copthorne				170		SHELAA site		Hypothetical
202	Land at West Town Farm, Albourne Road, Hurstpierpoint	Housing			500		SHELAA site		Hypothetical
203	Land at West Town Farm, Albourne Road, Hurstpierpoint	Employment					SHELAA site	E(g)	Hypothetical
204	Hangmans Acre Farm, east of Lindfield	Housing			450		SHELAA site		Hypothetical
205	Hangmans Acre Farm, east of Lindfield	Employment					SHELAA site	B2, B8 E(g)	Hypothetical
206	Glebelands Field, Bolney	Housing			156		SHELAA site		Hypothetical
Horsham									

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
207	Land east of Billingshurst	Housing			493		Under Construction	C3	Near Certain
208	Land north of Old Guildford Road Broadbridge Heath	Housing			172		Under Construction	C3	Near Certain
209	Land West of Horsham (W) - Wickhurst Green	Housing			289		Complete	C3	Near Certain
210	Land West of Bewbush (Kilnwood Vale)	Housing			2,223		Under Construction	C3	Near Certain
211	Land West of Bewbush (Kilnwood Vale)	Office	7,425	2		(544)	Under Construction	B1	Near Certain
212	Land West of Bewbush (Kilnwood Vale)	Shops	1,975				Under Construction	A1	Near Certain
213	Land West of Bewbush (Kilnwood Vale)	Drinking establishments	525				Under Construction	A4	Near Certain
214	Land West of Bewbush (Kilnwood Vale)	Non-Residential Institutions	2,550				Under Construction	D1	Near Certain
215	Land at Junction of Stonepit & West End Lane	Housing			172		Under Construction	C3	Near Certain
216	Land east of Manor Close, Henfield	Housing			102		Under Construction	C3	Near Certain
217	Land west of Horsham (East) - Highwood	Housing			773		Under Construction	C3	Near Certain
218	Land west of Horsham (East) - Highwood	Office	500			(37)	Under Construction	B1a	Near Certain
219	Land west of Horsham	Facilities		2.3			Under Construction	D	Near Certain
220	Former Horsham Offices, North Street, Denne	Housing			103		Under Consrtuction	C3	Near Certain
221	St Marks Court, Chart Way, Horsham, Denne	Housing			148		Prior Approval Required.	C	Reasonably Foreseeable
222	Hurst Road Opportunity Area, Horsham, Denne	Housing			200		SHLAA site	C	Reasonably Foreseeable
223	Horsham Gates, North Street, Horsham	Housing			130		Complete	C3	Near Certain
224	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Housing			2,750		Outline Application Permitted with All Matters Reserved	C3	More Than Likely
225	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Office	45,485			3,610	Outline Application Permitted with All Matters Reserved	B1a	More Than Likely
226	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Storage or distribution	-498				Outline Application Permitted with All Matters Reserved	B8	More Than Likely
227	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Shops	6,400				Outline Application Permitted with All Matters Reserved	A1	More Than Likely
228	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Financial and professional services	300				Outline Application Permitted with All Matters Reserved	A2	More Than Likely
229	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Restaurant and cafes	400				Outline Application Permitted with All Matters Reserved	A2	More Than Likely
230	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Non-Residential Institutions	-255				Outline Application Permitted with All Matters Reserved	D1	More Than Likely
231	Land North of Horsham, Strategic Site, Holbrook Park and Chennells Brook, North Horsham	Assembly and Leisure	5,100				Outline Application Permitted with All Matters Reserved	D2	More Than Likely
232	Parsonage Farm, Parsonage Road, North Horsham	Housing			160		SHLAA site	C3	Reasonably Foreseeable
233	Land North of Highfield, Stane Street, Codmore Hill	Housing			119		Under Construction/Completion imminent	C3	More Than Likely
234	Land at New Place Nurseries, Pulborough	Housing			100		SHLAA site	C	Reasonably Foreseeable
235	Land West of Southwater	Housing			594		Under Construction	C3	Near Certain
236	Abingworth Farm, Thakeham	Housing			162		Under Construction	C3	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
237	Abingworth Farm, Thakeham	Light Industrial	958			(16)	Under Construction	B1c	Near Certain
238	Abingworth Farm, Thakeham	Facilities	1,063				Under Construction	D1/D2	Near Certain
239	Nowhurst Business Park Guildford Road Broadbridge Heath, Slinfold	Industry	26,942			(833)	Outling Application Permitted with Matters Reserved	B1c/B2/B8	More Than Likely
240	Land at Brinsbury Fields Stane Street Brinsbury Pulborough	General Industry	1,390				Full Application Permitted	B2	Near Certain
241	Land at Brinsbury Fields Stane Street Brinsbury Pulborough	Storage or distribution	1,390				Full Application Permitted	B8	Near Certain
242	Brinsbury Fields Brinsbury College Pulborough	Industry					Outline Application Permitted with All Matters Reserved	B1/B2/B8	More Than Likely
243	Henfield Business Park	Industry				31	Application Permitted	B1/B2/B8	More Than Likely
244	Star Road Trading Estate, West Grinstead	General Industry	1,410				Under Construction	B2	Near Certain
245	Star Road Trading Estate, West Grinstead	Storage or distribution	210				Under Construction	B8	Near Certain
246	Land at Millstraight Southwater	Housing			193		Committed	C3	Near Certain
247	West of Ifield	Housing			3,500		Strategic Site Allocation		Reasonably Foreseeable
248	West of Ifield	Business	2,700				Strategic Site Allocation		Reasonably Foreseeable
249	West of Ifield	Industry	6,300				Strategic Site Allocation		Reasonably Foreseeable
250	Former Novartis Site Parsonage Road Horsham West Sussex	Housing			300		Permitted	C3	Near Certain
251	Former Novartis Site Parsonage Road Horsham West Sussex	General Industry	23,750			(673)	Permitted	B1	Near Certain
252	Land South of Newhouse Farm Old Crawley Road Horsham	Housing			305		Refused on 29/07/2020. An Appeal (APP/Z3825/W/21/3266503) has been lodged but dismissed in July 2021	C3	Hypothetical
253	Land East of Billingshurst	Housing			650		Strategic Site Allocation in draft reg 19 document	C2&C3	Reasonably Foreseeable
254	Land West of Southwater	Housing			1,200		Strategic Site Allocation in draft reg 19 document	C2&C3	Reasonably Foreseeable
255	Land at Lower Broadbridge Farm, Broadbridge Heath	Employment		3.7			Site Allocation within Draft Local Plan (Reg 18)	B1/B2/B8	Reasonably Foreseeable
256	Land South of Star Road Industrial Estate, Partridge Green	Employment	9,000	3.9			Strategic Site Allocation within Draft Local Plan Reg 18 and Reg 19 (Withdrawn)	B1/B2/B8	Reasonably Foreseeable
257	Land Around Mercer Road, Warnham Station (North)	Employment		3			Site Allocation within Draft Local Plan (Reg 18)	B1/B2/B8	Reasonably Foreseeable
258	Land to the West of Graylands Estate Langhurstwood Road, Horsham	Employment	9,500	3.2			Strategic Site Allocation within Draft Local Plan Reg 18 and Reg 19 (Withdrawn)	B1a/B2/B8	Reasonably Foreseeable
259	Broadlands Business Campus, Langhurstwood Road, Horsham	Employment	10,000			1,100	Application Permitted	B1a	Near Certain
260	Rosier Commercial Centre	Employment		6			Site Allocation within Draft Local Plan (Reg 18)	B1/B2/B8	Reasonably Foreseeable
261	Land at Broomers Hill Business Park, Pulborough	Employment	7,000	2.7			Strategic Site Allocation within Draft Local Plan Reg 18 and Reg 19 (Withdrawn)	B1/B2/B8	Reasonably Foreseeable
262	North and south of Buck Barn Petrol Filling Station	Employment		5.5			Site Allocation within Draft Local Plan (Reg 18)	B1/B2/B8	Reasonably Foreseeable
263	Land South of Hilliers Garden Centre	Employment		4.7			Site Allocation within Draft Local Plan (Reg 18)	B1/B2/B8	Reasonably Foreseeable
264	Land South West of Hop Oast Roundabout	Employment	3,000	1			Strategic Site Allocation within Draft Local Plan Reg 18 and Reg 19 (Withdrawn)	B1/B2/B8	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
265	Land at Buck Barn, West Grinstead (Weald Cross)	Mixed			2,100		Strategic Site Allocation within Draft Local Plan Reg 18 and Reg 19 (Withdrawn)	Mixed	Reasonably Foreseeable
Mole Valley									
266	Bull Hill, Leatherhead	Mixed			300		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
267	Land West of Reigate Road, Hookwood Site Allocation Policy SA42	Mixed			446		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
268	Ermyn House, Ermyn Way, Ashtead	Mixed			140		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
269	Pixham End, Southern Parcel, Dorking	Mixed		1	276		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
270	Land at Dorking Station	Mixed			108		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
271	Land South of Ermyn Way, Ashtead	Mixed			270		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
272	Land North West of Preston Farm, Bookham	Mixed			200		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
273	Sondes Place Farm, Westcott Road, Dorking	Housing			128		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
274	The Swan Centre, Leret Way, Leatherhead	Mixed			150		Draft New Local Plan Site Allocation	C3	Reasonably Foreseeable
275	Food International Site, Randalls Way, Leatherhead	Housing			214		Application Approved with Conditions	C3	Near Certain
276	Headley Court, Headley Road, Headley	Housing			120		Outline Major AND Draft New Local Plan Site Allocation	C3	Near Certain
Reigate and Banstead									
278	Horley North West Sector 'Land at Meath Green', Horley	Housing			1,510		Under Construction with part Complete	C3	Near Certain
279	Horley North West Sector 'Land at Meath Green', Horley	Medical facilty	1,000				Under Construction with part Complete	Medical facilty	Near Certain
280	Horley North West Sector 'Land at Meath Green', Horley	Retail	300				Under Construction with part Complete	Retail	Near Certain
281	Horley North West Sector 'Land at Meath Green', Horley	B1	2,000			(57)	Under Construction with part Complete	B1	Near Certain
282	Horley North West Sector 'Land at Meath Green', Horley	D1	440				Under Construction with part Complete	D1	Near Certain
283	Horley North West Sector 'Land at Meath Green', Horley	D2	440				Under Construction with part Complete	D2	Near Certain
284	Land at Merland Rise, Preston	Housing			130		Complete	C3	Near Certain
285	Former de Burgh School, Chetwode Road, Preston	Housing			229		Under Construction with part Complete	C3	Near Certain
286	Autobody Language Ltd, 35 Holmethorpe Avenue, Redhill	Light Industrial /Industrial	1,700			(29)	Under Construction	B1c/B2	Near Certain
287	Wells Place, Merstham	Storage or distribution	3,432	0.77		76	Complete	B8	Near Certain
288	Marketfield Public Car Park, Redhill	Housing			153		Under Construction	C3	Near Certain
289	Marketfield Public Car Park, Redhill	Retail/ restaurant/ café	5,554				Under Construction	A	Near Certain
290	Former Liquid And Envy, Station Road, Redhill	Housing			133		Complete	C3	Near Certain
291	RNIB Soundscape, Philanthropic Road, Redhill	Housing			102		Under Construction with Part Complete	C3	Near Certain
292	RNIB Soundscape, Philanthropic Road, Redhill	Community uses	500				Under Constrtruction	D1	Near Certain
293	Colebrook, Noke Drive, Redhill	Housing			110		Allocated Site	C3	More Than Likely
294	Colebrook, Noke Drive, Redhill	Community uses	1,300				Allocated Site	D1/D2	More Than Likely
295	Reading Arch Road/ Brighton Road North, Redhill	Housing			150		Allocated Site	C3	More Than Likely
296	Reading Arch Road/ Brighton Road North, Redhill	Retail	4,000				Allocated Site	A1	More Than Likely
297	Land at Hillsbrow, Redhill	Housing			145		Allocated Site	C3	More Than Likely
298	Land west of Copyhold Works and Former Copyhold Works, Redhill	Housing			230		Allocated Site	C3	More Than Likely
299	Oakley Farm off Bletchingley Road, Merstham	Housing			130		Allocated Site	C3	More Than Likely

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
300	Oakley Farm off Bletchingley Road, Merstham	Office	250			(18)	Allocated Site	B1a	More Than Likely
301	Land at Sandcross Lane, South Park, Reigate	Housing			290		Allocated Site	C3	More Than Likely
302	Land at Sandcross Lane, South Park, Reigate	Office	250			(18)	Allocated Site	B1a	More Than Likely
303	Land at Dovers Farm, Woodhatch, Reigate	Housing			120		Allocated Site	C3	More Than Likely
304	Redhill Railway Station, Redhill	Housing			200		SHLAA Site	C3	Reasonably Foreseeable
305	Surrey Fire & Rescue Services Headquarters & Training Facility, Croydon Road, Reigate	Housing			120		SHLAA Site	C3	Reasonably Foreseeable
306	Former Philips Research Laboratories South Site, Crossoak Lane, Salfords	Storage or distribution	15,831	3.1		(206)	Complete	B1/B2/B8	Near Certain
307	73-75 London Road, Redhill	Office	5,340			(391)	Complete	B1a	Near Certain
308	Gloucester Road Public Car Park, Gloucester Road, Redhill	Office	4,000	0.76		(293)	Allocated Site	B1a	More Than Likely
309	Gasholder Site, Balcombe Road, Horley	Office	4,850	1.16		400	Approved with conditions	B1a	Near Certain
310	Quadrant House, Princess Way, Redhill	Housing			124		Complete	C3	Near Certain
311	Land adjacent to the Town Hall, Castlefield Road	Mixed	1,500				Site Allocation	B1a/C3	Reasonably Foreseeable
312	52 Albert Road North, Reigate, Surrey, RH2 9EL	Light Industrial				(32)	Approved	B1c	Near Certain
Tandridge									
313	Land West of Limpsfield Road, Warlingham	Housing			190		Local Plan	C3	More Than Likely
314	Former Oxted Gasholder Site & Johnsdale Carpark, Station Road East, Oxted	Housing			111		Under Construction	C3	Near Certain
315	Land off Redehall Road	Housing			114		Local Plan	C3	Reasonably Foreseeable
316	Former Shelton Sports Club, Warlingham	Housing			110		Local Plan	C3	Reasonably Foreseeable
317	Church Walk, Caterham	Housing			150		Local Plan	C3	Reasonably Foreseeable
318	South Godstone Garden Community	Housing			4,000		Local Plan	C3	Reasonably Foreseeable
319	Godstone Road Business Centre, Whyteleafe	Employment					Local Plan		Reasonably Foreseeable
320	Hobbs Industrial Estate, Felbrigridge	Employment		3.88			Local Plan		Reasonably Foreseeable
321	Westerham Road Industrial Estate, Tatsfield	Employment		2.84			Local Plan		Reasonably Foreseeable
322	Snowhill Business Centre, Copthorne	Employment					Local Plan		Reasonably Foreseeable
323	Brewer Street, Bletchingley	Employment		1.22			Local Plan		Reasonably Foreseeable
324	Systems House, Blindley Heath	Employment					Local Plan		Reasonably Foreseeable
325	Redhill Aerodrome Industrial Area, South Nutfield	Employment					Local Plan		Reasonably Foreseeable
326	Paddock Barn Farm, Godstone Road, Caterham	Employment					Local Plan		Reasonably Foreseeable
327	Priory Farm, South Nutfield	Employment					Local Plan		Reasonably Foreseeable
328	Gadoline House and former Old Barn petrol filling station, Godstone Road, Whyteleafe	Housing			118		Complete	C3	Near Certain
329	Former East Wing, Whyteleafe House, 439 to 445 Godstone Road, Whyteleafe, Surrey CR3 0BL	Housing			176		Under construction	C3	Near Certain
330	Dalma House, Kings Mill Lane, South Nutfield RH1 5NB	Employment		0.49		(47)	Complete	B1c	Near Certain
331	Block 26, Redhill Aerodrome, Kings Mill Lane, South Nutfield RH1 5JY	Employment & Retail		0.67		(92)	Complete	B1a and A3	Near Certain
332	Coppard House Ivy Mill Lane, Godstone RH9 8NE	Employment		0.43		(23)	Expired	B2	Hypothetical
333	Ellerton Yard, Peeks Brook Lane, Burstow RH6 9ST	Employment		0.49		20	Complete	B2 and B8	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
334	Roundabouts Farm, Clay Hall Lane, Copthorne, Crawley, Surrey	Housing			360		Screening Decision EIA 7	C3	Reasonably Foreseeable
335	Roundabouts Farm, Clay Hall Lane, Copthorne, Crawley, Surrey	Commercial	7,000				Screening Decision EIA 7	C3	Reasonably Foreseeable
Epsom and Ewell									
336	Epsom and Ewell High School	Housing	3,543		161		Under Construction	C3/D1	Near Certain
337	Watersedge Estate Regeneration/ Ash Court	Housing			110		SHLAA site	C3	Hypothetical
338	29-37 East Street, Gas and Water Works Site	Housing			165		SHLAA site	C3	Reasonably Foreseeable
339	Swail House, Ashley Road	Housing			150		SHLAA site	C3	Hypothetical
340	Woodcote Grove, Ashley Road, Epsom	Business	9,924			(765)	Under Construction	B1	Near Certain
341	Remaining West Park sites, Epsom	Housing			150		SHLAA site	C3	Reasonably Foreseeable
Wealden									
342	Brodricklands and Hamlands Farm, Willingdon	Housing			390		Under Construction	C3	Near Certain
343	Land off Old Swan Lane/Station Road, Hailsham	Housing			140		Submitted	C3	Reasonably Foreseeable
344	Oaklands, Ersham Road, Hailsham	Housing			169		Submitted	C3	Near Certain
345	Land off Amberstone, A271, Hailsham	Housing			110		Complete	C3	Near Certain
346	Land at Steel Cross, Crowborough	Housing			103		Approved	C3	Near Certain
347	Uplands Farm, Rattle Road, Stone Cross, Westham	Housing			183		Under construction	C3	Near Certain
348	Land off Eastbourne Road, Westham	Housing			142		Withdrawn	C3	Hypothetical
349	Cuckoo Fields and Ersham Park, Land south of Hailsham	Housing			400		Approved	C3	More Than Likely
350	Land off Mill Road (North), Hailsham	Housing			220		Approved	C3	Near Certain
351	Land North of Mallard Drive, Uckfield	Housing			119		Approved	C3	Near Certain
352	Rose Mead Farm, Horebeech Lane, Horam	Housing			123		Under construction	C3	Near Certain
353	Land north of Eridge Road, Crowborough	Housing			119		Approved	C3	Near Certain
354	Mornings Mill Farm, Eastbourne Road, Willingdon	Housing			700		Submitted	C3	Reasonably Foreseeable
355	Mornings Mill Farm, Eastbourne Road, Willingdon	Shops	325			331	Submitted	A1, A2-A5	Reasonably Foreseeable
356	Mornings Mill Farm, Eastbourne Road, Willingdon	Light Industrial	8,600	0.86		(630)	Submitted	B1c	Reasonably Foreseeable
357	Mornings Mill Farm, Eastbourne Road, Willingdon	Non-Residential Institutions	2,537				Submitted	D1	Reasonably Foreseeable
358	Land west of Uckfield - Site SD1	Housing			1,000		Under construction	C3	Near Certain
359	Land west of Uckfield - Site SD1	Employment	13,495			195-423	Approved	Mixed B Use Classes (ie B1, B2 and B8)	More Than Likely
360	Land north of Walshes Road, Crowborough	Housing			100		Approved	C3	Near Certain
361	Land at Walsh Manor Farm, Walshes Road, Crowborough	Housing			160		Under construction	C3	Near Certain
362	Land at Sussex Plants, Park Road, Hailsham	Housing			160		Approved	C3	Near Certain
363	Land at Old Marshfoot Farm, Marshfoot Lane, Hailsham	Housing			300		Approved	C3	Near Certain
364	Land to the East of Benhall Mill Road, Tunbridge Wells	Housing			159		Submitted	C3	More Than Likely
365	Little Shepham, Shepham Lane, Polegate	Housing			107		Approved	C3	More Than Likely
366	Hesmonds Stud, Waldron Road, East Hoathly and land off Ailies Lane, East Hoathly	Housing			205		Submitted	C3	Near Certain
367	Land off Mill Road (South), Hailsham	Housing			183		Under construction	C3	Near Certain
368	Land west of Park Road, Hailsham	Housing			240		Under construction	C3	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
369	Land east of Park Road and south of New Road, Hellingly	Housing			460		Under construction	C3, A1, and B Class Uses	Near Certain
370	Land to rear of Police Station, High Street, Heathfield	Housing			112		Complete	C3	Near Certain
371	Land East of North Street, Lower Horsebridge, Hailsham	Housing			130		Approved	C3	Near Certain
372	Land South of Rattle Road, Stone Cross	Housing			120		Complete	C3	Near Certain
373	The Wells, Rattle Road, Stone Cross	Housing			268		Complete	C3	Near Certain
374	Allocation Hailsham North 1D	Housing			400		Local Plan Allocation (Policy SWGA 14)	C3	Reasonably Foreseeable
375	Land East of Battle Road, Hailsham	Housing			100		Submitted	C3	Reasonably Foreseeable
376	Land to the North and South of Rattle Road, Stone Cross	Housing			318		Approved	C3	Near Certain
377	Land at Friday Street Farm, Stone Cross	Housing			250		Submitted	C3	More Than Likely
378	Allocation - Land at Coxlow Farm	Housing			250		Local Plan Allocation (Policy RUGA 11)	C3	Reasonably Foreseeable
379	Land at Dittons Road (PW3), Polegate	Office	1,167			(86)	Complete	B1a	Near Certain
380	Land at Dittons Road (PW3), Polegate	General Industry	1,167			(31)	Complete	B2	Near Certain
381	Land at Dittons Road (PW3), Polegate	Storage or distribution	1,167			(15)	Complete	B8	Near Certain
382	Rathfinny Estate, Whiteway, Alfriston	Employment	5,148	0.5148		(136)	Complete	B2	Near Certain
383	H. Ripley & Co., Apex Way, Hailsham	Employment	2,065			(151)	Approved	B1	Near Certain
384	KPS, Boathouse Farm, Isfield Road, Isfield	Employment	1,881			(24)	Approved	B8	Near Certain
385	Ashdown Business Park, Maresfield	Employment	22,300	2.23		(421)	Approved	B1	Near Certain
386	Land north of Dittons Rd (Bluebell Way), Polegate	Employment	4,328			(82)	Approved	B1	Near Certain
387	Land at Dittons Rd, N of Dittons Fm, Polgate (SD5)	Employment	1,746			(46)	Approved	B1	Near Certain
388	Lnd adj. Chaucer Bus Pk, Phase 2, Dittons Rd, PGE	Employment	3,420			(97)	Approved	B1	Near Certain
389	Unit 37, Bell Lane, Bellbrook Ind Est, Uckfield	Employment	5,733	0.5733		(97)	Approved	B1	Near Certain
390	Land adjacent to Nash Street	Light Industrial	4,534	4.19		(77)	Pending decision	B1c	More Than Likely
391	Land adjacent to Nash Street	Storage or distribution	4,534			(59)	Pending decision	B8	More Than Likely
392	Ghyll Road Industrial Estate, Ghyll Road, Heathfield TN21 8AW	Light Industrial	600	0.565		(10)	Approved	B1c	Reasonably Foreseeable
393	Ghyll Road Industrial Estate, Ghyll Road, Heathfield TN21 8AW	Storage or distribution	1,595			(21)	Approved	B8	Reasonably Foreseeable
394	Land and buildings at Natewood Farm, Polegate Road, Hailsham BN27 3PH	Industry	5,999	2.9		(171)	Approved	B1/B8	Reasonably Foreseeable
395	Land north of Dittons Road, Polegate	Light Industrial	1,437			28	Approved	B1c	Near Certain
396	C B Winter Turf Supplies, Common Lane, Berwick	Industry	1,179	1.3		(20)	Approved	B1c	Reasonably Foreseeable
397	Swallow Business Park, The Dicker, Lower Dicker, BN27 4BW	Light industrial	14,829			(420)	Complete	B1c/B8	Near Certain
398	Land Adjacent to Cuckoo Trail, Cuckoo Fields, Station Road, Hailsham	Housing			100		Approval	C3	Near Certain
399	Land at Summerhill, West of Ersham Road, Hailsham	Housing			241		Submitted	C3	Near Certain
400	Land to the West of Park Farm, New Road, Hellingly	Housing			370		Resolution to Approve	C3	Near Certain
401	Brook View, Land North of Walshes Road, Crowborough	Housing			130		Approved	C3	Near Certain
402	Orchid Riding Centre, Walshes Road, Crowborough	Housing			150		Approved	C3	Near Certain
Sutton									

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
403	London Cancer Hub, Cotswold Road, Belmont	Medical / Medical Research	254,220				Application for School was gratned and the school is now Complete. The London Cancer Hub Medical / research floorspace will be delivered in waves over the next 20 years.	D1	Reasonably Foreseeable
404	London Cancer Hub, Cotswold Road, Belmont	School	12,390				Application for School was gratned and the school is now Complete. The London Cancer Hub Medical / research floorspace will be delivered in waves over the next 20 years.	D1	Near Certain
405	Land Incorporating Gas Works, Zurich, Dex, Sovereign And Centre Link Houses, Magnet And Multi Storey Car Park 287 - 323 High Street And Land Fronting Crown Road And Vale Road Sutton	Housing			186		Complete	C3	Near Certain
406	Land Incorporating Gas Works, Zurich, Dex, Sovereign And Centre Link Houses, Magnet And Multi Storey Car Park 287 - 323 High Street And Land Fronting Crown Road And Vale Road Sutton	Shops	12,221				Complete	A1	Near Certain
407	Land Incorporating Gas Works, Zurich, Dex, Sovereign And Centre Link Houses, Magnet And Multi Storey Car Park 287 - 323 High Street And Land Fronting Crown Road And Vale Road Sutton	Other Retail	2,861				Complete	A	Near Certain
408	Civic Centre, St Nicholas Way, Sutton	Housing			165		Local Plan	C3	Reasonably Foreseeable
409	Civic Centre, St Nicholas Way, Sutton	Retail	711				Local Plan	A1	Reasonably Foreseeable
410	Civic Centre, St Nicholas Way, Sutton	Office	13,896			(1018)	Local Plan	B1a	Reasonably Foreseeable
411	15 Carshalton Road, Sutton	Housing			149		Planning permission granted September 2021	C3	Near Certain
412	Bus Garage, Bushey Road / Bushey Lane, Sutton	Housing			203		Local Plan	C3	Hypothetical
413	High Street/Marshall Road, Sutton	Housing			164		Local Plan. Site to open as Lidl with no housing.	C3	Hypothetical
414	St Nicholas Way / St Nicholas Road, Sutton	Housing			276		Application granted, subject to a s106 agreement.	C3	Reasonably Foreseeable
415	St Nicholas Way / St Nicholas Road, Sutton	Office					Local Plan		Reasonably Foreseeable
416	Land north of Grove Road, Sutton	Housing			178		Local Plan	C3	Reasonably Foreseeable
417	Land north of Grove Road, Sutton	Retail	3,036				Local Plan	A1	Reasonably Foreseeable
418	Land south of Grove Rd, Sutton	Housing			122		Local Plan	C3	Reasonably Foreseeable
419	Land south of Grove Rd, Sutton	Retail	2,493				Local Plan	A1	Reasonably Foreseeable
420	B&Q , Carshalton Road / Sutton Court Road, Sutton	Housing			482		Local Plan	C3	Reasonably Foreseeable
421	B&Q , Carshalton Road / Sutton Court Road, Sutton	Retail	13,519				Local Plan	A1	Reasonably Foreseeable
422	House adj to Manor Park, Throwley Way	Housing			101		Local Plan	C3	Reasonably Foreseeable
423	Felnex Trading Estate, London Road	Housing			805		Under construction	C3	Near Certain
424	Felnex Trading Estate, London Road	Retail	6,002				Complete	A1	Near Certain
425	Felnex Trading Estate, London Road	Office	6,097			(447)	Under construction	B1a	Near Certain
426	Land adj Hackbridge Station	Housing			174		Local Plan	C3	Hypothetical
427	Wandle Valley Trading Estate, Goat Rd/Mill Green Rd, Hackbridge	Housing			124		Complete	C3	Near Certain
428	Wandle Valley Trading Estate, Goat Rd/Mill Green Rd, Hackbridge	Business	1,152			(33)	Under construction	B1	Near Certain
429	Land west of Beddington Lane	Industry	17,600			(544)	Complete	B1b/B1c/B2/B8	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
430	North of Sutton Court Road	Housing			178		Complete	C3	Near Certain
431	South of Sutton Court Road	Housing			452		Complete	C3	Near Certain
432	South of Sutton Court Road	Office	2,450			(180)	Complete	B1	Near Certain
433	South of Sutton Court Road	Health and Fitness	887				Complete	D1	Near Certain
434	South of Sutton Court Road	Hotels			116		Complete	C1	Near Certain
435	South of Sutton Court Road	Retail	1,978				Complete	A1	Near Certain
436	Sutherland House, Brighton Road, Sutton	Housing			128		Local Plan	C3	Reasonably Foreseeable
437	Brighton Road Car Park, Sutton	Housing			108		Local Plan	C3	Reasonably Foreseeable
438	24-34 Sutton Court Road, Sutton	Housing	5,315	0.16	165		Complete	C3	Near Certain
439	Former Sludge Beds To The West Of Beddington Lane And Land To The Rear Of 79-93 Beddington Lane, Beddington.	Industry	20,746			(63)	Application Granted	B1c/B2/B8	Near Certain
440	Gas Works Wrythe Lane Carshalton	Storage	1,393			(18)	Complete	B8	Near Certain
441	Brook House 5 Kimpton Road Sutton	Storage	1,532			(20)	Application Granted	B8	Near Certain
442	118 Beddington Lane Beddington	Office	4,150			(128)	Application Granted	B1c/B2/B8	Near Certain
443	Land Adjacent To Unit 8 Stirling Way Stirling Way Beddington	Business	548			(17)	Application Granted	B1	Near Certain
444	Land Adjacent To Unit 8 Stirling Way Stirling Way Beddington	Storage					Application Granted	B8	Near Certain
445	156 Beddington Lane, Sutton	Storage	1,192	0.9		(15)	Application Pending	B8	More Than Likely
446	Sutton Palace Superbowl, St Nicholas Way, Sutton	Hotels	5,127		140		Complete	C1	Near Certain
447	Sutton Palace Superbowl, St Nicholas Way, Sutton	Retail	514				Complete	A3	Near Certain
448	The Institute Of Cancer Research 15 Cotswold Road Sutton SM2 5NG	Research and development	1,790			(30)	Application Granted	B1b	Near Certain
449	The Royal Marsden Hospital Downs Road Sutton	Residential institutions	11,639	1.47			Application Pending	C2	More Than Likely
450	Rosehill Recreation Ground Rose Hill Sutton	Non-Residential Institutions	13,427	2.6			Application granted (on appeal)	D1	Near Certain
451	Sheen Way Playing Fields Sheen Way Wallington	Non-Residential Institutions	4,952	2.5			Application granted (on appeal)	D1	Near Certain
452	Anchor Business Centre, Storage Site 102 Beddington Lane Beddington	Light Industrial	2,012	1.025		(34)	Application Pending	B1c	More Than Likely
453	Unit 12 Sandiford Road Sutton	Office	366	1.076		(27)	Application Granted	B1a	Near Certain
454	79 - 85 Beddington Lane Beddington	Mixed	7,982	2.8			Application Pending		More Than Likely
Croydon									
455	Morrisons Supermarket, 500 Purley Way	Housing		4.57	529		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
456	Morrisons Supermarket, 500 Purley Way	Retail					Local Plan (adopted 2018)	A1/A2	Reasonably Foreseeable
457	Morrisons Supermarket, 500 Purley Way	Healthcare					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
458	Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street	Housing		0.66	118		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
459	Croydon College car park, College Road	Housing			120		Permission Granted with 106 legal Ag. (3 months)	C3&Sui Generis	Near Certain
460	Croydon College car park, College Road	Restaurant and cafes	115			20	Permission Granted with 106 legal Ag. (3 months)	A3	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
461	Croydon College car park, College Road	Community uses	316				Permission Granted with 106 legal Ag. (3 months)	D1	Near Certain
462	4-20 Edridge Road	Housing			230		Application Pending		More Than Likely
463	Purley Baptist Church, 2-12 Banstead Road	Housing			106		Approved permission	C3	Near Certain
464	Purley Baptist Church, 2-12 Banstead Road	Community uses	3,542				Approved permission	D1	Near Certain
465	Purley Baptist Church, 2-12 Banstead Road	Retail	146				Approved permission	A1	Near Certain
466	Central Parade West, Central Parade	Housing			376		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
467	Central Parade West, Central Parade	Community					Local Plan (adopted 2018)	A, D1	Reasonably Foreseeable
468	Cane Hill Hospital Site, Farthing Way	Housing			650		Complete	C3	Near Certain
469	Cane Hill Hospital Site, Farthing Way	Office	3,000				Complete		Near Certain
470	Car park, 26-52 Whytecliffe Road South	Housing			182		Local Plan (adopted 2018)	C3	More Than Likely
471	Former Taberner House site, Fell Road	Housing			514		Under construction	C3	Near Certain
472	Land Adjacent To East Croydon Station And Land At Cherry Orchard Road, Cherry Orchard Gardens, Billington Hill, Croydon.	Housing			456		Under Construction	C3	Near Certain
473	Land Adjacent To East Croydon Station And Land At Cherry Orchard Road, Cherry Orchard Gardens, Billington Hill, Croydon.	Commercial	2,078				Under Construction	A1/A2/A3/A4/B1a/D1/D2	Near Certain
474	St Georges House, Park Lane, Croydon	Housing			288		Under construction	C3	Near Certain
475	St Georges House, Park Lane, Croydon	Business				15	Under construction	B1a	Near Certain
476	Land Adjoining East Croydon Station, Bounded By George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road And Including Land To The North Of Lansdowne Road, Croydon	Housing			625		Application Permitted with 106 legal Ag.	C3	Near Certain
477	Land Adjoining East Croydon Station, Bounded By George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road And Including Land To The North Of Lansdowne Road, Croydon	Business	120,138			(8803)	Application Permitted with 106 legal Ag.	B1a	Near Certain
478	Land Adjoining East Croydon Station, Bounded By George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road And Including Land To The North Of Lansdowne Road, Croydon	Retail	10,900				Application Permitted with 106 legal Ag.	A1-A5	Near Certain
479	Land Adjoining East Croydon Station, Bounded By George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road And Including Land To The North Of Lansdowne Road, Croydon	Facilities	400				Application Permitted with 106 legal Ag.	D1	Near Certain
480	Land Adjoining East Croydon Station, Bounded By George Street (Including 1-5 Station Approach), Dingwall Road, (Including The Warehouse Theatre), Lansdowne Road And Including Land To The North Of Lansdowne Road, Croydon	Sui generis					Application Permitted with 106 legal Ag.	Sui generis	Near Certain
481	Stephenson House and Knollys House, Cherry Orchard Road	Housing		0.94	195		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
482	Stephenson House and Knollys House, Cherry Orchard Road	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
483	Jobcentre, 17-21 Dingwall Road	Office			49-141		Under Construction	A2&A3	Reasonably Foreseeable
484	Jobcentre, 17-21 Dingwall Road	Housing			181		Under Construction	C3	Reasonably Foreseeable
485	Jobcentre, 17-21 Dingwall Road	Financial and professional services					Under Construction		Reasonably Foreseeable
486	Floor 9-20, Leon House, 233 High Street, Croydon	Housing			258		Complete	C3	Near Certain
487	Floor 9-20, Leon House, 233 High Street, Croydon	Office				(-526)	Complete	B1a	Near Certain
488	Leon Quarter	Housing			357		Permission approved	C3	Near Certain
489	Leon Quarter	Retail	-720				Permission approved	A1/A2/A3	Near Certain
490	Suffolk House, George Street	Office	466			(34)	Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
491	Suffolk House, George Street	Housing			66		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
492	Suffolk House, George Street	Retail					Local Plan (adopted 2018)	A1	Reasonably Foreseeable
493	20 Lansdowne Road	Housing		0.775	109 - 313		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
494	20 Lansdowne Road	Light Industrial					Local Plan (adopted 2018)	B2	Reasonably Foreseeable
495	20 Lansdowne Road	Studio					Local Plan (adopted 2018)	B1c/B8	Reasonably Foreseeable
496	Lidl, Easy Gym and car park, 99-101 London Road	Facilities		1.13			Local Plan (adopted 2018)	D1	Reasonably Foreseeable
497	Lidl, Easy Gym and car park, 99-101 London Road	Housing			216		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
498	West Croydon station and shops, 176 North End	Housing			109		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
499	West Croydon station and shops, 176 North End	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
500	West Croydon station and shops, 176 North End	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
501	Poplar Walk car park and, 16-44 Station Road	Housing			240		Under construction	C3	Near Certain
502	Poplar Walk car park and, 16-44 Station Road	Retail	974				Under construction	A1,A2,A3,A4 or A5	Near Certain
503	Lunar House, Wellesley Road	Housing		1.34	418		Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
504	Lunar House, Wellesley Road	Office					Local Plan (adopted 2018)	C3	Reasonably Foreseeable
505	Lunar House, Wellesley Road	Hotels					Local Plan (adopted 2018)	C2	Reasonably Foreseeable
506	Multi-storey car park, 1 Whitgift Street	Housing		0.54	158		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
507	Multi-storey car park, 1 Whitgift Street	Community					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
508	Southern House, Wellesley Grove	Housing		0.58	342		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
509	Southern House, Wellesley Grove	Office		0.58			Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
510	Southern House, Wellesley Grove	Hotels		0.58			Local Plan (adopted 2018)	C1/D1	Reasonably Foreseeable
511	Apollo House, Wellesley Road	Housing		0.58	82 - 234		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
512	Apollo House, Wellesley Road	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
513	Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way	Housing		6.75	976		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
514	Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
515	Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way	Healthcare					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
516	Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way	Community					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
517	PC World, 2 Trojan Way	Housing		1.03	184		Local Plan (adopted 2018)	C3&A&D	Reasonably Foreseeable
518	PC World, 2 Trojan Way	Retail					Local Plan (adopted 2018)	C3&A&D	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
519	PC World, 2 Trojan Way	Community uses					Local Plan (adopted 2018)	C3&A&D	Reasonably Foreseeable
520	Superstores, Drury Crescent	Housing		1.45	265		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
521	Superstores, Drury Crescent	Retail					Local Plan (adopted 2018)	A1	Reasonably Foreseeable
522	Superstores, Drury Crescent	Healthcare					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
523	Tesco, 2 Purley Road	Housing		3.81	479		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
524	Tesco, 2 Purley Road	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
525	Tesco, 2 Purley Road	Healthcare					Local Plan (adopted 2018)	D	Reasonably Foreseeable
526	Homebase & Matalan stores, 60-66 Purley Way	Retail		2.84			Local Plan (adopted 2018)	A	Reasonably Foreseeable
527	Furniture Village, 222 Purley Way	Housing		0.71	124		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
528	Furniture Village, 222 Purley Way	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
529	Furniture Village, 222 Purley Way	Healthcare					Local Plan (adopted 2018)	D	Reasonably Foreseeable
530	Decathlon, 2 Trafaglar Way	Housing		1.3	260		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
531	Decathlon, 2 Trafaglar Way	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
532	Decathlon, 2 Trafaglar Way	Healthcare					Local Plan (adopted 2018)	D	Reasonably Foreseeable
533	Norwood Heights Shopping Centre, Westow Street	Housing		1.46	135		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
534	Norwood Heights Shopping Centre, Westow Street	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
535	Norwood Heights Shopping Centre, Westow Street	Community					Local Plan (adopted 2018)	D	Reasonably Foreseeable
536	Norwood Heights Shopping Centre, Westow Street	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
537	5 Cairo New Road, Croydon, CR0 1XP	Housing			113		Complete	C3	Near Certain
538	Whitgift centre, North End	Hotels		8.99			Lapsed permission	C1	Reasonably Foreseeable
539	Whitgift centre, North End	Leisure					Lapsed permission	D2	Reasonably Foreseeable
540	Whitgift centre, North End	Sui generis					Lapsed permission	Sui generis	Reasonably Foreseeable
541	Whitgift centre, North End	Housing			650		Lapsed permission	C3	Reasonably Foreseeable
542	Whitgift centre, North End	Office					Lapsed permission	B1a	Reasonably Foreseeable
543	Pinnacle House, 8 Bedford Park	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
544	Pinnacle House, 8 Bedford Park	Housing			158		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
545	Croydon University Hospital Site, London Road	Housing		8.17	372		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
546	Stubbs Mead Depot, Factory Lane	Housing		2.71	157 - 440		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
547	Stubbs Mead Depot, Factory Lane	Industry					Local Plan (adopted 2018)	B1/B2/B8	Reasonably Foreseeable
548	Norfolk House, 1-28 Wellesley Road	Housing		0.708	133		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
549	Norfolk House, 1-28 Wellesley Road	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
550	Norfolk House, 1-28 Wellesley Road	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
551	Norfolk House, 1-28 Wellesley Road	Hotels					Local Plan (adopted 2018)	C1	Reasonably Foreseeable
552	Prospect West and car park to the rear of, 81-85 Station Road	Housing			291		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
553	Prospect West and car park to the rear of, 81-85 Station Road	Healthcare					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
554	1-9 Banstead Road, Purley	Housing			106		Approved permission	C3	Near Certain
555	St George's Walk, Katharine House and Park House, Park Street	Housing			874		Local Plan		Reasonably Foreseeable
556	St George's Walk, Katharine House and Park House, Park Street	Retail					Local Plan		Reasonably Foreseeable
557	St George's Walk, Katharine House and Park House, Park Street	Office					Local Plan		Reasonably Foreseeable

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558	Land To The South East Of Croydon College College Road Croydon CR9 1DG	Housing			421		Application Pending	C3	More Than Likely
559	Land To The South East Of Croydon College College Road Croydon CR9 1DG	Commercial	1,471			20	Application Pending	A, D and B1a	More Than Likely
560	Former Essex House George Street Croydon	Housing			538		Complete	C3	Near Certain
561	Former Essex House George Street Croydon	Restaurant and cafes	157				Complete	A3	Near Certain
562	Former Essex House George Street Croydon	Non-Residential Institutions	188				Complete	D1	Near Certain
563	Land Bounded By George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Housing			626		Application Permitted	C3	More Than Likely
564	Land Bounded By George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Office	56,691			(4154)	Application Permitted	B1a	More Than Likely
565	Land Bounded By George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Town Centre uses except retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A	More Than Likely
566	Galaxy House, 41 Cherry Orchard Road, Croydon, CR9 6BY	Housing			290		Complete	C3	Near Certain
567	28 Dingwall Road Croydon CR0 2NE	Office	1,666	1.285		439	Permission Granted with 106 legal Ag. (3 months)	B1a	More Than Likely
568	Heath Clark, Stafford Road	Housing		3.24	126		Local Plan (adopted 2018)		Reasonably Foreseeable
569	Former Royal Mail site, 1-5 Addiscombe Road	Housing			201		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
570	Former Royal Mail site, 1-5 Addiscombe Road	Hotel					Local Plan (adopted 2018)	C1	Reasonably Foreseeable
571	Former Royal Mail site, 1-5 Addiscombe Road	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
572	Former Royal Mail site, 1-5 Addiscombe Road	Leisure/Non Town centre uses					Local Plan (adopted 2018)	D2	Reasonably Foreseeable
573	Bowyers Yard, Bedwardine Road	Employment			n/a		Local Plan (adopted 2018)	D1	Reasonably Foreseeable
574	Land Bounded By George St, Park Lane, Barclay Road, And Main London To Brighton Railway Line	Housing			626		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
575	Direct Line House, 3 Edridge Road	Housing			158		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
576	Direct Line House, 3 Edridge Road	Office					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	B1a	Reasonably Foreseeable
577	The Lansdowne, 2 Lansdowne Road	Housing			158		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
578	The Lansdowne, 2 Lansdowne Road	Office					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	B1a	Reasonably Foreseeable
579	20 - 22 Lansdowne Road	Mixed			107		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
580	294-330 Purley Way	Housing		2.55	331		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
581	294-330 Purley Way	Retail					Local Plan (adopted 2018)	A	Reasonably Foreseeable
582	294-330 Purley Way	Commercial					Local Plan (adopted 2018)	B1	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
583	44-60 Cherry Orchard Road	Housing			120		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
584	Land and car park between Belgrave Road and Grosvenor Road	Housing			102		Application permitted	C3	Near Certain
585	585-603 London Road	Housing			118		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
586	585-603 London Road	Hotel			337		Approved permission	C1	More Than Likely
587	Old Waddon Goods Yard, Purley Way	Housing			168		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
588	Old Waddon Goods Yard, Purley Way	Retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1, A3-5	Reasonably Foreseeable
589	Timebridge Community Centre, Field Way	School		2.089	n/a		Complete		Near Certain
590	Sainsburys, Trafalgar Way	Housing			632		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
591	Sainsburys, Trafalgar Way	Retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1	Reasonably Foreseeable
592	Supermarket, car park, 54 Brigstock Road	Housing			124		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
593	Supermarket, car park, 54 Brigstock Road	Retail					Local Plan (adopted 2018)	A1	Reasonably Foreseeable
594	1 Lansdowne Road	Restaurant and cafes	1,756				Application permitted	A3	More Than Likely
595	Canterbury House, Bedford Park	Housing			266		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
596	Tesco, 4-32 Brigstock Road, Thornton Heath	Housing			118		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
597	Tesco, 4-32 Brigstock Road, Thornton Heath	Retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1	Reasonably Foreseeable
598	Parklife, Purley Way Playing Fields	Assembly and Leisure			n/a		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	D1	Reasonably Foreseeable
599	28 Dingwall Road	Housing			133		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
600	28 Dingwall Road	Hotel					Local Plan (adopted 2018)	C1	Reasonably Foreseeable
601	St George's Walk, Katharine House and Park House, Park Street	Mixed		1.94	88 to 504		Permitted,proposed site for upcoming LP		Reasonably Foreseeable
602	Mondial House, 102 George Street	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
603	Mondial House, 102 George Street	Retail					Local Plan (adopted 2018)	A1	Reasonably Foreseeable
604	Mondial House, 102 George Street	Hotel					Local Plan (adopted 2018)	C1	Reasonably Foreseeable
605	Mondial House, 102 George Street	Housing			133		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
606	Purley Oaks Depot, 505-600 Brighton Road	Gypsy and Traveller		1.03			Local Plan (adopted 2018)	Sui generis	Reasonably Foreseeable
607	Valley Leisure Park, Hesterman Way	Retail		0.95			Local Plan (adopted 2018)	A1	Reasonably Foreseeable
608	Harveys Furnishing Group Ltd, 230-250 Purley Way	Housing			146		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
609	Car park, Lion Green Road	Housing		1.08	157		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
610	Whitgift Centre, North End	Retail					Local Plan (adopted 2018)	A1-5	Reasonably Foreseeable
611	797 London Road	Housing			101		Complete	C3	Near Certain

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
612	Dairy Crest dairy, 823-825 Brighton Road	Light Industrial		0.34			Local Plan (adopted 2018)	B1 (b)	Reasonably Foreseeable
613	26-52 Whytecliff Road, South Purley CR8 2AW	Housing			106		Decision Pending		More Than Likely
614	Croydon Garden Centre, 89 Waddon Way	Town centre					Local Plan (adopted 2018)	Town Centre uses	Reasonably Foreseeable
615	Croydon Garden Centre, 89 Waddon Way	Housing			152		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
616	20-28 Addiscombe Road (Go Ahead House & Easy Hotel)	Office					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C1 and/or B1a	Reasonably Foreseeable
617	551 and 550A Purley Way	Retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1	Reasonably Foreseeable
618	552 and 550A Purley Way	Business					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	B1/A2	Reasonably Foreseeable
619	550 and 550A Purley Way	Housing			111		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
620	Woburn and Bedford Court	Housing			505		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
621	Colonnades	Retail						A1	Reasonably Foreseeable
622	Colonnades	Leisure						D2	Reasonably Foreseeable
623	Colonnades	Community						D1	Reasonably Foreseeable
624	Colonnades	Housing			659			C3	Reasonably Foreseeable
625	2 Lansdowne Road	Office	6,030			2,000	Application permitted	B1a	More Than Likely
626	2 Lansdowne Road	Retail	1,973				Application permitted	A1	More Than Likely
627	1 Lansdowne Road	Housing			794		Application permitted	C3	More Than Likely
628	Currys PC World (Carphone Warehouse), 12 Trojan Way	Retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1	Reasonably Foreseeable
629	Currys PC World (Carphone Warehouse), 12 Trojan Way	Housing			148		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
630	KEA	Retail					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1	Reasonably Foreseeable
631	KEA	Community					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	D1	Reasonably Foreseeable
632	IKEA	Housing			590		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
633	North site, Ruskin Square	Office					Local Plan (adopted 2018)	B1a/C1	Reasonably Foreseeable
634	North site, Ruskin Square	Town centre					Local Plan (adopted 2018)	Town centre uses except retail	Reasonably Foreseeable
635	North site, Ruskin Square	Housing			158		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
636	Apollo House, Wellesley Road	Hotel					Local Plan (adopted 2018)	C1/D1	Reasonably Foreseeable
637	Apollo House, Wellesley Road	Office					Local Plan (adopted 2018)	B1a	Reasonably Foreseeable
638	Apollo House, Wellesley Road	Housing			145		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
639	Homebase & Matalan stores, 60-66 Purley Way	Housing			685		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
640	Royal Oak Centre,	Community/retail		3			Local Plan (adopted 2018)	D1/A1	Reasonably Foreseeable
641	Royal Oak Centre,	Housing			99		Local Plan (adopted 2018)	C3	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
642	Purley Back Lanes, 16-28 Pampisford Road	Industry					Local Plan (adopted 2018)	B8	Reasonably Foreseeable
643	Purley Back Lanes, 16-28 Pampisford Road	Housing		0.62	99		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
644	Stubbs Mead Depot, Factory Lane	Industry					Local Plan (adopted 2018)	B2/B8	Reasonably Foreseeable
645	Stubbs Mead Depot, Factory Lane	Housing			385		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
646	103 - 111A High Street Croydon CR0 1QG	Housing			121		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
647	103 - 111A High Street Croydon CR0 1QG	Commercial					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A/B/D	Reasonably Foreseeable
648	Fiveways Retail Park, 500 Purley Way	Housing			233		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
649	Fiveways Retail Park, 500 Purley Way	Retail		0.83			Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1/A2	Reasonably Foreseeable
650	Fiveways Retail Park, 500 Purley Way	Healthcare		0.83			Proposed site allocation within the Local Plan Pre submission consultation document (2021)	D1	Reasonably Foreseeable
651	Fiveways Retail Park, 500 Purley Way	Housing		0.83	338		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
652	Fiveways Retail Park, 500 Purley Way	Retail		1.84			Proposed site allocation within the Local Plan Pre submission consultation document (2021)	A1/A2	Reasonably Foreseeable
653	Fiveways Retail Park, 500 Purley Way	Healthcare					Proposed site allocation within the Local Plan Pre submission consultation document (2021)	D1	Reasonably Foreseeable
Sevenoaks									
654	Fort Halstead, Crow Drive, Kent	Housing			600		Application Granted	C3	More Than Likely
655	Fort Halstead, Crow Drive, Kent	Business	27,000	3.7		(835)	Application Granted	B1/B2	Near Certain
656	Fort Halstead, Crow Drive, Kent	Retail	600				Application Granted	A1/A2/A3	Near Certain
657	Fort Halstead, Crow Drive, Kent	Non-Residential Institutions	3,100				Application Granted	D1	Near Certain
658	Fort Halstead, Crow Drive, Kent	Assembly and Leisure	300				Application Granted	D2	Near Certain
West Sussex									
659	Biffa Brookhurst Wood Landfill	B2				2	Application Approved	B2	Near Certain
Sites without scope									
Crawley									
700	Land at Jersey Farm (Site B)	Industry	0	2.18		(29)	ELAA site	B2	Hypothetical
701	Land at Jersey Farm (Site C)	Industry		8.77			ELAA site	B2/B8	Hypothetical
683	Land at Little Dell Farm	Business		3.095			ELAA site	B1c/B2/B8	Hypothetical
684	Hydehurst and Windyridge Farms (Not Safeguarded)	Business	16,240	2.32			ELAA site	B	Hypothetical
685	Land East of Balcombe Road and South of the M23 Spur (Gatwick Green)	Storage	77,800	47 (24.1)		(1010)	Employment Land Trajectory	B8	Reasonably Foreseeable
686	Land South of Southways	Industry	3,241	1.43		(100)	ELAA site	B2/B8	Hypothetical
687	Southways (Potential Intensification) Site Two	Industry		1.5			ELAA site	B2/B8	Hypothetical
688	Hydehurst and Windyridge Farms	Business	50,000	11.64		(1545)	ELAA site	B1/B2/B8	Hypothetical

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
689	Land at Rowley Farm	Industry	65,032	52			ELAA site	B1/B2/B8	Hypothetical
692	Homebase, Crawley Avenue, West Green, Crawley	Shops	9,885	1.37		100	Permitted	A1	
698	Unit 12, Gatwick Cargo Centre, Cargo Road, Gatwick Airport, RH6 0SQ	Light Industrial	2,633			30	Complete	B1c	
701	Gatwick Green Promoted Land	Industry	160,000	58.7				B1b/B1c/B2/B8	Reasonably Foreseeable
702	Gatwick Green Promoted Land	Office	52,500	58.7				B1a	Reasonably Foreseeable
703	Gatwick Green Promoted Land	Other	52,500	58.7				Other, including C2	Reasonably Foreseeable
704	Land to the north and south of Hydehurst Lane	Employment		17.9			ELAA site	B1/B2/B8	Hypothetical
705	Land at Poles Lane (Site A)	Employment		2.11			ELAA site	B1/B2/B8	Hypothetical
706	Land at Spikemead Farm	Employment		3.67			ELAA site	B1/B2/B8	Hypothetical
707	Land at Poles Lane (Site B)	Employment					ELAA site		Hypothetical
Mid Sussex									
708	Wintons Farm, Folders Lane, Burgess Hill	Housing			120		SHELAA site	C	Reasonably Foreseeable
709	Land at Coombe Farm, London Road, Sayers Common	Housing			210		SHELAA site	C	Hypothetical
710	Copthorne Golf Club, Copthorne Common Road, Copthorne	Housing			135		SHELAA site	C	Hypothetical
711	Bolney Nursery, Cowfold Road RH17 9QR	Office		1.93			SELAA Site	B1c/B2/B8	Hypothetical
712	Land at Dumbrellls Farm, east of Pookbourne Land and South of A2300, Hurstpierpoint and Sayers Common	Office		40.29			SELAA Site, Local Plan	B1a, B1b, B1c	Reasonably Foreseeable
Horsham									
713	Land West of Bewbush (Kilnwood Vale)	Hotels			200		Under Construction	C2	Near Certain
714	West of Crawley (West of Bewbush Action Area)	Housing			2,500				
715	Warnham and Wealden Brickworks, North West Horsham	Employment		24.4			Approved	Incinerator	Near Certain
Mole Valley									
716	Pippbrook, Reigate Road, Dorking	Housing			120		SHLAA site	C3	Reasonably Foreseeable
718	Land north of Rosemary Lane	Housing			150				Reasonably Foreseeable
719	Land east of Ifield Road	Housing			150				Reasonably Foreseeable
720	Land West of Old Horsham Road	Housing			180				Reasonably Foreseeable
721	Old Kiln Farm, Coles Lane	Housing			130				Reasonably Foreseeable
Reigate and Banstead									
722	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Office	150,000				Allocated Site	B1a	Reasonably Foreseeable
723	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Light Industrial	10,000				Allocated Site	B1c	Reasonably Foreseeable
724	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Research and development	40,000				Allocated Site	B1b	Reasonably Foreseeable
725	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Retail	2,000				Allocated Site	A1	Reasonably Foreseeable
726	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Hotels	5,000				Allocated Site	C1	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
727	Horley Strategic Employment Site (Land at Fishers/Bayhorne Farm, Horley)/ Horley Business Park	Leisure	3,000				Allocated Site	D1	Reasonably Foreseeable
728	Land at Salbrook Road, Redhill	Light Industrial/Storage & Distribution	4,000			(68)	Allocated Site	B1/B8	More Than Likely
729	Sainsburys/Warwick Quadrant redevelopment, Redhill	Retail	15,093				Approved	A1	Near Certain
730	Perrywood Buisness Park	Mixed use	24,890	7		(423)	Approved	B1c	
731	East Surrey Hospital	Medical		24				D1	
732	Salfords Industrial Estate	Employment	77,965	24.8					
733	Library and Pool House, Bancroft Road, Reigate	Mixed	1,000		25		Local Plan	A, D, C3	Reasonably Foreseeable
Tandridge									
734	Land at Plough Road and Redehall Road, Smallfield, Burstow	Housing			160		Local Plan	C3	Reasonably Foreseeable
735	Land to the west of Godstone	Housing			150		Local Plan	C3	Reasonably Foreseeable
736	Former Shelton Sports Ground, Warlingham	Housing			110		Local Plan	C3	Reasonably Foreseeable
737	Lambs Business Park, South Godstone	Employment		8			Local Plan		Reasonably Foreseeable
738	Land North of Plough Road, Smallfield	Housing			120		Local Plan	C3	Reasonably Foreseeable
Epsom and Ewell									
737	Epsom General Hospital	Housing			24		Approved	C2, C3, E	More Than Likely
Wealden									
738	Former Merrydown Cider Factory, A267, Horam	Office	1,318			(97)	Complete	B1	Near Certain
739	Land at Dittons Nursery, Stone Cross	Housing			44		Approved	C3 and C2	Near Certain
Sutton									
740	Wandle Valley Trading Estate, Goat Rd/Mill Green Rd, Hackbridge	Public Open Space	4,125				Under construction		Near Certain
741	Proposed Primary School Expansion London Road Mitcham Junction	Education		1.67			Complete	D	Near Certain
742	Times Square Shopping Centre High Street Sutton	Retail	1,610				Complete	A1	Reasonably Foreseeable
743	Times Square Shopping Centre High Street Sutton	Leisure					Complete	D2	Reasonably Foreseeable
Croydon									
744	Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street	Retail					Local Plan (adopted 2018)	A1	Reasonably Foreseeable
745	Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street	Community					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
746	Multi-storey car park, Lansdowne Road	Housing		0.95	66		Local Plan (adopted 2018)	C3	Reasonably Foreseeable
747	Vistec House & 14 Cavendish Road, 185 London Road	Other	3,735			1	Complete		Near Certain
748	Former Randolph And Pembroke House Site, Wellesley Road, Croydon	Housing			755		Permission Granted with 106 legal Ag. (3 months)	C3	Near Certain
749	45 Lansdowne Road	Housing			33		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable
750	West Croydon Bus Station	Housing			76		Proposed site allocation within the Local Plan Pre submission consultation document (2021)	C3	Reasonably Foreseeable

Index	Location	Development Type	GFA (sqm)	Employment Area (ha)	No. of Units	FTE	Planning Status	Use Class	Development Uncertainty
751	West Croydon Bus Station	Town Centre uses					Proposed site allocation within the Local Plan Pre submission consultation document (2021)		Reasonably Foreseeable
752	Prospect West and car park to the rear of, 81-85 Station Road	Housing		0.88	40 to 288		Allocated,proposed site for upcoming LP		Reasonably Foreseeable
753	Valley Leisure Park, Hesterman Way	Healthcare					Local Plan (adopted 2018)	D1	Reasonably Foreseeable
754	Valley Leisure Park, Hesterman Way	Community					Local Plan (adopted 2018)	D2/D1	Reasonably Foreseeable
755	Harveys Furnishing Group Ltd, 230-250 Purley Way	Retail					Local Plan (adopted 2018)	A1/A2	Reasonably Foreseeable

Appendix D

Forecast Development Growth

2029

Table 3: Housing growths (dwellings) captured by special zones and after wider TEMPro adjustment - 2029

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	7,095	4,864	69%	6,371
	Crawley	3,783	2,426	64%	1,477
	Mid Sussex	8,187	2,995	37%	6,410
Surrey	Mole Valley	334	0	0%	1,705
	Reigate and Banstead	3,254	2,600	80%	3,678
	Tandridge	595	0	0%	4,074
	Epsom and Ewell	161	0	0%	718
East Sussex	Wealden	6,863	675	10%	6,013
London	Sutton	1,873	0	0%	4,450
	Croydon	6,688	1,347	20%	16,840

Table 4: Employment growths (jobs) captured by special zones and after wider TEMPro adjustment – 2029

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	5,356	4,579	86%	16
	Crawley	4,356	4,379	101%	-106
	Mid Sussex	2,424	1,026	42%	5,059
Surrey	Mole Valley	0	0	-	415
	Reigate and Banstead	1,129	281	25%	2,101
	Tandridge	136	0	0%	7,430
	Epsom and Ewell	765	0	0%	765
East Sussex	Wealden	1,747	88	5%	1,435
London	Sutton	1,556	0	0%	5,354
	Croydon	14,505	13,757	95%	-52

2032

Table 5: Housing growths (dwellings) captured by special zones and after wider TEMPro adjustment – 2032

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	7,869	5,710	73%	7,059
	Crawley	3,783	2,455	65%	2,106
	Mid Sussex	8,906	3,750	42%	6,575
Surrey	Mole Valley	334	0	0%	2,250
	Reigate and Banstead	3,394	2,600	77%	5,317
	Tandridge	595	0	0%	4,819
	Epsom and Ewell	161	0	0%	1,148
East Sussex	Wealden	7,058	870	12%	6,058
London	Sutton	1,873	0	0%	5,792
	Croydon	6,948	2,045	29%	20,339

Table 6: Employment growths (jobs) captured by special zones and after wider TEMPro adjustment – 2032

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	6,456	5,676	88%	47
	Crawley	4,448	4,401	99%	462
	Mid Sussex	2,673	1,265	47%	5,981
Surrey	Mole Valley	0	0	-	864
	Reigate and Banstead	1,129	281	25%	2,761
	Tandridge	136	0	0%	9,145
	Epsom and Ewell	765	0	0%	765
East Sussex	Wealden	1,879	220	12%	1,777
London	Sutton	1,556	0	0%	5,574
	Croydon	14,905	14,957	100%	-52

2038

Table 7: Housing growths (dwellings) captured by special zones and after wider TEMPro adjustment – 2038

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	8,136	6,493	80%	10,278
	Crawley	3,783	2,455	65%	3,412
	Mid Sussex	9,146	4,466	49%	9,768
Surrey	Mole Valley	334	0	0%	3,236
	Reigate and Banstead	3,484	2,830	81%	8,140
	Tandridge	595	0	0%	5,396
	Epsom and Ewell	161	0	0%	1,982
East Sussex	Wealden	7,058	1,000	14%	7,938
London	Sutton	1,873	0	0%	11,791
	Croydon	6,948	2,045	29%	27,658

Table 8: Employment growths (jobs) captured by special zones and after wider TEMPro adjustment – 2038

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	6,843	6,796	99%	47
	Crawley	4,509	4,401	98%	2,235
	Mid Sussex	2,759	1,520	55%	7,079
Surrey	Mole Valley	0	0	-	1,903
	Reigate and Banstead	1,129	281	25%	4,281
	Tandridge	136	0	0%	10,343
	Epsom and Ewell	765	0	0%	1,250
East Sussex	Wealden	1,879	308	16%	2,938
London	Sutton	1,556	0	0%	6,724
	Croydon	14,905	14,957	100%	-52

2047

Table 9: Housing growths (dwellings) captured by special zones and after wider TEMPro adjustment – 2047

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	8,143	6,493	80%	16,233
	Crawley	3,790	2,455	65%	5,560
	Mid Sussex	9,154	4,466	49%	15,772
Surrey	Mole Valley	334	0	0%	4,715
	Reigate and Banstead	3,494	2,830	81%	12,710
	Tandridge	595	0	0%	5,882
	Epsom and Ewell	161	0	0%	3,232
East Sussex	Wealden	7,060	1,000	14%	11,815
London	Sutton	1,873	0	0%	20,791
	Croydon	6,954	2,045	29%	41,687

Table 10: Employment growths (jobs) captured by special zones and after wider TEMPro adjustment – 2047

Local Authority		All UL Sites Modelled	Special Zones		Wider TEMPro Adjustments
			Absolute	% captured	
West Sussex	Horsham	6,855	6,796	99%	47
	Crawley	4,538	4,401	97%	5,202
	Mid Sussex	2,768	1,520	55%	9,357
Surrey	Mole Valley	0	0	-	3,633
	Reigate and Banstead	1,133	281	25%	6,817
	Tandridge	136	0	0%	11,599
	Epsom and Ewell	765	0	0%	2,387
East Sussex	Wealden	1,881	308	16%	5,017
London	Sutton	1,556	0	0%	8,444
	Croydon	14,911	14,957	100%	-52

Appendix E

Reference Case Demand Changes

Highway

Table 11: AM (07:00-09:00) reference highway demand

	Demand (thousands PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	1,112	1,243	1,266	1,316	1,399	1.12	1.14	1.18	1.26
Commute	4,663	5,114	5,192	5,366	5,657	1.10	1.11	1.15	1.21
Other	4,604	5,359	5,503	5,775	6,174	1.16	1.20	1.25	1.34
Developments	0.0	16.3	18.7	19.4	20.7	-	-	-	-
LGV	1,581	1,881	1,954	2,113	2,311	1.19	1.24	1.34	1.46
HGV	759	769	777	796	822	1.01	1.02	1.05	1.08
Air Passengers (Baseline)	7.8	11.0	11.5	12.2	12.5	1.41	1.49	1.58	1.61
Airport employees (Baseline)	2.2	2.6	2.6	2.7	2.8	1.16	1.18	1.21	1.25
Total	12,729	14,396	14,724	15,399	16,398	1.13	1.16	1.21	1.29

Table 12: IP (09:00-16:00) reference highway demand

	Demand (thousands PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	3,299	3,678	3,745	3,888	4,128	1.11	1.13	1.18	1.25
Commute	6,709	7,379	7,494	7,748	8,173	1.10	1.12	1.15	1.22
Other	20,557	23,861	24,493	25,689	27,459	1.16	1.19	1.25	1.34
Developments	0.0	44.9	51.8	54.0	58.1	-	-	-	-
LGV	6,314	7,513	7,805	8,439	9,229	1.19	1.24	1.34	1.46
HGV	3,482	3,521	3,557	3,643	3,757	1.01	1.02	1.05	1.08
Air Passengers (Baseline)	29.5	31.7	32.5	33.4	34.6	1.08	1.10	1.13	1.18
Airport employees (Baseline)	4.8	5.5	5.6	5.8	6.0	1.16	1.18	1.21	1.25
Total	40,396	46,034	47,182	49,500	52,845	1.14	1.17	1.23	1.31

Table 13: PM (16:00-18:00) reference highway demand

	Demand (thousands PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	1,151	1,288	1,312	1,364	1,451	1.12	1.14	1.18	1.26
Commute	4,277	4,695	4,767	4,928	5,195	1.10	1.11	1.15	1.21
Other	6,293	7,321	7,518	7,889	8,436	1.16	1.19	1.25	1.34
Developments	0.0	18.4	21.4	22.3	24.1	-	-	-	-
LGV	1,768	2,104	2,186	2,363	2,584	1.19	1.24	1.34	1.46
HGV	721	729	737	756	780	1.01	1.02	1.05	1.08
Air Passengers (Baseline)	7.2	8.2	8.3	8.7	9.6	1.13	1.15	1.21	1.32
Airport employees (Baseline)	1.9	2.2	2.2	2.2	2.3	1.14	1.15	1.18	1.21
Total	14,218	16,166	16,551	17,332	18,482	1.14	1.16	1.22	1.30

Table 14: OP (18:00-07:00) reference highway demand

	Demand (thousands PCUs)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
Business	1,749	1,954	1,990	2,068	2,199	1.12	1.14	1.18	1.26
Commute	5,145	5,672	5,763	5,961	6,290	1.10	1.12	1.16	1.22
Other	13,040	15,177	15,586	16,358	17,495	1.16	1.20	1.25	1.34
Developments	0.0	15.8	17.3	17.7	18.7	-	-	-	-
LGV	1,138	1,349	1,402	1,516	1,657	1.19	1.23	1.33	1.46
HGV	329	333	337	345	356	1.01	1.02	1.05	1.08
Air Passengers (Baseline)	35.1	43.9	45.5	47.3	48.9	1.25	1.30	1.35	1.39
Airport employees (Baseline)	7.4	8.6	8.7	8.9	9.2	1.16	1.18	1.21	1.25
Total	21,444	24,554	25,148	26,321	28,075	1.15	1.17	1.23	1.31

Public Transport

Table 15: AM (07:00-09:00) background rail demand (Future baseline)

	Demand (trips)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	8640	10663	10997	11599	12573	1.23	1.27	1.34	1.46
CA Commute	102533	122335	125538	131068	139676	1.19	1.22	1.28	1.36
CA Other	6702	8414	8763	9348	10097	1.26	1.31	1.39	1.51
NCA Business	3167	3379	3435	3469	3477	1.07	1.08	1.10	1.10
NCA Commute	42424	43417	43888	43876	43265	1.02	1.03	1.03	1.02
NCA Other	4145	4373	4473	4554	4535	1.05	1.08	1.10	1.09
Total Business	11807	14042	14432	15068	16050	1.19	1.22	1.28	1.36
Total Commute	144957	165752	169427	174944	182941	1.14	1.17	1.21	1.26
Total Other	10847	12786	13236	13902	14632	1.18	1.22	1.28	1.35
Air passengers (Baseline)	4088	6259	6593	6987	7130	1.53	1.61	1.71	1.74
Airport employees (Baseline)	550	633	644	659	680	1.15	1.17	1.20	1.24
TOTAL	172250	199473	204331	211560	221433	1.16	1.19	1.23	1.29

Table 16: IP (09:00-16:00) background rail demand (Future baseline)

	Demand (trips)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	20176	24750	25495	26862	29068	1.23	1.26	1.33	1.44
CA Commute	62368	73847	75654	78887	83927	1.18	1.21	1.26	1.35
CA Other	41663	50702	52609	55751	59618	1.22	1.26	1.34	1.43
NCA Business	7083	7507	7621	7685	7686	1.06	1.08	1.08	1.09
NCA Commute	25225	25597	25828	25779	25364	1.01	1.02	1.02	1.01
NCA Other	24591	25268	25766	26064	25720	1.03	1.05	1.06	1.05
Total Business	27259	32257	33116	34547	36753	1.18	1.21	1.27	1.35
Total Commute	87593	99444	101482	104665	109291	1.14	1.16	1.19	1.25
Total Other	66254	75970	78376	81815	85338	1.15	1.18	1.23	1.29
Air passengers (Baseline)	21253	25338	26043	26823	27936	1.19	1.23	1.26	1.31
Airport employees (Baseline)	991	1149	1168	1197	1236	1.16	1.18	1.21	1.25
TOTAL	203351	234157	240186	249047	260555	1.15	1.18	1.22	1.28

Table 17: PM (16:00-18:00) background rail demand (Future baseline)

	Demand (trips)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	9589	11833	12206	12869	13937	1.23	1.27	1.34	1.45
CA Commute	70671	84259	86516	90215	95954	1.19	1.22	1.28	1.36
CA Other	15655	19200	19948	21158	22653	1.23	1.27	1.35	1.45
NCA Business	3474	3707	3769	3803	3806	1.07	1.08	1.09	1.10
NCA Commute	29672	30410	30760	30708	30213	1.02	1.04	1.03	1.02
NCA Other	9210	9532	9733	9853	9731	1.03	1.06	1.07	1.06
Total Business	13062	15540	15974	16672	17743	1.19	1.22	1.28	1.36
Total Commute	100343	114670	117276	120923	126167	1.14	1.17	1.21	1.26
Total Other	24865	28733	29681	31012	32384	1.16	1.19	1.25	1.30
Air passengers (Baseline)	5886	7640	7827	8191	8909	1.30	1.33	1.39	1.51
Airport employees (Baseline)	508	575	583	596	613	1.13	1.15	1.17	1.21
TOTAL	144664	167158	171343	177394	185816	1.16	1.18	1.23	1.28

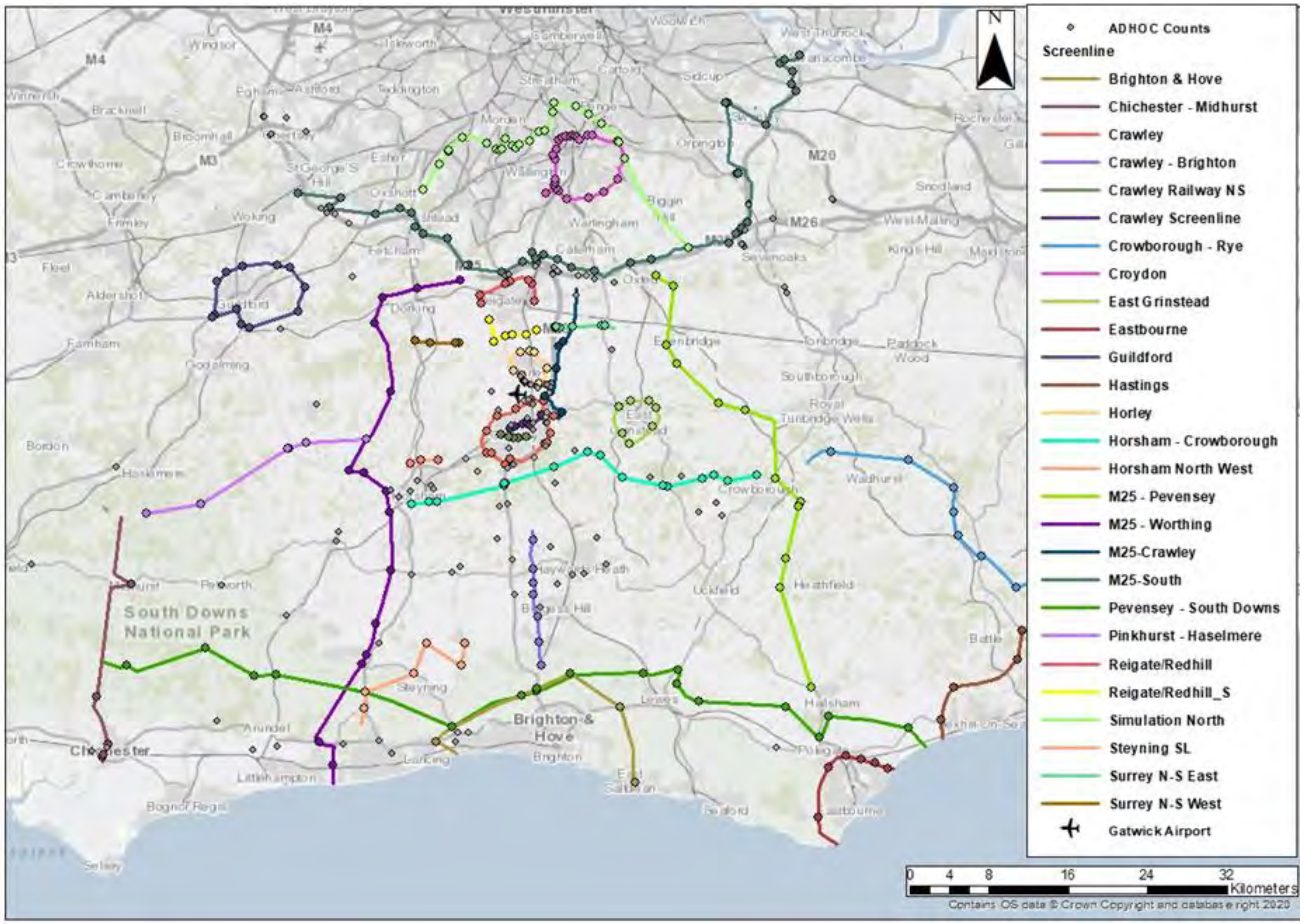
Table 18: OP (18:00-07:00) background rail demand (Future baseline)

	Demand (trips)					Growth from 2016			
	2016	2029	2032	2038	2047	2029	2032	2038	2047
CA Business	11622	14204	14625	15393	16626	1.22	1.26	1.32	1.43
CA Commute	86043	101812	104324	108841	115880	1.18	1.21	1.26	1.35
CA Other	23927	29313	30441	32306	34615	1.23	1.27	1.35	1.45
NCA Business	4193	4393	4453	4476	4456	1.05	1.06	1.07	1.06
NCA Commute	34759	35203	35534	35486	34933	1.01	1.02	1.02	1.01
NCA Other	14321	14742	15037	15218	15027	1.03	1.05	1.06	1.05
Total Business	15815	18598	19078	19869	21082	1.18	1.21	1.26	1.33
Total Commute	120802	137015	139858	144328	150813	1.13	1.16	1.19	1.25
Total Other	38248	44054	45478	47524	49643	1.15	1.19	1.24	1.30
Air passengers (Baseline)	14425	20221	21304	22351	23017	1.40	1.48	1.55	1.60
Airport employees (Baseline)	1452	1686	1714	1757	1815	1.16	1.18	1.21	1.25
TOTAL	190742	221574	227432	235827	246370	1.16	1.19	1.24	1.29

Appendix F

Screenline Changes

Figure 1: Screenline Locations



Primary Screenlines

Table 19: Forecast Flow against Primary Screenlines 2029

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU
Crawley	16,470	19,627	19.2%	19,584	-0.3%	17,853	21,619	21.1%	21,609	-0.1%	11,826	15,005	26.9%	14,932	-0.6%	17,406	20,783	19.4%	20,700	-0.5%
Crawley Railway NS	5,355	6,225	16.2%	6,217	-0.1%	6,878	7,809	13.5%	7,801	-0.1%	5,566	6,412	15.2%	6,391	-0.4%	6,816	7,515	10.3%	7,505	-0.2%
Crawley Screenline	5,053	6,237	23.4%	6,253	0.3%	6,707	8,147	21.5%	8,142	-0.1%	5,779	6,735	16.5%	6,732	0.0%	7,486	9,217	23.1%	9,200	-0.2%
East Grinstead	5,685	6,324	11.2%	6,331	0.1%	6,551	7,404	13.0%	7,406	0.0%	4,972	5,635	13.4%	5,636	0.0%	6,359	7,009	10.2%	7,000	-0.1%
Horley	6,311	7,997	26.7%	8,001	0.1%	7,515	9,026	20.1%	9,008	-0.2%	5,780	7,510	29.9%	7,511	0.0%	7,323	9,554	30.5%	9,553	0.0%
Horsham	2,065	3,105	50.3%	3,102	-0.1%	2,423	3,501	44.5%	3,500	-0.1%	1,471	2,230	51.6%	2,230	0.0%	2,197	3,739	70.2%	3,734	-0.2%
Reigate/Redhill	6,583	7,623	15.8%	7,645	0.3%	7,003	8,374	19.6%	8,379	0.1%	5,288	6,354	20.2%	6,362	0.1%	7,135	8,389	17.6%	8,379	-0.1%
Reigate/Redhill_S	4,206	4,973	18.2%	4,998	0.6%	4,632	5,466	18.0%	5,486	0.4%	3,187	4,108	28.9%	4,122	0.4%	4,548	5,194	14.2%	5,182	-0.3%
Surrey N-S_West	2,922	3,344	14.4%	3,358	0.5%	2,804	3,312	18.1%	3,310	-0.1%	1,883	2,208	17.3%	2,211	0.1%	2,805	3,413	21.7%	3,413	0.0%
Horsham - Crowborough	14,608	16,970	16.2%	16,975	0.0%	15,623	18,361	17.5%	18,364	0.0%	11,512	13,681	18.8%	13,674	-0.1%	16,128	18,834	16.8%	18,788	-0.3%
M25 - Crawley	4,233	5,166	22.0%	5,174	0.2%	4,684	5,735	22.4%	5,734	0.0%	3,252	3,981	22.4%	3,984	0.1%	4,622	5,525	19.5%	5,515	-0.2%
Surrey N-S_East	11,141	14,258	28.0%	14,381	1.1%	10,616	14,210	33.9%	14,325	1.1%	9,355	11,134	19.0%	11,169	0.4%	11,409	14,369	25.9%	14,320	-0.4%

Table 20: Forecast Flow against Primary Screenlines 2032

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU
Crawley	16,470	20,249	22.9%	20,410	1.0%	17,853	22,337	25.1%	22,284	-0.3%	11,826	15,648	32.3%	15,680	0.3%	17,406	21,378	22.8%	21,583	1.2%
Crawley Railway NS	5,355	6,350	18.6%	6,332	-0.3%	6,878	7,861	14.3%	7,852	-0.1%	5,566	6,593	18.4%	6,604	0.2%	6,816	7,690	12.8%	7,722	0.5%
Crawley Screenline	5,053	6,491	28.5%	6,499	0.2%	6,707	8,357	24.6%	8,284	-1.1%	5,779	6,989	20.9%	7,022	0.6%	7,486	9,546	27.5%	9,548	0.0%
East Grinstead	5,685	6,466	13.7%	6,545	1.4%	6,551	7,564	15.5%	7,622	0.9%	4,972	5,776	16.2%	5,802	0.5%	6,359	7,187	13.0%	7,210	0.4%
Horley	6,311	8,164	29.4%	8,266	1.6%	7,515	8,925	18.8%	9,188	3.5%	5,780	7,741	33.9%	7,746	0.1%	7,323	9,751	33.2%	9,740	-0.2%
Horsham	2,065	3,265	58.1%	3,260	-0.2%	2,423	3,805	57.1%	3,783	-0.9%	1,471	2,483	68.8%	2,459	-1.7%	2,197	3,941	79.4%	3,931	-0.5%
Reigate/Redhill	6,583	7,816	18.7%	7,724	-1.4%	7,003	8,573	22.4%	8,496	-1.1%	5,288	6,571	24.3%	6,508	-1.2%	7,135	8,622	20.9%	8,677	0.8%
Reigate/Redhill_S	4,206	5,036	19.7%	5,064	0.7%	4,632	5,692	22.9%	5,591	-2.2%	3,187	4,245	33.2%	4,195	-1.6%	4,548	5,319	17.0%	5,457	3.0%
Surrey N-S_West	2,922	3,357	14.9%	3,391	1.2%	2,804	3,404	21.4%	3,414	0.3%	1,883	2,299	22.1%	2,292	-0.4%	2,805	3,551	26.6%	3,533	-0.6%
Horsham - Crowborough	14,608	17,469	19.6%	17,567	0.7%	15,623	19,123	22.4%	19,248	0.8%	11,512	14,323	24.4%	14,422	0.9%	16,128	19,500	20.9%	19,529	0.2%
M25 - Crawley	4,233	5,326	25.8%	5,335	0.2%	4,684	5,875	25.4%	5,895	0.4%	3,252	4,127	26.9%	4,130	0.1%	4,622	5,725	23.9%	5,682	-0.9%
Surrey N-S_East	11,141	14,760	32.5%	15,406	5.8%	10,616	14,812	39.5%	15,315	4.7%	9,355	11,552	23.5%	11,905	3.8%	11,409	14,875	30.4%	15,239	3.2%

Table 21: Forecast Flow against Primary Screenlines 2038

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU
Crawley	16,470	21,140	28.3%	21,339	1.2%	17,853	23,313	30.6%	23,307	0.0%	11,826	16,523	39.7%	16,615	0.8%	17,406	22,173	27.4%	22,531	2.1%
Crawley Railway NS	5,355	6,526	21.9%	6,537	0.2%	6,878	7,970	15.9%	8,003	0.5%	5,566	6,832	22.7%	6,867	0.6%	6,816	7,960	16.8%	8,025	1.0%
Crawley Screenline	5,053	6,875	36.1%	7,050	3.5%	6,707	8,624	28.6%	8,654	0.5%	5,779	7,363	27.4%	7,477	2.0%	7,486	10,038	34.1%	10,139	1.3%
East Grinstead	5,685	6,803	19.7%	6,927	2.2%	6,551	7,896	20.5%	7,982	1.3%	4,972	6,044	21.6%	6,098	1.1%	6,359	7,529	18.4%	7,571	0.7%
Horley	6,311	8,343	32.2%	8,516	2.8%	7,515	9,010	19.9%	9,282	3.6%	5,780	8,114	40.4%	8,122	0.1%	7,323	10,070	37.5%	10,015	-0.8%
Horsham	2,065	3,415	65.3%	3,415	0.0%	2,423	3,974	64.0%	3,953	-0.8%	1,471	2,693	83.0%	2,670	-1.6%	2,197	4,092	86.2%	4,075	-0.7%
Reigate/Redhill	6,583	8,089	22.9%	8,034	-0.8%	7,003	8,931	27.5%	8,860	-1.0%	5,288	6,877	30.1%	6,824	-1.0%	7,135	8,948	25.4%	8,980	0.4%
Reigate/Redhill_S	4,206	5,270	25.3%	5,252	-0.4%	4,632	5,978	29.1%	5,907	-1.5%	3,187	4,439	39.3%	4,370	-2.2%	4,548	5,445	19.7%	5,646	4.4%
Surrey N-S_West	2,922	3,472	18.8%	3,479	0.3%	2,804	3,536	26.1%	3,550	0.5%	1,883	2,457	30.5%	2,442	-0.8%	2,805	3,767	34.3%	3,739	-1.0%
Horsham - Crowborough	14,608	18,376	25.8%	18,461	0.6%	15,623	20,105	28.7%	20,231	0.8%	11,512	15,206	32.1%	15,374	1.5%	16,128	20,423	26.6%	20,496	0.5%
M25 - Crawley	4,233	5,518	30.4%	5,509	-0.2%	4,684	6,114	30.5%	6,083	-0.7%	3,252	4,341	33.5%	4,345	0.1%	4,622	5,955	28.8%	5,789	-3.6%
Surrey N-S_East	11,141	15,481	39.0%	16,049	5.1%	10,616	15,580	46.8%	15,954	3.5%	9,355	12,130	29.7%	12,606	5.1%	11,409	15,569	36.5%	15,906	2.9%

Table 22: Forecast Flow against Primary Screenlines 2047

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU
Crawley	16,470	22,077	34.0%	22,271	1.2%	17,853	24,139	35.2%	24,364	1.3%	11,826	17,565	48.5%	17,623	0.5%	17,406	22,992	32.1%	23,225	1.3%
Crawley Railway NS	5,355	6,576	22.8%	6,620	0.8%	6,878	7,970	15.9%	8,029	0.9%	5,566	7,071	27.0%	7,108	0.7%	6,816	8,248	21.0%	8,303	0.8%
Crawley Screenline	5,053	7,337	45.2%	7,445	2.1%	6,707	8,929	33.1%	9,037	1.6%	5,779	7,834	35.6%	7,982	2.5%	7,486	10,555	41.0%	10,616	0.8%
East Grinstead	5,685	7,168	26.1%	7,302	2.4%	6,551	8,384	28.0%	8,508	1.9%	4,972	6,387	28.5%	6,437	1.0%	6,359	7,917	24.5%	7,930	0.2%
Horley	6,311	8,633	36.8%	8,876	3.9%	7,515	9,606	27.8%	9,649	0.6%	5,780	8,550	47.9%	8,505	-0.8%	7,323	10,268	40.2%	10,357	1.2%
Horsham	2,065	3,628	75.7%	3,641	0.6%	2,423	4,259	75.8%	4,233	-1.1%	1,471	2,939	99.7%	2,922	-1.1%	2,197	4,346	97.8%	4,331	-0.7%
Reigate/Redhill	6,583	8,373	27.2%	8,347	-0.4%	7,003	9,197	31.3%	9,158	-0.6%	5,288	7,219	36.5%	7,170	-0.9%	7,135	9,328	30.7%	9,300	-0.4%
Reigate/Redhill_S	4,206	5,577	32.6%	5,587	0.2%	4,632	5,730	23.7%	5,961	5.0%	3,187	4,589	44.0%	4,559	-0.9%	4,548	5,625	23.7%	5,839	4.7%
Surrey N-S_West	2,922	3,599	23.2%	3,601	0.0%	2,804	3,744	33.5%	3,707	-1.3%	1,883	2,686	42.6%	2,666	-1.1%	2,805	4,035	43.8%	3,997	-1.4%
Horsham - Crowborough	14,608	19,217	31.5%	19,294	0.5%	15,623	21,016	34.5%	21,099	0.5%	11,512	16,109	39.9%	16,226	1.0%	16,128	21,331	32.3%	21,355	0.1%
M25 - Crawley	4,233	5,759	36.1%	5,751	-0.2%	4,684	6,246	33.3%	6,172	-1.6%	3,252	4,612	41.8%	4,604	-0.2%	4,622	6,094	31.8%	6,008	-1.9%
Surrey N-S_East	11,141	16,032	43.9%	16,517	4.4%	10,616	16,004	50.8%	16,206	1.9%	9,355	12,783	36.6%	13,216	4.6%	11,409	16,132	41.4%	16,411	2.4%

Secondary Screenlines

Table 23: Forecast Flow against Secondary Screenlines 2029

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU
Croydon	29,927	33,225	11.0%	33,410	0.6%	27,296	31,550	15.6%	31,645	0.3%	22,970	25,649	11.7%	25,601	-0.2%	28,867	31,368	8.7%	31,343	-0.1%
M25 - Pevensey	8,620	9,850	14.3%	9,858	0.1%	8,840	10,198	15.4%	10,189	-0.1%	6,426	7,291	13.5%	7,291	0.0%	8,807	9,795	11.2%	9,794	0.0%
M25 - Worthing	17,060	18,701	9.6%	18,731	0.2%	17,329	19,468	12.3%	19,478	0.1%	13,558	15,526	14.5%	15,521	0.0%	17,937	19,682	9.7%	19,674	0.0%
M25 South	61,332	68,034	10.9%	68,086	0.1%	55,565	63,004	13.4%	63,056	0.1%	44,691	50,817	13.7%	50,808	0.0%	60,079	67,694	12.7%	67,664	0.0%
Pevensey - South Downs	23,599	26,812	13.6%	26,812	0.0%	23,441	27,033	15.3%	27,033	0.0%	18,026	20,763	15.2%	20,761	0.0%	24,607	27,600	12.2%	27,590	0.0%
Simulation North	31,208	32,520	4.2%	32,609	0.3%	27,780	29,852	7.5%	29,910	0.2%	25,595	26,985	5.4%	27,017	0.1%	30,705	31,968	4.1%	31,940	-0.1%
Crawley - Brighton	6,274	6,912	10.2%	6,909	-0.1%	7,547	8,548	13.3%	8,547	0.0%	5,562	6,288	13.1%	6,286	0.0%	7,308	8,144	11.4%	8,138	-0.1%
Steyning SL	7,728	7,980	3.3%	7,968	-0.2%	6,970	7,751	11.2%	7,743	-0.1%	5,351	6,199	15.9%	6,197	0.0%	7,200	8,616	19.7%	8,614	0.0%

Table 24: Forecast Flow against Secondary Screenlines 2032

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU
Croydon	29,927	33,413	11.6%	33,592	0.6%	27,296	32,213	18.0%	32,243	0.1%	22,970	26,227	14.2%	26,264	0.2%	28,867	31,827	10.3%	31,842	0.1%
M25 - Pevensey	8,620	10,180	18.1%	10,199	0.2%	8,840	10,546	19.3%	10,560	0.1%	6,426	7,576	17.9%	7,584	0.1%	8,807	10,080	14.5%	10,099	0.2%
M25 - Worthing	17,060	19,117	12.1%	19,191	0.4%	17,329	19,968	15.2%	20,012	0.3%	13,558	16,007	18.1%	16,054	0.3%	17,937	20,036	11.7%	20,090	0.3%
M25 South	61,332	69,314	13.0%	69,426	0.2%	55,565	64,783	16.6%	64,866	0.1%	44,691	52,564	17.6%	52,650	0.2%	60,079	69,485	15.7%	69,515	0.0%
Pevensey - South Downs	23,599	27,436	16.3%	27,488	0.2%	23,441	27,838	18.8%	27,885	0.2%	18,026	21,463	19.1%	21,498	0.2%	24,607	28,278	14.9%	28,274	0.0%
Simulation North	31,208	32,994	5.7%	33,057	0.2%	27,780	30,658	10.4%	30,569	-0.3%	25,595	27,522	7.5%	27,537	0.1%	30,705	32,539	6.0%	32,546	0.0%
Crawley - Brighton	6,274	7,061	12.6%	7,064	0.0%	7,547	8,759	16.1%	8,753	-0.1%	5,562	6,514	17.1%	6,528	0.3%	7,308	8,277	13.3%	8,284	0.1%
Steyning SL	7,728	7,974	3.2%	8,048	1.0%	6,970	7,693	10.4%	7,770	1.1%	5,351	6,488	21.3%	6,502	0.3%	7,200	8,827	22.6%	8,837	0.1%

Table 25: Forecast Flow against Secondary Screenlines 2038

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU
Croydon	29,927	33,751	12.8%	33,856	0.3%	27,296	32,792	20.1%	32,575	-0.8%	22,970	27,318	18.9%	27,338	0.1%	28,867	32,663	13.1%	32,675	0.0%
M25 - Pevensey	8,620	10,685	24.0%	10,665	-0.2%	8,840	11,178	26.4%	11,273	1.1%	6,426	8,040	25.1%	8,062	0.3%	8,807	10,551	19.8%	10,577	0.3%
M25 - Worthing	17,060	19,789	16.0%	19,828	0.2%	17,329	20,490	18.2%	20,383	-0.6%	13,558	16,820	24.1%	16,919	0.7%	17,937	20,645	15.1%	20,729	0.5%
M25 South	61,332	71,647	16.8%	71,734	0.1%	55,565	67,308	21.1%	67,687	0.7%	44,691	55,020	23.1%	55,098	0.2%	60,079	71,877	19.6%	71,874	0.0%
Pevensey - South Downs	23,599	28,512	20.8%	28,544	0.1%	23,441	28,874	23.2%	28,866	0.0%	18,026	22,636	25.6%	22,716	0.4%	24,607	29,529	20.0%	29,525	0.0%
Simulation North	31,208	33,660	7.9%	33,783	0.4%	27,780	31,323	12.8%	31,439	0.4%	25,595	28,775	12.4%	28,768	0.0%	30,705	33,610	9.5%	33,614	0.0%
Crawley - Brighton	6,274	7,356	17.2%	7,413	0.9%	7,547	9,082	20.3%	9,026	-0.7%	5,562	6,843	23.0%	6,906	1.1%	7,308	8,573	17.3%	8,594	0.3%
Steyning SL	7,728	8,050	4.2%	8,064	0.2%	6,970	7,855	12.7%	8,144	4.1%	5,351	6,993	30.7%	7,045	1.0%	7,200	8,879	23.3%	8,913	0.5%

Table 26: Forecast Flow against Secondary Screenlines 2047

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU
Croydon	29,927	33,912	13.3%	34,450	1.8%	27,296	33,269	21.9%	33,705	1.6%	22,970	28,426	23.8%	28,541	0.5%	28,867	33,496	16.0%	33,506	0.0%
M25 - Pevensey	8,620	11,269	30.7%	11,314	0.5%	8,840	12,113	37.0%	12,051	-0.7%	6,426	8,585	33.6%	8,616	0.5%	8,807	11,025	25.2%	11,043	0.2%
M25 - Worthing	17,060	20,318	19.1%	20,393	0.4%	17,329	21,021	21.3%	21,068	0.3%	13,558	17,593	29.8%	17,663	0.5%	17,937	21,299	18.7%	21,396	0.5%
M25 South	61,332	74,413	21.3%	74,507	0.2%	55,565	70,577	27.0%	70,304	-0.5%	44,691	57,832	29.4%	57,842	0.0%	60,079	75,258	25.3%	75,360	0.2%
Pevensey - South Downs	23,599	29,623	25.5%	29,681	0.2%	23,441	29,729	26.8%	29,753	0.1%	18,026	23,937	32.8%	23,983	0.3%	24,607	30,568	24.2%	30,561	0.0%
Simulation North	31,208	34,701	11.2%	34,862	0.5%	27,780	32,879	18.4%	32,635	-0.9%	25,595	30,056	17.4%	30,033	-0.1%	30,705	34,861	13.5%	34,819	-0.1%
Crawley - Brighton	6,274	7,731	23.2%	7,798	1.1%	7,547	9,300	23.2%	9,284	-0.2%	5,562	7,226	29.9%	7,279	1.0%	7,308	8,892	21.7%	8,930	0.5%
Steyning SL	7,728	8,213	6.3%	8,262	0.6%	6,970	8,289	18.9%	8,337	0.7%	5,351	6,952	29.9%	6,999	0.9%	7,200	9,143	27.0%	9,163	0.3%

Tertiary Screenlines

Table 27: Forecast Flow against Tertiary Screenlines 2029

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU	Base Total	BAU 2029 Total	BAU %Diff from base	NRP 2029 Total	NRP %Diff from BAU
Brighton & Hove	20,677	22,582	9.2%	22,586	0.0%	19,935	22,717	14.0%	22,737	0.1%	15,299	17,603	15.1%	17,596	0.0%	20,103	22,205	10.5%	22,194	-0.1%
Chichester - Midhurst	6,384	7,088	11.0%	7,089	0.0%	6,480	7,341	13.3%	7,341	0.0%	6,306	7,075	12.2%	7,069	-0.1%	7,561	8,245	9.0%	8,266	0.3%
Crowborough - Rye	5,621	6,675	18.7%	6,675	0.0%	6,022	7,136	18.5%	7,144	0.1%	4,678	5,591	19.5%	5,589	0.0%	6,202	7,292	17.6%	7,292	0.0%
Eastbourne	7,526	8,361	11.1%	8,356	-0.1%	8,785	9,664	10.0%	9,672	0.1%	7,221	8,074	11.8%	8,070	-0.1%	8,930	9,798	9.7%	9,800	0.0%
Guildford	27,627	30,437	10.2%	30,435	0.0%	25,429	28,832	13.4%	28,859	0.1%	21,453	24,256	13.1%	24,289	0.2%	26,422	29,241	10.7%	29,244	0.0%
Hastings	5,796	6,558	13.2%	6,558	0.0%	6,275	7,029	12.0%	7,026	0.0%	5,027	5,742	14.2%	5,741	0.0%	6,591	7,377	11.9%	7,369	-0.1%
Pinkhurst - Haselmere	3,158	3,535	11.9%	3,539	0.1%	3,184	3,684	15.7%	3,685	0.0%	2,393	2,931	22.5%	2,931	0.0%	3,243	3,738	15.3%	3,739	0.1%

Table 28: Forecast Flow against Tertiary Screenlines 2032

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU	Base Total	BAU 2032 Total	BAU %Diff from base	NRP 2032 Total	NRP %Diff from BAU
Brighton & Hove	20,677	22,987	11.2%	22,995	0.0%	19,935	23,142	16.1%	23,170	0.1%	15,299	18,137	18.6%	18,162	0.2%	20,103	22,660	12.7%	22,676	0.1%
Chichester - Midhurst	6,384	7,295	14.3%	7,335	0.6%	6,480	7,601	17.3%	7,654	0.8%	6,306	7,310	15.9%	7,337	0.4%	7,561	8,361	10.6%	8,367	0.1%
Crowborough - Rye	5,621	6,931	23.3%	6,927	-0.1%	6,022	7,426	23.3%	7,446	0.3%	4,678	5,846	25.0%	5,844	-0.1%	6,202	7,574	22.1%	7,591	0.3%
Eastbourne	7,526	8,575	13.9%	8,592	0.2%	8,785	9,867	12.3%	9,875	0.1%	7,221	8,240	14.1%	8,246	0.1%	8,930	10,018	12.2%	10,033	0.2%
Guildford	27,627	31,256	13.1%	31,299	0.2%	25,429	29,588	16.4%	29,600	0.0%	21,453	25,102	17.0%	25,136	0.2%	26,422	29,951	13.4%	29,988	0.1%
Hastings	5,796	6,778	16.9%	6,775	-0.1%	6,275	7,245	15.5%	7,252	0.1%	5,027	5,906	17.5%	5,910	0.1%	6,591	7,575	14.9%	7,597	0.3%
Pinkhurst - Haselmere	3,158	3,698	17.1%	3,690	-0.2%	3,184	3,826	20.2%	3,831	0.1%	2,393	3,055	27.7%	3,068	0.6%	3,243	3,870	19.3%	3,885	0.5%

Table 29: Forecast Flow against Tertiary Screenlines 2038

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU	Base Total	BAU 2038 Total	BAU %Diff from base	NRP 2038 Total	NRP %Diff from BAU
Brighton & Hove	20,677	23,370	13.0%	23,439	0.3%	19,935	23,460	17.7%	23,600	0.7%	15,299	19,026	24.4%	19,091	0.4%	20,103	23,505	16.9%	23,511	0.0%
Chichester - Midhurst	6,384	7,628	19.5%	7,689	1.0%	6,480	7,914	22.1%	7,991	1.2%	6,306	7,644	21.2%	7,677	0.5%	7,561	8,619	14.0%	8,647	0.4%
Crowborough - Rye	5,621	7,404	31.7%	7,451	0.8%	6,022	7,960	32.2%	7,998	0.6%	4,678	6,311	34.9%	6,314	0.1%	6,202	8,080	30.3%	8,094	0.2%
Eastbourne	7,526	8,973	19.2%	8,980	0.1%	8,785	10,202	16.1%	10,211	0.1%	7,221	8,567	18.6%	8,571	0.0%	8,930	10,407	16.5%	10,415	0.1%
Guildford	27,627	32,359	17.1%	32,279	-0.3%	25,429	30,657	20.6%	30,686	0.1%	21,453	26,290	22.5%	26,307	0.1%	26,422	31,013	17.4%	31,048	0.1%
Hastings	5,796	7,198	24.2%	7,204	0.1%	6,275	7,615	21.4%	7,601	-0.2%	5,027	6,227	23.9%	6,226	0.0%	6,591	8,006	21.5%	8,022	0.2%
Pinkhurst - Haselmere	3,158	3,943	24.9%	3,949	0.2%	3,184	4,065	27.7%	4,099	1.1%	2,393	3,296	37.8%	3,309	0.5%	3,243	4,094	26.2%	4,117	0.7%

Table 30: Forecast Flow against Tertiary Screenlines 2047

	AM1					AM2					IP					PM				
Screenline Two-Way	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU	Base Total	BAU 2047 Total	BAU %Diff from base	NRP 2047 Total	NRP %Diff from BAU
Brighton & Hove	20,677	23,611	14.2%	23,663	0.3%	19,935	23,781	19.3%	23,790	0.0%	15,299	19,928	30.3%	19,973	0.3%	20,103	24,193	20.3%	24,198	0.0%
Chichester - Midhurst	6,384	7,872	23.3%	7,967	1.5%	6,480	8,134	25.5%	8,194	0.9%	6,306	7,864	24.7%	7,897	0.5%	7,561	8,784	16.2%	8,790	0.1%
Crowborough - Rye	5,621	7,923	41.0%	7,935	0.2%	6,022	8,532	41.7%	8,546	0.2%	4,678	6,803	45.4%	6,808	0.1%	6,202	8,586	38.4%	8,603	0.3%
Eastbourne	7,526	9,395	24.8%	9,405	0.1%	8,785	10,612	20.8%	10,643	0.3%	7,221	8,981	24.4%	8,995	0.2%	8,930	10,795	20.9%	10,805	0.1%
Guildford	27,627	33,252	20.4%	33,257	0.0%	25,429	31,525	24.0%	31,549	0.1%	21,453	27,272	27.1%	27,290	0.1%	26,422	31,927	20.8%	31,935	0.0%
Hastings	5,796	7,670	32.3%	7,663	-0.1%	6,275	7,970	27.0%	7,977	0.1%	5,027	6,591	31.1%	6,583	-0.2%	6,591	8,464	28.4%	8,469	0.1%
Pinkhurst - Haselmere	3,158	4,188	32.6%	4,202	0.4%	3,184	4,358	36.9%	4,369	0.3%	2,393	3,532	47.6%	3,543	0.4%	3,243	4,328	33.5%	4,330	0.1%

Appendix G

24hr Load Factors

Future baseline

2029

Table 31: Brighton Main Line, Northbound, Fast, Future baseline 2029

Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
BAU_29				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-636	36-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Fasts	NB	00:00	OP2	3	1,870	2,208	4,078	85	205	205	205	205	205	205	205	205	205	251	82	51	0
	NB	01:00	OP2	1	838	989	1,827	26	63	63	63	63	63	63	63	63	63	78	25	16	0
	NB	02:00	OP2	1	419	495	913	8	18	18	18	18	18	18	18	18	18	23	7	5	0
	NB	03:00	OP2	1	688	813	1,501	10	25	25	25	25	25	25	25	25	25	30	10	6	0
	NB	04:00	OP3	2	1,137	1,263	2,400	50	58	58	58	58	58	58	58	58	58	13	12	61	61
	NB	05:00	OP3	2	1,503	1,669	3,172	404	468	468	468	468	468	468	468	468	468	107	96	490	490
	NB	06:00	OP3	12	7,245	8,044	15,288	3,835	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	4,444	1,014	911	4,658	4,658
	NB	07:00	AM	16	10,475	10,098	20,573	6,402	7,921	7,954	7,954	7,954	7,954	7,954	7,954	7,954	7,954	4,901	4,494	6,133	6,133
	NB	08:00	AM	18	11,178	10,777	21,955	7,818	9,674	9,714	9,714	9,714	9,714	9,714	9,714	9,714	9,714	5,985	5,488	7,490	7,490
	NB	09:00	IP	14	8,433	7,392	15,825	3,700	7,154	7,154	7,154	7,154	7,154	7,154	7,154	7,154	7,154	4,860	3,784	3,548	3,548
	NB	10:00	IP	14	8,577	7,518	16,095	2,373	4,588	4,587	4,587	4,587	4,587	4,587	4,587	4,587	4,587	3,116	2,426	2,275	2,275
	NB	11:00	IP	14	8,210	7,197	15,407	1,988	3,844	3,844	3,844	3,844	3,844	3,844	3,844	3,844	3,844	2,612	2,033	1,907	1,907
	NB	12:00	IP	14	8,408	7,371	15,779	1,650	3,191	3,191	3,191	3,191	3,191	3,191	3,191	3,191	3,191	2,167	1,688	1,583	1,583
	NB	13:00	IP	13	7,834	6,867	14,701	1,336	2,583	2,583	2,583	2,583	2,583	2,583	2,583	2,583	2,583	1,755	1,366	1,281	1,281
	NB	14:00	IP	13	7,834	6,867	14,701	1,154	2,231	2,231	2,231	2,231	2,231	2,231	2,231	2,231	2,231	1,516	1,180	1,107	1,107
	NB	15:00	IP	13	8,002	7,015	15,017	1,044	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	1,371	1,067	1,001	1,001
	NB	16:00	PM	16	9,901	9,957	19,858	1,861	3,211	3,211	3,211	3,211	3,211	3,211	3,211	3,211	3,211	2,590	1,296	2,509	2,509
	NB	17:00	PM	17	10,554	10,613	21,167	2,367	4,082	4,082	4,082	4,082	4,082	4,082	4,082	4,082	4,082	3,293	1,648	3,191	3,191
	NB	18:00	OP1	16	9,727	8,564	18,291	1,369	4,755	4,755	4,755	4,755	4,755	4,755	4,755	4,755	4,755	3,500	2,491	2,482	2,482
	NB	19:00	OP1	13	7,882	6,939	14,821	891	3,093	3,093	3,093	3,093	3,093	3,093	3,093	3,093	3,093	2,277	1,620	1,614	1,614
	NB	20:00	OP1	14	8,276	7,286	15,563	619	2,151	2,151	2,151	2,151	2,151	2,151	2,151	2,151	2,151	1,583	1,127	1,123	1,123
	NB	21:00	OP1	15	8,686	7,647	16,333	498	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,272	906	902	902
	NB	22:00	OP1	13	7,507	6,610	14,117	334	1,159	1,159	1,159	1,159	1,159	1,159	1,159	1,159	1,159	853	607	605	605
	NB	23:00	OP1	11	6,318	5,563	11,881	364	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	1,265	931	663	660	660

Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
			35	30	47	43	40	33	28	24	22	18	17	7	14	12
			Seated load factor on departure													
NB	00:00	OP2	0.05	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.43	0.14	0.04	0.00
NB	01:00	OP2	0.03	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.30	0.10	0.03	0.00
NB	02:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.17	0.06	0.02	0.00
NB	03:00	OP2	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.14	0.05	0.01	0.00
NB	04:00	OP3	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.09	0.09
NB	05:00	OP3	0.27	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.18	0.16	0.54	0.54
NB	06:00	OP3	0.53	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.35	0.31	1.07	1.07
NB	07:00	AM	0.61	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.92	0.84	1.20	1.20
NB	08:00	AM	0.70	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	1.05	0.96	1.37	1.37
NB	09:00	IP	0.44	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.66	1.31	1.31
NB	10:00	IP	0.28	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.54	0.42	0.82	0.82
NB	11:00	IP	0.24	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.37	0.72	0.72
NB	12:00	IP	0.20	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.30	0.58	0.58
NB	13:00	IP	0.17	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.26	0.51	0.51
NB	14:00	IP	0.15	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.29	0.22	0.44	0.44
NB	15:00	IP	0.13	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.20	0.39	0.39
NB	16:00	PM	0.19	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.43	0.21	0.65	0.65
NB	17:00	PM	0.22	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.51	0.26	0.78	0.78
NB	18:00	OP1	0.14	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.53	0.38	0.78	0.78
NB	19:00	OP1	0.11	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.43	0.31	0.63	0.63
NB	20:00	OP1	0.07	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.28	0.20	0.41	0.41
NB	21:00	OP1	0.06	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.22	0.15	0.32	0.32
NB	22:00	OP1	0.04	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.17	0.12	0.25	0.25
NB	23:00	OP1	0.06	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.22	0.16	0.32	0.32

Table 32: Brighton Main Line, Northbound, Stoppers, Future baseline 2029

BAU_29				671	671		671	2113-500	671-2114	114-211	115-211	116-82	24-211	117-259	596-81	312-253	843-636	36-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	2	1,150	1,875	3,026	27	136	135	135	133	132	131	132	133	133	151	0	48	0
	NB	01:00	OP2	1	515	840	1,356	8	42	42	42	41	41	41	41	41	41	47	0	15	0
	NB	02:00	OP2	0	258	420	678	2	12	12	12	12	12	12	12	12	12	14	0	4	0
	NB	03:00	OP2	1	423	690	1,114	3	16	16	16	16	16	16	16	16	16	18	0	6	0
	NB	04:00	OP3	1	435	576	1,011	9	12	12	12	12	12	13	18	20	20	5	4	24	24
	NB	05:00	OP3	1	575	761	1,336	75	98	98	98	97	97	104	147	160	160	39	34	191	191
	NB	06:00	OP3	5	2,771	3,668	6,439	714	927	928	928	925	926	985	1,393	1,524	1,524	372	324	1,817	1,817
	NB	07:00	AM	6	3,862	4,956	8,818	524	273	302	323	673	1,328	1,544	2,329	3,217	3,197	1,232	1,094	2,756	3,009
	NB	08:00	AM	6	4,122	5,288	9,410	640	333	369	395	822	1,622	1,886	2,844	3,929	3,904	1,505	1,336	3,366	3,675
	NB	09:00	IP	7	3,865	6,046	9,911	797	556	564	568	750	1,023	1,081	1,311	1,684	1,677	164	130	3,661	3,886
	NB	10:00	IP	7	3,931	6,150	10,081	511	357	362	364	481	656	693	841	1,080	1,075	105	84	2,348	2,492
	NB	11:00	IP	6	3,763	5,887	9,650	428	299	303	305	403	550	581	704	905	901	88	70	1,968	2,088
	NB	12:00	IP	7	3,854	6,029	9,883	356	248	252	253	334	456	482	585	751	748	73	58	1,633	1,733
	NB	13:00	IP	6	3,590	5,617	9,207	288	201	204	205	271	369	390	473	608	606	59	47	1,322	1,403
	NB	14:00	IP	6	3,590	5,617	9,207	249	173	176	177	234	319	337	409	525	523	51	41	1,142	1,212
	NB	15:00	IP	6	3,668	5,738	9,406	225	157	159	160	212	289	305	370	475	473	46	37	1,033	1,096
	NB	16:00	PM	4	2,418	3,940	6,358	254	475	324	325	327	314	313	358	424	424	0	0	1,315	1,219
	NB	17:00	PM	4	2,578	4,200	6,778	323	604	412	413	416	399	397	455	539	539	0	0	1,672	1,551
	NB	18:00	OP1	2	1,417	2,311	3,728	206	405	306	306	306	282	287	319	319	319	0	0	928	928
	NB	19:00	OP1	2	1,148	1,873	3,021	134	264	199	199	199	184	187	208	208	208	0	0	604	604
	NB	20:00	OP1	2	1,206	1,966	3,172	93	183	139	139	139	128	130	144	144	144	0	0	420	420
	NB	21:00	OP1	2	1,265	2,064	3,329	75	147	111	111	111	103	104	116	116	116	0	0	337	337
	NB	22:00	OP1	2	1,094	1,784	2,877	50	99	75	75	75	69	70	78	78	78	0	0	226	226
	NB	23:00	OP1	2	921	1,501	2,422	55	108	81	81	81	75	76	85	85	85	0	0	247	247

			35	30	47	43	40	33	28	24	22	18	17	7	14	12
			Seated LF													
Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
NB	00:00	OP2	0.02	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.12	0.12	-	-	0.04	0.00
NB	01:00	OP2	0.02	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	0.03	0.00
NB	02:00	OP2	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.02	0.00
NB	03:00	OP2	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.01	0.00
NB	04:00	OP3	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.03	0.08	0.08
NB	05:00	OP3	0.13	0.17	0.17	0.17	0.17	0.17	0.18	0.26	0.28	0.28	0.24	0.21	0.46	0.46
NB	06:00	OP3	0.26	0.33	0.33	0.33	0.33	0.33	0.36	0.50	0.55	0.55	0.47	0.41	0.92	0.92
NB	07:00	AM	0.14	0.07	0.08	0.08	0.17	0.34	0.40	0.60	0.83	0.83	0.95	0.85	1.07	1.17
NB	08:00	AM	0.16	0.08	0.09	0.10	0.20	0.39	0.46	0.69	0.95	0.95	1.09	0.97	1.23	1.34
NB	09:00	IP	0.21	0.14	0.15	0.15	0.19	0.26	0.28	0.34	0.44	0.43	0.69	0.55	1.01	1.07
NB	10:00	IP	0.13	0.09	0.09	0.09	0.12	0.17	0.18	0.21	0.27	0.27	0.44	0.35	0.64	0.68
NB	11:00	IP	0.11	0.08	0.08	0.08	0.11	0.15	0.15	0.19	0.24	0.24	0.38	0.30	0.56	0.59
NB	12:00	IP	0.09	0.06	0.07	0.07	0.09	0.12	0.13	0.15	0.19	0.19	0.31	0.25	0.45	0.48
NB	13:00	IP	0.08	0.06	0.06	0.06	0.08	0.10	0.11	0.13	0.17	0.17	0.27	0.21	0.39	0.42
NB	14:00	IP	0.07	0.05	0.05	0.05	0.07	0.09	0.09	0.11	0.15	0.15	0.23	0.18	0.34	0.36
NB	15:00	IP	0.06	0.04	0.04	0.04	0.06	0.08	0.08	0.10	0.13	0.13	0.21	0.16	0.30	0.32
NB	16:00	PM	0.11	0.20	0.13	0.13	0.14	0.13	0.13	0.15	0.18	0.18	-	-	0.54	0.50
NB	17:00	PM	0.13	0.23	0.16	0.16	0.16	0.15	0.15	0.18	0.21	0.21	-	-	0.65	0.60
NB	18:00	OP1	0.15	0.29	0.22	0.22	0.22	0.20	0.20	0.23	0.23	0.23	-	-	0.65	0.65
NB	19:00	OP1	0.12	0.23	0.17	0.17	0.17	0.16	0.16	0.18	0.18	0.18	-	-	0.53	0.53
NB	20:00	OP1	0.08	0.15	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	-	-	0.35	0.35
NB	21:00	OP1	0.06	0.12	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.09	-	-	0.27	0.27
NB	22:00	OP1	0.05	0.09	0.07	0.07	0.07	0.06	0.06	0.07	0.07	0.07	-	-	0.21	0.21
NB	23:00	OP1	0.06	0.12	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.09	-	-	0.27	0.27

Table 33: Brighton Main Line, Southbound, Fast, Future baseline 2029

BAU_29								901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-21	117-82	24-211	116-211	115-21	114-67	71-5000
				671	671		671														
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
	SB	00:00	OP2	1	490	511	1,001	5	20	0	0	104	104	104	104	104	104	104	104	104	136
	SB	01:00	OP2	1	327	341	667	1	6	0	0	32	32	32	32	32	32	32	32	32	42
	SB	02:00	OP2	0	105	109	214	0	2	0	0	9	9	9	9	9	9	9	9	9	12
	SB	03:00	OP2	1	327	341	667	1	5	0	0	24	24	24	24	24	24	24	24	24	32
	SB	04:00	OP3	4	2,130	2,136	4,265	42	46	185	185	176	176	176	176	176	176	176	176	176	39
	SB	05:00	OP3	6	3,611	3,622	7,233	86	94	375	375	356	356	356	356	356	356	356	356	356	78
	SB	06:00	OP3	11	6,916	6,936	13,852	293	320	1,278	1,278	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212	267
	SB	07:00	AM	15	8,603	9,437	18,040	1,044	1,932	2,641	2,641	2,899	2,899	2,899	2,899	2,899	2,899	2,899	2,899	2,899	1,362
	SB	08:00	AM	18	10,804	11,851	22,655	1,057	1,957	2,675	2,675	2,936	2,936	2,936	2,936	2,936	2,936	2,936	2,936	2,936	1,379
	SB	09:00	IP	21	12,830	12,619	25,450	1,211	1,638	2,010	2,010	2,885	2,885	2,885	2,885	2,885	2,886	2,886	2,886	2,888	1,468
	SB	10:00	IP	18	10,778	10,601	21,379	937	1,268	1,555	1,556	2,233	2,233	2,233	2,233	2,233	2,234	2,234	2,234	2,235	1,136
Fasts	SB	11:00	IP	16	9,874	9,711	19,585	862	1,166	1,430	1,430	2,052	2,052	2,052	2,052	2,052	2,053	2,053	2,053	2,054	1,044
	SB	12:00	IP	16	9,654	9,495	19,149	962	1,302	1,597	1,597	2,292	2,292	2,292	2,292	2,292	2,293	2,293	2,293	2,294	1,166
	SB	13:00	IP	17	10,112	9,945	20,057	1,158	1,567	1,922	1,922	2,758	2,758	2,758	2,758	2,758	2,760	2,760	2,760	2,761	1,404
	SB	14:00	IP	16	9,886	9,723	19,609	1,433	1,939	2,378	2,379	3,413	3,413	3,413	3,413	3,413	3,415	3,415	3,415	3,417	1,737
	SB	15:00	IP	18	10,807	10,629	21,437	1,994	2,697	3,308	3,309	4,748	4,748	4,748	4,748	4,748	4,750	4,750	4,750	4,753	2,417
	SB	16:00	PM	15	9,484	9,461	18,944	3,911	4,512	4,324	4,525	6,115	6,115	6,115	6,115	6,115	6,115	6,115	6,115	6,118	3,968
	SB	17:00	PM	18	11,424	11,396	22,821	5,769	6,656	6,379	6,676	9,020	9,020	9,020	9,020	9,020	9,020	9,020	9,020	9,025	5,853
	SB	18:00	OP1	17	10,053	9,239	19,292	5,086	5,419	6,086	6,129	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,680	8,679	7,082
	SB	19:00	OP1	12	7,404	6,804	14,207	2,872	3,060	3,437	3,461	4,901	4,901	4,901	4,901	4,901	4,901	4,901	4,901	4,900	3,999
	SB	20:00	OP1	14	8,404	7,723	16,126	1,912	2,037	2,288	2,305	3,263	3,263	3,263	3,263	3,263	3,263	3,263	3,263	3,263	2,662
	SB	21:00	OP1	14	8,249	7,581	15,830	1,475	1,572	1,765	1,778	2,517	2,517	2,517	2,517	2,517	2,517	2,517	2,517	2,517	2,054
	SB	22:00	OP1	11	6,642	6,104	12,746	1,437	1,531	1,719	1,732	2,452	2,452	2,452	2,452	2,452	2,452	2,452	2,452	2,452	2,001
	SB	23:00	OP1	8	5,058	4,649	9,707	666	710	797	803	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,136	927

Hour beginning	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
00:00	0.02	0.09	0.00	0.00	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.28
01:00	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13
02:00	0.01	0.03	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.11
03:00	0.01	0.03	0.00	0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.10
04:00	0.04	0.04	0.19	0.19	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.02
05:00	0.04	0.05	0.22	0.22	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.02
06:00	0.08	0.09	0.39	0.39	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.04
07:00	0.23	0.43	0.64	0.64	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.16
08:00	0.19	0.35	0.52	0.52	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.13
09:00	0.17	0.23	0.35	0.35	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.11
10:00	0.16	0.21	0.32	0.32	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.11
11:00	0.16	0.21	0.32	0.32	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.11
12:00	0.18	0.25	0.37	0.37	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.12
13:00	0.21	0.28	0.42	0.42	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.14
14:00	0.26	0.36	0.53	0.53	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.18
15:00	0.34	0.45	0.68	0.68	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.22
16:00	0.75	0.87	1.01	1.06	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.65	0.42
17:00	0.92	1.06	1.24	1.30	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.51
18:00	0.81	0.86	1.62	1.63	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.70
19:00	0.62	0.66	1.24	1.25	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.54
20:00	0.36	0.39	0.73	0.73	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.32
21:00	0.29	0.30	0.57	0.58	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.25
22:00	0.35	0.37	0.69	0.70	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.30
23:00	0.21	0.22	0.42	0.42	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.18

Table 34: Brighton Main Line, Southbound, Stoppers, Future baseline 2029

BAU_29					671	671	671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Stoppers						Mins JT (London) -->		-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	2	1,362	1,994	3,356	5	21	0	0	405	405	396	394	393	393	393	393	393	218
	SB	01:00	OP2	2	908	1,328	2,236	2	6	0	0	124	124	121	121	121	120	120	120	120	67
	SB	02:00	OP2	1	292	427	719	0	2	0	0	35	35	34	34	34	34	34	34	34	19
	SB	03:00	OP2	2	908	1,328	2,236	1	5	0	0	96	96	94	93	93	93	93	93	93	51
	SB	04:00	OP3	1	534	774	1,308	4	7	93	93	83	83	85	77	77	76	76	76	79	3
	SB	05:00	OP3	2	906	1,312	2,219	9	14	188	188	168	168	172	157	155	154	154	154	160	6
	SB	06:00	OP3	3	1,736	2,513	4,249	30	47	642	642	574	574	585	534	530	525	525	525	544	22
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	977	1,081	433	433	433	388	385	245	353	360	511	112
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	990	1,095	439	439	439	393	390	248	357	365	517	114
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,048	1,028	534	534	499	470	464	309	334	337	361	108
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	811	796	413	413	386	364	359	240	259	261	280	83
	SB	11:00	IP	5	2,707	4,415	7,122	0	0	746	731	380	380	355	335	330	220	238	240	257	77
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	833	817	424	424	396	374	369	246	266	268	287	86
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,002	983	511	511	477	450	444	296	320	322	346	103
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,241	1,216	632	632	590	557	549	366	395	399	428	127
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	1,726	1,692	879	879	820	774	764	509	550	554	595	177
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,343	2,242	1,769	1,769	1,289	927	840	510	394	374	376	282
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,456	3,307	2,609	2,609	1,902	1,367	1,239	752	582	551	554	417
	SB	18:00	OP1	4	2,252	2,908	5,159	59	61	2,747	2,747	1,706	1,706	1,659	1,395	1,292	675	628	602	532	755
	SB	19:00	OP1	3	1,658	2,141	3,800	33	34	1,551	1,551	963	963	937	788	729	381	355	340	300	426
	SB	20:00	OP1	3	1,882	2,430	4,313	22	23	1,033	1,033	641	641	624	524	486	254	236	226	200	284
	SB	21:00	OP1	3	1,848	2,386	4,233	17	18	797	797	495	495	481	404	375	196	182	175	154	219
	SB	22:00	OP1	3	1,488	1,921	3,409	17	17	776	776	482	482	469	394	365	191	177	170	150	213
	SB	23:00	OP1	2	1,133	1,463	2,596	8	8	360	360	223	223	217	183	169	88	82	79	70	99

				-	7	-	12	14	18	22	24	28	33	40	43	47	30
				Seated LF													
Group	Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	0.02	0.10	0.00	0.00	0.30	0.30	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.16
	SB	01:00	OP2	0.01	0.05	0.00	0.00	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.07
	SB	02:00	OP2	0.01	0.04	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.06
	SB	03:00	OP2	0.01	0.03	0.00	0.00	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.06
	SB	04:00	OP3	0.05	0.08	0.21	0.21	0.16	0.16	0.16	0.14	0.14	0.14	0.14	0.14	0.15	0.01
	SB	05:00	OP3	0.06	0.09	0.25	0.25	0.19	0.19	0.19	0.17	0.17	0.17	0.17	0.17	0.18	0.01
	SB	06:00	OP3	0.10	0.16	0.44	0.44	0.33	0.33	0.34	0.31	0.31	0.30	0.30	0.30	0.31	0.01
	SB	07:00	AM	0.00	0.00	0.55	0.61	0.19	0.19	0.19	0.17	0.17	0.11	0.16	0.16	0.22	0.05
	SB	08:00	AM	0.00	0.00	0.45	0.49	0.15	0.15	0.15	0.14	0.14	0.09	0.13	0.13	0.18	0.04
	SB	09:00	IP	-	-	0.30	0.29	0.15	0.15	0.14	0.13	0.13	0.09	0.09	0.10	0.10	0.03
	SB	10:00	IP	-	-	0.27	0.27	0.14	0.14	0.13	0.12	0.12	0.08	0.09	0.09	0.09	0.03
	SB	11:00	IP	-	-	0.28	0.27	0.14	0.14	0.13	0.12	0.12	0.08	0.09	0.09	0.09	0.03
	SB	12:00	IP	-	-	0.31	0.31	0.16	0.16	0.15	0.14	0.14	0.09	0.10	0.10	0.11	0.03
	SB	13:00	IP	-	-	0.36	0.35	0.18	0.18	0.17	0.16	0.16	0.11	0.12	0.12	0.12	0.04
	SB	14:00	IP	-	-	0.46	0.45	0.23	0.23	0.22	0.21	0.20	0.14	0.15	0.15	0.16	0.05
	SB	15:00	IP	-	-	0.58	0.57	0.30	0.30	0.28	0.26	0.26	0.17	0.19	0.19	0.20	0.06
	SB	16:00	PM	0.00	0.00	1.13	1.08	0.69	0.69	0.50	0.36	0.33	0.20	0.15	0.15	0.15	0.11
	SB	17:00	PM	0.00	0.00	1.38	1.32	0.85	0.85	0.62	0.44	0.40	0.24	0.19	0.18	0.18	0.13
	SB	18:00	OP1	0.08	0.09	1.78	1.78	0.76	0.76	0.74	0.62	0.57	0.30	0.28	0.27	0.24	0.34
	SB	19:00	OP1	0.06	0.07	1.36	1.36	0.58	0.58	0.56	0.47	0.44	0.23	0.21	0.20	0.18	0.26
	SB	20:00	OP1	0.04	0.04	0.80	0.80	0.34	0.34	0.33	0.28	0.26	0.13	0.13	0.12	0.11	0.15
	SB	21:00	OP1	0.03	0.03	0.63	0.63	0.27	0.27	0.26	0.22	0.20	0.11	0.10	0.09	0.08	0.12
	SB	22:00	OP1	0.04	0.04	0.76	0.76	0.32	0.32	0.31	0.26	0.25	0.13	0.12	0.11	0.10	0.14
	SB	23:00	OP1	0.02	0.02	0.46	0.46	0.20	0.20	0.19	0.16	0.15	0.08	0.07	0.07	0.06	0.09

Table 35: Arun Valley, Northbound, All, Future baseline 2029

BAU_29				2136	2136		2136	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	06:00	OP3	2	1,173	693	1,866	349	349	205	226	226	235	242	339	339	0.30	0.30	0.17	0.19	0.19	0.20	0.21	0.29	0.29
	NB	07:00	AM	3	1,992	1,189	3,181	563	799	786	814	814	831	1,286	1,244	1,244	0.28	0.40	0.39	0.41	0.41	0.42	0.65	0.62	0.62
	NB	08:00	AM	3	1,896	1,131	3,027	646	916	901	934	934	954	1,475	1,428	1,428	0.34	0.48	0.48	0.49	0.49	0.50	0.78	0.75	0.75
	NB	09:00	IP	2	1,277	755	2,032	479	527	447	447	447	447	639	598	598	0.37	0.41	0.35	0.35	0.35	0.35	0.50	0.47	0.47
	NB	10:00	IP	2	1,155	683	1,838	409	450	382	382	382	382	546	511	511	0.35	0.39	0.33	0.33	0.33	0.33	0.47	0.44	0.44
Fasts	NB	11:00	IP	2	1,155	683	1,838	311	343	291	291	291	291	416	389	389	0.27	0.30	0.25	0.25	0.25	0.25	0.36	0.34	0.34
	NB	12:00	IP	2	1,155	683	1,838	241	266	226	226	226	226	322	302	302	0.21	0.23	0.20	0.20	0.20	0.20	0.28	0.26	0.26
	NB	13:00	IP	2	1,155	683	1,838	200	221	187	187	187	187	268	250	250	0.17	0.19	0.16	0.16	0.16	0.16	0.23	0.22	0.22
	NB	14:00	IP	2	1,155	683	1,838	162	179	152	152	152	152	217	203	203	0.14	0.15	0.13	0.13	0.13	0.13	0.19	0.18	0.18
	NB	15:00	IP	2	1,155	683	1,838	170	187	159	159	159	159	227	212	212	0.15	0.16	0.14	0.14	0.14	0.14	0.20	0.18	0.18
	NB	16:00	PM	2	1,216	725	1,940	263	292	332	332	332	332	400	359	359	0.22	0.24	0.27	0.27	0.27	0.27	0.33	0.30	0.30
	NB	17:00	PM	2	1,216	725	1,940	354	392	446	446	446	446	538	483	483	0.29	0.32	0.37	0.37	0.37	0.37	0.44	0.40	0.40
	NB	18:00	OP1	2	1,188	703	1,891	221	228	230	230	230	230	324	310	310	0.19	0.19	0.19	0.19	0.19	0.19	0.27	0.26	0.26
	NB	19:00	OP1	2	1,075	635	1,710	131	135	137	137	137	137	192	184	184	0.12	0.13	0.13	0.13	0.13	0.13	0.18	0.17	0.17
	NB	20:00	OP1	2	1,075	635	1,710	64	65	66	66	66	66	93	89	89	0.06	0.06	0.06	0.06	0.06	0.06	0.09	0.08	0.08
	NB	21:00	OP1	2	1,188	703	1,891	68	70	71	71	71	71	100	95	95	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.08	0.08
	NB	22:00	OP1	2	1,075	635	1,710	47	48	49	49	49	49	69	66	66	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
	NB	23:00	OP1	1	848	501	1,349	36	37	37	37	37	37	53	50	50	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.06	0.06

Table 36: Arun Valley, Southbound, All, Future baseline 2029

BAU_29				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	05:00	OP3	0	157	93	250	6	10	10	10	10	10	10	19	22	0.04	0.06	0.07	0.07	0.07	0.06	0.06	0.12	0.14
	SB	06:00	OP3	2	1,016	600	1,616	27	42	44	44	44	43	43	79	94	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.09
	SB	07:00	AM	2	1,151	686	1,836	184	239	243	243	243	243	229	213	197	0.16	0.21	0.21	0.21	0.21	0.21	0.20	0.19	0.17
	SB	08:00	AM	2	794	473	1,268	146	190	193	193	193	193	182	170	157	0.18	0.24	0.24	0.24	0.24	0.24	0.23	0.21	0.20
	SB	09:00	IP	2	1,277	755	2,032	226	287	299	299	299	299	316	336	256	0.18	0.22	0.23	0.23	0.23	0.23	0.25	0.26	0.20
	SB	10:00	IP	2	1,155	683	1,838	137	174	181	181	181	181	191	203	155	0.12	0.15	0.16	0.16	0.16	0.16	0.17	0.18	0.13
Fasts	SB	11:00	IP	2	1,155	683	1,838	119	152	158	158	158	158	167	177	135	0.10	0.13	0.14	0.14	0.14	0.14	0.14	0.15	0.12
	SB	12:00	IP	2	1,155	683	1,838	154	195	203	203	203	203	214	228	174	0.13	0.17	0.18	0.18	0.18	0.18	0.19	0.20	0.15
	SB	13:00	IP	2	1,155	683	1,838	173	220	229	229	229	229	242	257	196	0.15	0.19	0.20	0.20	0.20	0.20	0.21	0.22	0.17
	SB	14:00	IP	2	1,155	683	1,838	211	268	279	279	279	279	294	313	239	0.18	0.23	0.24	0.24	0.24	0.24	0.25	0.27	0.21
	SB	15:00	IP	2	1,155	683	1,838	311	395	411	411	411	411	434	462	352	0.27	0.34	0.36	0.36	0.36	0.36	0.38	0.40	0.30
	SB	16:00	PM	2	1,250	745	1,995	481	631	502	497	497	491	537	399	338	0.38	0.51	0.40	0.40	0.40	0.39	0.43	0.32	0.27
	SB	17:00	PM	3	1,910	1,139	3,049	761	999	795	787	787	778	849	631	535	0.40	0.52	0.42	0.41	0.41	0.41	0.44	0.33	0.28
	SB	18:00	OP1	3	1,619	1,085	2,703	687	849	723	720	720	714	871	687	577	0.42	0.52	0.45	0.44	0.44	0.44	0.54	0.42	0.36
	SB	19:00	OP1	2	1,059	710	1,769	398	492	418	417	417	413	504	398	334	0.38	0.46	0.39	0.39	0.39	0.39	0.48	0.38	0.32
	SB	20:00	OP1	2	1,365	915	2,280	253	313	266	265	265	263	321	253	212	0.19	0.23	0.19	0.19	0.19	0.19	0.24	0.19	0.16
	SB	21:00	OP1	2	1,059	710	1,769	188	233	198	198	198	196	239	188	158	0.18	0.22	0.19	0.19	0.19	0.19	0.23	0.18	0.15
	SB	22:00	OP1	2	1,171	785	1,956	166	205	175	174	174	173	211	166	139	0.14	0.18	0.15	0.15	0.15	0.15	0.18	0.14	0.12
	SB	23:00	OP1	1	835	560	1,395	113	139	118	118	118	117	143	113	95	0.13	0.17	0.14	0.14	0.14	0.14	0.17	0.13	0.11

Table 37: North Downs Line, Westbound, All, Future baseline 2029

BAU_29				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053
All																	
				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
All	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	05:00	OP3	2	553	403	956	24	43	34	33	26	26	26	26	27	30
	NB	06:00	OP3	3	1,105	807	1,912	64	117	91	89	69	69	71	71	72	80
	NB	07:00	AM	3	976	761	1,737	147	307	204	224	278	278	349	349	353	373
	NB	08:00	AM	3	976	761	1,737	81	170	113	124	154	154	193	193	196	206
	NB	09:00	IP	3	995	726	1,721	86	305	305	306	261	261	280	281	284	320
	NB	10:00	IP	3	995	726	1,721	63	225	224	225	192	192	206	206	209	235
	NB	11:00	IP	3	995	726	1,721	52	184	184	185	158	158	169	169	172	193
	NB	12:00	IP	3	995	726	1,721	49	176	176	176	150	150	161	161	164	184
	NB	13:00	IP	3	995	726	1,721	48	173	173	173	148	148	159	159	161	181
	NB	14:00	IP	3	995	726	1,721	67	239	239	240	205	205	219	220	223	250
	NB	15:00	IP	3	995	726	1,721	101	360	360	361	308	308	330	331	335	377
	NB	16:00	PM	3	966	757	1,723	178	586	399	374	391	391	380	380	405	691
	NB	17:00	PM	3	966	757	1,723	132	433	295	276	289	289	282	281	300	511
	NB	18:00	OP1	3	1,031	753	1,785	191	716	488	409	370	370	377	377	389	475
	NB	19:00	OP1	2	516	377	892	95	355	242	203	183	183	187	187	193	236
	NB	20:00	OP1	3	1,031	753	1,785	90	337	230	192	174	174	177	177	183	224
	NB	21:00	OP1	3	1,031	753	1,785	18	66	45	38	34	34	35	35	36	44
	NB	22:00	OP1	2	516	377	892	11	42	29	24	22	22	22	22	23	28
	NB	23:00	OP1	2	516	377	892	22	84	57	48	43	43	44	44	46	56

	Seated LF									
Hour beginning	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
00:00	-	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-	-
05:00	0.04	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
06:00	0.06	0.11	0.08	0.08	0.06	0.06	0.06	0.06	0.07	0.07
07:00	0.15	0.31	0.21	0.23	0.29	0.29	0.36	0.36	0.36	0.38
08:00	0.08	0.17	0.12	0.13	0.16	0.16	0.20	0.20	0.20	0.21
09:00	0.09	0.31	0.31	0.31	0.26	0.26	0.28	0.28	0.29	0.32
10:00	0.06	0.23	0.23	0.23	0.19	0.19	0.21	0.21	0.21	0.24
11:00	0.05	0.19	0.19	0.19	0.16	0.16	0.17	0.17	0.17	0.19
12:00	0.05	0.18	0.18	0.18	0.15	0.15	0.16	0.16	0.16	0.18
13:00	0.05	0.17	0.17	0.17	0.15	0.15	0.16	0.16	0.16	0.18
14:00	0.07	0.24	0.24	0.24	0.21	0.21	0.22	0.22	0.22	0.25
15:00	0.10	0.36	0.36	0.36	0.31	0.31	0.33	0.33	0.34	0.38
16:00	0.18	0.61	0.41	0.39	0.40	0.40	0.39	0.39	0.42	0.72
17:00	0.14	0.45	0.31	0.29	0.30	0.30	0.29	0.29	0.31	0.53
18:00	0.19	0.69	0.47	0.40	0.36	0.36	0.37	0.37	0.38	0.46
19:00	0.18	0.69	0.47	0.39	0.36	0.36	0.36	0.36	0.37	0.46
20:00	0.09	0.33	0.22	0.19	0.17	0.17	0.17	0.17	0.18	0.22
21:00	0.02	0.06	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.04
22:00	0.02	0.08	0.06	0.05	0.04	0.04	0.04	0.04	0.04	0.05
23:00	0.04	0.16	0.11	0.09	0.08	0.08	0.09	0.09	0.09	0.11

Table 38: North Downs Line, Eastbound, All, Future baseline 2029

BAU_29				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671
All				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
	SB	00:00	OP2	1	166	121	287	17	17	17	17	17	17	17	20	22	
	SB	01:00	OP2	1	166	121	287	3	3	3	3	3	3	3	4	4	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	05:00	OP3	3	995	726	1,721	29	29	29	29	29	32	32	51	55	
	SB	06:00	OP3	3	995	726	1,721	212	210	210	215	215	236	238	371	403	
	SB	07:00	AM	3	748	700	1,448	418	371	371	421	421	384	410	669	364	
	SB	08:00	AM	3	748	700	1,448	358	318	318	361	361	328	351	573	312	
	SB	09:00	IP	3	853	622	1,475	218	214	214	228	228	266	283	342	123	
	SB	10:00	IP	3	853	622	1,475	200	196	196	209	209	244	259	314	113	
All	SB	11:00	IP	3	853	622	1,475	156	152	152	163	163	190	202	244	88	
	SB	12:00	IP	3	853	622	1,475	140	137	137	147	147	171	182	220	79	
	SB	13:00	IP	3	853	622	1,475	116	113	114	121	121	141	150	182	65	
	SB	14:00	IP	3	853	622	1,475	110	108	108	115	115	134	143	173	62	
	SB	15:00	IP	3	853	622	1,475	148	145	145	155	155	180	192	232	83	
	SB	16:00	PM	3	966	757	1,723	327	338	338	295	295	335	332	340	180	
	SB	17:00	PM	3	966	757	1,723	481	498	497	434	434	493	489	500	265	
	SB	18:00	OP1	4	1,160	847	2,008	479	475	475	353	353	388	395	411	361	
	SB	19:00	OP1	4	1,160	847	2,008	232	230	230	171	171	188	191	199	175	
	SB	20:00	OP1	2	580	424	1,004	130	128	129	96	96	105	107	111	98	
	SB	21:00	OP1	4	1,160	847	2,008	82	81	81	60	60	66	68	70	62	
	SB	22:00	OP1	2	580	424	1,004	38	37	37	28	28	30	31	32	28	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0	

	Seated LF									
Hour beginning	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
00:00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.12	0.13	
01:00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	
02:00	-	-	-	-	-	-	-	-	-	
03:00	-	-	-	-	-	-	-	-	-	
04:00	-	-	-	-	-	-	-	-	-	
05:00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.06	
06:00	0.21	0.21	0.21	0.22	0.22	0.24	0.24	0.37	0.40	
07:00	0.56	0.50	0.50	0.56	0.56	0.51	0.55	0.89	0.49	
08:00	0.48	0.42	0.42	0.48	0.48	0.44	0.47	0.77	0.42	
09:00	0.26	0.25	0.25	0.27	0.27	0.31	0.33	0.40	0.14	
10:00	0.23	0.23	0.23	0.25	0.25	0.29	0.30	0.37	0.13	
11:00	0.18	0.18	0.18	0.19	0.19	0.22	0.24	0.29	0.10	
12:00	0.16	0.16	0.16	0.17	0.17	0.20	0.21	0.26	0.09	
13:00	0.14	0.13	0.13	0.14	0.14	0.17	0.18	0.21	0.08	
14:00	0.13	0.13	0.13	0.14	0.14	0.16	0.17	0.20	0.07	
15:00	0.17	0.17	0.17	0.18	0.18	0.21	0.22	0.27	0.10	
16:00	0.34	0.35	0.35	0.31	0.31	0.35	0.34	0.35	0.19	
17:00	0.50	0.52	0.51	0.45	0.45	0.51	0.51	0.52	0.27	
18:00	0.41	0.41	0.41	0.30	0.30	0.33	0.34	0.35	0.31	
19:00	0.20	0.20	0.20	0.15	0.15	0.16	0.16	0.17	0.15	
20:00	0.22	0.22	0.22	0.16	0.16	0.18	0.18	0.19	0.17	
21:00	0.07	0.07	0.07	0.05	0.05	0.06	0.06	0.06	0.05	
22:00	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.06	0.05	
23:00	-	-	-	-	-	-	-	-	-	

2032

Table 39: Brighton Main Line, Northbound, Fast, Future baseline 2032

BAU_32				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-63	636-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	3	1,870	2,208	4,078	90	213	213	213	213	213	213	213	213	213	260	85	53	0
	NB	01:00	OP2	1	838	989	1,827	28	66	66	66	66	66	66	66	66	66	81	26	17	0
	NB	02:00	OP2	1	419	495	913	8	19	19	19	19	19	19	19	19	19	23	8	5	0
	NB	03:00	OP2	1	688	813	1,501	11	26	26	26	26	26	26	26	26	26	31	10	6	0
	NB	04:00	OP3	2	1,137	1,263	2,400	53	61	61	61	61	61	61	61	61	61	14	12	64	64
	NB	05:00	OP3	2	1,503	1,669	3,172	424	494	494	494	494	494	494	494	494	494	112	100	513	513
	NB	06:00	OP3	12	7,245	8,044	15,288	4,030	4,693	4,693	4,693	4,693	4,693	4,693	4,693	4,693	4,693	1,064	952	4,874	4,874
	NB	07:00	AM	16	10,475	10,098	20,573	6,709	8,334	8,369	8,369	8,369	8,369	8,369	8,369	8,369	8,369	5,070	4,619	6,344	6,344
	NB	08:00	AM	18	11,178	10,777	21,955	8,193	10,179	10,221	10,221	10,221	10,221	10,221	10,221	10,221	10,221	6,192	5,641	7,748	7,748
	NB	09:00	IP	14	8,433	7,392	15,825	3,965	7,617	7,617	7,617	7,617	7,617	7,617	7,617	7,617	7,617	5,124	3,971	3,742	3,742
	NB	10:00	IP	14	8,577	7,518	16,095	2,543	4,885	4,884	4,884	4,884	4,884	4,884	4,884	4,884	4,884	3,286	2,547	2,400	2,400
Fasts	NB	11:00	IP	14	8,210	7,197	15,407	2,131	4,093	4,093	4,093	4,093	4,093	4,093	4,093	4,093	4,093	2,753	2,134	2,011	2,011
	NB	12:00	IP	14	8,408	7,371	15,779	1,768	3,397	3,397	3,397	3,397	3,397	3,397	3,397	3,397	3,397	2,285	1,771	1,669	1,669
	NB	13:00	IP	13	7,834	6,867	14,701	1,432	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750	2,750	1,850	1,434	1,351	1,351
	NB	14:00	IP	13	7,834	6,867	14,701	1,237	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	1,598	1,239	1,167	1,167
	NB	15:00	IP	13	8,002	7,015	15,017	1,119	2,149	2,149	2,149	2,149	2,149	2,149	2,149	2,149	2,149	1,446	1,120	1,056	1,056
	NB	16:00	PM	16	9,901	9,957	19,858	2,056	3,436	3,436	3,436	3,436	3,436	3,436	3,436	3,436	3,436	2,733	1,373	2,619	2,619
	NB	17:00	PM	17	10,554	10,613	21,167	2,614	4,369	4,369	4,369	4,369	4,369	4,369	4,369	4,369	4,369	3,475	1,745	3,331	3,331
	NB	18:00	OP1	16	9,727	8,564	18,291	1,515	5,114	5,114	5,114	5,114	5,114	5,114	5,114	5,114	5,114	3,733	2,634	2,629	2,629
	NB	19:00	OP1	13	7,882	6,939	14,821	985	3,326	3,326	3,326	3,326	3,326	3,326	3,326	3,326	3,326	2,428	1,713	1,710	1,710
	NB	20:00	OP1	14	8,276	7,286	15,563	685	2,314	2,314	2,314	2,314	2,314	2,314	2,314	2,314	2,314	1,689	1,191	1,189	1,189
	NB	21:00	OP1	15	8,686	7,647	16,333	551	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,859	1,357	957	956	956
	NB	22:00	OP1	13	7,507	6,610	14,117	369	1,247	1,247	1,247	1,247	1,247	1,247	1,247	1,247	1,247	910	642	641	641
	NB	23:00	OP1	11	6,318	5,563	11,881	403	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	993	701	699	699

Hour beginning	35	30	47	43	40	33	28	24	22	18	17	7	14	12
	Seated load factor on departure													
	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
00:00	0.05	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.45	0.15	0.04	0.00
01:00	0.03	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.31	0.10	0.03	0.00
02:00	0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.18	0.06	0.02	0.00
03:00	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.15	0.05	0.01	0.00
04:00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.09	0.09
05:00	0.28	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.19	0.17	0.57	0.57
06:00	0.56	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.37	0.33	1.12	1.12
07:00	0.64	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.95	0.86	1.24	1.24
08:00	0.73	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.09	0.99	1.41	1.41
09:00	0.47	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.69	1.38	1.38
10:00	0.30	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.44	0.87	0.87
11:00	0.26	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.49	0.38	0.76	0.76
12:00	0.21	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.31	0.62	0.62
13:00	0.18	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.27	0.54	0.54
14:00	0.16	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.23	0.46	0.46
15:00	0.14	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.21	0.41	0.41
16:00	0.21	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.45	0.23	0.68	0.68
17:00	0.25	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.54	0.27	0.81	0.81
18:00	0.16	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.57	0.40	0.83	0.83
19:00	0.12	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.46	0.32	0.66	0.66
20:00	0.08	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.30	0.21	0.44	0.44
21:00	0.06	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.23	0.16	0.34	0.34
22:00	0.05	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.13	0.26	0.26
23:00	0.06	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.16	0.34	0.34

Table 40: Brighton Main Line, Northbound, Stoppers, Future baseline 2032

BAU_32				671	671		671	2113-500	671-2114	114-211	115-211	116-824	24-211	117-259	596-81	312-253	843-636	636-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	2	1,150	1,875	3,026	29	141	140	140	138	136	136	136	138	138	157	0	49	0
	NB	01:00	OP2	1	515	840	1,356	9	44	43	43	43	42	42	42	43	43	49	0	15	0
	NB	02:00	OP2	0	258	420	678	3	13	13	13	12	12	12	12	12	12	14	0	4	0
	NB	03:00	OP2	1	423	690	1,114	3	17	17	17	17	16	16	16	17	17	19	0	6	0
	NB	04:00	OP3	1	435	576	1,011	10	13	13	13	13	13	14	19	21	21	5	4	25	25
	NB	05:00	OP3	1	575	761	1,336	79	103	103	103	102	102	109	153	167	168	41	35	199	199
	NB	06:00	OP3	5	2,771	3,668	6,439	746	974	975	975	971	972	1,032	1,456	1,592	1,592	386	333	1,888	1,888
	NB	07:00	AM	6	3,862	4,956	8,818	558	300	332	354	710	1,393	1,615	2,422	3,348	3,321	1,265	1,115	2,842	3,096
	NB	08:00	AM	6	4,122	5,288	9,410	682	367	405	432	867	1,701	1,972	2,958	4,089	4,056	1,545	1,362	3,471	3,781
	NB	09:00	IP	7	3,865	6,046	9,911	858	591	600	604	792	1,076	1,137	1,376	1,768	1,761	171	134	3,827	4,049
	NB	10:00	IP	7	3,931	6,150	10,081	550	379	385	387	508	690	729	882	1,134	1,129	109	86	2,454	2,596
Stoppers	NB	11:00	IP	6	3,763	5,887	9,650	461	318	322	324	426	578	611	739	950	946	92	72	2,057	2,176
	NB	12:00	IP	7	3,854	6,029	9,883	383	264	268	269	353	480	507	614	789	785	76	60	1,707	1,806
	NB	13:00	IP	6	3,590	5,617	9,207	310	213	217	218	286	388	411	497	638	636	62	49	1,382	1,462
	NB	14:00	IP	6	3,590	5,617	9,207	268	184	187	188	247	335	355	429	551	549	53	42	1,194	1,263
	NB	15:00	IP	6	3,668	5,738	9,406	242	167	169	170	223	303	321	388	499	497	48	38	1,080	1,142
	NB	16:00	PM	4	2,418	3,940	6,358	277	512	356	357	359	332	331	377	446	446	0	0	1,375	1,279
	NB	17:00	PM	4	2,578	4,200	6,778	352	652	453	454	457	422	421	480	567	567	0	0	1,748	1,626
	NB	18:00	OP1	2	1,417	2,311	3,728	223	430	327	327	327	301	306	339	339	339	0	0	977	977
	NB	19:00	OP1	2	1,148	1,873	3,021	145	279	213	213	213	196	199	221	221	221	0	0	635	635
	NB	20:00	OP1	2	1,206	1,966	3,172	101	194	148	148	148	136	139	154	154	154	0	0	442	442
	NB	21:00	OP1	2	1,265	2,064	3,329	81	156	119	119	119	109	111	123	123	123	0	0	355	355
	NB	22:00	OP1	2	1,094	1,784	2,877	54	105	80	80	80	73	75	83	83	83	0	0	238	238
	NB	23:00	OP1	2	921	1,501	2,422	59	114	87	87	87	80	82	90	90	90	0	0	260	260

	35	30	47	43	40	33	28	24	22	18	17	7	14	12
	Seated LF													
Hour beginning	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
00:00	0.02	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	-	-	0.04	0.00
01:00	0.02	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	0.03	0.00
02:00	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.02	0.00
03:00	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.01	0.00
04:00	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.04	0.08	0.08
05:00	0.14	0.18	0.18	0.18	0.18	0.18	0.19	0.27	0.29	0.29	0.25	0.21	0.48	0.48
06:00	0.27	0.35	0.35	0.35	0.35	0.35	0.37	0.53	0.57	0.57	0.49	0.42	0.95	0.95
07:00	0.14	0.08	0.09	0.09	0.18	0.36	0.42	0.63	0.87	0.86	0.98	0.86	1.11	1.20
08:00	0.17	0.09	0.10	0.10	0.21	0.41	0.48	0.72	0.99	0.98	1.12	0.99	1.27	1.38
09:00	0.22	0.15	0.16	0.16	0.20	0.28	0.29	0.36	0.46	0.46	0.72	0.57	1.05	1.12
10:00	0.14	0.10	0.10	0.10	0.13	0.18	0.19	0.22	0.29	0.29	0.45	0.36	0.67	0.70
11:00	0.12	0.08	0.09	0.09	0.11	0.15	0.16	0.20	0.25	0.25	0.40	0.31	0.58	0.62
12:00	0.10	0.07	0.07	0.07	0.09	0.12	0.13	0.16	0.20	0.20	0.32	0.25	0.47	0.50
13:00	0.09	0.06	0.06	0.06	0.08	0.11	0.11	0.14	0.18	0.18	0.28	0.22	0.41	0.43
14:00	0.07	0.05	0.05	0.05	0.07	0.09	0.10	0.12	0.15	0.15	0.24	0.19	0.35	0.37
15:00	0.07	0.05	0.05	0.05	0.06	0.08	0.09	0.11	0.14	0.14	0.21	0.17	0.31	0.33
16:00	0.11	0.21	0.15	0.15	0.15	0.14	0.14	0.16	0.18	0.18	-	-	0.57	0.53
17:00	0.14	0.25	0.18	0.18	0.18	0.16	0.16	0.19	0.22	0.22	-	-	0.68	0.63
18:00	0.16	0.30	0.23	0.23	0.23	0.21	0.22	0.24	0.24	0.24	-	-	0.69	0.69
19:00	0.13	0.24	0.19	0.19	0.19	0.17	0.17	0.19	0.19	0.19	-	-	0.55	0.55
20:00	0.08	0.16	0.12	0.12	0.12	0.11	0.11	0.13	0.13	0.13	-	-	0.37	0.37
21:00	0.06	0.12	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	-	-	0.28	0.28
22:00	0.05	0.10	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	-	-	0.22	0.22
23:00	0.06	0.12	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	-	-	0.28	0.28

Table 41: Brighton Main Line, Southbound, Fast, Future baseline 2032

Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
BAU_32				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-211	117-824	24-211	116-211	115-211	114-67	71-5000
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Fasts	SB	00:00	OP2	1	490	511	1,001	5	21	0	0	108	108	108	108	108	108	108	108	108	145
	SB	01:00	OP2	1	327	341	667	1	6	0	0	33	33	33	33	33	33	33	33	33	44
	SB	02:00	OP2	0	105	109	214	0	2	0	0	9	9	9	9	9	9	9	9	9	12
	SB	03:00	OP2	1	327	341	667	1	5	0	0	26	26	26	26	26	26	26	26	26	34
	SB	04:00	OP3	4	2,130	2,136	4,265	44	48	194	194	184	184	184	184	184	184	184	184	184	41
	SB	05:00	OP3	6	3,611	3,622	7,233	89	98	393	393	373	373	373	373	373	373	373	373	373	83
	SB	06:00	OP3	11	6,916	6,936	13,852	303	333	1,338	1,338	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	1,269	284
	SB	07:00	AM	15	8,603	9,437	18,040	1,097	2,041	2,746	2,746	3,102	3,102	3,102	3,102	3,102	3,102	3,102	3,102	3,102	1,473
	SB	08:00	AM	18	10,804	11,851	22,655	1,111	2,067	2,781	2,781	3,142	3,142	3,142	3,142	3,142	3,142	3,142	3,142	3,142	1,491
	SB	09:00	IP	21	12,830	12,619	25,450	1,264	1,725	2,114	2,115	3,070	3,070	3,070	3,070	3,070	3,071	3,071	3,071	3,073	1,601
	SB	10:00	IP	18	10,778	10,601	21,379	978	1,335	1,636	1,637	2,376	2,376	2,376	2,376	2,376	2,377	2,377	2,377	2,378	1,239
	SB	11:00	IP	16	9,874	9,711	19,585	899	1,227	1,504	1,504	2,184	2,184	2,184	2,184	2,184	2,185	2,185	2,185	2,186	1,139
	SB	12:00	IP	16	9,654	9,495	19,149	1,004	1,370	1,680	1,680	2,439	2,439	2,439	2,439	2,439	2,440	2,440	2,440	2,441	1,272
	SB	13:00	IP	17	10,112	9,945	20,057	1,208	1,649	2,022	2,022	2,935	2,935	2,935	2,935	2,935	2,937	2,937	2,937	2,938	1,531
	SB	14:00	IP	16	9,886	9,723	19,609	1,495	2,041	2,502	2,502	3,632	3,632	3,632	3,632	3,632	3,634	3,634	3,634	3,636	1,895
	SB	15:00	IP	18	10,807	10,629	21,437	2,080	2,838	3,480	3,481	5,052	5,052	5,052	5,052	5,052	5,055	5,055	5,055	5,058	2,636
	SB	16:00	PM	15	9,484	9,461	18,944	4,073	4,709	4,446	4,666	6,468	6,468	6,468	6,468	6,468	6,468	6,468	6,468	6,471	4,216
	SB	17:00	PM	18	11,424	11,396	22,821	6,008	6,947	6,559	6,883	9,541	9,541	9,541	9,541	9,541	9,541	9,541	9,541	9,545	6,219
	SB	18:00	OP1	17	10,053	9,239	19,292	5,315	5,722	6,366	6,410	9,286	9,286	9,286	9,286	9,286	9,286	9,286	9,286	9,285	7,536
	SB	19:00	OP1	12	7,404	6,804	14,207	3,001	3,231	3,595	3,620	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,244	5,243	4,255
	SB	20:00	OP1	14	8,404	7,723	16,126	1,998	2,151	2,394	2,410	3,491	3,491	3,491	3,491	3,491	3,491	3,491	3,491	3,491	2,833
	SB	21:00	OP1	14	8,249	7,581	15,830	1,542	1,660	1,846	1,859	2,693	2,693	2,693	2,693	2,693	2,693	2,693	2,693	2,693	2,186
	SB	22:00	OP1	11	6,642	6,104	12,746	1,502	1,617	1,799	1,811	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,129
	SB	23:00	OP1	8	5,058	4,649	9,707	696	749	834	839	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	987

Direction	Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
		-	7	-	12	14	18	22	24	28	33	40	43	47	30
		Seated LF													
SB	00:00	0.02	0.09	0.00	0.00	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.30
SB	01:00	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.14
SB	02:00	0.01	0.04	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.12
SB	03:00	0.01	0.03	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.10
SB	04:00	0.04	0.04	0.19	0.19	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.02
SB	05:00	0.05	0.05	0.23	0.23	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.02
SB	06:00	0.08	0.09	0.41	0.41	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.04
SB	07:00	0.24	0.46	0.67	0.67	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.17
SB	08:00	0.20	0.37	0.54	0.54	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.14
SB	09:00	0.18	0.24	0.37	0.37	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.12
SB	10:00	0.17	0.23	0.34	0.34	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.11
SB	11:00	0.17	0.23	0.34	0.34	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.12
SB	12:00	0.19	0.26	0.39	0.39	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.13
SB	13:00	0.22	0.30	0.44	0.44	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.15
SB	14:00	0.28	0.38	0.56	0.56	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.19
SB	15:00	0.35	0.48	0.71	0.71	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.24
SB	16:00	0.78	0.90	1.04	1.09	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.44
SB	17:00	0.96	1.11	1.27	1.34	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.54
SB	18:00	0.84	0.91	1.69	1.70	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.75
SB	19:00	0.65	0.70	1.30	1.31	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.57
SB	20:00	0.38	0.41	0.76	0.77	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.34
SB	21:00	0.30	0.32	0.60	0.60	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.26
SB	22:00	0.36	0.39	0.72	0.73	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.32
SB	23:00	0.22	0.24	0.44	0.44	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.20

Table 42: Brighton Main Line, Southbound, Stoppers, Future baseline 2032

BAU_32				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-21	117-82	24-211	116-211	115-211	114-67	71-5000
Stoppers							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	2	1,362	1,994	3,356	6	22	0	0	422	422	412	411	410	409	409	409	409	234
	SB	01:00	OP2	2	908	1,328	2,236	2	7	0	0	129	129	126	126	126	125	125	125	125	72
	SB	02:00	OP2	1	292	427	719	0	2	0	0	36	36	36	35	35	35	35	35	35	20
	SB	03:00	OP2	2	908	1,328	2,236	1	5	0	0	100	100	97	97	97	97	97	97	97	55
	SB	04:00	OP3	1	534	774	1,308	4	7	97	97	87	87	89	81	80	79	79	79	82	3
	SB	05:00	OP3	2	906	1,312	2,219	9	14	197	197	176	176	179	164	162	161	161	161	167	7
	SB	06:00	OP3	3	1,736	2,513	4,249	31	49	672	672	599	599	610	557	553	548	548	548	568	23
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	1,009	1,102	449	449	449	404	401	254	364	372	525	118
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,022	1,116	455	455	455	409	406	257	369	376	532	120
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,098	1,077	561	561	523	494	487	325	351	353	379	115
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	850	833	434	434	405	383	377	252	271	274	293	89
	SB	11:00	IP	5	2,707	4,415	7,122	0	0	781	766	399	399	372	352	347	231	249	251	270	82
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	872	855	446	446	416	393	387	258	279	281	301	91
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,050	1,029	536	536	500	473	466	311	335	338	362	110
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,299	1,274	664	664	619	585	577	385	415	418	449	136
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	1,807	1,772	923	923	861	814	802	535	577	582	624	189
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,408	2,300	1,839	1,839	1,348	973	883	548	430	409	411	305
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,552	3,393	2,712	2,712	1,989	1,436	1,303	808	635	603	606	451
	SB	18:00	OP1	4	2,252	2,908	5,159	60	63	2,866	2,866	1,776	1,776	1,727	1,455	1,348	708	660	633	560	796
	SB	19:00	OP1	3	1,658	2,141	3,800	34	36	1,618	1,618	1,003	1,003	975	821	761	400	373	357	316	449
	SB	20:00	OP1	3	1,882	2,430	4,313	23	24	1,078	1,078	668	668	649	547	507	266	248	238	211	299
	SB	21:00	OP1	3	1,848	2,386	4,233	17	18	831	831	515	515	501	422	391	205	192	184	162	231
	SB	22:00	OP1	3	1,488	1,921	3,409	17	18	810	810	502	502	488	411	381	200	187	179	158	225
	SB	23:00	OP1	2	1,133	1,463	2,596	8	8	375	375	233	233	226	190	176	93	86	83	73	104

				-	7	-	12	14	18	22	24	28	33	40	43	47	30
				Seated LF													
Group	Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	0.03	0.10	0.00	0.00	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.17
	SB	01:00	OP2	0.01	0.05	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.08
	SB	02:00	OP2	0.01	0.04	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.07
	SB	03:00	OP2	0.01	0.04	0.00	0.00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.06
	SB	04:00	OP3	0.05	0.08	0.22	0.22	0.16	0.16	0.17	0.15	0.15	0.15	0.15	0.15	0.15	0.01
	SB	05:00	OP3	0.06	0.09	0.26	0.26	0.19	0.19	0.20	0.18	0.18	0.18	0.18	0.18	0.18	0.01
	SB	06:00	OP3	0.10	0.17	0.47	0.47	0.34	0.34	0.35	0.32	0.32	0.32	0.32	0.32	0.33	0.01
	SB	07:00	AM	0.00	0.00	0.57	0.62	0.20	0.20	0.20	0.18	0.18	0.11	0.16	0.16	0.23	0.05
	SB	08:00	AM	0.00	0.00	0.46	0.50	0.16	0.16	0.16	0.14	0.14	0.09	0.13	0.13	0.19	0.04
	SB	09:00	IP	-	-	0.31	0.31	0.16	0.16	0.15	0.14	0.14	0.09	0.10	0.10	0.11	0.03
	SB	10:00	IP	-	-	0.29	0.28	0.15	0.15	0.14	0.13	0.13	0.09	0.09	0.09	0.10	0.03
	SB	11:00	IP	-	-	0.29	0.28	0.15	0.15	0.14	0.13	0.13	0.09	0.09	0.09	0.10	0.03
	SB	12:00	IP	-	-	0.33	0.32	0.17	0.17	0.16	0.15	0.15	0.10	0.11	0.11	0.11	0.03
	SB	13:00	IP	-	-	0.38	0.37	0.19	0.19	0.18	0.17	0.17	0.11	0.12	0.12	0.13	0.04
	SB	14:00	IP	-	-	0.48	0.47	0.24	0.24	0.23	0.22	0.21	0.14	0.15	0.15	0.17	0.05
	SB	15:00	IP	-	-	0.61	0.60	0.31	0.31	0.29	0.27	0.27	0.18	0.19	0.20	0.21	0.06
	SB	16:00	PM	0.00	0.00	1.16	1.11	0.72	0.72	0.53	0.38	0.34	0.21	0.17	0.16	0.16	0.12
	SB	17:00	PM	0.00	0.00	1.42	1.36	0.88	0.88	0.64	0.47	0.42	0.26	0.21	0.20	0.20	0.15
	SB	18:00	OP1	0.08	0.09	1.86	1.86	0.79	0.79	0.77	0.65	0.60	0.31	0.29	0.28	0.25	0.35
	SB	19:00	OP1	0.06	0.07	1.42	1.42	0.60	0.60	0.59	0.50	0.46	0.24	0.22	0.22	0.19	0.27
	SB	20:00	OP1	0.04	0.04	0.83	0.83	0.35	0.35	0.34	0.29	0.27	0.14	0.13	0.13	0.11	0.16
	SB	21:00	OP1	0.03	0.03	0.66	0.66	0.28	0.28	0.27	0.23	0.21	0.11	0.10	0.10	0.09	0.12
	SB	22:00	OP1	0.04	0.04	0.79	0.79	0.34	0.34	0.33	0.28	0.26	0.13	0.13	0.12	0.11	0.15
	SB	23:00	OP1	0.02	0.02	0.48	0.48	0.21	0.21	0.20	0.17	0.16	0.08	0.08	0.07	0.06	0.09

Table 43: Arun Valley, Northbound, All, Future baseline 2032

BAU_32				2136	2136		2136	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	06:00	OP3	2	1,173	693	1,866	368	368	214	236	236	246	253	354	354	0.31	0.31	0.18	0.20	0.20	0.21	0.22	0.30	0.30
	NB	07:00	AM	3	1,992	1,189	3,181	598	839	819	847	847	866	1,342	1,297	1,297	0.30	0.42	0.41	0.42	0.42	0.43	0.67	0.65	0.65
	NB	08:00	AM	3	1,896	1,131	3,027	686	962	939	971	971	993	1,539	1,488	1,488	0.36	0.51	0.50	0.51	0.51	0.52	0.81	0.78	0.78
	NB	09:00	IP	2	1,277	755	2,032	509	559	473	473	473	473	682	639	639	0.40	0.44	0.37	0.37	0.37	0.37	0.53	0.50	0.50
	NB	10:00	IP	2	1,155	683	1,838	435	478	404	404	404	404	582	546	546	0.38	0.41	0.35	0.35	0.35	0.35	0.50	0.47	0.47
Fasts	NB	11:00	IP	2	1,155	683	1,838	331	364	308	308	308	308	443	416	416	0.29	0.31	0.27	0.27	0.27	0.27	0.38	0.36	0.36
	NB	12:00	IP	2	1,155	683	1,838	257	282	239	239	239	239	344	322	322	0.22	0.24	0.21	0.21	0.21	0.21	0.30	0.28	0.28
	NB	13:00	IP	2	1,155	683	1,838	213	234	198	198	198	198	285	268	268	0.18	0.20	0.17	0.17	0.17	0.17	0.25	0.23	0.23
	NB	14:00	IP	2	1,155	683	1,838	173	190	160	160	160	160	231	217	217	0.15	0.16	0.14	0.14	0.14	0.14	0.20	0.19	0.19
	NB	15:00	IP	2	1,155	683	1,838	181	198	168	168	168	168	242	227	227	0.16	0.17	0.15	0.15	0.15	0.15	0.21	0.20	0.20
	NB	16:00	PM	2	1,216	725	1,940	288	317	359	359	359	359	436	388	388	0.24	0.26	0.30	0.30	0.30	0.30	0.36	0.32	0.32
	NB	17:00	PM	2	1,216	725	1,940	387	426	483	483	483	483	587	522	522	0.32	0.35	0.40	0.40	0.40	0.40	0.48	0.43	0.43
	NB	18:00	OP1	2	1,188	703	1,891	242	249	250	250	250	250	352	336	336	0.20	0.21	0.21	0.21	0.21	0.21	0.30	0.28	0.28
	NB	19:00	OP1	2	1,075	635	1,710	143	147	148	148	148	148	209	199	199	0.13	0.14	0.14	0.14	0.14	0.14	0.19	0.19	0.19
	NB	20:00	OP1	2	1,075	635	1,710	69	71	72	72	72	72	101	96	96	0.06	0.07	0.07	0.07	0.07	0.07	0.09	0.09	0.09
	NB	21:00	OP1	2	1,188	703	1,891	74	77	77	77	77	77	108	103	103	0.06	0.06	0.06	0.06	0.06	0.06	0.09	0.09	0.09
	NB	22:00	OP1	2	1,075	635	1,710	51	53	53	53	53	53	75	71	71	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.07	0.07
	NB	23:00	OP1	1	848	501	1,349	39	40	41	41	41	41	57	54	54	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.06	0.06

Table 44: Arun Valley, Southbound, All, Future baseline 2032

BAU_32				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120
Fasts																
				All services				Calibrated load on Departure (1hr)								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	05:00	OP3	0	157	93	250	7	10	11	11	11	11	11	19	23
	SB	06:00	OP3	2	1,016	600	1,616	29	44	46	46	46	45	45	82	97
	SB	07:00	AM	2	1,151	686	1,836	195	258	263	263	263	263	247	230	214
	SB	08:00	AM	2	794	473	1,268	155	205	209	209	209	209	196	183	170
	SB	09:00	IP	2	1,277	755	2,032	243	311	323	323	323	323	340	361	279
	SB	10:00	IP	2	1,155	683	1,838	147	188	195	195	195	195	206	218	169
Fasts	SB	11:00	IP	2	1,155	683	1,838	128	164	170	170	170	170	179	190	147
	SB	12:00	IP	2	1,155	683	1,838	165	211	219	219	219	219	231	245	190
	SB	13:00	IP	2	1,155	683	1,838	186	238	247	247	247	247	260	276	214
	SB	14:00	IP	2	1,155	683	1,838	226	290	301	301	301	301	317	336	260
	SB	15:00	IP	2	1,155	683	1,838	334	427	444	444	444	444	467	496	383
	SB	16:00	PM	2	1,250	745	1,995	513	669	529	523	523	518	568	427	366
	SB	17:00	PM	3	1,910	1,139	3,049	811	1,060	837	828	828	819	899	676	579
	SB	18:00	OP1	3	1,619	1,085	2,703	735	905	769	766	766	760	927	737	624
	SB	19:00	OP1	2	1,059	710	1,769	426	524	445	443	443	440	537	427	361
	SB	20:00	OP1	2	1,365	915	2,280	271	333	283	282	282	280	341	272	230
	SB	21:00	OP1	2	1,059	710	1,769	202	248	211	210	210	209	254	202	171
	SB	22:00	OP1	2	1,171	785	1,956	178	219	186	185	185	184	224	178	151
	SB	23:00	OP1	1	835	560	1,395	121	148	126	126	126	125	152	121	102

	Seated LF								
Hour beginning	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
00:00	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-
05:00	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.12	0.15
06:00	0.03	0.04	0.05	0.05	0.05	0.04	0.04	0.08	0.10
07:00	0.17	0.22	0.23	0.23	0.23	0.23	0.21	0.20	0.19
08:00	0.20	0.26	0.26	0.26	0.26	0.26	0.25	0.23	0.21
09:00	0.19	0.24	0.25	0.25	0.25	0.25	0.27	0.28	0.22
10:00	0.13	0.16	0.17	0.17	0.17	0.17	0.18	0.19	0.15
11:00	0.11	0.14	0.15	0.15	0.15	0.15	0.16	0.16	0.13
12:00	0.14	0.18	0.19	0.19	0.19	0.19	0.20	0.21	0.16
13:00	0.16	0.21	0.21	0.21	0.21	0.21	0.23	0.24	0.18
14:00	0.20	0.25	0.26	0.26	0.26	0.26	0.27	0.29	0.22
15:00	0.29	0.37	0.38	0.38	0.38	0.38	0.40	0.43	0.33
16:00	0.41	0.54	0.42	0.42	0.42	0.41	0.45	0.34	0.29
17:00	0.42	0.55	0.44	0.43	0.43	0.43	0.47	0.35	0.30
18:00	0.45	0.56	0.48	0.47	0.47	0.47	0.57	0.46	0.39
19:00	0.40	0.49	0.42	0.42	0.42	0.42	0.51	0.40	0.34
20:00	0.20	0.24	0.21	0.21	0.21	0.21	0.25	0.20	0.17
21:00	0.19	0.23	0.20	0.20	0.20	0.20	0.24	0.19	0.16
22:00	0.15	0.19	0.16	0.16	0.16	0.16	0.19	0.15	0.13
23:00	0.14	0.18	0.15	0.15	0.15	0.15	0.18	0.14	0.12

Table 45: North Downs Line, Northbound, All, Future baseline 2032

BAU_32				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053
All																	
				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	05:00	OP3	2	553	403	956	25	45	35	35	27	27	28	28	28	31
	NB	06:00	OP3	3	1,105	807	1,912	68	122	95	94	73	73	75	75	76	83
	NB	07:00	AM	3	976	761	1,737	161	330	227	247	299	299	372	372	377	399
	NB	08:00	AM	3	976	761	1,737	89	183	125	137	165	165	206	206	208	221
	NB	09:00	IP	3	995	726	1,721	93	325	327	328	281	281	301	301	305	342
	NB	10:00	IP	3	995	726	1,721	68	239	240	241	207	207	221	222	224	252
All	NB	11:00	IP	3	995	726	1,721	56	196	197	198	170	170	182	182	184	207
	NB	12:00	IP	3	995	726	1,721	53	187	188	189	162	162	173	173	175	197
	NB	13:00	IP	3	995	726	1,721	52	184	185	186	159	159	170	170	173	194
	NB	14:00	IP	3	995	726	1,721	73	255	256	257	220	220	235	236	239	268
	NB	15:00	IP	3	995	726	1,721	109	384	385	387	331	331	355	355	360	404
	NB	16:00	PM	3	966	757	1,723	192	622	433	407	427	427	416	416	441	738
	NB	17:00	PM	3	966	757	1,723	142	460	320	301	316	316	308	307	326	546
	NB	18:00	OP1	3	1,031	753	1,785	204	748	515	433	394	394	402	402	414	501
	NB	19:00	OP1	2	516	377	892	101	371	255	215	196	196	199	199	205	248
	NB	20:00	OP1	3	1,031	753	1,785	96	352	242	204	186	186	189	189	195	236
	NB	21:00	OP1	3	1,031	753	1,785	19	69	48	40	36	36	37	37	38	46
	NB	22:00	OP1	2	516	377	892	12	44	30	25	23	23	24	24	24	29
	NB	23:00	OP1	2	516	377	892	24	88	61	51	46	46	47	47	49	59

	Seated LF									
Hour beginning	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
00:00	-	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-	-
05:00	0.05	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06
06:00	0.06	0.11	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.08
07:00	0.16	0.34	0.23	0.25	0.31	0.31	0.38	0.38	0.39	0.41
08:00	0.09	0.19	0.13	0.14	0.17	0.17	0.21	0.21	0.21	0.23
09:00	0.09	0.33	0.33	0.33	0.28	0.28	0.30	0.30	0.31	0.34
10:00	0.07	0.24	0.24	0.24	0.21	0.21	0.22	0.22	0.23	0.25
11:00	0.06	0.20	0.20	0.20	0.17	0.17	0.18	0.18	0.19	0.21
12:00	0.05	0.19	0.19	0.19	0.16	0.16	0.17	0.17	0.18	0.20
13:00	0.05	0.19	0.19	0.19	0.16	0.16	0.17	0.17	0.17	0.19
14:00	0.07	0.26	0.26	0.26	0.22	0.22	0.24	0.24	0.24	0.27
15:00	0.11	0.39	0.39	0.39	0.33	0.33	0.36	0.36	0.36	0.41
16:00	0.20	0.64	0.45	0.42	0.44	0.44	0.43	0.43	0.46	0.76
17:00	0.15	0.48	0.33	0.31	0.33	0.33	0.32	0.32	0.34	0.57
18:00	0.20	0.73	0.50	0.42	0.38	0.38	0.39	0.39	0.40	0.49
19:00	0.20	0.72	0.49	0.42	0.38	0.38	0.39	0.39	0.40	0.48
20:00	0.09	0.34	0.23	0.20	0.18	0.18	0.18	0.18	0.19	0.23
21:00	0.02	0.07	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04
22:00	0.02	0.09	0.06	0.05	0.04	0.04	0.05	0.05	0.05	0.06
23:00	0.05	0.17	0.12	0.10	0.09	0.09	0.09	0.09	0.09	0.11

Table 46: North Downs Line, Southbound, All, Future baseline 2032

BAU_32				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671
All				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
All	SB	00:00	OP2	1	166	121	287	18	18	18	18	18	18	18	21	23	
All	SB	01:00	OP2	1	166	121	287	4	4	4	4	4	4	4	4	5	
All	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
All	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
All	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	
All	SB	05:00	OP3	3	995	726	1,721	31	30	30	31	31	34	34	53	57	
All	SB	06:00	OP3	3	995	726	1,721	224	222	222	226	226	248	250	387	419	
All	SB	07:00	AM	3	748	700	1,448	445	396	396	449	449	406	433	699	375	
All	SB	08:00	AM	3	748	700	1,448	381	339	339	384	384	348	371	598	321	
All	SB	09:00	IP	3	853	622	1,475	232	227	228	243	243	282	299	360	131	
All	SB	10:00	IP	3	853	622	1,475	213	208	209	223	223	258	274	330	120	
All	SB	11:00	IP	3	853	622	1,475	165	162	162	173	173	201	213	257	93	
All	SB	12:00	IP	3	853	622	1,475	149	146	146	156	156	181	192	231	84	
All	SB	13:00	IP	3	853	622	1,475	123	121	121	129	129	150	159	191	69	
All	SB	14:00	IP	3	853	622	1,475	117	115	115	123	123	142	151	182	66	
All	SB	15:00	IP	3	853	622	1,475	157	154	154	165	165	191	202	244	88	
All	SB	16:00	PM	3	966	757	1,723	343	354	354	309	309	358	355	362	198	
All	SB	17:00	PM	3	966	757	1,723	504	521	520	455	455	526	523	532	291	
All	SB	18:00	OP1	4	1,160	847	2,008	511	506	506	379	379	416	424	439	386	
All	SB	19:00	OP1	4	1,160	847	2,008	247	245	245	183	183	201	205	212	187	
All	SB	20:00	OP1	2	580	424	1,004	138	137	137	102	102	113	115	119	105	
All	SB	21:00	OP1	4	1,160	847	2,008	87	86	86	65	65	71	72	75	66	
All	SB	22:00	OP1	2	580	424	1,004	40	40	40	30	30	33	33	34	30	
All	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0	

	Seated LF									
Hour beginning	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
00:00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.13	0.14	
01:00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	
02:00	-	-	-	-	-	-	-	-	-	
03:00	-	-	-	-	-	-	-	-	-	
04:00	-	-	-	-	-	-	-	-	-	
05:00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.06	
06:00	0.22	0.22	0.22	0.23	0.23	0.25	0.25	0.39	0.42	
07:00	0.59	0.53	0.53	0.60	0.60	0.54	0.58	0.93	0.50	
08:00	0.51	0.45	0.45	0.51	0.51	0.46	0.50	0.80	0.43	
09:00	0.27	0.27	0.27	0.29	0.29	0.33	0.35	0.42	0.15	
10:00	0.25	0.24	0.24	0.26	0.26	0.30	0.32	0.39	0.14	
11:00	0.19	0.19	0.19	0.20	0.20	0.24	0.25	0.30	0.11	
12:00	0.17	0.17	0.17	0.18	0.18	0.21	0.22	0.27	0.10	
13:00	0.14	0.14	0.14	0.15	0.15	0.18	0.19	0.22	0.08	
14:00	0.14	0.13	0.13	0.14	0.14	0.17	0.18	0.21	0.08	
15:00	0.18	0.18	0.18	0.19	0.19	0.22	0.24	0.29	0.10	
16:00	0.35	0.37	0.37	0.32	0.32	0.37	0.37	0.37	0.20	
17:00	0.52	0.54	0.54	0.47	0.47	0.55	0.54	0.55	0.30	
18:00	0.44	0.44	0.44	0.33	0.33	0.36	0.37	0.38	0.33	
19:00	0.21	0.21	0.21	0.16	0.16	0.17	0.18	0.18	0.16	
20:00	0.24	0.24	0.24	0.18	0.18	0.19	0.20	0.20	0.18	
21:00	0.08	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	
22:00	0.07	0.07	0.07	0.05	0.05	0.06	0.06	0.06	0.05	
23:00	-	-	-	-	-	-	-	-	-	

2038

Table 47: Brighton Main Line, Northbound, Fast, Future baseline 2038

Calibrated load on Departure (1hr)

Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
BAU_38					671	671	671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-636	36-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
					All services																
	NB	00:00	OP2	3	1,870	2,208	4,078	99	220	220	220	220	220	220	220	220	220	269	88	55	0
	NB	01:00	OP2	1	838	989	1,827	31	68	68	68	68	68	68	68	68	68	83	27	17	0
	NB	02:00	OP2	1	419	495	913	9	20	20	20	20	20	20	20	20	20	24	8	5	0
	NB	03:00	OP2	1	688	813	1,501	12	26	26	26	26	26	26	26	26	26	32	11	7	0
	NB	04:00	OP3	2	1,137	1,263	2,400	59	68	68	68	68	68	68	68	68	68	15	13	69	69
	NB	05:00	OP3	2	1,503	1,669	3,172	470	546	546	546	546	546	546	546	546	546	120	107	558	558
	NB	06:00	OP3	12	7,245	8,044	15,288	4,470	5,185	5,185	5,185	5,185	5,185	5,185	5,185	5,185	5,185	1,138	1,016	5,305	5,305
	NB	07:00	AM	16	10,475	10,098	20,573	7,384	9,137	9,171	9,171	9,171	9,171	9,171	9,171	9,171	9,171	5,365	4,855	6,761	6,761
	NB	08:00	AM	18	11,178	10,777	21,955	9,018	11,159	11,201	11,201	11,201	11,201	11,201	11,201	11,201	11,201	6,552	5,930	8,257	8,257
	NB	09:00	IP	14	8,433	7,392	15,825	4,572	8,504	8,504	8,504	8,504	8,504	8,504	8,504	8,504	8,504	5,575	4,318	4,113	4,113
	NB	10:00	IP	14	8,577	7,518	16,095	2,932	5,454	5,453	5,453	5,453	5,453	5,453	5,453	5,453	5,453	3,575	2,769	2,637	2,637
Fasts	NB	11:00	IP	14	8,210	7,197	15,407	2,457	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570	2,996	2,321	2,210	2,210
	NB	12:00	IP	14	8,408	7,371	15,779	2,039	3,793	3,793	3,793	3,793	3,793	3,793	3,793	3,793	3,793	2,486	1,926	1,834	1,834
	NB	13:00	IP	13	7,834	6,867	14,701	1,651	3,071	3,071	3,071	3,071	3,071	3,071	3,071	3,071	3,071	2,013	1,559	1,485	1,485
	NB	14:00	IP	13	7,834	6,867	14,701	1,426	2,652	2,652	2,652	2,652	2,652	2,652	2,652	2,652	2,652	1,739	1,347	1,283	1,283
	NB	15:00	IP	13	8,002	7,015	15,017	1,290	2,399	2,399	2,399	2,399	2,399	2,399	2,399	2,399	2,399	1,573	1,218	1,160	1,160
	NB	16:00	PM	16	9,901	9,957	19,858	2,503	3,959	3,959	3,959	3,959	3,959	3,959	3,959	3,959	3,959	2,913	1,484	2,756	2,756
	NB	17:00	PM	17	10,554	10,613	21,167	3,183	5,034	5,034	5,034	5,034	5,034	5,034	5,034	5,034	5,034	3,705	1,887	3,504	3,504
	NB	18:00	OP1	16	9,727	8,564	18,291	1,836	5,700	5,700	5,700	5,700	5,700	5,700	5,700	5,700	5,700	4,034	2,828	2,813	2,813
	NB	19:00	OP1	13	7,882	6,939	14,821	1,194	3,708	3,708	3,708	3,708	3,708	3,708	3,708	3,708	3,708	2,624	1,839	1,830	1,830
	NB	20:00	OP1	14	8,276	7,286	15,563	830	2,579	2,579	2,579	2,579	2,579	2,579	2,579	2,579	2,579	1,825	1,279	1,273	1,273
	NB	21:00	OP1	15	8,686	7,647	16,333	667	2,072	2,072	2,072	2,072	2,072	2,072	2,072	2,072	2,072	1,466	1,028	1,023	1,023
	NB	22:00	OP1	13	7,507	6,610	14,117	448	1,390	1,390	1,390	1,390	1,390	1,390	1,390	1,390	1,390	984	690	686	686
	NB	23:00	OP1	11	6,318	5,563	11,881	488	1,516	1,516	1,516	1,516	1,516	1,516	1,516	1,516	1,516	1,073	752	748	748

Seated load factor on departure

Hour beginning	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
00:00	0.05	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.47	0.15	0.04	0.00
01:00	0.04	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.32	0.11	0.03	0.00
02:00	0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.19	0.06	0.02	0.00
03:00	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.15	0.05	0.01	0.00
04:00	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03	0.03	0.10	0.10
05:00	0.31	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.20	0.18	0.62	0.62
06:00	0.62	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.39	0.35	1.22	1.22
07:00	0.70	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	1.00	0.91	1.32	1.32
08:00	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.04	1.51	1.51
09:00	0.54	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.98	0.76	1.51	1.51
10:00	0.34	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.61	0.48	0.95	0.95
11:00	0.30	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.54	0.42	0.84	0.84
12:00	0.24	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.44	0.34	0.68	0.68
13:00	0.21	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.38	0.29	0.59	0.59
14:00	0.18	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.25	0.51	0.51
15:00	0.16	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.29	0.22	0.45	0.45
16:00	0.25	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.48	0.25	0.71	0.71
17:00	0.30	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.57	0.29	0.85	0.85
18:00	0.19	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.62	0.43	0.88	0.88
19:00	0.15	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.49	0.35	0.71	0.71
20:00	0.10	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.33	0.23	0.47	0.47
21:00	0.08	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.25	0.18	0.36	0.36
22:00	0.06	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.14	0.28	0.28
23:00	0.08	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.25	0.18	0.36	0.36

Table 48: Brighton Main Line, Northbound, Stoppers, Future baseline 2038

BAU_38				671	671		671	2113-500	671-2114	114-211	115-211	116-824	24-211	117-259	596-813	12-253	843-636	36-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	2	1,150	1,875	3,026	31	145	144	144	142	140	140	140	142	142	161	0	51	0
	NB	01:00	OP2	1	515	840	1,356	10	45	45	45	44	43	43	43	44	44	50	0	16	0
	NB	02:00	OP2	0	258	420	678	3	13	13	13	13	13	13	13	13	13	15	0	5	0
	NB	03:00	OP2	1	423	690	1,114	4	17	17	17	17	17	17	17	17	17	19	0	6	0
	NB	04:00	OP3	1	435	576	1,011	11	14	14	14	14	14	15	20	22	22	5	5	26	26
	NB	05:00	OP3	1	575	761	1,336	85	111	111	111	111	111	117	164	179	179	43	37	212	212
	NB	06:00	OP3	5	2,771	3,668	6,439	812	1,056	1,057	1,057	1,054	1,051	1,115	1,560	1,703	1,703	405	348	2,011	2,011
	NB	07:00	AM	6	3,862	4,956	8,818	649	355	394	418	784	1,504	1,737	2,578	3,554	3,526	1,324	1,155	3,013	3,277
	NB	08:00	AM	6	4,122	5,288	9,410	792	434	481	510	957	1,837	2,122	3,149	4,341	4,307	1,616	1,411	3,680	4,002
	NB	09:00	IP	7	3,865	6,046	9,911	987	659	670	674	874	1,176	1,244	1,496	1,917	1,910	180	142	4,134	4,360
	NB	10:00	IP	7	3,931	6,150	10,081	633	422	429	432	560	754	798	959	1,229	1,225	116	91	2,651	2,796
	NB	11:00	IP	6	3,763	5,887	9,650	530	354	360	362	470	632	669	804	1,030	1,026	97	76	2,222	2,343
	NB	12:00	IP	7	3,854	6,029	9,883	440	294	299	301	390	525	555	667	855	852	80	63	1,844	1,944
	NB	13:00	IP	6	3,590	5,617	9,207	356	238	242	243	316	425	449	540	692	690	65	51	1,493	1,574
	NB	14:00	IP	6	3,590	5,617	9,207	308	205	209	210	273	367	388	466	598	596	56	44	1,289	1,360
	NB	15:00	IP	6	3,668	5,738	9,406	278	186	189	190	247	332	351	422	541	539	51	40	1,166	1,230
	NB	16:00	PM	4	2,418	3,940	6,358	327	601	439	440	443	376	376	422	494	494	0	0	1,446	1,349
	NB	17:00	PM	4	2,578	4,200	6,778	416	764	558	559	563	478	478	536	628	628	0	0	1,838	1,715
	NB	18:00	OP1	2	1,417	2,311	3,728	256	472	363	363	363	333	340	374	374	374	0	0	1,032	1,032
	NB	19:00	OP1	2	1,148	1,873	3,021	167	307	236	236	236	217	221	243	243	243	0	0	671	671
	NB	20:00	OP1	2	1,206	1,966	3,172	116	214	164	164	164	151	154	169	169	169	0	0	467	467
	NB	21:00	OP1	2	1,265	2,064	3,329	93	172	132	132	132	121	123	136	136	136	0	0	375	375
	NB	22:00	OP1	2	1,094	1,784	2,877	63	115	89	89	89	81	83	91	91	91	0	0	252	252
	NB	23:00	OP1	2	921	1,501	2,422	68	126	97	97	97	89	90	100	100	100	0	0	274	274

				35	30	47	43	40	33	28	24	22	18	17	7	14	12
				Seated LF													
Group	Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	0.03	0.13	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	-	-	0.04	0.00
	NB	01:00	OP2	0.02	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.09	0.09	-	-	0.03	0.00
	NB	02:00	OP2	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.02	0.00
	NB	03:00	OP2	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.01	0.00
	NB	04:00	OP3	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.04	0.04	0.08	0.08
	NB	05:00	OP3	0.15	0.19	0.19	0.19	0.19	0.19	0.20	0.29	0.31	0.31	0.26	0.22	0.51	0.51
	NB	06:00	OP3	0.29	0.38	0.38	0.38	0.38	0.38	0.40	0.56	0.61	0.61	0.51	0.44	1.01	1.01
	NB	07:00	AM	0.17	0.09	0.10	0.11	0.20	0.39	0.45	0.67	0.92	0.91	1.02	0.89	1.17	1.28
	NB	08:00	AM	0.19	0.11	0.12	0.12	0.23	0.45	0.51	0.76	1.05	1.04	1.17	1.02	1.34	1.46
	NB	09:00	IP	0.26	0.17	0.17	0.17	0.23	0.30	0.32	0.39	0.50	0.49	0.76	0.60	1.14	1.20
	NB	10:00	IP	0.16	0.11	0.11	0.11	0.14	0.19	0.20	0.24	0.31	0.31	0.48	0.38	0.72	0.76
	NB	11:00	IP	0.14	0.09	0.10	0.10	0.12	0.17	0.18	0.21	0.27	0.27	0.42	0.33	0.63	0.66
	NB	12:00	IP	0.11	0.08	0.08	0.08	0.10	0.14	0.14	0.17	0.22	0.22	0.34	0.27	0.51	0.54
	NB	13:00	IP	0.10	0.07	0.07	0.07	0.09	0.12	0.13	0.15	0.19	0.19	0.30	0.23	0.44	0.47
	NB	14:00	IP	0.09	0.06	0.06	0.06	0.08	0.10	0.11	0.13	0.17	0.17	0.26	0.20	0.38	0.40
	NB	15:00	IP	0.08	0.05	0.05	0.05	0.07	0.09	0.10	0.12	0.15	0.15	0.23	0.18	0.34	0.36
	NB	16:00	PM	0.14	0.25	0.18	0.18	0.18	0.16	0.16	0.17	0.20	0.20	-	-	0.60	0.56
	NB	17:00	PM	0.16	0.30	0.22	0.22	0.22	0.19	0.19	0.21	0.24	0.24	-	-	0.71	0.67
	NB	18:00	OP1	0.18	0.33	0.26	0.26	0.26	0.23	0.24	0.26	0.26	0.26	-	-	0.73	0.73
	NB	19:00	OP1	0.15	0.27	0.21	0.21	0.21	0.19	0.19	0.21	0.21	0.21	-	-	0.58	0.58
	NB	20:00	OP1	0.10	0.18	0.14	0.14	0.14	0.12	0.13	0.14	0.14	0.14	-	-	0.39	0.39
	NB	21:00	OP1	0.07	0.14	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	-	-	0.30	0.30
	NB	22:00	OP1	0.06	0.11	0.08	0.08	0.08	0.07	0.08	0.08	0.08	0.08	-	-	0.23	0.23
	NB	23:00	OP1	0.07	0.14	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	-	-	0.30	0.30

Table 49: Brighton Main Line, Southbound, Fast, Future baseline 2038

BAU_38				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-21	117-82	24-211	116-21	115-21	114-67	71-5000
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Fasts	SB	00:00	OP2	1	490	511	1,001	5	22	0	0	115	115	115	115	115	115	115	115	115	159
	SB	01:00	OP2	1	327	341	667	2	7	0	0	35	35	35	35	35	35	35	35	35	49
	SB	02:00	OP2	0	105	109	214	0	2	0	0	10	10	10	10	10	10	10	10	10	14
	SB	03:00	OP2	1	327	341	667	1	5	0	0	27	27	27	27	27	27	27	27	27	38
	SB	04:00	OP3	4	2,130	2,136	4,265	46	50	203	203	194	194	194	194	194	194	194	194	194	46
	SB	05:00	OP3	6	3,611	3,622	7,233	93	102	412	412	392	392	392	392	392	392	392	392	392	93
	SB	06:00	OP3	11	6,916	6,936	13,852	316	347	1,402	1,402	1,337	1,337	1,337	1,337	1,337	1,337	1,337	1,337	1,337	315
	SB	07:00	AM	15	8,603	9,437	18,040	1,170	2,162	2,827	2,827	3,451	3,451	3,451	3,451	3,451	3,451	3,451	3,451	3,451	1,702
	SB	08:00	AM	18	10,804	11,851	22,655	1,185	2,190	2,864	2,864	3,495	3,495	3,495	3,495	3,495	3,495	3,495	3,495	3,495	1,724
	SB	09:00	IP	21	12,830	12,619	25,450	1,350	1,854	2,285	2,286	3,418	3,418	3,418	3,418	3,418	3,420	3,420	3,420	3,421	1,901
	SB	10:00	IP	18	10,778	10,601	21,379	1,045	1,435	1,769	1,769	2,645	2,645	2,645	2,645	2,645	2,647	2,647	2,647	2,648	1,471
	SB	11:00	IP	16	9,874	9,711	19,585	961	1,319	1,626	1,626	2,431	2,431	2,431	2,431	2,431	2,433	2,433	2,433	2,434	1,352
	SB	12:00	IP	16	9,654	9,495	19,149	1,073	1,473	1,816	1,816	2,715	2,715	2,715	2,715	2,715	2,717	2,717	2,717	2,718	1,510
	SB	13:00	IP	17	10,112	9,945	20,057	1,291	1,772	2,185	2,186	3,268	3,268	3,268	3,268	3,268	3,270	3,270	3,270	3,271	1,817
	SB	14:00	IP	16	9,886	9,723	19,609	1,598	2,193	2,704	2,705	4,044	4,044	4,044	4,044	4,044	4,046	4,046	4,046	4,049	2,249
	SB	15:00	IP	18	10,807	10,629	21,437	2,223	3,051	3,761	3,762	5,625	5,625	5,625	5,625	5,625	5,628	5,628	5,628	5,631	3,128
	SB	16:00	PM	15	9,484	9,461	18,944	4,361	5,056	4,655	4,929	7,162	7,162	7,162	7,162	7,162	7,162	7,162	7,162	7,165	4,771
	SB	17:00	PM	18	11,424	11,396	22,821	6,433	7,458	6,867	7,271	10,565	10,565	10,565	10,565	10,565	10,565	10,565	10,565	10,569	7,037
	SB	18:00	OP1	17	10,053	9,239	19,292	5,746	6,252	6,926	6,972	10,471	10,471	10,471	10,471	10,471	10,471	10,471	10,471	10,470	8,560
	SB	19:00	OP1	12	7,404	6,804	14,207	3,245	3,530	3,911	3,937	5,912	5,912	5,912	5,912	5,912	5,912	5,912	5,912	5,912	4,833
	SB	20:00	OP1	14	8,404	7,723	16,126	2,160	2,350	2,604	2,621	3,937	3,937	3,937	3,937	3,937	3,937	3,937	3,937	3,936	3,218
	SB	21:00	OP1	14	8,249	7,581	15,830	1,667	1,813	2,009	2,022	3,037	3,037	3,037	3,037	3,037	3,037	3,037	3,037	3,037	2,483
	SB	22:00	OP1	11	6,642	6,104	12,746	1,623	1,766	1,957	1,970	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,958	2,418
	SB	23:00	OP1	8	5,058	4,649	9,707	752	819	907	913	1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,121

Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
00:00	0.02	0.10	0.00	0.00	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.32
01:00	0.01	0.04	0.00	0.00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.15
02:00	0.01	0.04	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.13
03:00	0.01	0.03	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.12
04:00	0.04	0.04	0.20	0.20	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.02
05:00	0.05	0.05	0.24	0.24	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.03
06:00	0.09	0.09	0.43	0.43	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.05
07:00	0.26	0.48	0.69	0.69	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.20
08:00	0.21	0.39	0.55	0.55	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.16
09:00	0.19	0.26	0.40	0.40	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.15
10:00	0.18	0.24	0.36	0.36	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.14
11:00	0.18	0.24	0.37	0.37	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.14
12:00	0.20	0.28	0.42	0.42	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.16
13:00	0.23	0.32	0.48	0.48	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.18
14:00	0.29	0.40	0.61	0.61	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.23
15:00	0.37	0.51	0.77	0.77	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.29
16:00	0.84	0.97	1.09	1.15	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.50
17:00	1.03	1.19	1.33	1.41	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.62
18:00	0.91	0.99	1.84	1.85	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.85
19:00	0.70	0.76	1.41	1.42	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.65
20:00	0.41	0.45	0.83	0.83	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.38
21:00	0.32	0.35	0.65	0.65	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.30
22:00	0.39	0.42	0.79	0.79	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.36
23:00	0.24	0.26	0.48	0.48	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.22

Table 50: Brighton Main Line, Southbound, Stoppers, Future baseline 2038

BAU_38				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Stoppers					Mins JT (London) -->			-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	2	1,362	1,994	3,356	6	23	0	0	443	443	433	431	430	429	429	429	429	265
	SB	01:00	OP2	2	908	1,328	2,236	2	7	0	0	136	136	133	132	132	132	132	132	132	81
	SB	02:00	OP2	1	292	427	719	1	2	0	0	38	38	37	37	37	37	37	37	37	23
	SB	03:00	OP2	2	908	1,328	2,236	1	5	0	0	105	105	102	102	102	101	101	101	101	63
	SB	04:00	OP3	1	534	774	1,308	5	7	102	102	90	90	92	84	83	83	83	83	86	4
	SB	05:00	OP3	2	906	1,312	2,219	9	15	206	206	183	183	187	170	169	167	167	167	173	7
	SB	06:00	OP3	3	1,736	2,513	4,249	31	49	701	701	623	623	636	580	575	569	569	569	590	25
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	1,025	1,096	475	475	475	430	426	269	382	390	545	129
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,038	1,110	481	481	481	435	431	272	387	395	552	131
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,173	1,150	605	605	564	534	526	350	377	380	407	131
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	908	890	468	468	437	413	407	271	292	294	315	101
	SB	11:00	IP	5	2,707	4,415	7,122	0	0	834	818	430	430	402	380	374	249	268	270	290	93
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	932	914	480	480	448	424	418	278	299	302	323	104
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,121	1,100	578	578	540	511	503	334	360	363	389	125
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,388	1,361	716	716	668	632	623	414	446	449	482	154
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	1,930	1,893	995	995	929	879	866	575	620	625	670	215
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,511	2,385	1,931	1,931	1,442	1,051	956	622	501	478	479	356
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,705	3,518	2,848	2,848	2,127	1,551	1,409	918	739	705	707	525
	SB	18:00	OP1	4	2,252	2,908	5,159	62	67	3,095	3,095	1,915	1,915	1,862	1,576	1,461	780	730	700	622	885
	SB	19:00	OP1	3	1,658	2,141	3,800	35	38	1,748	1,748	1,081	1,081	1,052	890	825	441	412	395	351	499
	SB	20:00	OP1	3	1,882	2,430	4,313	23	25	1,164	1,164	720	720	700	592	549	293	274	263	234	333
	SB	21:00	OP1	3	1,848	2,386	4,233	18	19	898	898	555	555	540	457	424	226	212	203	180	257
	SB	22:00	OP1	3	1,488	1,921	3,409	17	19	874	874	541	541	526	445	413	220	206	198	176	250
	SB	23:00	OP1	2	1,133	1,463	2,596	8	9	405	405	251	251	244	206	191	102	96	92	81	116

				-	7	-	12	14	18	22	24	28	33	40	43	47	30
				Seated LF													
Group	Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	0.03	0.11	0.00	0.00	0.33	0.33	0.32	0.32	0.32	0.31	0.31	0.31	0.31	0.19
	SB	01:00	OP2	0.01	0.05	0.00	0.00	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.09
	SB	02:00	OP2	0.01	0.04	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.08
	SB	03:00	OP2	0.01	0.04	0.00	0.00	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.07
	SB	04:00	OP3	0.05	0.08	0.23	0.23	0.17	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.16	0.01
	SB	05:00	OP3	0.06	0.09	0.27	0.27	0.20	0.20	0.21	0.19	0.19	0.18	0.18	0.18	0.19	0.01
	SB	06:00	OP3	0.11	0.17	0.49	0.49	0.36	0.36	0.37	0.33	0.33	0.33	0.33	0.33	0.34	0.01
	SB	07:00	AM	0.00	0.00	0.58	0.62	0.21	0.21	0.21	0.19	0.19	0.12	0.17	0.17	0.24	0.06
	SB	08:00	AM	0.00	0.00	0.47	0.50	0.17	0.17	0.17	0.15	0.15	0.10	0.14	0.14	0.19	0.05
	SB	09:00	IP	-	-	0.33	0.33	0.17	0.17	0.16	0.15	0.15	0.10	0.11	0.11	0.12	0.04
	SB	10:00	IP	-	-	0.31	0.30	0.16	0.16	0.15	0.14	0.14	0.09	0.10	0.10	0.11	0.03
	SB	11:00	IP	-	-	0.31	0.30	0.16	0.16	0.15	0.14	0.14	0.09	0.10	0.10	0.11	0.03
	SB	12:00	IP	-	-	0.35	0.35	0.18	0.18	0.17	0.16	0.16	0.10	0.11	0.11	0.12	0.04
	SB	13:00	IP	-	-	0.40	0.40	0.21	0.21	0.19	0.18	0.18	0.12	0.13	0.13	0.14	0.05
	SB	14:00	IP	-	-	0.51	0.50	0.26	0.26	0.25	0.23	0.23	0.15	0.16	0.17	0.18	0.06
	SB	15:00	IP	-	-	0.65	0.64	0.34	0.34	0.31	0.30	0.29	0.19	0.21	0.21	0.23	0.07
	SB	16:00	PM	0.00	0.00	1.21	1.15	0.75	0.75	0.56	0.41	0.37	0.24	0.20	0.19	0.19	0.14
	SB	17:00	PM	0.00	0.00	1.48	1.41	0.92	0.92	0.69	0.50	0.46	0.30	0.24	0.23	0.23	0.17
	SB	18:00	OP1	0.09	0.09	2.00	2.00	0.85	0.85	0.83	0.70	0.65	0.35	0.32	0.31	0.28	0.39
	SB	19:00	OP1	0.07	0.07	1.54	1.54	0.65	0.65	0.63	0.54	0.50	0.27	0.25	0.24	0.21	0.30
	SB	20:00	OP1	0.04	0.04	0.90	0.90	0.38	0.38	0.37	0.31	0.29	0.16	0.15	0.14	0.12	0.18
	SB	21:00	OP1	0.03	0.03	0.71	0.71	0.30	0.30	0.29	0.25	0.23	0.12	0.11	0.11	0.10	0.14
	SB	22:00	OP1	0.04	0.04	0.86	0.86	0.36	0.36	0.35	0.30	0.28	0.15	0.14	0.13	0.12	0.17
	SB	23:00	OP1	0.02	0.02	0.52	0.52	0.22	0.22	0.22	0.18	0.17	0.09	0.08	0.08	0.07	0.10

Table 51: Arun Valley, Northbound, All, Future baseline 2038

BAU_38
Fasts

Group	Direction	Hour beginning	Period	No of Services (1hr) (2136)	Seating Capacity (2136)	Standing Capacity	Total Capacity (2136)
				All services			
Fasts	NB	00:00	OP2	0	0	0	0
	NB	01:00	OP2	0	0	0	0
	NB	02:00	OP2	0	0	0	0
	NB	03:00	OP2	0	0	0	0
	NB	04:00	OP3	0	0	0	0
	NB	05:00	OP3	0	0	0	0
	NB	06:00	OP3	2	1,173	693	1,866
	NB	07:00	AM	3	1,992	1,189	3,181
	NB	08:00	AM	3	1,896	1,131	3,027
	NB	09:00	IP	2	1,277	755	2,032
	NB	10:00	IP	2	1,155	683	1,838
	NB	11:00	IP	2	1,155	683	1,838
	NB	12:00	IP	2	1,155	683	1,838
	NB	13:00	IP	2	1,155	683	1,838
	NB	14:00	IP	2	1,155	683	1,838
	NB	15:00	IP	2	1,155	683	1,838
	NB	16:00	PM	2	1,216	725	1,940
	NB	17:00	PM	2	1,216	725	1,940
	NB	18:00	OP1	2	1,188	703	1,891
	NB	19:00	OP1	2	1,075	635	1,710
	NB	20:00	OP1	2	1,075	635	1,710
	NB	21:00	OP1	2	1,188	703	1,891
	NB	22:00	OP1	2	1,075	635	1,710
	NB	23:00	OP1	1	848	501	1,349

Hour beginning	Billingshurst (2121-2122)	Christs Hospital (2122-721)	Horsham (721-2133)	Littlehaven (2133-2134)	Faygate (2134-2135)	Ifield (2135-2136)	Crawley (2136-2113)	Three Bridges (2113-5000)	Gatwick Airport (5000-671)
	Calibrated load on Departure (1hr)								
00:00	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0
06:00	408	408	234	258	258	268	277	385	385
07:00	681	940	900	930	930	951	1,462	1,403	1,403
08:00	781	1,079	1,033	1,067	1,067	1,091	1,677	1,610	1,610
09:00	576	631	533	533	533	533	777	732	732
10:00	492	538	455	455	455	455	663	625	625
11:00	374	410	346	346	346	346	505	476	476
12:00	290	318	269	269	269	269	391	369	369
13:00	241	264	223	223	223	223	325	306	306
14:00	195	214	181	181	181	181	263	248	248
15:00	204	224	189	189	189	189	275	260	260
16:00	339	371	414	414	414	414	518	454	454
17:00	456	499	557	557	557	557	697	610	610
18:00	284	292	291	291	291	291	411	393	393
19:00	169	173	172	172	172	172	244	233	233
20:00	82	84	83	83	83	83	118	113	113
21:00	88	90	89	89	89	89	127	121	121
22:00	60	62	62	62	62	62	87	84	84
23:00	46	47	47	47	47	47	67	64	64

Hour beginning	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
	Seated LF								
00:00	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-
05:00	-	-	-	-	-	-	-	-	-
06:00	0.35	0.35	0.20	0.22	0.22	0.23	0.24	0.33	0.33
07:00	0.34	0.47	0.45	0.47	0.47	0.48	0.73	0.70	0.70
08:00	0.41	0.57	0.54	0.56	0.56	0.58	0.88	0.85	0.85
09:00	0.45	0.49	0.42	0.42	0.42	0.42	0.61	0.57	0.57
10:00	0.43	0.47	0.39	0.39	0.39	0.39	0.57	0.54	0.54
11:00	0.32	0.35	0.30	0.30	0.30	0.30	0.44	0.41	0.41
12:00	0.25	0.28	0.23	0.23	0.23	0.23	0.34	0.32	0.32
13:00	0.21	0.23	0.19	0.19	0.19	0.19	0.28	0.27	0.27
14:00	0.17	0.18	0.16	0.16	0.16	0.16	0.23	0.21	0.21
15:00	0.18	0.19	0.16	0.16	0.16	0.16	0.24	0.22	0.22
16:00	0.28	0.31	0.34	0.34	0.34	0.34	0.43	0.37	0.37
17:00	0.38	0.41	0.46	0.46	0.46	0.46	0.57	0.50	0.50
18:00	0.24	0.25	0.24	0.24	0.24	0.24	0.35	0.33	0.33
19:00	0.16	0.16	0.16	0.16	0.16	0.16	0.23	0.22	0.22
20:00	0.08	0.08	0.08	0.08	0.08	0.08	0.11	0.10	0.10
21:00	0.07	0.08	0.08	0.08	0.08	0.08	0.11	0.10	0.10
22:00	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.08	0.08
23:00	0.05	0.06	0.06	0.06	0.06	0.06	0.08	0.08	0.08

Table 52: Arun Valley, Southbound, All, Future baseline 2038

BAU_38

Fasts

Group	Direction	Hour beginning	Period	All services: No of Services (1hr)	All services: Seating Capacity	All services: Standing Capacity	All services: Total Capacity	Calibrated load on Departure (1hr): Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120
Fasts	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	05:00	OP3	0	157	93	250	7	11	12	12	12	11	11	21	25
	SB	06:00	OP3	2	1,016	600	1,616	31	48	50	50	50	49	48	88	105
	SB	07:00	AM	2	1,151	686	1,836	216	290	298	298	298	298	279	261	244
	SB	08:00	AM	2	794	473	1,268	171	230	237	237	237	237	222	207	194
	SB	09:00	IP	2	1,277	755	2,032	276	357	368	368	368	368	389	412	325
	SB	10:00	IP	2	1,155	683	1,838	167	216	223	223	223	223	235	249	197
	SB	11:00	IP	2	1,155	683	1,838	146	189	194	194	194	194	205	218	172
	SB	12:00	IP	2	1,155	683	1,838	188	243	250	250	250	250	264	280	221
	SB	13:00	IP	2	1,155	683	1,838	212	274	282	282	282	282	298	316	249
	SB	14:00	IP	2	1,155	683	1,838	258	333	343	343	343	343	363	384	303
	SB	15:00	IP	2	1,155	683	1,838	380	491	506	506	506	506	535	567	447
	SB	16:00	PM	2	1,250	745	1,995	580	755	591	584	584	578	644	492	429
	SB	17:00	PM	3	1,910	1,139	3,049	917	1,194	935	925	925	915	1,019	779	679
	SB	18:00	OP1	3	1,619	1,085	2,703	837	1,027	874	871	871	864	1,056	847	726
	SB	19:00	OP1	2	1,059	710	1,769	484	595	506	504	504	500	611	491	420
	SB	20:00	OP1	2	1,365	915	2,280	308	378	322	321	321	318	389	312	267
	SB	21:00	OP1	2	1,059	710	1,769	230	282	240	239	239	237	290	233	199
	SB	22:00	OP1	2	1,171	785	1,956	202	248	211	211	211	209	255	205	176
	SB	23:00	OP1	1	835	560	1,395	137	168	143	143	143	142	173	139	119

Hour beginning	Seated LF: Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
00:00	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-
05:00	0.05	0.07	0.08	0.08	0.08	0.07	0.07	0.13	0.16
06:00	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.10
07:00	0.19	0.25	0.26	0.26	0.26	0.26	0.24	0.23	0.21
08:00	0.22	0.29	0.30	0.30	0.30	0.30	0.28	0.26	0.24
09:00	0.22	0.28	0.29	0.29	0.29	0.29	0.30	0.32	0.25
10:00	0.14	0.19	0.19	0.19	0.19	0.19	0.20	0.22	0.17
11:00	0.13	0.16	0.17	0.17	0.17	0.17	0.18	0.19	0.15
12:00	0.16	0.21	0.22	0.22	0.22	0.22	0.23	0.24	0.19
13:00	0.18	0.24	0.24	0.24	0.24	0.24	0.26	0.27	0.22
14:00	0.22	0.29	0.30	0.30	0.30	0.30	0.31	0.33	0.26
15:00	0.33	0.42	0.44	0.44	0.44	0.44	0.46	0.49	0.39
16:00	0.46	0.60	0.47	0.47	0.47	0.46	0.52	0.39	0.34
17:00	0.48	0.63	0.49	0.48	0.48	0.48	0.53	0.41	0.36
18:00	0.52	0.63	0.54	0.54	0.54	0.53	0.65	0.52	0.45
19:00	0.46	0.56	0.48	0.48	0.48	0.47	0.58	0.46	0.40
20:00	0.23	0.28	0.24	0.23	0.23	0.23	0.28	0.23	0.20
21:00	0.22	0.27	0.23	0.23	0.23	0.22	0.27	0.22	0.19
22:00	0.17	0.21	0.18	0.18	0.18	0.18	0.22	0.17	0.15
23:00	0.16	0.20	0.17	0.17	0.17	0.17	0.21	0.17	0.14

Table 53: North Downs Line, Northbound, All, Future baseline 2038

BAU_38				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
All	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	2	553	403	956	27	48	38	37	29	29	30	30	30	33	0.05	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06
	NB	06:00	OP3	3	1,105	807	1,912	73	130	102	100	78	78	81	81	82	89	0.06	0.11	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.08
	NB	07:00	AM	3	976	761	1,737	183	370	265	286	331	331	410	410	415	454	0.19	0.38	0.27	0.29	0.34	0.34	0.42	0.42	0.43	0.47
	NB	08:00	AM	3	976	761	1,737	101	205	147	158	183	183	227	227	230	251	0.10	0.21	0.15	0.16	0.19	0.19	0.23	0.23	0.24	0.26
	NB	09:00	IP	3	995	726	1,721	105	363	368	369	319	319	341	341	346	392	0.11	0.36	0.37	0.37	0.28	0.28	0.34	0.34	0.35	0.39
	NB	10:00	IP	3	995	726	1,721	77	267	271	272	235	235	251	251	254	289	0.07	0.24	0.24	0.24	0.21	0.21	0.22	0.25	0.23	0.29
	NB	11:00	IP	3	995	726	1,721	63	219	222	223	193	193	206	206	209	237	0.06	0.22	0.22	0.22	0.19	0.19	0.21	0.21	0.21	0.24
	NB	12:00	IP	3	995	726	1,721	60	209	212	212	184	184	196	196	199	226	0.06	0.21	0.21	0.21	0.18	0.18	0.20	0.20	0.20	0.23
	NB	13:00	IP	3	995	726	1,721	59	205	208	209	181	181	193	193	196	222	0.06	0.21	0.21	0.21	0.18	0.18	0.19	0.19	0.20	0.22
	NB	14:00	IP	3	995	726	1,721	82	284	288	289	250	250	267	267	271	307	0.08	0.29	0.29	0.29	0.25	0.25	0.27	0.27	0.27	0.31
	NB	15:00	IP	3	995	726	1,721	123	428	434	435	377	377	402	402	407	462	0.12	0.43	0.44	0.44	0.38	0.38	0.40	0.40	0.41	0.46
	NB	16:00	PM	3	966	757	1,723	224	688	498	471	500	500	486	486	513	833	0.23	0.71	0.52	0.49	0.52	0.52	0.50	0.50	0.53	0.86
	NB	17:00	PM	3	966	757	1,723	166	509	369	349	370	370	360	360	379	617	0.17	0.53	0.38	0.36	0.38	0.38	0.37	0.37	0.39	0.64
	NB	18:00	OP1	3	1,031	753	1,785	220	805	562	473	436	436	444	444	457	550	0.21	0.78	0.54	0.46	0.42	0.42	0.43	0.43	0.44	0.53
	NB	19:00	OP1	2	516	377	892	109	399	278	235	216	216	220	220	227	273	0.21	0.77	0.54	0.46	0.42	0.42	0.43	0.43	0.44	0.53
	NB	20:00	OP1	3	1,031	753	1,785	104	379	264	223	205	205	209	209	215	259	0.10	0.37	0.26	0.22	0.20	0.20	0.20	0.20	0.21	0.25
	NB	21:00	OP1	3	1,031	753	1,785	20	74	52	44	40	40	41	41	42	51	0.02	0.07	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05
	NB	22:00	OP1	2	516	377	892	13	47	33	28	26	26	26	26	27	32	0.02	0.09	0.06	0.05	0.05	0.04	0.05	0.05	0.05	0.06
	NB	23:00	OP1	2	516	377	892	26	95	66	56	51	51	52	52	54	65	0.05	0.18	0.13	0.11	0.10	0.10	0.10	0.10	0.10	0.13

Table 54: North Downs Line, Southbound, All, Future baseline 2038

Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
BAU_38				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671
All																	
				All services				Calibrated load on Departure (1hr)									
All	SB	00:00	OP2	1	166	121	287	19	19	19	19	19	19	19	23	25	
	SB	01:00	OP2	1	166	121	287	4	4	4	4	4	4	4	5	5	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	05:00	OP3	3	995	726	1,721	32	32	32	32	32	35	36	55	60	
	SB	06:00	OP3	3	995	726	1,721	234	232	232	237	237	260	262	404	438	
	SB	07:00	AM	3	748	700	1,448	488	436	436	493	493	437	465	741	390	
	SB	08:00	AM	3	748	700	1,448	417	373	374	422	422	374	398	634	334	
	SB	09:00	IP	3	853	622	1,475	259	253	254	271	271	311	329	394	144	
	SB	10:00	IP	3	853	622	1,475	237	232	232	248	248	285	302	361	132	
	SB	11:00	IP	3	853	622	1,475	184	181	181	193	193	221	235	281	102	
	SB	12:00	IP	3	853	622	1,475	166	163	163	174	174	199	211	253	92	
	SB	13:00	IP	3	853	622	1,475	137	135	135	144	144	165	175	209	76	
	SB	14:00	IP	3	853	622	1,475	130	128	128	137	137	157	166	199	72	
	SB	15:00	IP	3	853	622	1,475	175	172	172	183	183	210	223	267	97	
	SB	16:00	PM	3	966	757	1,723	388	400	400	353	353	405	403	407	233	
	SB	17:00	PM	3	966	757	1,723	571	589	588	520	520	596	593	598	343	
	SB	18:00	OP1	4	1,160	847	2,008	573	568	568	428	428	468	477	490	431	
	SB	19:00	OP1	4	1,160	847	2,008	277	275	275	207	207	226	231	237	209	
	SB	20:00	OP1	2	580	424	1,004	155	154	154	116	116	127	129	132	117	
	SB	21:00	OP1	4	1,160	847	2,008	98	97	97	73	73	80	81	84	74	
	SB	22:00	OP1	2	580	424	1,004	45	44	44	34	34	37	37	38	34	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0	

Group	Direction	Hour beginning	Period	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
				Seated LF									
All	SB	00:00	OP2	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.15	
	SB	01:00	OP2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	
	SB	02:00	OP2	-	-	-	-	-	-	-	-	-	
	SB	03:00	OP2	-	-	-	-	-	-	-	-	-	
	SB	04:00	OP3	-	-	-	-	-	-	-	-	-	
	SB	05:00	OP3	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.06	0.06	
	SB	06:00	OP3	0.24	0.23	0.23	0.24	0.24	0.26	0.26	0.41	0.44	
	SB	07:00	AM	0.65	0.58	0.58	0.66	0.66	0.58	0.62	0.99	0.52	
	SB	08:00	AM	0.56	0.50	0.50	0.56	0.56	0.50	0.53	0.85	0.45	
	SB	09:00	IP	0.27	0.27	0.27	0.29	0.29	0.33	0.35	0.42	0.15	
	SB	10:00	IP	0.25	0.24	0.24	0.26	0.26	0.30	0.32	0.39	0.14	
	SB	11:00	IP	0.19	0.19	0.19	0.20	0.20	0.24	0.25	0.30	0.11	
	SB	12:00	IP	0.17	0.17	0.17	0.18	0.18	0.21	0.22	0.27	0.10	
	SB	13:00	IP	0.14	0.14	0.14	0.15	0.15	0.18	0.19	0.22	0.08	
	SB	14:00	IP	0.14	0.13	0.13	0.14	0.14	0.17	0.18	0.21	0.08	
	SB	15:00	IP	0.21	0.20	0.20	0.22	0.22	0.25	0.26	0.31	0.11	
	SB	16:00	PM	0.40	0.41	0.41	0.37	0.37	0.42	0.42	0.42	0.24	
	SB	17:00	PM	0.59	0.61	0.61	0.54	0.54	0.62	0.61	0.62	0.36	
	SB	18:00	OP1	0.49	0.49	0.49	0.37	0.37	0.40	0.41	0.42	0.37	
	SB	19:00	OP1	0.24	0.24	0.24	0.18	0.18	0.20	0.20	0.20	0.18	
	SB	20:00	OP1	0.27	0.26	0.26	0.20	0.20	0.22	0.22	0.23	0.20	
	SB	21:00	OP1	0.08	0.08	0.08	0.06	0.06	0.07	0.07	0.07	0.06	
	SB	22:00	OP1	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.07	0.06	
	SB	23:00	OP1	-	-	-	-	-	-	-	-	-	

Table 55: Brighton Main Line, Northbound, Fast, Future baseline 2047

BAU_47				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-63	636-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Fasts	NB	00:00	OP2	3	1,870	2,208	4,078	114	230	230	230	230	230	230	230	230	230	281	93	57	0
	NB	01:00	OP2	1	838	989	1,827	35	71	71	71	71	71	71	71	71	71	87	29	18	0
	NB	02:00	OP2	1	419	495	913	10	21	21	21	21	21	21	21	21	21	25	8	5	0
	NB	03:00	OP2	1	688	813	1,501	14	28	28	28	28	28	28	28	28	28	34	11	7	0
	NB	04:00	OP3	2	1,137	1,263	2,400	68	78	78	78	78	78	78	78	78	78	16	14	78	78
	NB	05:00	OP3	2	1,503	1,669	3,172	545	624	624	624	624	624	624	624	624	624	131	116	628	628
	NB	06:00	OP3	12	7,245	8,044	15,288	5,178	5,927	5,927	5,927	5,927	5,927	5,927	5,927	5,927	5,927	1,244	1,107	5,971	5,971
	NB	07:00	AM	16	10,475	10,098	20,573	8,420	10,228	10,264	10,264	10,264	10,264	10,264	10,264	10,264	10,264	5,784	5,201	7,402	7,402
	NB	08:00	AM	18	11,178	10,777	21,955	10,284	12,491	12,536	12,536	12,536	12,536	12,536	12,536	12,536	12,536	7,064	6,352	9,040	9,040
	NB	09:00	IP	14	8,433	7,392	15,825	5,616	10,014	10,014	10,014	10,014	10,014	10,014	10,014	10,014	10,014	6,325	4,908	4,733	4,733
	NB	10:00	IP	14	8,577	7,518	16,095	3,602	6,422	6,422	6,422	6,422	6,422	6,422	6,422	6,422	6,422	4,056	3,147	3,035	3,035
	NB	11:00	IP	14	8,210	7,197	15,407	3,018	5,381	5,381	5,381	5,381	5,381	5,381	5,381	5,381	5,381	3,399	2,637	2,543	2,543
	NB	12:00	IP	14	8,408	7,371	15,779	2,505	4,466	4,466	4,466	4,466	4,466	4,466	4,466	4,466	4,466	2,821	2,189	2,111	2,111
	NB	13:00	IP	13	7,834	6,867	14,701	2,028	3,616	3,616	3,616	3,616	3,616	3,616	3,616	3,616	3,616	2,284	1,772	1,709	1,709
	NB	14:00	IP	13	7,834	6,867	14,701	1,752	3,123	3,123	3,123	3,123	3,123	3,123	3,123	3,123	3,123	1,972	1,531	1,476	1,476
	NB	15:00	IP	13	8,002	7,015	15,017	1,585	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825	2,825	1,784	1,385	1,335	1,335
	NB	16:00	PM	16	9,901	9,957	19,858	3,345	4,878	4,878	4,878	4,878	4,878	4,878	4,878	4,878	4,878	3,197	1,676	2,971	2,971
	NB	17:00	PM	17	10,554	10,613	21,167	4,253	6,202	6,202	6,202	6,202	6,202	6,202	6,202	6,202	6,202	4,065	2,130	3,777	3,777
	NB	18:00	OP1	16	9,727	8,564	18,291	2,414	6,599	6,599	6,599	6,599	6,599	6,599	6,599	6,599	6,599	4,438	3,100	3,085	3,085
	NB	19:00	OP1	13	7,882	6,939	14,821	1,570	4,292	4,292	4,292	4,292	4,292	4,292	4,292	4,292	4,292	2,886	2,017	2,006	2,006
	NB	20:00	OP1	14	8,276	7,286	15,563	1,092	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,985	2,007	1,403	1,395	1,395
	NB	21:00	OP1	15	8,686	7,647	16,333	877	2,399	2,399	2,399	2,399	2,399	2,399	2,399	2,399	2,399	1,613	1,127	1,121	1,121
	NB	22:00	OP1	13	7,507	6,610	14,117	589	1,609	1,609	1,609	1,609	1,609	1,609	1,609	1,609	1,609	1,082	756	752	752
	NB	23:00	OP1	11	6,318	5,563	11,881	642	1,755	1,755	1,755	1,755	1,755	1,755	1,755	1,755	1,755	1,180	825	821	821

				35	30	47	43	40	33	28	24	22	18	17	7	14	12
				Seated load factor on departure													
Scenario	Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Fasts	NB	00:00	OP2	0.06	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.49	0.16	0.04	0.00
	NB	01:00	OP2	0.04	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.34	0.11	0.03	0.00
	NB	02:00	OP2	0.02	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.20	0.06	0.02	0.00
	NB	03:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.16	0.05	0.01	0.00
	NB	04:00	OP3	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.04	0.03	0.11	0.11
	NB	05:00	OP3	0.36	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.22	0.19	0.70	0.70
	NB	06:00	OP3	0.71	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.43	0.38	1.37	1.37
	NB	07:00	AM	0.80	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.08	0.97	1.44	1.44
	NB	08:00	AM	0.92	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.24	1.11	1.65	1.65
	NB	09:00	IP	0.67	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.11	0.86	1.74	1.74
	NB	10:00	IP	0.42	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.70	0.54	1.10	1.10
	NB	11:00	IP	0.37	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.61	0.47	0.96	0.96
	NB	12:00	IP	0.30	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.50	0.38	0.78	0.78
	NB	13:00	IP	0.26	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.43	0.33	0.68	0.68
	NB	14:00	IP	0.22	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.37	0.29	0.58	0.58
	NB	15:00	IP	0.20	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.33	0.26	0.52	0.52
	NB	16:00	PM	0.34	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.53	0.28	0.77	0.77
	NB	17:00	PM	0.40	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.63	0.33	0.92	0.92
	NB	18:00	OP1	0.25	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.47	0.97	0.97
	NB	19:00	OP1	0.20	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.38	0.78	0.78
	NB	20:00	OP1	0.13	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.25	0.52	0.52
	NB	21:00	OP1	0.10	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.19	0.39	0.39
	NB	22:00	OP1	0.08	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.15	0.31	0.31
	NB	23:00	OP1	0.10	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.19	0.40	0.40

Table 56: Brighton Main Line, Northbound, Stoppers, Future baseline 2047

BAU_47				671	671		671	2113-500	671-211	114-211	115-211	116-824	24-211	117-259	596-813	12-253	843-636	36-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
					All services			Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	2	1,150	1,875	3,026	35	151	150	150	148	146	145	146	147	147	167	0	53	0
	NB	01:00	OP2	1	515	840	1,356	11	47	47	47	46	45	45	45	46	46	52	0	16	0
	NB	02:00	OP2	0	258	420	678	3	14	14	14	13	13	13	13	13	13	15	0	5	0
	NB	03:00	OP2	1	423	690	1,114	4	18	18	18	18	17	17	17	18	18	20	0	6	0
	NB	04:00	OP3	1	435	576	1,011	12	15	15	15	15	15	16	22	24	24	6	5	29	29
	NB	05:00	OP3	1	575	761	1,336	97	124	124	124	124	123	130	179	195	195	45	39	231	231
	NB	06:00	OP3	5	2,771	3,668	6,439	920	1,179	1,181	1,181	1,178	1,166	1,236	1,701	1,850	1,851	431	369	2,198	2,198
	NB	07:00	AM	6	3,862	4,956	8,818	844	510	554	580	965	1,723	1,976	2,849	3,866	3,833	1,412	1,212	3,318	3,593
	NB	08:00	AM	6	4,122	5,288	9,410	1,031	623	676	708	1,178	2,104	2,413	3,479	4,721	4,681	1,724	1,480	4,052	4,388
	NB	09:00	IP	7	3,865	6,046	9,911	1,195	768	782	787	1,005	1,334	1,413	1,677	2,127	2,120	195	154	4,635	4,877
	NB	10:00	IP	7	3,931	6,150	10,081	766	493	502	505	645	855	906	1,076	1,364	1,360	125	99	2,972	3,128
	NB	11:00	IP	6	3,763	5,887	9,650	642	413	420	423	540	717	759	901	1,143	1,139	105	83	2,491	2,621
	NB	12:00	IP	7	3,854	6,029	9,883	533	343	349	351	448	595	630	748	949	946	87	69	2,067	2,175
	NB	13:00	IP	6	3,590	5,617	9,207	431	277	282	284	363	482	510	606	768	766	71	56	1,674	1,761
	NB	14:00	IP	6	3,590	5,617	9,207	373	240	244	245	314	416	441	523	663	661	61	48	1,445	1,521
	NB	15:00	IP	6	3,668	5,738	9,406	337	217	221	222	284	376	399	473	600	598	55	44	1,308	1,376
	NB	16:00	PM	4	2,418	3,940	6,358	419	784	622	623	628	442	442	486	562	562	0	0	1,542	1,441
	NB	17:00	PM	4	2,578	4,200	6,778	532	997	791	793	799	562	563	619	714	714	0	0	1,960	1,832
	NB	18:00	OP1	2	1,417	2,311	3,728	312	538	420	420	420	383	392	428	428	428	0	0	1,116	1,116
	NB	19:00	OP1	2	1,148	1,873	3,021	203	350	273	273	273	249	255	278	278	278	0	0	726	726
	NB	20:00	OP1	2	1,206	1,966	3,172	141	244	190	190	190	173	177	193	193	193	0	0	505	505
	NB	21:00	OP1	2	1,265	2,064	3,329	113	196	153	153	153	139	142	155	155	155	0	0	406	406
	NB	22:00	OP1	2	1,094	1,784	2,877	76	131	102	102	102	94	96	104	104	104	0	0	272	272
	NB	23:00	OP1	2	921	1,501	2,422	83	143	112	112	112	102	104	114	114	114	0	0	297	297

	35	30	47	43	40	33	28	24	22	18	17	7	14	12
	Seated LF													
Hour beginning	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
00:00	0.03	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-	-	0.05	0.00
01:00	0.02	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	-	-	0.03	0.00
02:00	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.02	0.00
03:00	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.02	0.00
04:00	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.09	0.09
05:00	0.17	0.22	0.22	0.22	0.22	0.21	0.23	0.31	0.34	0.34	0.28	0.24	0.56	0.56
06:00	0.33	0.43	0.43	0.43	0.42	0.42	0.45	0.61	0.67	0.67	0.55	0.47	1.11	1.11
07:00	0.22	0.13	0.14	0.15	0.25	0.45	0.51	0.74	1.00	0.99	1.09	0.94	1.29	1.40
08:00	0.25	0.15	0.16	0.17	0.29	0.51	0.59	0.84	1.15	1.14	1.25	1.07	1.48	1.60
09:00	0.31	0.20	0.20	0.20	0.26	0.35	0.37	0.43	0.55	0.55	0.82	0.65	1.28	1.34
10:00	0.19	0.13	0.13	0.13	0.16	0.22	0.23	0.27	0.35	0.35	0.52	0.41	0.81	0.85
11:00	0.17	0.11	0.11	0.11	0.14	0.19	0.20	0.24	0.30	0.30	0.45	0.36	0.71	0.74
12:00	0.14	0.09	0.09	0.09	0.12	0.15	0.16	0.19	0.25	0.25	0.37	0.29	0.57	0.60
13:00	0.12	0.08	0.08	0.08	0.10	0.13	0.14	0.17	0.21	0.21	0.32	0.25	0.50	0.52
14:00	0.10	0.07	0.07	0.07	0.09	0.12	0.12	0.15	0.18	0.18	0.28	0.22	0.43	0.45
15:00	0.09	0.06	0.06	0.06	0.08	0.10	0.11	0.13	0.16	0.16	0.25	0.19	0.38	0.40
16:00	0.17	0.32	0.26	0.26	0.26	0.18	0.18	0.20	0.23	0.23	-	-	0.64	0.60
17:00	0.21	0.39	0.31	0.31	0.31	0.22	0.22	0.24	0.28	0.28	-	-	0.76	0.71
18:00	0.22	0.38	0.30	0.30	0.30	0.27	0.28	0.30	0.30	0.30	-	-	0.79	0.79
19:00	0.18	0.30	0.24	0.24	0.24	0.22	0.22	0.24	0.24	0.24	-	-	0.63	0.63
20:00	0.12	0.20	0.16	0.16	0.16	0.14	0.15	0.16	0.16	0.16	-	-	0.42	0.42
21:00	0.09	0.15	0.12	0.12	0.12	0.11	0.11	0.12	0.12	0.12	-	-	0.32	0.32
22:00	0.07	0.12	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	-	-	0.25	0.25
23:00	0.09	0.16	0.12	0.12	0.12	0.11	0.11	0.12	0.12	0.12	-	-	0.32	0.32

Table 57: Brighton Main Line, Southbound, Fast, Future baseline 2047

BAU_47				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-21	117-82	24-211	116-211	115-21	114-67	71-5000
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Fasts	SB	00:00	OP2	1	490	511	1,001	6	23	0	0	122	122	122	122	122	122	122	122	122	183
	SB	01:00	OP2	1	327	341	667	2	7	0	0	37	37	37	37	37	37	37	37	37	56
	SB	02:00	OP2	0	105	109	214	1	2	0	0	11	11	11	11	11	11	11	11	11	16
	SB	03:00	OP2	1	327	341	667	1	5	0	0	29	29	29	29	29	29	29	29	29	43
	SB	04:00	OP3	4	2,130	2,136	4,265	48	53	217	217	208	208	208	208	208	208	208	208	208	53
	SB	05:00	OP3	6	3,611	3,622	7,233	98	108	438	438	421	421	421	421	421	421	421	421	421	108
	SB	06:00	OP3	11	6,916	6,936	13,852	334	366	1,494	1,494	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433	366
	SB	07:00	AM	15	8,603	9,437	18,040	1,256	2,308	2,938	2,938	3,989	3,989	3,989	3,989	3,989	3,989	3,989	3,989	3,989	2,095
	SB	08:00	AM	18	10,804	11,851	22,655	1,272	2,338	2,976	2,976	4,040	4,040	4,040	4,040	4,040	4,040	4,040	4,040	4,040	2,122
	SB	09:00	IP	21	12,830	12,619	25,450	1,488	2,052	2,564	2,565	4,012	4,012	4,012	4,012	4,012	4,014	4,014	4,014	4,016	2,447
	SB	10:00	IP	18	10,778	10,601	21,379	1,152	1,588	1,985	1,985	3,105	3,105	3,105	3,105	3,105	3,107	3,107	3,107	3,108	1,894
	SB	11:00	IP	16	9,874	9,711	19,585	1,059	1,459	1,824	1,824	2,854	2,854	2,854	2,854	2,854	2,855	2,855	2,855	2,857	1,741
	SB	12:00	IP	16	9,654	9,495	19,149	1,182	1,630	2,037	2,038	3,188	3,188	3,188	3,188	3,188	3,189	3,189	3,189	3,191	1,944
	SB	13:00	IP	17	10,112	9,945	20,057	1,423	1,962	2,452	2,452	3,836	3,836	3,836	3,836	3,836	3,838	3,838	3,838	3,840	2,340
	SB	14:00	IP	16	9,886	9,723	19,609	1,761	2,428	3,034	3,035	4,748	4,748	4,748	4,748	4,748	4,750	4,750	4,750	4,752	2,896
	SB	15:00	IP	18	10,807	10,629	21,437	2,450	3,377	4,221	4,221	6,604	6,604	6,604	6,604	6,604	6,607	6,607	6,607	6,610	4,028
	SB	16:00	PM	15	9,484	9,461	18,944	4,761	5,527	5,015	5,386	8,262	8,262	8,262	8,262	8,262	8,262	8,262	8,262	8,264	5,702
	SB	17:00	PM	18	11,424	11,396	22,821	7,023	8,153	7,398	7,945	12,187	12,187	12,187	12,187	12,187	12,187	12,187	12,187	12,191	8,411
	SB	18:00	OP1	17	10,053	9,239	19,292	6,417	7,051	7,804	7,852	12,250	12,250	12,250	12,250	12,250	12,250	12,250	12,250	12,249	10,198
	SB	19:00	OP1	12	7,404	6,804	14,207	3,623	3,981	4,406	4,434	6,917	6,917	6,917	6,917	6,917	6,917	6,917	6,917	6,917	5,758
	SB	20:00	OP1	14	8,404	7,723	16,126	2,412	2,651	2,934	2,952	4,606	4,606	4,606	4,606	4,606	4,606	4,606	4,606	4,605	3,834
	SB	21:00	OP1	14	8,249	7,581	15,830	1,861	2,045	2,263	2,277	3,553	3,553	3,553	3,553	3,553	3,553	3,553	3,553	3,553	2,958
	SB	22:00	OP1	11	6,642	6,104	12,746	1,813	1,992	2,205	2,218	3,461	3,461	3,461	3,461	3,461	3,461	3,461	3,461	3,460	2,881
	SB	23:00	OP1	8	5,058	4,649	9,707	840	923	1,022	1,028	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,604	1,335

	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
00:00	0.03	0.10	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.37
01:00	0.01	0.05	0.00	0.00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.17
02:00	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.15
03:00	0.01	0.04	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.13
04:00	0.04	0.05	0.22	0.22	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.02
05:00	0.05	0.06	0.26	0.26	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.03
06:00	0.09	0.10	0.46	0.46	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.05
07:00	0.28	0.51	0.71	0.71	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.24
08:00	0.23	0.42	0.57	0.57	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.20
09:00	0.21	0.29	0.44	0.44	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.19
10:00	0.19	0.27	0.41	0.41	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.18
11:00	0.20	0.27	0.41	0.41	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.18
12:00	0.22	0.31	0.47	0.47	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.20
13:00	0.26	0.35	0.54	0.54	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.23
14:00	0.32	0.45	0.68	0.68	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.29
15:00	0.41	0.57	0.87	0.87	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.37
16:00	0.91	1.06	1.17	1.26	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.60
17:00	1.12	1.30	1.44	1.54	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.74
18:00	1.02	1.12	2.07	2.09	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.01
19:00	0.78	0.86	1.59	1.60	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.78
20:00	0.46	0.50	0.93	0.94	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.46
21:00	0.36	0.40	0.73	0.74	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.36
22:00	0.44	0.48	0.89	0.89	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.43
23:00	0.27	0.29	0.54	0.54	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.26

Table 58: Brighton Main Line, Southbound, Stoppers, Future baseline 2047

Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
BAU_47				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-21	117-82	24-211	116-21	115-21	114-67	71-5000
Stoppers					Mins JT (London) -->			-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
	SB	00:00	OP2	2	1,362	1,994	3,356	7	24	0	0	470	470	458	456	455	453	453	453	453	315
	SB	01:00	OP2	2	908	1,328	2,236	2	7	0	0	144	144	140	140	140	139	139	139	139	97
	SB	02:00	OP2	1	292	427	719	1	2	0	0	41	41	40	39	39	39	39	39	39	27
	SB	03:00	OP2	2	908	1,328	2,236	2	6	0	0	111	111	108	108	108	107	107	107	107	75
	SB	04:00	OP3	1	534	774	1,308	5	7	107	107	95	95	97	88	88	86	86	86	90	4
	SB	05:00	OP3	2	906	1,312	2,219	9	15	217	217	192	192	196	179	177	175	175	175	182	8
	SB	06:00	OP3	3	1,736	2,513	4,249	32	51	741	741	654	654	668	609	604	596	596	596	618	27
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	1,053	1,120	509	509	509	465	459	305	420	429	593	149
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,067	1,134	515	515	515	471	465	309	425	434	601	151
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,294	1,269	671	671	627	596	586	388	417	420	451	158
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	1,002	982	519	519	485	461	454	300	323	325	349	122
Stoppers	SB	11:00	IP	5	2,707	4,415	7,122	0	0	921	903	477	477	446	424	417	276	297	299	321	112
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	1,028	1,008	533	533	498	473	466	308	331	334	358	125
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,238	1,213	641	641	600	570	560	371	399	402	431	151
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,532	1,502	793	793	742	705	694	459	493	497	533	186
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	2,131	2,089	1,104	1,104	1,032	980	965	638	686	692	742	259
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,691	2,540	2,087	2,087	1,595	1,191	1,086	793	665	640	629	450
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,970	3,747	3,078	3,078	2,353	1,756	1,602	1,169	981	944	928	664
	SB	18:00	OP1	4	2,252	2,908	5,159	65	72	3,452	3,452	2,122	2,122	2,067	1,765	1,636	895	840	807	720	1,028
	SB	19:00	OP1	3	1,658	2,141	3,800	37	41	1,949	1,949	1,198	1,198	1,167	997	924	505	475	455	407	580
	SB	20:00	OP1	3	1,882	2,430	4,313	25	27	1,298	1,298	798	798	777	664	615	336	316	303	271	386
	SB	21:00	OP1	3	1,848	2,386	4,233	19	21	1,001	1,001	616	616	600	512	475	259	244	234	209	298
	SB	22:00	OP1	3	1,488	1,921	3,409	18	20	975	975	600	600	584	499	462	253	237	228	203	290
	SB	23:00	OP1	2	1,133	1,463	2,596	9	9	452	452	278	278	271	231	214	117	110	106	94	135

Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
00:00	0.03	0.12	0.00	0.00	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.23
01:00	0.02	0.05	0.00	0.00	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.11
02:00	0.01	0.05	0.00	0.00	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.09
03:00	0.01	0.04	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.08
04:00	0.05	0.08	0.24	0.24	0.18	0.18	0.18	0.17	0.16	0.16	0.16	0.16	0.17	0.01
05:00	0.06	0.10	0.29	0.29	0.21	0.21	0.22	0.20	0.20	0.19	0.19	0.19	0.20	0.01
06:00	0.11	0.17	0.51	0.51	0.38	0.38	0.38	0.35	0.35	0.34	0.34	0.34	0.36	0.02
07:00	0.00	0.00	0.60	0.63	0.22	0.22	0.22	0.20	0.20	0.13	0.18	0.19	0.26	0.07
08:00	0.00	0.00	0.48	0.51	0.18	0.18	0.18	0.16	0.16	0.11	0.15	0.15	0.21	0.05
09:00	-	-	0.37	0.36	0.19	0.19	0.18	0.17	0.17	0.11	0.12	0.12	0.13	0.04
10:00	-	-	0.34	0.33	0.18	0.18	0.16	0.16	0.15	0.10	0.11	0.11	0.12	0.04
11:00	-	-	0.34	0.33	0.18	0.18	0.16	0.16	0.15	0.10	0.11	0.11	0.12	0.04
12:00	-	-	0.39	0.38	0.20	0.20	0.19	0.18	0.18	0.12	0.13	0.13	0.14	0.05
13:00	-	-	0.45	0.44	0.23	0.23	0.22	0.21	0.20	0.13	0.14	0.14	0.16	0.05
14:00	-	-	0.57	0.55	0.29	0.29	0.27	0.26	0.26	0.17	0.18	0.18	0.20	0.07
15:00	-	-	0.72	0.70	0.37	0.37	0.35	0.33	0.33	0.22	0.23	0.23	0.25	0.09
16:00	0.00	0.00	1.30	1.22	0.81	0.81	0.62	0.46	0.42	0.31	0.26	0.25	0.25	0.18
17:00	0.00	0.00	1.59	1.50	1.00	1.00	0.76	0.57	0.52	0.38	0.32	0.31	0.30	0.22
18:00	0.09	0.10	2.23	2.23	0.94	0.94	0.92	0.78	0.73	0.40	0.37	0.36	0.32	0.46
19:00	0.07	0.08	1.71	1.71	0.72	0.72	0.70	0.60	0.56	0.30	0.29	0.27	0.25	0.35
20:00	0.04	0.05	1.01	1.01	0.42	0.42	0.41	0.35	0.33	0.18	0.17	0.16	0.14	0.21
21:00	0.03	0.04	0.79	0.79	0.33	0.33	0.32	0.28	0.26	0.14	0.13	0.13	0.11	0.16
22:00	0.04	0.04	0.96	0.96	0.40	0.40	0.39	0.34	0.31	0.17	0.16	0.15	0.14	0.20
23:00	0.02	0.03	0.58	0.58	0.25	0.25	0.24	0.20	0.19	0.10	0.10	0.09	0.08	0.12

Table 59: Arun Valley, Northbound, All, Future baseline 2047

BAU_47				2136	2136		2136
Fasts				All services			
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity
Fasts	NB	00:00	OP2	0	0	0	0
	NB	01:00	OP2	0	0	0	0
	NB	02:00	OP2	0	0	0	0
	NB	03:00	OP2	0	0	0	0
	NB	04:00	OP3	0	0	0	0
	NB	05:00	OP3	0	0	0	0
	NB	06:00	OP3	2	1,173	693	1,866
	NB	07:00	AM	3	1,992	1,189	3,181
	NB	08:00	AM	3	1,896	1,131	3,027
	NB	09:00	IP	2	1,277	755	2,032
	NB	10:00	IP	2	1,155	683	1,838
	NB	11:00	IP	2	1,155	683	1,838
	NB	12:00	IP	2	1,155	683	1,838
	NB	13:00	IP	2	1,155	683	1,838
	NB	14:00	IP	2	1,155	683	1,838
	NB	15:00	IP	2	1,155	683	1,838
	NB	16:00	PM	2	1,216	725	1,940
	NB	17:00	PM	2	1,216	725	1,940
	NB	18:00	OP1	2	1,188	703	1,891
	NB	19:00	OP1	2	1,075	635	1,710
	NB	20:00	OP1	2	1,075	635	1,710
	NB	21:00	OP1	2	1,188	703	1,891
	NB	22:00	OP1	2	1,075	635	1,710
	NB	23:00	OP1	1	848	501	1,349

	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671
	Calibrated load on Departure (1hr)								
Hour beginning	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
00:00	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0
06:00	478	478	268	295	295	307	316	436	436
07:00	844	1,139	1,045	1,081	1,081	1,105	1,655	1,550	1,550
08:00	969	1,306	1,199	1,241	1,241	1,268	1,899	1,778	1,778
09:00	694	758	641	641	641	641	939	891	891
10:00	593	647	547	547	547	547	802	761	761
11:00	451	493	416	416	416	416	611	579	579
12:00	350	382	323	323	323	323	473	449	449
13:00	290	317	268	268	268	268	393	373	373
14:00	235	257	217	217	217	217	318	302	302
15:00	246	269	227	227	227	227	333	316	316
16:00	430	466	505	505	505	505	661	571	571
17:00	578	626	679	679	679	679	888	767	767
18:00	354	362	356	356	356	356	509	487	487
19:00	210	215	211	211	211	211	302	289	289
20:00	101	104	102	102	102	102	146	140	140
21:00	109	111	110	110	110	110	157	150	150
22:00	75	77	76	76	76	76	108	104	104
23:00	57	59	58	58	58	58	83	79	79

	Seated LF								
Hour beginning	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
00:00	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-
05:00	-	-	-	-	-	-	-	-	-
06:00	0.41	0.41	0.23	0.25	0.25	0.26	0.27	0.37	0.37
07:00	0.42	0.57	0.52	0.54	0.54	0.55	0.83	0.78	0.78
08:00	0.51	0.69	0.63	0.65	0.65	0.67	1.00	0.94	0.94
09:00	0.54	0.59	0.50	0.50	0.50	0.50	0.74	0.70	0.70
10:00	0.51	0.56	0.47	0.47	0.47	0.47	0.69	0.66	0.66
11:00	0.39	0.43	0.36	0.36	0.36	0.36	0.53	0.50	0.50
12:00	0.30	0.33	0.28	0.28	0.28	0.28	0.41	0.39	0.39
13:00	0.25	0.27	0.23	0.23	0.23	0.23	0.34	0.32	0.32
14:00	0.20	0.22	0.19	0.19	0.19	0.19	0.28	0.26	0.26
15:00	0.21	0.23	0.20	0.20	0.20	0.20	0.29	0.27	0.27
16:00	0.35	0.38	0.42	0.42	0.42	0.42	0.54	0.47	0.47
17:00	0.48	0.52	0.56	0.56	0.56	0.56	0.73	0.63	0.63
18:00	0.30	0.30	0.30	0.30	0.30	0.30	0.43	0.41	0.41
19:00	0.20	0.20	0.20	0.20	0.20	0.20	0.28	0.27	0.27
20:00	0.09	0.10	0.10	0.10	0.10	0.10	0.14	0.13	0.13
21:00	0.09	0.09	0.09	0.09	0.09	0.09	0.13	0.13	0.13
22:00	0.07	0.07	0.07	0.07	0.07	0.07	0.10	0.10	0.10
23:00	0.07	0.07	0.07	0.07	0.07	0.07	0.10	0.09	0.09

Table 60: Arun Valley, Southbound, All, Future baseline 2047

BAU_47				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120
Fasts																
				All services				Calibrated load on Departure (1hr)								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
Fasts	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	05:00	OP3	0	157	93	250	8	13	13	13	13	13	13	24	28
	SB	06:00	OP3	2	1,016	600	1,616	33	54	56	56	56	55	54	100	118
	SB	07:00	AM	2	1,151	686	1,836	245	335	344	344	344	344	326	307	290
	SB	08:00	AM	2	794	473	1,268	195	267	273	273	273	273	259	244	230
	SB	09:00	IP	2	1,277	755	2,032	334	434	442	442	442	442	473	501	403
	SB	10:00	IP	2	1,155	683	1,838	202	263	268	268	268	268	286	303	244
	SB	11:00	IP	2	1,155	683	1,838	176	229	234	234	234	234	250	264	213
	SB	12:00	IP	2	1,155	683	1,838	227	295	301	301	301	301	321	340	274
	SB	13:00	IP	2	1,155	683	1,838	256	333	339	339	339	339	362	384	308
	SB	14:00	IP	2	1,155	683	1,838	311	405	412	412	412	412	441	467	375
	SB	15:00	IP	2	1,155	683	1,838	459	597	608	608	608	608	650	688	553
	SB	16:00	PM	2	1,250	745	1,995	712	892	696	689	689	680	789	618	548
	SB	17:00	PM	3	1,910	1,139	3,049	1,127	1,411	1,102	1,090	1,090	1,077	1,249	978	867
	SB	18:00	OP1	3	1,619	1,085	2,703	1,004	1,235	1,056	1,053	1,053	1,045	1,282	1,039	901
	SB	19:00	OP1	2	1,059	710	1,769	581	715	612	609	609	605	742	602	521
	SB	20:00	OP1	2	1,365	915	2,280	370	455	389	388	388	385	472	383	332
	SB	21:00	OP1	2	1,059	710	1,769	276	339	290	289	289	287	352	285	247
	SB	22:00	OP1	2	1,171	785	1,956	243	299	256	255	255	253	310	251	218
	SB	23:00	OP1	1	835	560	1,395	165	202	173	173	173	171	210	170	148

	Seated LF								
Hour beginning	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
00:00	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-
05:00	0.05	0.08	0.08	0.08	0.08	0.08	0.08	0.15	0.18
06:00	0.03	0.05	0.06	0.06	0.06	0.05	0.05	0.10	0.12
07:00	0.21	0.29	0.30	0.30	0.30	0.30	0.28	0.27	0.25
08:00	0.25	0.34	0.34	0.34	0.34	0.34	0.33	0.31	0.29
09:00	0.26	0.34	0.35	0.35	0.35	0.35	0.37	0.39	0.32
10:00	0.17	0.23	0.23	0.23	0.23	0.23	0.25	0.26	0.21
11:00	0.15	0.20	0.20	0.20	0.20	0.20	0.22	0.23	0.18
12:00	0.20	0.26	0.26	0.26	0.26	0.26	0.28	0.29	0.24
13:00	0.22	0.29	0.29	0.29	0.29	0.29	0.31	0.33	0.27
14:00	0.27	0.35	0.36	0.36	0.36	0.36	0.38	0.40	0.32
15:00	0.40	0.52	0.53	0.53	0.53	0.53	0.56	0.60	0.48
16:00	0.57	0.71	0.56	0.55	0.55	0.54	0.63	0.49	0.44
17:00	0.59	0.74	0.58	0.57	0.57	0.56	0.65	0.51	0.45
18:00	0.62	0.76	0.65	0.65	0.65	0.65	0.79	0.64	0.56
19:00	0.55	0.67	0.58	0.58	0.58	0.57	0.70	0.57	0.49
20:00	0.27	0.33	0.29	0.28	0.28	0.28	0.35	0.28	0.24
21:00	0.26	0.32	0.27	0.27	0.27	0.27	0.33	0.27	0.23
22:00	0.21	0.26	0.22	0.22	0.22	0.22	0.26	0.21	0.19
23:00	0.20	0.24	0.21	0.21	0.21	0.20	0.25	0.20	0.18

Table 61: North Downs Line, Northbound, All, Future baseline 2047

BAU_47				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
All	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	2	553	403	956	30	53	42	41	32	32	33	33	33	37	0.05	0.10	0.08	0.07	0.06	0.06	0.06	0.06	0.06	0.07
	NB	06:00	OP3	3	1,105	807	1,912	80	142	113	111	87	87	89	89	90	99	0.07	0.13	0.10	0.10	0.08	0.08	0.08	0.08	0.08	0.09
	NB	07:00	AM	3	976	761	1,737	223	434	326	349	395	395	482	482	488	551	0.23	0.45	0.33	0.36	0.40	0.40	0.49	0.49	0.50	0.56
	NB	08:00	AM	3	976	761	1,737	123	240	180	193	219	219	267	267	270	305	0.13	0.25	0.18	0.20	0.22	0.22	0.27	0.27	0.28	0.31
	NB	09:00	IP	3	995	726	1,721	125	425	436	438	384	384	408	409	413	481	0.13	0.43	0.44	0.44	0.39	0.39	0.41	0.41	0.42	0.48
	NB	10:00	IP	3	995	726	1,721	92	313	321	323	282	282	301	301	304	354	0.09	0.31	0.32	0.32	0.28	0.28	0.30	0.30	0.31	0.36
	NB	11:00	IP	3	995	726	1,721	75	257	264	265	232	232	247	247	250	290	0.08	0.26	0.26	0.27	0.23	0.23	0.25	0.25	0.25	0.29
	NB	12:00	IP	3	995	726	1,721	72	245	251	252	221	221	235	235	238	277	0.07	0.25	0.25	0.25	0.22	0.22	0.24	0.24	0.24	0.28
	NB	13:00	IP	3	995	726	1,721	71	241	247	248	217	217	231	231	234	272	0.07	0.24	0.25	0.25	0.22	0.22	0.23	0.23	0.24	0.27
	NB	14:00	IP	3	995	726	1,721	98	333	342	343	300	300	320	320	324	377	0.10	0.33	0.34	0.35	0.30	0.30	0.32	0.32	0.33	0.38
	NB	15:00	IP	3	995	726	1,721	147	501	515	517	452	452	482	482	488	567	0.15	0.50	0.52	0.52	0.45	0.45	0.48	0.48	0.49	0.57
	NB	16:00	PM	3	966	757	1,723	299	804	615	584	620	620	600	600	628	954	0.31	0.83	0.64	0.60	0.64	0.64	0.62	0.62	0.65	0.99
	NB	17:00	PM	3	966	757	1,723	221	595	455	432	459	459	444	444	465	706	0.23	0.62	0.47	0.45	0.48	0.48	0.46	0.46	0.48	0.73
	NB	18:00	OP1	3	1,031	753	1,785	244	895	637	536	500	500	509	510	524	635	0.24	0.87	0.62	0.52	0.48	0.48	0.49	0.49	0.51	0.62
	NB	19:00	OP1	2	516	377	892	121	444	316	266	248	248	253	253	260	315	0.23	0.86	0.61	0.52	0.48	0.48	0.49	0.49	0.50	0.61
	NB	20:00	OP1	3	1,031	753	1,785	115	421	300	252	235	235	240	240	246	299	0.11	0.41	0.29	0.24	0.23	0.23	0.23	0.23	0.24	0.29
	NB	21:00	OP1	3	1,031	753	1,785	23	83	59	50	46	46	47	47	48	59	0.02	0.08	0.06	0.05	0.04	0.04	0.05	0.05	0.05	0.06
	NB	22:00	OP1	2	516	377	892	14	53	37	32	29	29	30	30	31	37	0.03	0.10	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.07
	NB	23:00	OP1	2	516	377	892	29	105	75	63	59	59	60	60	62	75	0.06	0.20	0.15	0.12	0.11	0.11	0.12	0.12	0.12	0.14

Table 62: North Downs Line, Southbound, All, Future baseline 2047

BAU_47				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671
All				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
All	SB	00:00	OP2	1	166	121	287	21	21	21	21	21	21	21	25	27	
	SB	01:00	OP2	1	166	121	287	4	4	4	4	4	4	4	5	5	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	05:00	OP3	3	995	726	1,721	34	34	34	35	35	38	38	59	64	
	SB	06:00	OP3	3	995	726	1,721	250	248	248	254	254	278	280	430	467	
	SB	07:00	AM	3	748	700	1,448	525	470	470	533	533	464	496	789	407	
	SB	08:00	AM	3	748	700	1,448	450	402	402	456	456	397	424	676	348	
	SB	09:00	IP	3	853	622	1,475	302	297	297	318	318	359	381	450	165	
	SB	10:00	IP	3	853	622	1,475	277	272	272	291	291	329	349	412	151	
	SB	11:00	IP	3	853	622	1,475	215	211	212	226	226	256	271	321	117	
	SB	12:00	IP	3	853	622	1,475	194	190	191	204	204	230	244	289	106	
	SB	13:00	IP	3	853	622	1,475	161	158	158	169	169	191	202	239	87	
	SB	14:00	IP	3	853	622	1,475	153	150	150	160	160	181	192	227	83	
	SB	15:00	IP	3	853	622	1,475	205	201	201	215	215	243	258	305	112	
	SB	16:00	PM	3	966	757	1,723	464	476	476	428	428	483	481	480	289	
	SB	17:00	PM	3	966	757	1,723	683	701	701	630	630	711	708	706	425	
	SB	18:00	OP1	4	1,160	847	2,008	671	666	666	507	507	549	560	568	500	
	SB	19:00	OP1	4	1,160	847	2,008	325	322	322	245	245	265	271	275	242	
	SB	20:00	OP1	2	580	424	1,004	181	180	180	137	137	148	151	154	135	
	SB	21:00	OP1	4	1,160	847	2,008	115	114	114	87	87	94	96	97	85	
	SB	22:00	OP1	2	580	424	1,004	53	52	52	40	40	43	44	44	39	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0	

Hour beginning	Seated LF									
	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
00:00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.15	0.16	
01:00	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
02:00	-	-	-	-	-	-	-	-	-	
03:00	-	-	-	-	-	-	-	-	-	
04:00	-	-	-	-	-	-	-	-	-	
05:00	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.06	0.06	
06:00	0.25	0.25	0.25	0.25	0.25	0.28	0.28	0.43	0.47	
07:00	0.70	0.63	0.63	0.71	0.71	0.62	0.66	1.06	0.54	
08:00	0.60	0.54	0.54	0.61	0.61	0.53	0.57	0.90	0.47	
09:00	0.35	0.35	0.35	0.37	0.37	0.42	0.45	0.53	0.19	
10:00	0.32	0.32	0.32	0.34	0.34	0.39	0.41	0.48	0.18	
11:00	0.25	0.25	0.25	0.27	0.27	0.30	0.32	0.38	0.14	
12:00	0.23	0.22	0.22	0.24	0.24	0.27	0.29	0.34	0.12	
13:00	0.19	0.18	0.18	0.20	0.20	0.22	0.24	0.28	0.10	
14:00	0.18	0.18	0.18	0.19	0.19	0.21	0.23	0.27	0.10	
15:00	0.24	0.24	0.24	0.25	0.25	0.28	0.30	0.36	0.13	
16:00	0.48	0.49	0.49	0.44	0.44	0.50	0.50	0.50	0.30	
17:00	0.71	0.73	0.73	0.65	0.65	0.74	0.73	0.73	0.44	
18:00	0.58	0.57	0.57	0.44	0.44	0.47	0.48	0.49	0.43	
19:00	0.28	0.28	0.28	0.21	0.21	0.23	0.23	0.24	0.21	
20:00	0.31	0.31	0.31	0.24	0.24	0.26	0.26	0.26	0.23	
21:00	0.10	0.10	0.10	0.07	0.07	0.08	0.08	0.08	0.07	
22:00	0.09	0.09	0.09	0.07	0.07	0.07	0.08	0.08	0.07	
23:00	-	-	-	-	-	-	-	-	-	

With Project

2029

Table 63: Brighton Main Line, Northbound, Fast, With Project 2029

NRP_29				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-63	636-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	3	1,870	2,208	4,078	93	203	203	203	203	203	203	203	203	203	249	80	51	0
	NB	01:00	OP2	1	838	989	1,827	29	63	63	63	63	63	63	63	63	63	77	25	16	0
	NB	02:00	OP2	1	419	495	913	8	18	18	18	18	18	18	18	18	18	22	7	5	0
	NB	03:00	OP2	1	688	813	1,501	11	24	24	24	24	24	24	24	24	24	30	10	6	0
	NB	04:00	OP3	2	1,137	1,263	2,400	52	58	58	58	58	58	58	58	58	58	13	12	61	61
	NB	05:00	OP3	2	1,503	1,669	3,172	416	468	468	468	468	468	468	468	468	468	107	96	490	490
	NB	06:00	OP3	12	7,245	8,044	15,288	3,954	4,449	4,449	4,449	4,449	4,449	4,449	4,449	4,449	4,449	1,015	909	4,656	4,656
	NB	07:00	AM	16	10,475	10,098	20,573	6,446	8,003	8,036	8,036	8,036	8,036	8,036	8,036	8,036	8,036	4,933	4,511	6,159	6,159
	NB	08:00	AM	18	11,178	10,777	21,955	7,873	9,774	9,814	9,814	9,814	9,814	9,814	9,814	9,814	9,814	6,025	5,509	7,522	7,522
	NB	09:00	IP	14	8,433	7,392	15,825	3,747	7,523	7,523	7,523	7,523	7,523	7,523	7,523	7,523	7,523	5,062	3,913	3,645	3,645
	NB	10:00	IP	14	8,577	7,518	16,095	2,403	4,824	4,824	4,824	4,824	4,824	4,824	4,824	4,824	4,824	3,246	2,510	2,337	2,337
Fasts	NB	11:00	IP	14	8,210	7,197	15,407	2,013	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	4,043	2,720	2,103	1,958	1,958
	NB	12:00	IP	14	8,408	7,371	15,779	1,671	3,355	3,355	3,355	3,355	3,355	3,355	3,355	3,355	3,355	2,257	1,745	1,625	1,625
	NB	13:00	IP	13	7,834	6,867	14,701	1,353	2,717	2,717	2,717	2,717	2,717	2,717	2,717	2,717	2,717	1,828	1,413	1,316	1,316
	NB	14:00	IP	13	7,834	6,867	14,701	1,169	2,346	2,346	2,346	2,346	2,346	2,346	2,346	2,346	2,346	1,579	1,220	1,137	1,137
	NB	15:00	IP	13	8,002	7,015	15,017	1,057	2,123	2,122	2,122	2,122	2,122	2,122	2,122	2,122	2,122	1,428	1,104	1,028	1,028
	NB	16:00	PM	16	9,901	9,957	19,858	1,869	3,308	3,308	3,308	3,308	3,308	3,308	3,308	3,308	3,308	2,630	1,315	2,540	2,540
	NB	17:00	PM	17	10,554	10,613	21,167	2,377	4,206	4,206	4,206	4,206	4,206	4,206	4,206	4,206	4,206	3,344	1,672	3,230	3,230
	NB	18:00	OP1	16	9,727	8,564	18,291	1,378	4,980	4,980	4,980	4,980	4,980	4,980	4,980	4,980	4,980	3,623	2,569	2,539	2,539
	NB	19:00	OP1	13	7,882	6,939	14,821	897	3,239	3,239	3,239	3,239	3,239	3,239	3,239	3,239	3,239	2,356	1,671	1,651	1,651
	NB	20:00	OP1	14	8,276	7,286	15,563	624	2,253	2,253	2,253	2,253	2,253	2,253	2,253	2,253	2,253	1,639	1,162	1,149	1,149
	NB	21:00	OP1	15	8,686	7,647	16,333	501	1,810	1,810	1,810	1,810	1,810	1,810	1,810	1,810	1,810	1,317	934	923	923
	NB	22:00	OP1	13	7,507	6,610	14,117	336	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214	883	626	619	619
	NB	23:00	OP1	11	6,318	5,563	11,881	367	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	964	683	675	675

				35	30	47	43	40	33	28	24	22	18	17	7	14	12
				Seated load factor on departure													
Scenario	Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	0.05	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.43	0.14	0.04	0.00
	NB	01:00	OP2	0.03	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.30	0.10	0.03	0.00
	NB	02:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.17	0.06	0.02	0.00
	NB	03:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.14	0.05	0.01	0.00
	NB	04:00	OP3	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.09	0.09
	NB	05:00	OP3	0.28	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.18	0.16	0.54	0.54
	NB	06:00	OP3	0.55	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.35	0.31	1.07	1.07
	NB	07:00	AM	0.62	0.76	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.92	0.84	1.20	1.20
	NB	08:00	AM	0.70	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	1.06	0.97	1.37	1.37
	NB	09:00	IP	0.44	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.68	1.34	1.34
	NB	10:00	IP	0.28	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.43	0.85	0.85
Fasts	NB	11:00	IP	0.25	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.38	0.74	0.74
	NB	12:00	IP	0.20	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.31	0.60	0.60
	NB	13:00	IP	0.17	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34	0.27	0.52	0.52
	NB	14:00	IP	0.15	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.23	0.45	0.45
	NB	15:00	IP	0.13	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.26	0.20	0.40	0.40
	NB	16:00	PM	0.19	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.44	0.22	0.66	0.66
	NB	17:00	PM	0.23	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.52	0.26	0.79	0.79
	NB	18:00	OP1	0.14	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.55	0.39	0.80	0.80
	NB	19:00	OP1	0.11	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.44	0.31	0.64	0.64
	NB	20:00	OP1	0.08	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.29	0.21	0.42	0.42
	NB	21:00	OP1	0.06	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.23	0.16	0.32	0.32
	NB	22:00	OP1	0.04	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.17	0.12	0.25	0.25
	NB	23:00	OP1	0.06	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.23	0.16	0.33	0.33

Table 64: Brighton Main Line, Northbound, Stoppers, With Project 2029

NRP_29				671	671		671	2113-500	671-2114	114-211	115-211	116-824	24-211	117-259	596-81	12-253	843-636	36-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	2	1,150	1,875	3,026	31	135	134	134	132	130	130	130	132	132	150	0	47	0
	NB	01:00	OP2	1	515	840	1,356	10	42	42	42	41	40	40	40	41	41	46	0	15	0
	NB	02:00	OP2	0	258	420	678	3	12	12	12	12	12	12	12	12	12	13	0	4	0
	NB	03:00	OP2	1	423	690	1,114	4	16	16	16	16	16	16	16	16	16	18	0	6	0
	NB	04:00	OP3	1	435	576	1,011	10	12	12	12	12	12	13	18	20	20	5	4	24	24
	NB	05:00	OP3	1	575	761	1,336	78	98	98	98	98	98	104	147	161	161	39	34	191	191
	NB	06:00	OP3	5	2,771	3,668	6,439	741	932	933	933	930	928	987	1,396	1,527	1,527	373	324	1,816	1,816
	NB	07:00	AM	6	3,862	4,956	8,818	532	279	308	329	679	1,335	1,551	2,336	3,225	3,205	1,235	1,095	2,763	3,015
	NB	08:00	AM	6	4,122	5,288	9,410	650	340	376	402	829	1,630	1,894	2,853	3,938	3,914	1,508	1,337	3,374	3,683
	NB	09:00	IP	7	3,865	6,046	9,911	808	574	582	585	766	1,032	1,090	1,320	1,693	1,686	165	130	3,693	3,912
	NB	10:00	IP	7	3,931	6,150	10,081	518	368	373	375	492	662	699	847	1,086	1,081	106	84	2,368	2,509
Stoppers	NB	11:00	IP	6	3,763	5,887	9,650	434	309	313	314	412	555	586	709	910	906	89	70	1,985	2,102
	NB	12:00	IP	7	3,854	6,029	9,883	361	256	259	261	342	460	486	589	755	752	73	58	1,647	1,745
	NB	13:00	IP	6	3,590	5,617	9,207	292	207	210	211	277	373	394	477	611	609	60	47	1,334	1,413
	NB	14:00	IP	6	3,590	5,617	9,207	252	179	181	182	239	322	340	412	528	526	51	41	1,152	1,220
	NB	15:00	IP	6	3,668	5,738	9,406	228	162	164	165	216	291	308	372	478	476	46	37	1,042	1,104
	NB	16:00	PM	4	2,418	3,940	6,358	256	483	332	332	334	316	314	360	426	426	0	0	1,321	1,225
	NB	17:00	PM	4	2,578	4,200	6,778	326	614	422	423	425	402	400	457	542	542	0	0	1,680	1,558
	NB	18:00	OP1	2	1,417	2,311	3,728	208	418	318	318	318	290	295	327	327	327	0	0	940	940
	NB	19:00	OP1	2	1,148	1,873	3,021	135	272	207	207	207	189	192	212	212	212	0	0	611	611
	NB	20:00	OP1	2	1,206	1,966	3,172	94	189	144	144	144	131	133	148	148	148	0	0	425	425
	NB	21:00	OP1	2	1,265	2,064	3,329	75	152	116	116	116	105	107	119	119	119	0	0	342	342
	NB	22:00	OP1	2	1,094	1,784	2,877	51	102	78	78	78	71	72	80	80	80	0	0	229	229
	NB	23:00	OP1	2	921	1,501	2,422	55	111	85	85	85	77	78	87	87	87	0	0	250	250

	35	30	47	43	40	33	28	24	22	18	17	7	14	12
	Seated LF													
Hour beginning	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
00:00	0.03	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	-	-	0.04	0.00
01:00	0.02	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	0.03	0.00
02:00	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.02	0.00
03:00	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.01	0.00
04:00	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.03	0.08	0.08
05:00	0.14	0.17	0.17	0.17	0.17	0.17	0.18	0.26	0.28	0.28	0.24	0.21	0.46	0.46
06:00	0.27	0.34	0.34	0.34	0.34	0.33	0.36	0.50	0.55	0.55	0.47	0.41	0.92	0.92
07:00	0.14	0.07	0.08	0.09	0.18	0.35	0.40	0.60	0.83	0.83	0.96	0.85	1.08	1.17
08:00	0.16	0.08	0.09	0.10	0.20	0.40	0.46	0.69	0.96	0.95	1.09	0.97	1.23	1.34
09:00	0.21	0.15	0.15	0.15	0.20	0.27	0.28	0.34	0.44	0.44	0.70	0.55	1.02	1.08
10:00	0.13	0.09	0.09	0.10	0.13	0.17	0.18	0.22	0.28	0.28	0.44	0.35	0.64	0.68
11:00	0.12	0.08	0.08	0.08	0.11	0.15	0.16	0.19	0.24	0.24	0.38	0.30	0.56	0.60
12:00	0.09	0.07	0.07	0.07	0.09	0.12	0.13	0.15	0.20	0.20	0.31	0.25	0.46	0.48
13:00	0.08	0.06	0.06	0.06	0.08	0.10	0.11	0.13	0.17	0.17	0.27	0.21	0.40	0.42
14:00	0.07	0.05	0.05	0.05	0.07	0.09	0.09	0.11	0.15	0.15	0.23	0.18	0.34	0.36
15:00	0.06	0.04	0.04	0.05	0.06	0.08	0.08	0.10	0.13	0.13	0.21	0.16	0.30	0.32
16:00	0.11	0.20	0.14	0.14	0.14	0.13	0.13	0.15	0.18	0.18	-	-	0.55	0.51
17:00	0.13	0.24	0.16	0.16	0.16	0.16	0.16	0.18	0.21	0.21	-	-	0.65	0.60
18:00	0.15	0.29	0.22	0.22	0.22	0.20	0.21	0.23	0.23	0.23	-	-	0.66	0.66
19:00	0.12	0.24	0.18	0.18	0.18	0.16	0.17	0.19	0.19	0.19	-	-	0.53	0.53
20:00	0.08	0.16	0.12	0.12	0.12	0.11	0.11	0.12	0.12	0.12	-	-	0.35	0.35
21:00	0.06	0.12	0.09	0.09	0.09	0.08	0.08	0.09	0.09	0.09	-	-	0.27	0.27
22:00	0.05	0.09	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07	-	-	0.21	0.21
23:00	0.06	0.12	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.09	-	-	0.27	0.27

Table 65: Brighton Main Line, Southbound, Fast, With Project 2029

NRP_29				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Fasts	SB	00:00	OP2	1	490	511	1,001	5	22	0	0	111	111	111	111	111	111	111	111	111	137
	SB	01:00	OP2	1	327	341	667	1	7	0	0	34	34	34	34	34	34	34	34	34	42
	SB	02:00	OP2	0	105	109	214	0	2	0	0	10	10	10	10	10	10	10	10	10	12
	SB	03:00	OP2	1	327	341	667	1	5	0	0	26	26	26	26	26	26	26	26	26	32
	SB	04:00	OP3	4	2,130	2,136	4,265	45	50	197	197	196	196	196	196	196	196	196	196	196	40
	SB	05:00	OP3	6	3,611	3,622	7,233	91	101	398	398	397	397	397	397	397	397	397	397	397	80
	SB	06:00	OP3	11	6,916	6,936	13,852	311	345	1,356	1,356	1,353	1,353	1,353	1,353	1,353	1,353	1,353	1,353	1,353	273
	SB	07:00	AM	15	8,603	9,437	18,040	1,111	2,022	2,713	2,713	3,164	3,164	3,164	3,164	3,164	3,164	3,164	3,164	3,164	1,378
	SB	08:00	AM	18	10,804	11,851	22,655	1,125	2,048	2,747	2,747	3,204	3,204	3,204	3,204	3,204	3,204	3,204	3,204	3,204	1,396
	SB	09:00	IP	21	12,830	12,619	25,450	1,245	1,696	2,059	2,060	3,032	3,032	3,032	3,032	3,032	3,033	3,033	3,033	3,035	1,505
	SB	10:00	IP	18	10,778	10,601	21,379	963	1,313	1,594	1,594	2,347	2,347	2,347	2,347	2,347	2,348	2,348	2,348	2,349	1,165
	SB	11:00	IP	16	9,874	9,711	19,585	885	1,206	1,465	1,465	2,157	2,157	2,157	2,157	2,157	2,158	2,158	2,158	2,159	1,071
	SB	12:00	IP	16	9,654	9,495	19,149	989	1,347	1,636	1,636	2,409	2,409	2,409	2,409	2,409	2,410	2,410	2,410	2,411	1,196
	SB	13:00	IP	17	10,112	9,945	20,057	1,190	1,622	1,969	1,969	2,899	2,899	2,899	2,899	2,899	2,900	2,900	2,900	2,902	1,439
	SB	14:00	IP	16	9,886	9,723	19,609	1,473	2,007	2,437	2,437	3,588	3,588	3,588	3,588	3,588	3,590	3,590	3,590	3,592	1,781
	SB	15:00	IP	18	10,807	10,629	21,437	2,049	2,791	3,389	3,390	4,990	4,990	4,990	4,990	4,990	4,993	4,993	4,993	4,996	2,477
	SB	16:00	PM	15	9,484	9,461	18,944	3,939	4,549	4,339	4,542	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,198	6,201	3,992
	SB	17:00	PM	18	11,424	11,396	22,821	5,810	6,710	6,400	6,700	9,143	9,143	9,143	9,143	9,143	9,143	9,143	9,143	9,147	5,889
	SB	18:00	OP1	17	10,053	9,239	19,292	5,114	5,457	6,103	6,147	8,769	8,769	8,769	8,769	8,769	8,769	8,769	8,769	8,768	7,123
	SB	19:00	OP1	12	7,404	6,804	14,207	2,888	3,081	3,446	3,471	4,952	4,952	4,952	4,952	4,952	4,952	4,952	4,952	4,951	4,022
	SB	20:00	OP1	14	8,404	7,723	16,126	1,923	2,052	2,295	2,311	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297	2,678
	SB	21:00	OP1	14	8,249	7,581	15,830	1,483	1,583	1,770	1,783	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,066
	SB	22:00	OP1	11	6,642	6,104	12,746	1,445	1,541	1,724	1,736	2,477	2,477	2,477	2,477	2,477	2,477	2,477	2,477	2,477	2,012
	SB	23:00	OP1	8	5,058	4,649	9,707	670	715	799	805	1,148	1,148	1,148	1,148	1,148	1,148	1,148	1,148	1,148	933

		-	7	-	12	14	18	22	24	28	33	40	43	47	30
		Seated LF													
Direction	Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
SB	00:00	0.02	0.10	0.00	0.00	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.28
SB	01:00	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13
SB	02:00	0.01	0.04	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.11
SB	03:00	0.01	0.03	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.10
SB	04:00	0.04	0.04	0.20	0.20	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.02
SB	05:00	0.05	0.05	0.24	0.24	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.02
SB	06:00	0.08	0.09	0.42	0.42	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.04
SB	07:00	0.25	0.45	0.66	0.66	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.16
SB	08:00	0.20	0.36	0.53	0.53	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.13
SB	09:00	0.18	0.24	0.36	0.36	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.12
SB	10:00	0.16	0.22	0.33	0.33	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.11
SB	11:00	0.16	0.22	0.33	0.33	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.11
SB	12:00	0.19	0.25	0.38	0.38	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.12
SB	13:00	0.21	0.29	0.43	0.43	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.14
SB	14:00	0.27	0.37	0.55	0.55	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.18
SB	15:00	0.35	0.47	0.70	0.70	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.23
SB	16:00	0.76	0.87	1.01	1.06	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.42
SB	17:00	0.93	1.07	1.24	1.30	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.52
SB	18:00	0.81	0.87	1.62	1.63	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.71
SB	19:00	0.62	0.67	1.24	1.25	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.54
SB	20:00	0.37	0.39	0.73	0.73	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.32
SB	21:00	0.29	0.31	0.57	0.58	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.25
SB	22:00	0.35	0.37	0.69	0.70	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.30
SB	23:00	0.21	0.23	0.42	0.43	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.18

Table 66: Brighton Main Line, Southbound, Stoppers, With Project 2029

NRP_29				671	671		671	901-526	592-909	.015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Stoppers					Mins JT (London) -->			-	7	-	12	14	18	22	24	28	33	40	43	47	30
					All services			Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
	SB	00:00	OP2	2	1,362	1,994	3,356	6	23	0	0	430	430	421	420	419	418	418	418	419	220
	SB	01:00	OP2	2	908	1,328	2,236	2	7	0	0	132	132	129	129	128	128	128	128	128	67
	SB	02:00	OP2	1	292	427	719	0	2	0	0	37	37	36	36	36	36	36	36	36	19
	SB	03:00	OP2	2	908	1,328	2,236	1	5	0	0	102	102	100	99	99	99	99	99	99	52
	SB	04:00	OP3	1	534	774	1,308	4	7	100	100	93	93	94	87	86	86	86	86	89	3
	SB	05:00	OP3	2	906	1,312	2,219	9	14	202	202	188	188	191	176	175	175	175	175	181	7
	SB	06:00	OP3	3	1,736	2,513	4,249	30	49	688	688	639	639	650	599	596	596	596	596	616	23
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	993	1,095	445	445	445	400	397	261	369	377	527	114
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,005	1,109	451	451	451	405	403	265	374	381	534	116
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,063	1,043	550	550	514	486	480	328	353	355	380	111
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	823	807	426	426	398	376	372	254	273	275	294	86
Stoppers	SB	11:00	IP	5	2,707	4,415	7,122	0	0	756	742	391	391	366	346	341	233	251	253	270	79
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	845	828	437	437	409	386	381	260	280	282	302	88
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,017	997	526	526	492	465	459	313	337	340	363	106
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,258	1,234	651	651	609	575	568	388	417	420	450	131
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	1,750	1,716	905	905	847	800	790	540	580	585	626	182
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,349	2,248	1,771	1,771	1,292	929	842	515	399	378	380	287
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,464	3,316	2,613	2,613	1,905	1,370	1,242	759	589	558	561	423
	SB	18:00	OP1	4	2,252	2,908	5,159	59	61	2,755	2,755	1,706	1,706	1,658	1,394	1,292	676	629	602	533	764
	SB	19:00	OP1	3	1,658	2,141	3,800	33	34	1,556	1,556	963	963	936	787	729	382	355	340	301	431
	SB	20:00	OP1	3	1,882	2,430	4,313	22	23	1,036	1,036	641	641	624	524	486	254	236	226	200	287
	SB	21:00	OP1	3	1,848	2,386	4,233	17	18	799	799	495	495	481	404	375	196	182	175	155	222
	SB	22:00	OP1	3	1,488	1,921	3,409	17	17	778	778	482	482	469	394	365	191	178	170	151	216
	SB	23:00	OP1	2	1,133	1,463	2,596	8	8	361	361	223	223	217	183	169	88	82	79	70	100

	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
00:00	0.03	0.11	0.00	0.00	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.16
01:00	0.01	0.05	0.00	0.00	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07
02:00	0.01	0.04	0.00	0.00	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.06
03:00	0.01	0.04	0.00	0.00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.06
04:00	0.05	0.08	0.22	0.22	0.17	0.17	0.18	0.16	0.16	0.16	0.16	0.16	0.17	0.01
05:00	0.06	0.09	0.27	0.27	0.21	0.21	0.21	0.19	0.19	0.19	0.19	0.19	0.20	0.01
06:00	0.10	0.17	0.48	0.48	0.37	0.37	0.37	0.35	0.34	0.34	0.34	0.34	0.35	0.01
07:00	0.00	0.00	0.56	0.62	0.20	0.20	0.20	0.18	0.17	0.11	0.16	0.17	0.23	0.05
08:00	0.00	0.00	0.45	0.50	0.16	0.16	0.16	0.14	0.14	0.09	0.13	0.13	0.19	0.04
09:00	-	-	0.30	0.30	0.16	0.16	0.15	0.14	0.14	0.09	0.10	0.10	0.11	0.03
10:00	-	-	0.28	0.27	0.14	0.14	0.13	0.13	0.13	0.09	0.09	0.09	0.10	0.03
11:00	-	-	0.28	0.27	0.14	0.14	0.14	0.13	0.13	0.09	0.09	0.09	0.10	0.03
12:00	-	-	0.32	0.31	0.17	0.17	0.15	0.15	0.14	0.10	0.11	0.11	0.11	0.03
13:00	-	-	0.37	0.36	0.19	0.19	0.18	0.17	0.17	0.11	0.12	0.12	0.13	0.04
14:00	-	-	0.46	0.46	0.24	0.24	0.22	0.21	0.21	0.14	0.15	0.16	0.17	0.05
15:00	-	-	0.59	0.58	0.31	0.31	0.29	0.27	0.27	0.18	0.20	0.20	0.21	0.06
16:00	0.00	0.00	1.13	1.08	0.69	0.69	0.50	0.36	0.33	0.20	0.16	0.15	0.15	0.11
17:00	0.00	0.00	1.39	1.33	0.85	0.85	0.62	0.44	0.40	0.25	0.19	0.18	0.18	0.14
18:00	0.08	0.09	1.78	1.78	0.76	0.76	0.74	0.62	0.57	0.30	0.28	0.27	0.24	0.34
19:00	0.06	0.07	1.37	1.37	0.58	0.58	0.56	0.47	0.44	0.23	0.21	0.21	0.18	0.26
20:00	0.04	0.04	0.80	0.80	0.34	0.34	0.33	0.28	0.26	0.13	0.13	0.12	0.11	0.15
21:00	0.03	0.03	0.63	0.63	0.27	0.27	0.26	0.22	0.20	0.11	0.10	0.09	0.08	0.12
22:00	0.04	0.04	0.76	0.76	0.32	0.32	0.31	0.26	0.25	0.13	0.12	0.11	0.10	0.15
23:00	0.02	0.02	0.46	0.46	0.20	0.20	0.19	0.16	0.15	0.08	0.07	0.07	0.06	0.09

Table 67: Arun Valley, Northbound, All, With Project 2029

NRP_29				2136	2136		2136	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671									
Fasts				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
Fasts	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	06:00	OP3	2	1,173	693	1,866	366	366	215	237	237	246	254	352	352	0.31	0.31	0.18	0.20	0.20	0.21	0.22	0.30	0.30
	NB	07:00	AM	3	1,992	1,189	3,181	573	810	795	824	824	841	1,297	1,251	1,251	0.29	0.41	0.40	0.41	0.41	0.42	0.65	0.63	0.63
	NB	08:00	AM	3	1,896	1,131	3,027	658	929	912	945	945	965	1,488	1,435	1,435	0.35	0.49	0.48	0.50	0.50	0.51	0.78	0.76	0.76
	NB	09:00	IP	2	1,277	755	2,032	493	542	457	457	457	457	650	608	608	0.39	0.42	0.36	0.36	0.36	0.36	0.51	0.48	0.48
	NB	10:00	IP	2	1,155	683	1,838	421	463	390	390	390	390	555	520	520	0.36	0.40	0.34	0.34	0.34	0.34	0.48	0.45	0.45
	NB	11:00	IP	2	1,155	683	1,838	321	352	297	297	297	297	422	396	396	0.28	0.31	0.26	0.26	0.26	0.26	0.37	0.34	0.34
	NB	12:00	IP	2	1,155	683	1,838	249	273	230	230	230	230	328	307	307	0.22	0.24	0.20	0.20	0.20	0.20	0.28	0.27	0.27
	NB	13:00	IP	2	1,155	683	1,838	206	227	191	191	191	191	272	255	255	0.18	0.20	0.17	0.17	0.17	0.17	0.24	0.22	0.22
	NB	14:00	IP	2	1,155	683	1,838	167	184	155	155	155	155	220	206	206	0.14	0.16	0.13	0.13	0.13	0.13	0.19	0.18	0.18
	NB	15:00	IP	2	1,155	683	1,838	175	192	162	162	162	162	230	216	216	0.15	0.17	0.14	0.14	0.14	0.14	0.20	0.19	0.19
	NB	16:00	PM	2	1,216	725	1,940	265	293	333	333	333	333	403	361	361	0.22	0.24	0.27	0.27	0.27	0.27	0.33	0.30	0.30
	NB	17:00	PM	2	1,216	725	1,940	356	394	448	448	448	448	542	486	486	0.29	0.32	0.37	0.37	0.37	0.37	0.45	0.40	0.40
	NB	18:00	OP1	2	1,188	703	1,891	223	229	232	232	232	232	326	311	311	0.19	0.19	0.20	0.20	0.20	0.20	0.27	0.26	0.26
	NB	19:00	OP1	2	1,075	635	1,710	132	136	138	138	138	138	193	185	185	0.12	0.13	0.13	0.13	0.13	0.13	0.18	0.17	0.17
	NB	20:00	OP1	2	1,075	635	1,710	64	66	67	67	67	67	93	89	89	0.06	0.06	0.06	0.06	0.06	0.06	0.09	0.08	0.08
	NB	21:00	OP1	2	1,188	703	1,891	69	71	71	71	71	71	100	96	96	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.08	0.08
	NB	22:00	OP1	2	1,075	635	1,710	47	49	49	49	49	49	69	66	66	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
	NB	23:00	OP1	1	848	501	1,349	36	37	38	38	38	38	53	51	51	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.06	0.06

Table 68: Arun Valley, Southbound, All, With Project 2029

NRP_29				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
Fasts	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	05:00	OP3	0	157	93	250	7	10	11	11	11	10	10	19	23	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.12	0.14
	SB	06:00	OP3	2	1,016	600	1,616	29	43	45	45	45	44	43	80	96	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.09
	SB	07:00	AM	2	1,151	686	1,836	189	245	249	249	249	249	235	219	203	0.16	0.21	0.22	0.22	0.22	0.22	0.20	0.19	0.18
	SB	08:00	AM	2	794	473	1,268	150	195	198	198	198	198	187	174	161	0.19	0.25	0.25	0.25	0.25	0.25	0.24	0.22	0.20
	SB	09:00	IP	2	1,277	755	2,032	239	300	312	312	312	312	328	348	267	0.19	0.23	0.24	0.24	0.24	0.24	0.26	0.27	0.21
	SB	10:00	IP	2	1,155	683	1,838	144	181	188	188	188	188	198	210	162	0.12	0.16	0.16	0.16	0.16	0.16	0.17	0.18	0.14
	SB	11:00	IP	2	1,155	683	1,838	126	158	165	165	165	165	173	184	141	0.11	0.14	0.14	0.14	0.14	0.14	0.15	0.16	0.12
	SB	12:00	IP	2	1,155	683	1,838	162	204	212	212	212	212	223	236	182	0.14	0.18	0.18	0.18	0.18	0.18	0.19	0.20	0.16
	SB	13:00	IP	2	1,155	683	1,838	183	230	239	239	239	239	251	266	205	0.16	0.20	0.21	0.21	0.21	0.21	0.22	0.23	0.18
	SB	14:00	IP	2	1,155	683	1,838	222	279	290	290	290	290	305	324	249	0.19	0.24	0.25	0.25	0.25	0.25	0.26	0.28	0.22
	SB	15:00	IP	2	1,155	683	1,838	328	412	428	428	428	428	450	478	367	0.28	0.36	0.37	0.37	0.37	0.37	0.39	0.41	0.32
	SB	16:00	PM	2	1,250	745	1,995	484	637	507	502	502	496	542	404	343	0.39	0.51	0.41	0.40	0.40	0.40	0.43	0.32	0.27
	SB	17:00	PM	3	1,910	1,139	3,049	767	1,007	803	794	794	785	859	639	543	0.40	0.53	0.42	0.42	0.42	0.41	0.45	0.33	0.28
	SB	18:00	OP1	3	1,619	1,085	2,703	697	859	732	729	729	723	884	699	588	0.43	0.53	0.45	0.45	0.45	0.45	0.55	0.43	0.36
	SB	19:00	OP1	2	1,059	710	1,769	403	497	424	422	422	419	512	405	341	0.38	0.47	0.40	0.40	0.40	0.40	0.48	0.38	0.32
	SB	20:00	OP1	2	1,365	915	2,280	257	316	269	268	268	266	326	258	217	0.19	0.23	0.20	0.20	0.20	0.20	0.24	0.19	0.16
	SB	21:00	OP1	2	1,059	710	1,769	191	236	201	200	200	199	243	192	161	0.18	0.22	0.19	0.19	0.19	0.19	0.23	0.18	0.15
	SB	22:00	OP1	2	1,171	785	1,956	168	208	177	176	176	175	214	169	142	0.14	0.18	0.15	0.15	0.15	0.15	0.18	0.14	0.12
	SB	23:00	OP1	1	835	560	1,395	114	141	120	120	120	119	145	115	96	0.14	0.17	0.14	0.14	0.14	0.14	0.17	0.14	0.12

Table 69: North Downs Line, Northbound, All, With Project 2029

NRP_29

All

Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053
				All services				Calibrated load on Departure (1hr)									
All	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	05:00	OP3	2	553	403	956	25	44	34	34	26	26	27	27	28	30
	NB	06:00	OP3	3	1,105	807	1,912	66	119	93	91	71	71	73	73	75	81
	NB	07:00	AM	3	976	761	1,737	156	319	217	236	290	290	360	361	365	380
	NB	08:00	AM	3	976	761	1,737	86	177	120	131	160	160	199	199	202	210
	NB	09:00	IP	3	995	726	1,721	94	318	317	318	273	273	291	292	295	326
	NB	10:00	IP	3	995	726	1,721	69	234	233	234	201	201	214	215	217	240
	NB	11:00	IP	3	995	726	1,721	57	192	191	192	165	165	176	176	178	197
	NB	12:00	IP	3	995	726	1,721	54	183	182	183	157	157	168	168	170	188
	NB	13:00	IP	3	995	726	1,721	53	180	179	180	154	154	165	165	167	185
	NB	14:00	IP	3	995	726	1,721	74	249	248	249	214	214	228	228	231	256
	NB	15:00	IP	3	995	726	1,721	111	374	374	375	322	322	344	344	348	385
	NB	16:00	PM	3	966	757	1,723	186	597	409	384	401	401	391	391	415	697
	NB	17:00	PM	3	966	757	1,723	138	441	303	284	297	297	289	289	307	516
	NB	18:00	OP1	3	1,031	753	1,785	206	733	504	425	385	385	392	392	404	484
	NB	19:00	OP1	2	516	377	892	102	363	250	211	191	191	194	195	200	240
	NB	20:00	OP1	3	1,031	753	1,785	97	345	237	200	181	181	184	185	190	228
	NB	21:00	OP1	3	1,031	753	1,785	19	68	47	39	36	36	36	36	37	45
	NB	22:00	OP1	2	516	377	892	12	43	30	25	23	23	23	23	24	28
	NB	23:00	OP1	2	516	377	892	24	86	59	50	45	45	46	46	48	57

Hour beginning	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
	Seated LF									
00:00	-	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-	-
05:00	0.04	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
06:00	0.06	0.11	0.08	0.08	0.06	0.06	0.07	0.07	0.07	0.07
07:00	0.16	0.33	0.22	0.24	0.30	0.30	0.37	0.37	0.37	0.39
08:00	0.09	0.18	0.12	0.13	0.16	0.16	0.20	0.20	0.21	0.22
09:00	0.09	0.32	0.32	0.32	0.27	0.27	0.29	0.29	0.30	0.33
10:00	0.07	0.23	0.23	0.24	0.20	0.20	0.22	0.22	0.22	0.24
11:00	0.06	0.19	0.19	0.19	0.17	0.17	0.18	0.18	0.18	0.20
12:00	0.05	0.18	0.18	0.18	0.16	0.16	0.17	0.17	0.17	0.19
13:00	0.05	0.18	0.18	0.18	0.16	0.16	0.17	0.17	0.17	0.19
14:00	0.07	0.25	0.25	0.25	0.21	0.21	0.23	0.23	0.23	0.26
15:00	0.11	0.38	0.38	0.38	0.32	0.32	0.35	0.35	0.35	0.39
16:00	0.19	0.62	0.42	0.40	0.42	0.42	0.40	0.40	0.43	0.72
17:00	0.14	0.46	0.31	0.29	0.31	0.31	0.30	0.30	0.32	0.53
18:00	0.20	0.71	0.49	0.41	0.37	0.37	0.38	0.38	0.39	0.47
19:00	0.20	0.70	0.48	0.41	0.37	0.37	0.38	0.38	0.39	0.46
20:00	0.09	0.33	0.23	0.19	0.18	0.18	0.18	0.18	0.18	0.22
21:00	0.02	0.07	0.05	0.04	0.03	0.03	0.04	0.04	0.04	0.04
22:00	0.02	0.08	0.06	0.05	0.04	0.04	0.04	0.04	0.05	0.06
23:00	0.05	0.17	0.11	0.10	0.09	0.09	0.09	0.09	0.09	0.11

Table 70: North Downs Line, Southbound, All, With Project 2029

NRP_29				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671
All																	
				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
	SB	00:00	OP2	1	166	121	287	18	18	18	18	18	18	18	22	24	
	SB	01:00	OP2	1	166	121	287	4	4	4	4	4	4	4	4	5	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	05:00	OP3	3	995	726	1,721	33	33	33	34	34	37	37	56	60	
	SB	06:00	OP3	3	995	726	1,721	244	242	242	247	247	269	271	407	440	
	SB	07:00	AM	3	748	700	1,448	447	400	400	451	451	413	440	699	387	
	SB	08:00	AM	3	748	700	1,448	383	342	342	386	386	353	376	599	331	
	SB	09:00	IP	3	853	622	1,475	226	221	221	236	236	274	291	351	129	
	SB	10:00	IP	3	853	622	1,475	207	203	203	216	216	251	266	321	119	
All	SB	11:00	IP	3	853	622	1,475	161	158	158	168	168	195	207	250	92	
	SB	12:00	IP	3	853	622	1,475	145	142	142	151	151	176	187	225	83	
	SB	13:00	IP	3	853	622	1,475	120	117	118	125	125	146	154	186	69	
	SB	14:00	IP	3	853	622	1,475	114	112	112	119	119	138	147	177	65	
	SB	15:00	IP	3	853	622	1,475	153	150	150	160	160	186	197	237	88	
	SB	16:00	PM	3	966	757	1,723	332	343	342	299	299	340	337	345	184	
	SB	17:00	PM	3	966	757	1,723	488	505	504	441	441	500	496	507	271	
	SB	18:00	OP1	4	1,160	847	2,008	483	478	479	357	357	392	399	415	366	
	SB	19:00	OP1	4	1,160	847	2,008	234	232	232	173	173	190	193	201	177	
	SB	20:00	OP1	2	580	424	1,004	131	129	129	97	97	106	108	112	99	
	SB	21:00	OP1	4	1,160	847	2,008	82	82	82	61	61	67	68	71	62	
	SB	22:00	OP1	2	580	424	1,004	38	37	37	28	28	31	31	32	29	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0	

				Seated LF									
Group	Direction	Hour beginning	Period	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
	SB	00:00	OP2	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.13	0.14	
	SB	01:00	OP2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	
	SB	02:00	OP2	-	-	-	-	-	-	-	-	-	
	SB	03:00	OP2	-	-	-	-	-	-	-	-	-	
	SB	04:00	OP3	-	-	-	-	-	-	-	-	-	
	SB	05:00	OP3	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.06	0.06	
	SB	06:00	OP3	0.25	0.24	0.24	0.25	0.25	0.27	0.27	0.41	0.44	
	SB	07:00	AM	0.60	0.53	0.53	0.60	0.60	0.55	0.59	0.94	0.52	
	SB	08:00	AM	0.51	0.46	0.46	0.52	0.52	0.47	0.50	0.80	0.44	
	SB	09:00	IP	0.26	0.26	0.26	0.28	0.28	0.32	0.34	0.41	0.15	
	SB	10:00	IP	0.24	0.24	0.24	0.25	0.25	0.29	0.31	0.38	0.14	
All	SB	11:00	IP	0.19	0.18	0.19	0.20	0.20	0.23	0.24	0.29	0.11	
	SB	12:00	IP	0.17	0.17	0.17	0.18	0.18	0.21	0.22	0.26	0.10	
	SB	13:00	IP	0.14	0.14	0.14	0.15	0.15	0.17	0.18	0.22	0.08	
	SB	14:00	IP	0.13	0.13	0.13	0.14	0.14	0.16	0.17	0.21	0.08	
	SB	15:00	IP	0.18	0.18	0.18	0.19	0.19	0.22	0.23	0.28	0.10	
	SB	16:00	PM	0.34	0.35	0.35	0.31	0.31	0.35	0.35	0.36	0.19	
	SB	17:00	PM	0.51	0.52	0.52	0.46	0.46	0.52	0.51	0.52	0.28	
	SB	18:00	OP1	0.42	0.41	0.41	0.31	0.31	0.34	0.34	0.36	0.32	
	SB	19:00	OP1	0.20	0.20	0.20	0.15	0.15	0.16	0.17	0.17	0.15	
	SB	20:00	OP1	0.23	0.22	0.22	0.17	0.17	0.18	0.19	0.19	0.17	
	SB	21:00	OP1	0.07	0.07	0.07	0.05	0.05	0.06	0.06	0.06	0.05	
	SB	22:00	OP1	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.06	0.05	
	SB	23:00	OP1	-	-	-	-	-	-	-	-	-	

2032

Table 71: Brighton Main Line, Northbound, Fast, With Project 2032

NRP_32				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-63	36-253	592-52	636-78	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Fasts	NB	00:00	OP2	3	1,870	2,208	4,078	102	199	199	199	199	199	199	199	199	199	245	80	50	0
	NB	01:00	OP2	1	838	989	1,827	32	62	62	62	62	62	62	62	62	62	76	25	16	0
	NB	02:00	OP2	1	419	495	913	9	18	18	18	18	18	18	18	18	18	22	7	5	0
	NB	03:00	OP2	1	688	813	1,501	12	24	24	24	24	24	24	24	24	24	29	10	6	0
	NB	04:00	OP3	2	1,137	1,263	2,400	55	61	61	61	61	61	61	61	61	61	14	12	63	63
	NB	05:00	OP3	2	1,503	1,669	3,172	440	490	490	490	490	490	490	490	490	490	111	99	510	510
	NB	06:00	OP3	12	7,245	8,044	15,288	4,185	4,658	4,658	4,658	4,658	4,658	4,658	4,658	4,658	4,658	1,053	940	4,844	4,844
	NB	07:00	AM	16	10,475	10,098	20,573	6,753	8,560	8,593	8,593	8,593	8,593	8,593	8,593	8,593	8,593	5,146	4,666	6,401	6,401
	NB	08:00	AM	18	11,178	10,777	21,955	8,248	10,454	10,495	10,495	10,495	10,495	10,495	10,495	10,495	10,495	6,285	5,699	7,817	7,817
	NB	09:00	IP	14	8,433	7,392	15,825	4,064	8,165	8,165	8,165	8,165	8,165	8,165	8,165	8,165	8,165	5,423	4,168	3,882	3,882
	NB	10:00	IP	14	8,577	7,518	16,095	2,606	5,236	5,236	5,236	5,236	5,236	5,236	5,236	5,236	5,236	3,478	2,673	2,489	2,489
	NB	11:00	IP	14	8,210	7,197	15,407	2,184	4,388	4,388	4,388	4,388	4,388	4,388	4,388	4,388	4,388	2,914	2,240	2,086	2,086
	NB	12:00	IP	14	8,408	7,371	15,779	1,813	3,642	3,642	3,642	3,642	3,642	3,642	3,642	3,642	3,642	2,419	1,859	1,731	1,731
	NB	13:00	IP	13	7,834	6,867	14,701	1,468	2,948	2,948	2,948	2,948	2,948	2,948	2,948	2,948	2,948	1,958	1,505	1,402	1,402
	NB	14:00	IP	13	7,834	6,867	14,701	1,267	2,547	2,546	2,546	2,546	2,546	2,546	2,546	2,546	2,546	1,691	1,300	1,211	1,211
	NB	15:00	IP	13	8,002	7,015	15,017	1,147	2,304	2,304	2,304	2,304	2,304	2,304	2,304	2,304	2,304	1,530	1,176	1,095	1,095
	NB	16:00	PM	16	9,901	9,957	19,858	2,093	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	2,891	1,478	2,738	2,738
	NB	17:00	PM	17	10,554	10,613	21,167	2,662	4,857	4,857	4,857	4,857	4,857	4,857	4,857	4,857	4,857	3,676	1,879	3,481	3,481
	NB	18:00	OP1	16	9,727	8,564	18,291	1,554	6,179	6,179	6,179	6,179	6,179	6,179	6,179	6,179	6,179	4,327	3,041	2,905	2,905
	NB	19:00	OP1	13	7,882	6,939	14,821	1,011	4,019	4,019	4,019	4,019	4,019	4,019	4,019	4,019	4,019	2,815	1,978	1,890	1,890
	NB	20:00	OP1	14	8,276	7,286	15,563	703	2,795	2,795	2,795	2,795	2,795	2,795	2,795	2,795	2,795	1,957	1,376	1,314	1,314
	NB	21:00	OP1	15	8,686	7,647	16,333	565	2,246	2,246	2,246	2,246	2,246	2,246	2,246	2,246	2,246	1,573	1,106	1,056	1,056
	NB	22:00	OP1	13	7,507	6,610	14,117	379	1,507	1,507	1,507	1,507	1,507	1,507	1,507	1,507	1,507	1,055	742	708	708
	NB	23:00	OP1	11	6,318	5,563	11,881	413	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,151	809	773	773

		35	30	47	43	40	33	28	24	22	18	17	7	14	12
		Seated load factor on departure													
Direction	Hour beginning	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
NB	00:00	0.05	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.43	0.14	0.04	0.00
NB	01:00	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.29	0.10	0.03	0.00
NB	02:00	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.17	0.06	0.02	0.00
NB	03:00	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.14	0.04	0.01	0.00
NB	04:00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.09	0.09
NB	05:00	0.29	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.18	0.16	0.56	0.56
NB	06:00	0.58	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.36	0.32	1.11	1.11
NB	07:00	0.64	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.96	0.87	1.25	1.25
NB	08:00	0.74	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	1.10	1.00	1.43	1.43
NB	09:00	0.48	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.73	1.43	1.43
NB	10:00	0.30	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.60	0.46	0.90	0.90
NB	11:00	0.27	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.52	0.40	0.79	0.79
NB	12:00	0.22	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.42	0.33	0.64	0.64
NB	13:00	0.19	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.37	0.28	0.56	0.56
NB	14:00	0.16	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32	0.24	0.48	0.48
NB	15:00	0.14	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.28	0.22	0.42	0.42
NB	16:00	0.21	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.48	0.24	0.71	0.71
NB	17:00	0.25	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.57	0.29	0.85	0.85
NB	18:00	0.16	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.66	0.46	0.91	0.91
NB	19:00	0.13	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.53	0.37	0.73	0.73
NB	20:00	0.08	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.35	0.25	0.49	0.49
NB	21:00	0.07	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.27	0.19	0.37	0.37
NB	22:00	0.05	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.15	0.29	0.29
NB	23:00	0.07	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.27	0.19	0.37	0.37

Table 72: Brighton Main Line, Northbound, Stoppers, With Project 2032

NRP_32				671	671		671	2113-500	671-2114	114-211	115-211	116-824	24-211	117-259	596-81	12-253	843-636	636-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	2	1,150	1,875	3,026	34	132	132	131	130	128	127	128	129	129	147	0	47	0
	NB	01:00	OP2	1	515	840	1,356	11	41	41	41	40	40	39	40	40	40	46	0	14	0
	NB	02:00	OP2	0	258	420	678	3	12	12	12	12	11	11	11	12	12	13	0	4	0
	NB	03:00	OP2	1	423	690	1,114	4	16	16	16	16	15	15	15	16	16	18	0	6	0
	NB	04:00	OP3	1	435	576	1,011	10	13	13	13	13	13	13	19	21	21	5	4	25	25
	NB	05:00	OP3	1	575	761	1,336	82	102	103	103	102	102	108	153	167	167	41	35	198	198
	NB	06:00	OP3	5	2,771	3,668	6,439	782	974	975	975	971	968	1,028	1,451	1,588	1,588	386	333	1,880	1,880
	NB	07:00	AM	6	3,862	4,956	8,818	555	315	347	369	726	1,410	1,631	2,438	3,362	3,335	1,271	1,119	2,852	3,106
	NB	08:00	AM	6	4,122	5,288	9,410	678	384	424	451	886	1,722	1,992	2,977	4,106	4,073	1,552	1,366	3,483	3,793
	NB	09:00	IP	7	3,865	6,046	9,911	878	617	625	628	816	1,089	1,150	1,388	1,780	1,773	171	134	3,870	4,082
	NB	10:00	IP	7	3,931	6,150	10,081	563	396	401	403	523	699	738	890	1,142	1,137	110	86	2,481	2,618
	NB	11:00	IP	6	3,763	5,887	9,650	472	332	336	338	439	585	618	746	957	953	92	72	2,079	2,194
	NB	12:00	IP	7	3,854	6,029	9,883	391	275	279	280	364	486	513	619	794	791	76	60	1,726	1,821
	NB	13:00	IP	6	3,590	5,617	9,207	317	223	226	227	295	393	415	501	643	640	62	48	1,397	1,474
	NB	14:00	IP	6	3,590	5,617	9,207	274	192	195	196	255	340	359	433	555	553	53	42	1,207	1,273
	NB	15:00	IP	6	3,668	5,738	9,406	248	174	176	177	230	307	324	392	502	500	48	38	1,092	1,152
	NB	16:00	PM	4	2,418	3,940	6,358	292	538	382	383	385	348	346	392	461	461	0	0	1,405	1,309
	NB	17:00	PM	4	2,578	4,200	6,778	371	684	486	487	490	442	440	498	586	586	0	0	1,787	1,664
	NB	18:00	OP1	2	1,417	2,311	3,728	227	478	374	374	374	335	341	373	373	373	0	0	1,029	1,029
	NB	19:00	OP1	2	1,148	1,873	3,021	148	311	243	243	243	218	222	243	243	243	0	0	670	670
	NB	20:00	OP1	2	1,206	1,966	3,172	103	216	169	169	169	152	154	169	169	169	0	0	466	466
	NB	21:00	OP1	2	1,265	2,064	3,329	83	174	136	136	136	122	124	136	136	136	0	0	374	374
	NB	22:00	OP1	2	1,094	1,784	2,877	55	117	91	91	91	82	83	91	91	91	0	0	251	251
	NB	23:00	OP1	2	921	1,501	2,422	60	127	100	100	100	89	91	99	99	99	0	0	274	274

			35	30	47	43	40	33	28	24	22	18	17	7	14	12
			Seated LF													
Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
NB	00:00	OP2	0.03	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	-	-	0.04	0.00
NB	01:00	OP2	0.02	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-	-	0.03	0.00
NB	02:00	OP2	0.01	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.05	-	-	0.02	0.00
NB	03:00	OP2	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.01	0.00
NB	04:00	OP3	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.04	0.04	0.08	0.08
NB	05:00	OP3	0.14	0.18	0.18	0.18	0.18	0.18	0.19	0.27	0.29	0.29	0.25	0.21	0.48	0.48
NB	06:00	OP3	0.28	0.35	0.35	0.35	0.35	0.35	0.37	0.52	0.57	0.57	0.49	0.42	0.95	0.95
NB	07:00	AM	0.14	0.08	0.09	0.10	0.19	0.36	0.42	0.63	0.87	0.86	0.98	0.87	1.11	1.21
NB	08:00	AM	0.16	0.09	0.10	0.11	0.21	0.42	0.48	0.72	1.00	0.99	1.13	0.99	1.27	1.38
NB	09:00	IP	0.23	0.16	0.16	0.16	0.21	0.28	0.30	0.36	0.46	0.46	0.72	0.57	1.07	1.13
NB	10:00	IP	0.14	0.10	0.10	0.10	0.13	0.18	0.19	0.23	0.29	0.29	0.46	0.36	0.67	0.71
NB	11:00	IP	0.13	0.09	0.09	0.09	0.12	0.16	0.16	0.20	0.25	0.25	0.40	0.31	0.59	0.62
NB	12:00	IP	0.10	0.07	0.07	0.07	0.09	0.13	0.13	0.16	0.21	0.21	0.32	0.25	0.48	0.50
NB	13:00	IP	0.09	0.06	0.06	0.06	0.08	0.11	0.12	0.14	0.18	0.18	0.28	0.22	0.41	0.44
NB	14:00	IP	0.08	0.05	0.05	0.05	0.07	0.09	0.10	0.12	0.15	0.15	0.24	0.19	0.36	0.38
NB	15:00	IP	0.07	0.05	0.05	0.05	0.06	0.08	0.09	0.11	0.14	0.14	0.22	0.17	0.32	0.33
NB	16:00	PM	0.12	0.22	0.16	0.16	0.16	0.14	0.14	0.16	0.19	0.19	-	-	0.58	0.54
NB	17:00	PM	0.14	0.27	0.19	0.19	0.19	0.17	0.17	0.19	0.23	0.23	-	-	0.69	0.65
NB	18:00	OP1	0.16	0.34	0.26	0.26	0.26	0.24	0.24	0.26	0.26	0.26	-	-	0.73	0.73
NB	19:00	OP1	0.13	0.27	0.21	0.21	0.21	0.19	0.19	0.21	0.21	0.21	-	-	0.58	0.58
NB	20:00	OP1	0.09	0.18	0.14	0.14	0.14	0.13	0.13	0.14	0.14	0.14	-	-	0.39	0.39
NB	21:00	OP1	0.07	0.14	0.11	0.11	0.11	0.10	0.10	0.11	0.11	0.11	-	-	0.30	0.30
NB	22:00	OP1	0.05	0.11	0.08	0.08	0.08	0.07	0.08	0.08	0.08	0.08	-	-	0.23	0.23
NB	23:00	OP1	0.07	0.14	0.11	0.11	0.11	0.10	0.10	0.11	0.11	0.11	-	-	0.30	0.30

Table 73: Brighton Main Line, Southbound, Fast, With Project 2032

Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
NRP_32				671	671		671	901-526	592-909	.015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Fasts	SB	00:00	OP2	1	490	511	1,001	5	24	0	0	124	124	124	124	124	124	124	124	124	141
Fasts	SB	01:00	OP2	1	327	341	667	2	7	0	0	38	38	38	38	38	38	38	38	38	43
Fasts	SB	02:00	OP2	0	105	109	214	0	2	0	0	11	11	11	11	11	11	11	11	11	12
Fasts	SB	03:00	OP2	1	327	341	667	1	6	0	0	29	29	29	29	29	29	29	29	29	33
Fasts	SB	04:00	OP3	4	2,130	2,136	4,265	49	55	214	214	220	220	220	220	220	220	220	220	220	42
Fasts	SB	05:00	OP3	6	3,611	3,622	7,233	98	110	434	434	445	445	445	445	445	445	445	445	445	84
Fasts	SB	06:00	OP3	11	6,916	6,936	13,852	335	376	1,479	1,479	1,515	1,515	1,515	1,515	1,515	1,515	1,515	1,515	1,515	287
Fasts	SB	07:00	AM	15	8,603	9,437	18,040	1,206	2,185	2,859	2,859	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	3,525	1,512
Fasts	SB	08:00	AM	18	10,804	11,851	22,655	1,221	2,213	2,895	2,895	3,571	3,571	3,571	3,571	3,571	3,571	3,571	3,571	3,571	1,531
Fasts	SB	09:00	IP	21	12,830	12,619	25,450	1,371	1,888	2,248	2,248	3,472	3,472	3,472	3,472	3,472	3,473	3,473	3,473	3,475	1,652
Fasts	SB	10:00	IP	18	10,778	10,601	21,379	1,061	1,462	1,740	1,740	2,687	2,687	2,687	2,687	2,687	2,688	2,688	2,688	2,690	1,278
Fasts	SB	11:00	IP	16	9,874	9,711	19,585	975	1,343	1,599	1,599	2,470	2,470	2,470	2,470	2,470	2,471	2,471	2,471	2,472	1,175
Fasts	SB	12:00	IP	16	9,654	9,495	19,149	1,089	1,500	1,786	1,786	2,758	2,758	2,758	2,758	2,758	2,759	2,759	2,759	2,761	1,312
Fasts	SB	13:00	IP	17	10,112	9,945	20,057	1,311	1,806	2,149	2,150	3,319	3,319	3,319	3,319	3,319	3,321	3,321	3,321	3,323	1,579
Fasts	SB	14:00	IP	16	9,886	9,723	19,609	1,622	2,235	2,660	2,660	4,108	4,108	4,108	4,108	4,108	4,110	4,110	4,110	4,112	1,955
Fasts	SB	15:00	IP	18	10,807	10,629	21,437	2,256	3,108	3,699	3,700	5,714	5,714	5,714	5,714	5,714	5,717	5,717	5,717	5,720	2,719
Fasts	SB	16:00	PM	15	9,484	9,461	18,944	4,208	4,875	4,513	4,739	6,833	6,833	6,833	6,833	6,833	6,833	6,833	6,833	6,836	4,257
Fasts	SB	17:00	PM	18	11,424	11,396	22,821	6,207	7,192	6,657	6,991	10,079	10,079	10,079	10,079	10,079	10,079	10,079	10,079	10,083	6,279
Fasts	SB	18:00	OP1	17	10,053	9,239	19,292	5,459	5,908	6,438	6,482	9,719	9,719	9,719	9,719	9,719	9,719	9,719	9,719	9,718	7,664
Fasts	SB	19:00	OP1	12	7,404	6,804	14,207	3,082	3,336	3,635	3,660	5,488	5,488	5,488	5,488	5,488	5,488	5,488	5,488	5,488	4,327
Fasts	SB	20:00	OP1	14	8,404	7,723	16,126	2,052	2,221	2,421	2,437	3,654	3,654	3,654	3,654	3,654	3,654	3,654	3,654	3,654	2,881
Fasts	SB	21:00	OP1	14	8,249	7,581	15,830	1,583	1,713	1,867	1,880	2,819	2,819	2,819	2,819	2,819	2,819	2,819	2,819	2,819	2,223
Fasts	SB	22:00	OP1	11	6,642	6,104	12,746	1,542	1,669	1,819	1,831	2,746	2,746	2,746	2,746	2,746	2,746	2,746	2,746	2,745	2,165
Fasts	SB	23:00	OP1	8	5,058	4,649	9,707	715	774	843	849	1,273	1,273	1,273	1,273	1,273	1,273	1,273	1,273	1,273	1,004

Group	Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
				-	7	-	12	14	18	22	24	28	33	40	43	47	30
				Seated LF													
Fasts	SB	00:00	OP2	0.02	0.11	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.29
Fasts	SB	01:00	OP2	0.01	0.05	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13
Fasts	SB	02:00	OP2	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.12
Fasts	SB	03:00	OP2	0.01	0.04	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10
Fasts	SB	04:00	OP3	0.04	0.05	0.21	0.21	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.02
Fasts	SB	05:00	OP3	0.05	0.06	0.26	0.26	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.02
Fasts	SB	06:00	OP3	0.09	0.10	0.46	0.46	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.04
Fasts	SB	07:00	AM	0.27	0.49	0.69	0.69	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.18
Fasts	SB	08:00	AM	0.22	0.39	0.56	0.56	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.14
Fasts	SB	09:00	IP	0.19	0.27	0.39	0.39	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.13
Fasts	SB	10:00	IP	0.18	0.25	0.36	0.36	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.12
Fasts	SB	11:00	IP	0.18	0.25	0.36	0.36	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.12
Fasts	SB	12:00	IP	0.21	0.28	0.41	0.41	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.14
Fasts	SB	13:00	IP	0.24	0.33	0.47	0.47	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.16
Fasts	SB	14:00	IP	0.30	0.41	0.60	0.60	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.20
Fasts	SB	15:00	IP	0.38	0.52	0.76	0.76	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.25
Fasts	SB	16:00	PM	0.81	0.94	1.05	1.11	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.45
Fasts	SB	17:00	PM	0.99	1.15	1.29	1.36	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.55
Fasts	SB	18:00	OP1	0.87	0.94	1.71	1.72	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.76
Fasts	SB	19:00	OP1	0.67	0.72	1.31	1.32	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.58
Fasts	SB	20:00	OP1	0.39	0.42	0.77	0.77	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.34
Fasts	SB	21:00	OP1	0.31	0.33	0.60	0.61	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.27
Fasts	SB	22:00	OP1	0.37	0.40	0.73	0.74	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.33
Fasts	SB	23:00	OP1	0.23	0.24	0.45	0.45	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.20

Table 74: Brighton Main Line, Southbound, Stoppers, With Project 2032

NRP_32				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-211	117-824	24-211	116-211	115-211	114-67	71-5000
Stoppers					Mins JT (London) -->			-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	2	1,362	1,994	3,356	6	25	0	0	479	479	470	468	467	467	467	467	467	231
	SB	01:00	OP2	2	908	1,328	2,236	2	8	0	0	147	147	144	144	143	143	143	143	143	71
	SB	02:00	OP2	1	292	427	719	1	2	0	0	41	41	41	40	40	40	40	40	40	20
	SB	03:00	OP2	2	908	1,328	2,236	1	6	0	0	113	113	111	111	110	110	110	110	110	55
	SB	04:00	OP3	1	534	774	1,308	4	7	109	109	103	103	105	97	97	97	97	97	100	4
	SB	05:00	OP3	2	906	1,312	2,219	9	15	221	221	209	209	213	197	196	197	197	197	203	7
	SB	06:00	OP3	3	1,736	2,513	4,249	31	51	754	754	712	712	724	672	668	670	670	670	691	24
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	1,035	1,127	469	469	469	424	422	277	387	395	548	121
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,048	1,141	475	475	475	430	427	281	392	400	555	123
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,137	1,116	604	604	566	538	531	373	399	402	428	119
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	880	864	467	467	438	416	411	289	309	311	331	92
	SB	11:00	IP	5	2,707	4,415	7,122	0	0	809	794	430	430	403	382	378	266	284	286	304	85
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	903	887	480	480	450	427	422	297	317	319	340	95
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,087	1,067	577	577	542	514	508	357	381	384	409	114
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,346	1,321	715	715	670	636	628	442	472	475	506	141
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	1,872	1,837	994	994	932	885	874	614	656	661	704	196
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,431	2,323	1,842	1,842	1,353	978	888	562	444	422	424	310
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,586	3,426	2,717	2,717	1,995	1,443	1,310	829	654	623	626	457
	SB	18:00	OP1	4	2,252	2,908	5,159	60	63	2,903	2,903	1,774	1,774	1,724	1,452	1,345	710	661	634	562	818
	SB	19:00	OP1	3	1,658	2,141	3,800	34	36	1,639	1,639	1,001	1,001	974	820	760	401	373	358	317	462
	SB	20:00	OP1	3	1,882	2,430	4,313	23	24	1,091	1,091	667	667	648	546	506	267	249	238	211	307
	SB	21:00	OP1	3	1,848	2,386	4,233	17	18	842	842	514	514	500	421	390	206	192	184	163	237
	SB	22:00	OP1	3	1,488	1,921	3,409	17	18	820	820	501	501	487	410	380	200	187	179	159	231
	SB	23:00	OP1	2	1,133	1,463	2,596	8	8	380	380	232	232	226	190	176	93	87	83	74	107

			-	7	-	12	14	18	22	24	28	33	40	43	47	30
			Seated LF													
Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
SB	00:00	OP2	0.03	0.12	0.00	0.00	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.17
SB	01:00	OP2	0.01	0.06	0.00	0.00	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.08
SB	02:00	OP2	0.01	0.05	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07
SB	03:00	OP2	0.01	0.04	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.06
SB	04:00	OP3	0.05	0.08	0.25	0.25	0.19	0.19	0.20	0.18	0.18	0.18	0.18	0.18	0.19	0.01
SB	05:00	OP3	0.06	0.10	0.29	0.29	0.23	0.23	0.23	0.22	0.22	0.22	0.22	0.22	0.22	0.01
SB	06:00	OP3	0.10	0.17	0.52	0.52	0.41	0.41	0.42	0.39	0.38	0.39	0.39	0.39	0.40	0.01
SB	07:00	AM	0.00	0.00	0.59	0.64	0.21	0.21	0.21	0.19	0.19	0.12	0.17	0.17	0.24	0.05
SB	08:00	AM	0.00	0.00	0.47	0.51	0.17	0.17	0.17	0.15	0.15	0.10	0.14	0.14	0.19	0.04
SB	09:00	IP	-	-	0.32	0.32	0.17	0.17	0.16	0.15	0.15	0.11	0.11	0.11	0.12	0.03
SB	10:00	IP	-	-	0.30	0.29	0.16	0.16	0.15	0.14	0.14	0.10	0.10	0.11	0.11	0.03
SB	11:00	IP	-	-	0.30	0.29	0.16	0.16	0.15	0.14	0.14	0.10	0.10	0.11	0.11	0.03
SB	12:00	IP	-	-	0.34	0.33	0.18	0.18	0.17	0.16	0.16	0.11	0.12	0.12	0.13	0.04
SB	13:00	IP	-	-	0.39	0.38	0.21	0.21	0.20	0.19	0.18	0.13	0.14	0.14	0.15	0.04
SB	14:00	IP	-	-	0.50	0.49	0.26	0.26	0.25	0.23	0.23	0.16	0.17	0.18	0.19	0.05
SB	15:00	IP	-	-	0.63	0.62	0.34	0.34	0.31	0.30	0.29	0.21	0.22	0.22	0.24	0.07
SB	16:00	PM	0.00	0.00	1.17	1.12	0.72	0.72	0.53	0.38	0.35	0.22	0.17	0.16	0.17	0.12
SB	17:00	PM	0.00	0.00	1.43	1.37	0.88	0.88	0.65	0.47	0.42	0.27	0.21	0.20	0.20	0.15
SB	18:00	OP1	0.08	0.09	1.88	1.88	0.79	0.79	0.77	0.64	0.60	0.32	0.29	0.28	0.25	0.36
SB	19:00	OP1	0.06	0.07	1.44	1.44	0.60	0.60	0.59	0.49	0.46	0.24	0.23	0.22	0.19	0.28
SB	20:00	OP1	0.04	0.04	0.85	0.85	0.35	0.35	0.34	0.29	0.27	0.14	0.13	0.13	0.11	0.16
SB	21:00	OP1	0.03	0.03	0.66	0.66	0.28	0.28	0.27	0.23	0.21	0.11	0.10	0.10	0.09	0.13
SB	22:00	OP1	0.04	0.04	0.80	0.80	0.34	0.34	0.33	0.28	0.26	0.13	0.13	0.12	0.11	0.16
SB	23:00	OP1	0.02	0.02	0.49	0.49	0.20	0.20	0.20	0.17	0.16	0.08	0.08	0.07	0.06	0.09

Table 75: Arun Valley, Northbound, All, With Project 2032

NRP_32				2136	2136		2136	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	06:00	OP3	2	1,173	693	1,866	393	393	227	251	251	261	268	371	371	0.34	0.34	0.19	0.21	0.21	0.22	0.23	0.32	0.32
	NB	07:00	AM	3	1,992	1,189	3,181	609	851	828	856	856	875	1,350	1,299	1,299	0.31	0.43	0.42	0.43	0.43	0.44	0.68	0.65	0.65
	NB	08:00	AM	3	1,896	1,131	3,027	699	976	950	982	982	1,004	1,549	1,490	1,490	0.37	0.51	0.50	0.52	0.52	0.53	0.82	0.79	0.79
	NB	09:00	IP	2	1,277	755	2,032	538	589	492	492	492	492	701	658	658	0.42	0.46	0.38	0.38	0.38	0.38	0.55	0.52	0.52
	NB	10:00	IP	2	1,155	683	1,838	460	503	420	420	420	420	599	562	562	0.40	0.44	0.36	0.36	0.36	0.36	0.52	0.49	0.49
Fasts	NB	11:00	IP	2	1,155	683	1,838	350	383	320	320	320	320	456	428	428	0.30	0.33	0.28	0.28	0.28	0.28	0.39	0.37	0.37
	NB	12:00	IP	2	1,155	683	1,838	271	297	248	248	248	248	354	332	332	0.23	0.26	0.21	0.21	0.21	0.21	0.31	0.29	0.29
	NB	13:00	IP	2	1,155	683	1,838	225	246	206	206	206	206	293	275	275	0.19	0.21	0.18	0.18	0.18	0.18	0.25	0.24	0.24
	NB	14:00	IP	2	1,155	683	1,838	182	199	167	167	167	167	238	223	223	0.16	0.17	0.14	0.14	0.14	0.14	0.21	0.19	0.19
	NB	15:00	IP	2	1,155	683	1,838	191	209	174	174	174	174	249	233	233	0.17	0.18	0.15	0.15	0.15	0.15	0.22	0.20	0.20
	NB	16:00	PM	2	1,216	725	1,940	295	325	367	367	367	367	455	401	401	0.24	0.27	0.30	0.30	0.30	0.30	0.37	0.33	0.33
	NB	17:00	PM	2	1,216	725	1,940	397	437	493	493	493	493	612	539	539	0.33	0.36	0.41	0.41	0.41	0.41	0.50	0.44	0.44
	NB	18:00	OP1	2	1,188	703	1,891	250	257	257	257	257	257	360	344	344	0.21	0.22	0.22	0.22	0.22	0.22	0.30	0.29	0.29
	NB	19:00	OP1	2	1,075	635	1,710	148	152	153	153	153	153	214	204	204	0.14	0.14	0.14	0.14	0.14	0.14	0.20	0.19	0.19
	NB	20:00	OP1	2	1,075	635	1,710	72	74	74	74	74	74	103	99	99	0.07	0.07	0.07	0.07	0.07	0.07	0.10	0.09	0.09
	NB	21:00	OP1	2	1,188	703	1,891	77	79	79	79	79	79	111	106	106	0.06	0.07	0.07	0.07	0.07	0.07	0.09	0.09	0.09
	NB	22:00	OP1	2	1,075	635	1,710	53	55	55	55	55	55	77	73	73	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.07	0.07
	NB	23:00	OP1	1	848	501	1,349	41	42	42	42	42	42	58	56	56	0.05	0.05	0.05	0.05	0.05	0.05	0.07	0.07	0.07

Table 76: Arun Valley, Southbound, All, With Project 2032

NRP_32				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120
Fasts																
				All services				Calibrated load on Departure (1hr)								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0
	SB	05:00	OP3	0	157	93	250	7	11	11	11	11	11	11	20	24
	SB	06:00	OP3	2	1,016	600	1,616	30	45	47	47	47	46	45	83	100
	SB	07:00	AM	2	1,151	686	1,836	205	269	275	275	275	275	259	242	225
	SB	08:00	AM	2	794	473	1,268	163	214	218	218	218	218	206	192	179
	SB	09:00	IP	2	1,277	755	2,032	260	327	339	339	339	339	356	377	294
	SB	10:00	IP	2	1,155	683	1,838	157	198	205	205	205	205	216	228	178
Fasts	SB	11:00	IP	2	1,155	683	1,838	137	173	179	179	179	179	188	199	155
	SB	12:00	IP	2	1,155	683	1,838	176	223	231	231	231	231	242	256	200
	SB	13:00	IP	2	1,155	683	1,838	199	251	260	260	260	260	273	289	225
	SB	14:00	IP	2	1,155	683	1,838	242	305	316	316	316	316	332	351	274
	SB	15:00	IP	2	1,155	683	1,838	357	450	466	466	466	466	490	518	404
	SB	16:00	PM	2	1,250	745	1,995	517	680	541	535	535	529	581	439	377
	SB	17:00	PM	3	1,910	1,139	3,049	818	1,076	856	847	847	838	919	694	596
	SB	18:00	OP1	3	1,619	1,085	2,703	761	930	794	791	791	785	964	774	659
	SB	19:00	OP1	2	1,059	710	1,769	441	538	459	458	458	454	558	448	382
	SB	20:00	OP1	2	1,365	915	2,280	280	343	292	291	291	289	355	285	243
	SB	21:00	OP1	2	1,059	710	1,769	209	255	218	217	217	215	265	212	181
	SB	22:00	OP1	2	1,171	785	1,956	184	225	192	191	191	190	233	187	159
	SB	23:00	OP1	1	835	560	1,395	125	152	130	130	130	129	158	127	108

				Seated LF								
Group	Direction	Hour beginning	Period	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
	SB	00:00	OP2	-	-	-	-	-	-	-	-	-
	SB	01:00	OP2	-	-	-	-	-	-	-	-	-
	SB	02:00	OP2	-	-	-	-	-	-	-	-	-
	SB	03:00	OP2	-	-	-	-	-	-	-	-	-
	SB	04:00	OP3	-	-	-	-	-	-	-	-	-
	SB	05:00	OP3	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.12	0.15
	SB	06:00	OP3	0.03	0.04	0.05	0.05	0.05	0.05	0.04	0.08	0.10
	SB	07:00	AM	0.18	0.23	0.24	0.24	0.24	0.24	0.22	0.21	0.20
	SB	08:00	AM	0.21	0.27	0.27	0.27	0.27	0.27	0.26	0.24	0.23
	SB	09:00	IP	0.20	0.26	0.27	0.27	0.27	0.27	0.28	0.30	0.23
	SB	10:00	IP	0.14	0.17	0.18	0.18	0.18	0.18	0.19	0.20	0.15
Fasts	SB	11:00	IP	0.12	0.15	0.16	0.16	0.16	0.16	0.16	0.17	0.13
	SB	12:00	IP	0.15	0.19	0.20	0.20	0.20	0.20	0.21	0.22	0.17
	SB	13:00	IP	0.17	0.22	0.23	0.23	0.23	0.23	0.24	0.25	0.20
	SB	14:00	IP	0.21	0.26	0.27	0.27	0.27	0.27	0.29	0.30	0.24
	SB	15:00	IP	0.31	0.39	0.40	0.40	0.40	0.40	0.42	0.45	0.35
	SB	16:00	PM	0.41	0.54	0.43	0.43	0.43	0.42	0.46	0.35	0.30
	SB	17:00	PM	0.43	0.56	0.45	0.44	0.44	0.44	0.48	0.36	0.31
	SB	18:00	OP1	0.47	0.57	0.49	0.49	0.49	0.48	0.60	0.48	0.41
	SB	19:00	OP1	0.42	0.51	0.43	0.43	0.43	0.43	0.53	0.42	0.36
	SB	20:00	OP1	0.21	0.25	0.21	0.21	0.21	0.21	0.26	0.21	0.18
	SB	21:00	OP1	0.20	0.24	0.21	0.20	0.20	0.20	0.25	0.20	0.17
	SB	22:00	OP1	0.16	0.19	0.16	0.16	0.16	0.16	0.20	0.16	0.14
	SB	23:00	OP1	0.15	0.18	0.16	0.16	0.16	0.15	0.19	0.15	0.13

Table 77: North Downs Line, Westbound, All, With Project 2032

NRP_32				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	2	553	403	956	26	46	36	35	27	27	28	28	29	31	0.05	0.08	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06
	NB	06:00	OP3	3	1,105	807	1,912	69	123	96	95	74	74	76	76	77	84	0.06	0.11	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.08
	NB	07:00	AM	3	976	761	1,737	179	358	255	275	326	326	400	400	404	417	0.18	0.37	0.26	0.28	0.33	0.33	0.41	0.41	0.41	0.43
	NB	08:00	AM	3	976	761	1,737	99	198	141	152	181	181	221	221	224	231	0.10	0.20	0.14	0.16	0.18	0.18	0.23	0.23	0.23	0.24
	NB	09:00	IP	3	995	726	1,721	105	342	343	344	297	297	316	317	321	352	0.11	0.34	0.34	0.35	0.30	0.30	0.32	0.32	0.32	0.35
	NB	10:00	IP	3	995	726	1,721	77	252	252	253	218	218	233	233	236	259	0.08	0.25	0.25	0.25	0.22	0.22	0.23	0.23	0.24	0.26
All	NB	11:00	IP	3	995	726	1,721	63	207	207	208	179	179	191	191	194	212	0.06	0.21	0.21	0.21	0.18	0.18	0.19	0.19	0.19	0.21
	NB	12:00	IP	3	995	726	1,721	60	197	197	198	171	171	182	182	184	202	0.06	0.20	0.20	0.20	0.17	0.17	0.18	0.18	0.19	0.20
	NB	13:00	IP	3	995	726	1,721	59	194	194	195	168	168	179	179	181	199	0.06	0.19	0.20	0.20	0.17	0.17	0.18	0.18	0.18	0.20
	NB	14:00	IP	3	995	726	1,721	82	268	269	270	232	232	248	248	251	275	0.08	0.27	0.27	0.27	0.23	0.23	0.25	0.25	0.25	0.28
	NB	15:00	IP	3	995	726	1,721	123	404	404	406	350	350	373	373	378	415	0.12	0.41	0.41	0.41	0.35	0.35	0.38	0.38	0.38	0.42
	NB	16:00	PM	3	966	757	1,723	209	648	458	433	455	455	444	444	469	753	0.22	0.67	0.47	0.45	0.47	0.47	0.46	0.46	0.49	0.78
	NB	17:00	PM	3	966	757	1,723	155	479	339	320	337	337	329	328	347	557	0.16	0.50	0.35	0.33	0.35	0.35	0.34	0.34	0.36	0.58
	NB	18:00	OP1	3	1,031	753	1,785	251	807	570	489	449	449	456	456	468	528	0.24	0.78	0.55	0.47	0.44	0.44	0.44	0.44	0.45	0.51
	NB	19:00	OP1	2	516	377	892	125	400	283	243	222	222	226	226	232	262	0.24	0.78	0.55	0.47	0.43	0.43	0.44	0.44	0.45	0.51
	NB	20:00	OP1	3	1,031	753	1,785	118	380	268	230	211	211	214	215	220	249	0.11	0.37	0.26	0.22	0.20	0.20	0.21	0.21	0.21	0.24
	NB	21:00	OP1	3	1,031	753	1,785	23	75	53	45	41	41	42	42	43	49	0.02	0.07	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05
	NB	22:00	OP1	2	516	377	892	15	47	34	29	26	26	27	27	28	31	0.03	0.09	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.06
	NB	23:00	OP1	2	516	377	892	30	95	67	58	53	53	54	54	55	62	0.06	0.18	0.13	0.11	0.10	0.10	0.10	0.10	0.11	0.12

Table 78: North Downs Line, Eastbound, All, With Project 2032

NRP_32				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671
All				All services				Calibrated load on Departure (1hr)									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
	SB	00:00	OP2	1	166	121	287	20	20	20	20	20	20	20	24	26	
	SB	01:00	OP2	1	166	121	287	4	4	4	4	4	4	4	5	5	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SB	05:00	OP3	3	995	726	1,721	37	37	37	38	38	41	41	60	65	
	SB	06:00	OP3	3	995	726	1,721	272	270	270	276	276	298	300	440	474	
	SB	07:00	AM	3	748	700	1,448	488	439	439	492	492	450	477	743	406	
	SB	08:00	AM	3	748	700	1,448	418	376	376	421	421	385	408	636	348	
	SB	09:00	IP	3	853	622	1,475	249	244	244	260	260	299	316	378	144	
	SB	10:00	IP	3	853	622	1,475	228	223	224	238	238	274	289	346	132	
All	SB	11:00	IP	3	853	622	1,475	177	174	174	185	185	213	225	269	103	
	SB	12:00	IP	3	853	622	1,475	160	157	157	167	167	192	203	243	92	
	SB	13:00	IP	3	853	622	1,475	132	130	130	138	138	159	168	201	77	
	SB	14:00	IP	3	853	622	1,475	125	123	123	131	131	151	159	191	73	
	SB	15:00	IP	3	853	622	1,475	168	165	165	176	176	202	214	256	98	
	SB	16:00	PM	3	966	757	1,723	360	372	372	327	327	376	374	380	214	
	SB	17:00	PM	3	966	757	1,723	530	547	547	481	481	553	550	559	314	
	SB	18:00	OP1	4	1,160	847	2,008	526	521	521	394	394	432	440	455	403	
	SB	19:00	OP1	4	1,160	847	2,008	254	252	252	191	191	209	213	220	195	
	SB	20:00	OP1	2	580	424	1,004	142	141	141	107	107	117	119	123	109	
	SB	21:00	OP1	4	1,160	847	2,008	90	89	89	67	67	74	75	78	69	
	SB	22:00	OP1	2	580	424	1,004	41	41	41	31	31	34	34	36	32	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0	

			Seated LF									
Group	Direction	Hour beginning	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
	SB	00:00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.16	
	SB	01:00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	
	SB	02:00	-	-	-	-	-	-	-	-	-	
	SB	03:00	-	-	-	-	-	-	-	-	-	
	SB	04:00	-	-	-	-	-	-	-	-	-	
	SB	05:00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.07	
	SB	06:00	0.27	0.27	0.27	0.28	0.28	0.30	0.30	0.44	0.48	
	SB	07:00	0.65	0.59	0.59	0.66	0.66	0.60	0.64	0.99	0.54	
	SB	08:00	0.56	0.50	0.50	0.56	0.56	0.51	0.55	0.85	0.46	
	SB	09:00	0.29	0.29	0.29	0.30	0.30	0.35	0.37	0.44	0.17	
	SB	10:00	0.27	0.26	0.26	0.28	0.28	0.32	0.34	0.41	0.15	
All	SB	11:00	0.21	0.20	0.20	0.22	0.22	0.25	0.26	0.32	0.12	
	SB	12:00	0.19	0.18	0.18	0.20	0.20	0.22	0.24	0.28	0.11	
	SB	13:00	0.15	0.15	0.15	0.16	0.16	0.19	0.20	0.24	0.09	
	SB	14:00	0.15	0.14	0.14	0.15	0.15	0.18	0.19	0.22	0.09	
	SB	15:00	0.20	0.19	0.19	0.21	0.21	0.24	0.25	0.30	0.11	
	SB	16:00	0.37	0.39	0.38	0.34	0.34	0.39	0.39	0.39	0.22	
	SB	17:00	0.55	0.57	0.57	0.50	0.50	0.57	0.57	0.58	0.33	
	SB	18:00	0.45	0.45	0.45	0.34	0.34	0.37	0.38	0.39	0.35	
	SB	19:00	0.22	0.22	0.22	0.16	0.16	0.18	0.18	0.19	0.17	
	SB	20:00	0.24	0.24	0.24	0.18	0.18	0.20	0.20	0.21	0.19	
	SB	21:00	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.07	0.06	
	SB	22:00	0.07	0.07	0.07	0.05	0.05	0.06	0.06	0.06	0.05	
	SB	23:00	-	-	-	-	-	-	-	-	-	

2038

Table 79: Brighton Main Line, Northbound, Fast, With Project 2038

NRP_38				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	312-253	843-636	636-253	592-526	636-789	789-509
Fasts						Mins JT (London) -->		35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	3	1,870	2,208	4,078	113	208	208	208	208	208	208	208	208	208	255	83	52	0
	NB	01:00	OP2	1	838	989	1,827	35	64	64	64	64	64	64	64	64	64	79	26	16	0
	NB	02:00	OP2	1	419	495	913	10	19	19	19	19	19	19	19	19	19	23	7	5	0
	NB	03:00	OP2	1	688	813	1,501	14	25	25	25	25	25	25	25	25	25	31	10	6	0
	NB	04:00	OP3	2	1,137	1,263	2,400	61	67	67	67	67	67	67	67	67	67	15	13	69	69
	NB	05:00	OP3	2	1,503	1,669	3,172	487	540	540	540	540	540	540	540	540	540	118	105	554	554
	NB	06:00	OP3	12	7,245	8,044	15,288	4,625	5,135	5,135	5,135	5,135	5,135	5,135	5,135	5,135	5,135	1,126	1,002	5,262	5,262
	NB	07:00	AM	16	10,475	10,098	20,573	7,402	9,352	9,386	9,386	9,386	9,386	9,386	9,386	9,386	9,386	5,444	4,902	6,816	6,816
	NB	08:00	AM	18	11,178	10,777	21,955	9,040	11,421	11,463	11,463	11,463	11,463	11,463	11,463	11,463	11,463	6,649	5,987	8,324	8,324
	NB	09:00	IP	14	8,433	7,392	15,825	4,674	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	5,970	4,578	4,296	4,296
	NB	10:00	IP	14	8,577	7,518	16,095	2,997	5,914	5,914	5,914	5,914	5,914	5,914	5,914	5,914	5,914	3,829	2,936	2,755	2,755
Fasts	NB	11:00	IP	14	8,210	7,197	15,407	2,512	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	3,208	2,460	2,309	2,309
	NB	12:00	IP	14	8,408	7,371	15,779	2,085	4,113	4,113	4,113	4,113	4,113	4,113	4,113	4,113	4,113	2,663	2,042	1,916	1,916
	NB	13:00	IP	13	7,834	6,867	14,701	1,688	3,330	3,330	3,330	3,330	3,330	3,330	3,330	3,330	3,330	2,156	1,653	1,551	1,551
	NB	14:00	IP	13	7,834	6,867	14,701	1,458	2,876	2,876	2,876	2,876	2,876	2,876	2,876	2,876	2,876	1,862	1,428	1,340	1,340
	NB	15:00	IP	13	8,002	7,015	15,017	1,319	2,602	2,602	2,602	2,602	2,602	2,602	2,602	2,602	2,602	1,684	1,292	1,212	1,212
	NB	16:00	PM	16	9,901	9,957	19,858	2,561	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	3,073	1,585	2,880	2,880
	NB	17:00	PM	17	10,554	10,613	21,167	3,256	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	3,907	2,015	3,662	3,662
	NB	18:00	OP1	16	9,727	8,564	18,291	1,892	6,902	6,902	6,902	6,902	6,902	6,902	6,902	6,902	6,902	4,705	3,288	3,127	3,127
	NB	19:00	OP1	13	7,882	6,939	14,821	1,231	4,490	4,490	4,490	4,490	4,490	4,490	4,490	4,490	4,490	3,060	2,139	2,034	2,034
	NB	20:00	OP1	14	8,276	7,286	15,563	856	3,123	3,123	3,123	3,123	3,123	3,123	3,123	3,123	3,123	2,129	1,487	1,414	1,414
	NB	21:00	OP1	15	8,686	7,647	16,333	688	2,509	2,509	2,509	2,509	2,509	2,509	2,509	2,509	2,509	1,710	1,195	1,137	1,137
	NB	22:00	OP1	13	7,507	6,610	14,117	461	1,683	1,683	1,683	1,683	1,683	1,683	1,683	1,683	1,683	1,147	802	762	762
	NB	23:00	OP1	11	6,318	5,563	11,881	503	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,252	875	832	832

				35	30	47	43	40	33	28	24	22	18	17	7	14	12
				Seated load factor on departure													
Scenario	Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
	NB	00:00	OP2	0.06	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.44	0.14	0.04	0.00
	NB	01:00	OP2	0.04	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.31	0.10	0.03	0.00
	NB	02:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.18	0.06	0.02	0.00
	NB	03:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.14	0.05	0.01	0.00
	NB	04:00	OP3	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03	0.03	0.10	0.10
	NB	05:00	OP3	0.32	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.20	0.18	0.61	0.61
	NB	06:00	OP3	0.64	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.39	0.35	1.21	1.21
	NB	07:00	AM	0.71	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	1.02	0.92	1.33	1.33
	NB	08:00	AM	0.81	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.17	1.05	1.52	1.52
	NB	09:00	IP	0.55	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.04	0.80	1.58	1.58
	NB	10:00	IP	0.35	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.66	0.51	1.00	1.00
Fasts	NB	11:00	IP	0.31	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.58	0.44	0.87	0.87
	NB	12:00	IP	0.25	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.47	0.36	0.71	0.71
	NB	13:00	IP	0.22	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.41	0.31	0.61	0.61
	NB	14:00	IP	0.19	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.35	0.27	0.53	0.53
	NB	15:00	IP	0.16	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.31	0.24	0.47	0.47
	NB	16:00	PM	0.26	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.51	0.26	0.75	0.75
	NB	17:00	PM	0.31	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.61	0.31	0.89	0.89
	NB	18:00	OP1	0.19	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.72	0.50	0.98	0.98
	NB	19:00	OP1	0.16	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.58	0.40	0.79	0.79
	NB	20:00	OP1	0.10	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.27	0.52	0.52
	NB	21:00	OP1	0.08	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.20	0.40	0.40
	NB	22:00	OP1	0.06	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.16	0.31	0.31
	NB	23:00	OP1	0.08	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.21	0.40	0.40

Table 80: Brighton Main Line, Northbound, Stoppers, With Project 2038

Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
NRP_38				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-636	636-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
	NB	00:00	OP2	3	1,870	2,208	4,078	113	208	208	208	208	208	208	208	208	208	255	83	52	0
	NB	01:00	OP2	1	838	989	1,827	35	64	64	64	64	64	64	64	64	64	79	26	16	0
	NB	02:00	OP2	1	419	495	913	10	19	19	19	19	19	19	19	19	19	23	7	5	0
	NB	03:00	OP2	1	688	813	1,501	14	25	25	25	25	25	25	25	25	25	31	10	6	0
	NB	04:00	OP3	2	1,137	1,263	2,400	61	67	67	67	67	67	67	67	67	67	15	13	69	69
	NB	05:00	OP3	2	1,503	1,669	3,172	487	540	540	540	540	540	540	540	540	540	118	105	554	554
	NB	06:00	OP3	12	7,245	8,044	15,288	4,625	5,135	5,135	5,135	5,135	5,135	5,135	5,135	5,135	5,135	1,126	1,002	5,262	5,262
	NB	07:00	AM	16	10,475	10,098	20,573	7,402	9,352	9,386	9,386	9,386	9,386	9,386	9,386	9,386	9,386	5,444	4,902	6,816	6,816
	NB	08:00	AM	18	11,178	10,777	21,955	9,040	11,421	11,463	11,463	11,463	11,463	11,463	11,463	11,463	11,463	6,649	5,987	8,324	8,324
	NB	09:00	IP	14	8,433	7,392	15,825	4,674	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	9,222	5,970	4,578	4,296	4,296
	NB	10:00	IP	14	8,577	7,518	16,095	2,997	5,914	5,914	5,914	5,914	5,914	5,914	5,914	5,914	5,914	3,829	2,936	2,755	2,755
Fasts	NB	11:00	IP	14	8,210	7,197	15,407	2,512	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	3,208	2,460	2,309	2,309
	NB	12:00	IP	14	8,408	7,371	15,779	2,085	4,113	4,113	4,113	4,113	4,113	4,113	4,113	4,113	4,113	2,663	2,042	1,916	1,916
	NB	13:00	IP	13	7,834	6,867	14,701	1,688	3,330	3,330	3,330	3,330	3,330	3,330	3,330	3,330	3,330	2,156	1,653	1,551	1,551
	NB	14:00	IP	13	7,834	6,867	14,701	1,458	2,876	2,876	2,876	2,876	2,876	2,876	2,876	2,876	2,876	1,862	1,428	1,340	1,340
	NB	15:00	IP	13	8,002	7,015	15,017	1,319	2,602	2,602	2,602	2,602	2,602	2,602	2,602	2,602	2,602	1,684	1,292	1,212	1,212
	NB	16:00	PM	16	9,901	9,957	19,858	2,561	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	4,353	3,073	1,585	2,880	2,880
	NB	17:00	PM	17	10,554	10,613	21,167	3,256	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	5,535	3,907	2,015	3,662	3,662
	NB	18:00	OP1	16	9,727	8,564	18,291	1,892	6,902	6,902	6,902	6,902	6,902	6,902	6,902	6,902	6,902	4,705	3,288	3,127	3,127
	NB	19:00	OP1	13	7,882	6,939	14,821	1,231	4,490	4,490	4,490	4,490	4,490	4,490	4,490	4,490	4,490	3,060	2,139	2,034	2,034
	NB	20:00	OP1	14	8,276	7,286	15,563	856	3,123	3,123	3,123	3,123	3,123	3,123	3,123	3,123	3,123	2,129	1,487	1,414	1,414
	NB	21:00	OP1	15	8,686	7,647	16,333	688	2,509	2,509	2,509	2,509	2,509	2,509	2,509	2,509	2,509	1,710	1,195	1,137	1,137
	NB	22:00	OP1	13	7,507	6,610	14,117	461	1,683	1,683	1,683	1,683	1,683	1,683	1,683	1,683	1,683	1,147	802	762	762
	NB	23:00	OP1	11	6,318	5,563	11,881	503	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,836	1,252	875	832	832

Scenario	Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
				35	30	47	43	40	33	28	24	22	18	17	7	14	12
				Seated load factor on departure													
	NB	00:00	OP2	0.06	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.44	0.14	0.04	0.00
	NB	01:00	OP2	0.04	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.31	0.10	0.03	0.00
	NB	02:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.18	0.06	0.02	0.00
	NB	03:00	OP2	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.14	0.05	0.01	0.00
	NB	04:00	OP3	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03	0.03	0.10	0.10
	NB	05:00	OP3	0.32	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.20	0.18	0.61	0.61
	NB	06:00	OP3	0.64	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.39	0.35	1.21	1.21
	NB	07:00	AM	0.71	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	1.02	0.92	1.33	1.33
	NB	08:00	AM	0.81	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.17	1.05	1.52	1.52
	NB	09:00	IP	0.55	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.04	0.80	1.58	1.58
	NB	10:00	IP	0.35	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.66	0.51	1.00	1.00
Fasts	NB	11:00	IP	0.31	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.58	0.44	0.87	0.87
	NB	12:00	IP	0.25	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.47	0.36	0.71	0.71
	NB	13:00	IP	0.22	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.41	0.31	0.61	0.61
	NB	14:00	IP	0.19	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.35	0.27	0.53	0.53
	NB	15:00	IP	0.16	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.31	0.24	0.47	0.47
	NB	16:00	PM	0.26	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.51	0.26	0.75	0.75
	NB	17:00	PM	0.31	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.61	0.31	0.89	0.89
	NB	18:00	OP1	0.19	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.72	0.50	0.98	0.98
	NB	19:00	OP1	0.16	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.58	0.40	0.79	0.79
	NB	20:00	OP1	0.10	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.27	0.52	0.52
	NB	21:00	OP1	0.08	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.20	0.40	0.40
	NB	22:00	OP1	0.06	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.23	0.16	0.31	0.31
	NB	23:00	OP1	0.08	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.21	0.40	0.40

Table 81: Brighton Main Line, Southbound, Fast, With Project 2038

NRP_38					671	671		671	901-526	592-909	015-77	789-636	636-843	343-253	312-259	596-211	117-82	424-211	116-211	115-211	114-67	371-5000
Fasts								Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
					All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity		London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Fasts	SB	00:00	OP2	1	490	511	1,001		6	26	0	0	134	134	134	134	134	134	134	134	134	156
Fasts	SB	01:00	OP2	1	327	341	667		2	8	0	0	41	41	41	41	41	41	41	41	41	48
Fasts	SB	02:00	OP2	0	105	109	214		1	2	0	0	12	12	12	12	12	12	12	12	12	13
Fasts	SB	03:00	OP2	1	327	341	667		1	6	0	0	32	32	32	32	32	32	32	32	32	37
Fasts	SB	04:00	OP3	4	2,130	2,136	4,265		51	58	227	227	235	235	235	235	235	235	235	235	235	46
Fasts	SB	05:00	OP3	6	3,611	3,622	7,233		104	116	460	460	476	476	476	476	476	476	476	476	476	94
Fasts	SB	06:00	OP3	11	6,916	6,936	13,852		353	397	1,567	1,567	1,621	1,621	1,621	1,621	1,621	1,621	1,621	1,621	1,621	319
Fasts	SB	07:00	AM	15	8,603	9,437	18,040		1,312	2,355	2,967	2,967	4,026	4,026	4,026	4,026	4,026	4,026	4,026	4,026	4,026	1,757
Fasts	SB	08:00	AM	18	10,804	11,851	22,655		1,328	2,385	3,005	3,005	4,077	4,077	4,077	4,077	4,077	4,077	4,077	4,077	4,077	1,779
Fasts	SB	09:00	IP	21	12,830	12,619	25,450		1,472	2,041	2,440	2,440	3,879	3,879	3,879	3,879	3,879	3,881	3,881	3,881	3,883	1,971
Fasts	SB	10:00	IP	18	10,778	10,601	21,379		1,139	1,580	1,888	1,889	3,002	3,002	3,002	3,002	3,002	3,004	3,004	3,004	3,005	1,525
Fasts	SB	11:00	IP	16	9,874	9,711	19,585		1,047	1,452	1,735	1,736	2,759	2,759	2,759	2,759	2,759	2,761	2,761	2,761	2,762	1,402
Fasts	SB	12:00	IP	16	9,654	9,495	19,149		1,170	1,622	1,938	1,939	3,082	3,082	3,082	3,082	3,082	3,083	3,083	3,083	3,085	1,566
Fasts	SB	13:00	IP	17	10,112	9,945	20,057		1,408	1,952	2,333	2,333	3,709	3,709	3,709	3,709	3,709	3,711	3,711	3,711	3,713	1,884
Fasts	SB	14:00	IP	16	9,886	9,723	19,609		1,742	2,416	2,887	2,887	4,590	4,590	4,590	4,590	4,590	4,592	4,592	4,592	4,595	2,332
Fasts	SB	15:00	IP	18	10,807	10,629	21,437		2,423	3,360	4,015	4,016	6,384	6,384	6,384	6,384	6,384	6,388	6,388	6,388	6,391	3,244
Fasts	SB	16:00	PM	15	9,484	9,461	18,944		4,486	5,200	4,714	5,007	7,540	7,540	7,540	7,540	7,540	7,540	7,540	7,540	7,543	4,787
Fasts	SB	17:00	PM	18	11,424	11,396	22,821		6,617	7,670	6,953	7,386	11,123	11,123	11,123	11,123	11,123	11,123	11,123	11,123	11,127	7,061
Fasts	SB	18:00	OP1	17	10,053	9,239	19,292		5,910	6,465	7,004	7,049	10,960	10,960	10,960	10,960	10,960	10,960	10,960	10,960	10,959	8,670
Fasts	SB	19:00	OP1	12	7,404	6,804	14,207		3,337	3,650	3,955	3,980	6,189	6,189	6,189	6,189	6,189	6,189	6,189	6,189	6,188	4,896
Fasts	SB	20:00	OP1	14	8,404	7,723	16,126		2,222	2,431	2,633	2,650	4,121	4,121	4,121	4,121	4,121	4,121	4,121	4,121	4,120	3,260
Fasts	SB	21:00	OP1	14	8,249	7,581	15,830		1,714	1,875	2,031	2,044	3,179	3,179	3,179	3,179	3,179	3,179	3,179	3,179	3,179	2,515
Fasts	SB	22:00	OP1	11	6,642	6,104	12,746		1,669	1,826	1,979	1,991	3,096	3,096	3,096	3,096	3,096	3,096	3,096	3,096	3,096	2,449
Fasts	SB	23:00	OP1	8	5,058	4,649	9,707		774	847	917	923	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,135

	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
00:00	0.03	0.11	0.00	0.00	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.32
01:00	0.01	0.05	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.15
02:00	0.01	0.05	0.00	0.00	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.13
03:00	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11
04:00	0.05	0.05	0.23	0.23	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.02
05:00	0.05	0.06	0.27	0.27	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.03
06:00	0.10	0.11	0.48	0.48	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.05
07:00	0.29	0.53	0.72	0.72	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.20
08:00	0.24	0.42	0.58	0.58	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.16
09:00	0.21	0.29	0.42	0.42	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.15
10:00	0.19	0.27	0.39	0.39	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.14
11:00	0.19	0.27	0.39	0.39	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.14
12:00	0.22	0.31	0.45	0.45	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.16
13:00	0.25	0.35	0.51	0.51	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.19
14:00	0.32	0.45	0.65	0.65	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.24
15:00	0.41	0.57	0.82	0.82	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.30
16:00	0.86	1.00	1.10	1.17	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.50
17:00	1.06	1.22	1.35	1.43	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.62
18:00	0.94	1.03	1.86	1.87	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	0.86
19:00	0.72	0.79	1.43	1.44	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.66
20:00	0.42	0.46	0.84	0.84	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.39
21:00	0.33	0.36	0.66	0.66	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.30
22:00	0.40	0.44	0.80	0.80	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.37
23:00	0.24	0.27	0.48	0.49	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.22

Table 82: Brighton Main Line, Southbound, Stoppers, With Project 2038

NRP_38				671	671		671	901-526	592-909	.015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Stoppers					Mins JT (London) -->			-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	2	1,362	1,994	3,356	7	27	0	0	512	512	502	501	500	499	499	499	499	263
	SB	01:00	OP2	2	908	1,328	2,236	2	8	0	0	157	157	154	154	153	153	153	153	153	81
	SB	02:00	OP2	1	292	427	719	1	2	0	0	44	44	43	43	43	43	43	43	43	23
	SB	03:00	OP2	2	908	1,328	2,236	2	6	0	0	121	121	119	118	118	118	118	118	118	62
	SB	04:00	OP3	1	534	774	1,308	5	8	116	116	110	110	111	103	103	103	103	103	106	4
	SB	05:00	OP3	2	906	1,312	2,219	9	15	234	234	222	222	226	209	208	208	208	208	215	8
	SB	06:00	OP3	3	1,736	2,513	4,249	31	53	798	798	756	756	768	713	709	710	710	710	732	26
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	1,056	1,126	501	501	501	457	453	302	414	422	578	134
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,070	1,140	507	507	507	463	459	306	419	427	585	136
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,219	1,196	654	654	614	584	576	405	432	435	463	136
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	943	926	506	506	475	452	446	314	335	337	359	105
	SB	11:00	IP	5	2,707	4,415	7,122	0	0	867	851	465	465	437	415	410	288	307	310	330	97
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	968	950	520	520	488	464	458	322	343	346	368	108
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,165	1,144	625	625	587	558	551	387	413	416	443	130
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,442	1,415	774	774	726	691	682	479	511	515	548	161
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	2,006	1,968	1,077	1,077	1,010	961	948	667	711	716	763	224
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,529	2,403	1,936	1,936	1,458	1,068	973	655	534	511	512	367
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	3,731	3,545	2,856	2,856	2,151	1,575	1,435	966	787	753	755	541
	SB	18:00	OP1	4	2,252	2,908	5,159	62	67	3,136	3,136	1,909	1,909	1,857	1,570	1,456	780	729	699	623	906
	SB	19:00	OP1	3	1,658	2,141	3,800	35	38	1,771	1,771	1,078	1,078	1,048	887	822	440	412	395	352	512
	SB	20:00	OP1	3	1,882	2,430	4,313	23	25	1,179	1,179	718	718	698	590	547	293	274	263	234	341
	SB	21:00	OP1	3	1,848	2,386	4,233	18	19	910	910	554	554	539	455	422	226	212	203	181	263
	SB	22:00	OP1	3	1,488	1,921	3,409	17	19	886	886	539	539	525	444	411	220	206	198	176	256
	SB	23:00	OP1	2	1,133	1,463	2,596	8	9	411	411	250	250	243	206	191	102	96	92	82	119

				-	7	-	12	14	18	22	24	28	33	40	43	47	30
				Seated LF													
Group	Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Stoppers	SB	00:00	OP2	0.03	0.13	0.00	0.00	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.19
	SB	01:00	OP2	0.01	0.06	0.00	0.00	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.09
	SB	02:00	OP2	0.01	0.05	0.00	0.00	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.08
	SB	03:00	OP2	0.01	0.05	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.07
	SB	04:00	OP3	0.05	0.08	0.26	0.26	0.21	0.21	0.21	0.19	0.19	0.19	0.19	0.19	0.20	0.01
	SB	05:00	OP3	0.06	0.10	0.31	0.31	0.24	0.24	0.25	0.23	0.23	0.23	0.23	0.23	0.24	0.01
	SB	06:00	OP3	0.11	0.18	0.55	0.55	0.44	0.44	0.44	0.41	0.41	0.41	0.41	0.41	0.42	0.02
	SB	07:00	AM	0.00	0.00	0.60	0.64	0.22	0.22	0.22	0.20	0.20	0.13	0.18	0.19	0.25	0.06
	SB	08:00	AM	0.00	0.00	0.48	0.51	0.18	0.18	0.18	0.16	0.16	0.11	0.15	0.15	0.20	0.05
	SB	09:00	IP	-	-	0.35	0.34	0.19	0.19	0.17	0.17	0.16	0.12	0.12	0.12	0.13	0.04
	SB	10:00	IP	-	-	0.32	0.31	0.17	0.17	0.16	0.15	0.15	0.11	0.11	0.11	0.12	0.04
	SB	11:00	IP	-	-	0.32	0.31	0.17	0.17	0.16	0.15	0.15	0.11	0.11	0.11	0.12	0.04
	SB	12:00	IP	-	-	0.37	0.36	0.20	0.20	0.18	0.18	0.17	0.12	0.13	0.13	0.14	0.04
	SB	13:00	IP	-	-	0.42	0.41	0.23	0.23	0.21	0.20	0.20	0.14	0.15	0.15	0.16	0.05
	SB	14:00	IP	-	-	0.53	0.52	0.29	0.29	0.27	0.25	0.25	0.18	0.19	0.19	0.20	0.06
	SB	15:00	IP	-	-	0.68	0.66	0.36	0.36	0.34	0.32	0.32	0.23	0.24	0.24	0.26	0.08
	SB	16:00	PM	0.00	0.00	1.22	1.16	0.76	0.76	0.57	0.42	0.38	0.26	0.21	0.20	0.20	0.14
	SB	17:00	PM	0.00	0.00	1.49	1.42	0.93	0.93	0.70	0.51	0.46	0.31	0.26	0.24	0.24	0.18
	SB	18:00	OP1	0.09	0.09	2.03	2.03	0.85	0.85	0.82	0.70	0.65	0.35	0.32	0.31	0.28	0.40
	SB	19:00	OP1	0.07	0.07	1.56	1.56	0.65	0.65	0.63	0.53	0.50	0.27	0.25	0.24	0.21	0.31
	SB	20:00	OP1	0.04	0.04	0.91	0.91	0.38	0.38	0.37	0.31	0.29	0.16	0.15	0.14	0.12	0.18
	SB	21:00	OP1	0.03	0.03	0.72	0.72	0.30	0.30	0.29	0.25	0.23	0.12	0.11	0.11	0.10	0.14
	SB	22:00	OP1	0.04	0.04	0.87	0.87	0.36	0.36	0.35	0.30	0.28	0.15	0.14	0.13	0.12	0.17
	SB	23:00	OP1	0.02	0.02	0.53	0.53	0.22	0.22	0.21	0.18	0.17	0.09	0.08	0.08	0.07	0.10

Table 83: Arun Valley, Northbound, All, With Project 2038

NRP_38				2136	2136		2136	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
Fasts	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	NB	06:00	OP3	2	1,173	693	1,866	437	437	248	274	274	284	292	403	403	0.37	0.37	0.21	0.23	0.23	0.24	0.25	0.34	0.34
	NB	07:00	AM	3	1,992	1,189	3,181	696	954	908	938	938	959	1,468	1,394	1,394	0.35	0.48	0.46	0.47	0.47	0.48	0.74	0.70	0.70
	NB	08:00	AM	3	1,896	1,131	3,027	799	1,095	1,042	1,076	1,076	1,100	1,684	1,600	1,600	0.42	0.58	0.55	0.57	0.57	0.58	0.89	0.84	0.84
	NB	09:00	IP	2	1,277	755	2,032	610	665	554	554	554	554	798	752	752	0.48	0.52	0.43	0.43	0.43	0.43	0.63	0.59	0.59
	NB	10:00	IP	2	1,155	683	1,838	521	568	473	473	473	473	682	642	642	0.45	0.49	0.41	0.41	0.41	0.41	0.59	0.56	0.56
	NB	11:00	IP	2	1,155	683	1,838	397	432	360	360	360	360	519	489	489	0.34	0.37	0.31	0.31	0.31	0.31	0.45	0.42	0.42
	NB	12:00	IP	2	1,155	683	1,838	307	335	279	279	279	279	403	379	379	0.27	0.29	0.24	0.24	0.24	0.24	0.35	0.33	0.33
	NB	13:00	IP	2	1,155	683	1,838	255	278	232	232	232	232	334	315	315	0.22	0.24	0.20	0.20	0.20	0.20	0.29	0.27	0.27
	NB	14:00	IP	2	1,155	683	1,838	207	225	188	188	188	188	271	255	255	0.18	0.20	0.16	0.16	0.16	0.16	0.23	0.22	0.22
	NB	15:00	IP	2	1,155	683	1,838	216	236	196	196	196	196	283	267	267	0.19	0.20	0.17	0.17	0.17	0.17	0.25	0.23	0.23
	NB	16:00	PM	2	1,216	725	1,940	351	383	427	427	427	427	544	472	472	0.29	0.32	0.35	0.35	0.35	0.35	0.45	0.39	0.39
	NB	17:00	PM	2	1,216	725	1,940	472	515	574	574	574	574	731	635	635	0.39	0.42	0.47	0.47	0.47	0.47	0.60	0.52	0.52
	NB	18:00	OP1	2	1,188	703	1,891	297	305	303	303	303	303	426	407	407	0.25	0.26	0.25	0.25	0.25	0.25	0.36	0.34	0.34
	NB	19:00	OP1	2	1,075	635	1,710	176	181	179	179	179	179	252	241	241	0.16	0.17	0.17	0.17	0.17	0.17	0.23	0.22	0.22
	NB	20:00	OP1	2	1,075	635	1,710	85	87	87	87	87	87	122	117	117	0.08	0.08	0.08	0.08	0.08	0.08	0.11	0.11	0.11
	NB	21:00	OP1	2	1,188	703	1,891	91	94	93	93	93	93	131	125	125	0.08	0.08	0.08	0.08	0.08	0.08	0.11	0.11	0.11
	NB	22:00	OP1	2	1,075	635	1,710	63	65	64	64	64	64	91	87	87	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.08	0.08
	NB	23:00	OP1	1	848	501	1,349	48	49	49	49	49	49	69	66	66	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.08	0.08

Table 84: Arun Valley, Southbound, All, With Project 2038

NRP_38				2136	2136		2136
Fasts				All services			
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity
Fasts	SB	00:00	OP2	0	0	0	0
	SB	01:00	OP2	0	0	0	0
	SB	02:00	OP2	0	0	0	0
	SB	03:00	OP2	0	0	0	0
	SB	04:00	OP3	0	0	0	0
	SB	05:00	OP3	0	157	93	250
	SB	06:00	OP3	2	1,016	600	1,616
	SB	07:00	AM	2	1,151	686	1,836
	SB	08:00	AM	2	794	473	1,268
	SB	09:00	IP	2	1,277	755	2,032
	SB	10:00	IP	2	1,155	683	1,838
	SB	11:00	IP	2	1,155	683	1,838
	SB	12:00	IP	2	1,155	683	1,838
	SB	13:00	IP	2	1,155	683	1,838
	SB	14:00	IP	2	1,155	683	1,838
	SB	15:00	IP	2	1,155	683	1,838
	SB	16:00	PM	2	1,250	745	1,995
	SB	17:00	PM	3	1,910	1,139	3,049
	SB	18:00	OP1	3	1,619	1,085	2,703
	SB	19:00	OP1	2	1,059	710	1,769
	SB	20:00	OP1	2	1,365	915	2,280
	SB	21:00	OP1	2	1,059	710	1,769
	SB	22:00	OP1	2	1,171	785	1,956
	SB	23:00	OP1	1	835	560	1,395

	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120
	Calibrated load on Departure (1hr)								
Hour beginning	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
00:00	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0
05:00	8	12	12	12	12	12	12	21	25
06:00	32	49	52	51	51	50	49	90	107
07:00	229	306	314	314	314	314	295	277	260
08:00	182	243	249	249	249	249	235	220	206
09:00	300	381	393	393	393	393	414	437	348
10:00	181	231	237	237	237	237	250	264	210
11:00	158	201	207	207	207	207	219	231	184
12:00	204	259	267	267	267	267	281	297	236
13:00	230	292	301	301	301	301	317	335	266
14:00	279	355	366	366	366	366	386	407	324
15:00	412	524	540	540	540	540	569	600	478
16:00	580	757	597	591	591	585	659	507	442
17:00	918	1,198	946	935	935	925	1,043	802	700
18:00	863	1,053	900	896	896	890	1,095	888	765
19:00	500	609	521	519	519	515	634	514	443
20:00	318	388	331	330	330	328	403	327	282
21:00	237	289	247	246	246	244	301	244	210
22:00	209	255	218	217	217	215	265	215	185
23:00	141	173	147	147	147	146	180	146	125

	Seated LF								
Hour beginning	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
00:00	-	-	-	-	-	-	-	-	-
01:00	-	-	-	-	-	-	-	-	-
02:00	-	-	-	-	-	-	-	-	-
03:00	-	-	-	-	-	-	-	-	-
04:00	-	-	-	-	-	-	-	-	-
05:00	0.05	0.07	0.08	0.08	0.08	0.07	0.07	0.13	0.16
06:00	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.11
07:00	0.20	0.27	0.27	0.27	0.27	0.27	0.26	0.24	0.23
08:00	0.23	0.31	0.31	0.31	0.31	0.31	0.30	0.28	0.26
09:00	0.23	0.30	0.31	0.31	0.31	0.31	0.32	0.34	0.27
10:00	0.16	0.20	0.21	0.21	0.21	0.21	0.22	0.23	0.18
11:00	0.14	0.17	0.18	0.18	0.18	0.18	0.19	0.20	0.16
12:00	0.18	0.22	0.23	0.23	0.23	0.23	0.24	0.26	0.20
13:00	0.20	0.25	0.26	0.26	0.26	0.26	0.27	0.29	0.23
14:00	0.24	0.31	0.32	0.32	0.32	0.32	0.33	0.35	0.28
15:00	0.36	0.45	0.47	0.47	0.47	0.47	0.49	0.52	0.41
16:00	0.46	0.61	0.48	0.47	0.47	0.47	0.53	0.41	0.35
17:00	0.48	0.63	0.50	0.49	0.49	0.48	0.55	0.42	0.37
18:00	0.53	0.65	0.56	0.55	0.55	0.55	0.68	0.55	0.47
19:00	0.47	0.58	0.49	0.49	0.49	0.49	0.60	0.49	0.42
20:00	0.23	0.28	0.24	0.24	0.24	0.24	0.30	0.24	0.21
21:00	0.22	0.27	0.23	0.23	0.23	0.23	0.28	0.23	0.20
22:00	0.18	0.22	0.19	0.19	0.19	0.18	0.23	0.18	0.16
23:00	0.17	0.21	0.18	0.18	0.18	0.17	0.21	0.17	0.15

Table 85: North Downs Line, Westbound, All, With Project 2038

NRP_38				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	2	553	403	956	28	49	38	38	30	30	30	30	31	33	0.05	0.09	0.07	0.07	0.05	0.05	0.06	0.05	0.06	0.06
	NB	06:00	OP3	3	1,105	807	1,912	74	131	103	102	80	80	82	82	83	90	0.07	0.12	0.09	0.09	0.07	0.07	0.07	0.07	0.08	0.08
	NB	07:00	AM	3	976	761	1,737	207	404	298	320	363	363	441	442	446	474	0.21	0.41	0.31	0.33	0.37	0.37	0.45	0.45	0.46	0.49
	NB	08:00	AM	3	976	761	1,737	114	223	165	177	201	201	244	244	247	262	0.12	0.23	0.17	0.18	0.21	0.21	0.25	0.25	0.25	0.27
	NB	09:00	IP	3	995	726	1,721	120	385	389	391	340	340	362	362	366	404	0.12	0.39	0.39	0.39	0.34	0.34	0.36	0.36	0.37	0.41
	NB	10:00	IP	3	995	726	1,721	88	284	287	288	250	250	266	266	269	298	0.09	0.29	0.29	0.29	0.25	0.25	0.27	0.27	0.27	0.30
All	NB	11:00	IP	3	995	726	1,721	73	233	235	236	205	205	218	219	221	244	0.07	0.23	0.24	0.24	0.21	0.21	0.22	0.22	0.22	0.25
	NB	12:00	IP	3	995	726	1,721	69	222	224	225	196	196	208	208	211	233	0.07	0.22	0.23	0.23	0.20	0.20	0.21	0.21	0.21	0.23
	NB	13:00	IP	3	995	726	1,721	68	218	220	221	193	193	205	205	207	229	0.07	0.22	0.22	0.22	0.19	0.19	0.21	0.21	0.21	0.23
	NB	14:00	IP	3	995	726	1,721	94	302	305	306	266	266	283	283	287	317	0.09	0.30	0.31	0.31	0.27	0.27	0.28	0.28	0.29	0.32
	NB	15:00	IP	3	995	726	1,721	142	454	459	461	401	401	426	427	432	477	0.14	0.46	0.46	0.46	0.40	0.40	0.43	0.43	0.43	0.48
	NB	16:00	PM	3	966	757	1,723	241	715	525	498	528	528	515	515	541	845	0.25	0.74	0.54	0.52	0.55	0.55	0.53	0.53	0.56	0.87
	NB	17:00	PM	3	966	757	1,723	178	529	389	368	391	391	381	381	401	625	0.18	0.55	0.40	0.38	0.40	0.40	0.39	0.39	0.41	0.65
	NB	18:00	OP1	3	1,031	753	1,785	274	871	625	537	498	498	506	506	519	583	0.27	0.84	0.61	0.52	0.48	0.48	0.49	0.49	0.50	0.56
	NB	19:00	OP1	2	516	377	892	136	432	310	266	247	247	251	251	257	289	0.26	0.84	0.60	0.52	0.48	0.48	0.49	0.49	0.50	0.56
	NB	20:00	OP1	3	1,031	753	1,785	129	410	294	253	234	234	238	238	244	274	0.13	0.40	0.29	0.25	0.23	0.23	0.23	0.23	0.24	0.27
	NB	21:00	OP1	3	1,031	753	1,785	25	81	58	50	46	46	47	47	48	54	0.02	0.08	0.06	0.05	0.04	0.04	0.05	0.05	0.05	0.05
	NB	22:00	OP1	2	516	377	892	16	51	37	32	29	29	30	30	31	34	0.03	0.10	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.07
	NB	23:00	OP1	2	516	377	892	32	102	74	63	59	59	60	60	61	69	0.06	0.20	0.14	0.12	0.11	0.11	0.12	0.12	0.12	0.13

Table 86: North Downs Line, Eastbound, All, With Project 2038

NRP_38				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
All	SB	00:00	OP2	1	166	121	287	22	22	22	22	22	22	22	26	29		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.16	0.17	
	SB	01:00	OP2	1	166	121	287	4	4	4	4	4	4	4	5	6		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	
	SB	05:00	OP3	3	995	726	1,721	40	40	40	40	40	44	44	64	68		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.07	
	SB	06:00	OP3	3	995	726	1,721	293	291	291	296	296	320	322	467	502		0.29	0.29	0.29	0.30	0.30	0.32	0.32	0.47	0.50	
	SB	07:00	AM	3	748	700	1,448	515	464	464	520	520	463	491	768	406		0.69	0.62	0.62	0.70	0.70	0.62	0.66	1.03	0.54	
	SB	08:00	AM	3	748	700	1,448	441	397	397	445	445	396	421	658	347		0.59	0.53	0.53	0.60	0.60	0.53	0.56	0.88	0.46	
	SB	09:00	IP	3	853	622	1,475	278	273	273	290	290	331	349	415	159		0.33	0.32	0.32	0.34	0.34	0.39	0.41	0.49	0.19	
	SB	10:00	IP	3	853	622	1,475	255	250	250	266	266	303	320	380	146		0.30	0.29	0.29	0.31	0.31	0.36	0.38	0.45	0.17	
	SB	11:00	IP	3	853	622	1,475	198	194	194	207	207	236	249	296	114		0.23	0.23	0.23	0.24	0.24	0.28	0.29	0.35	0.13	
	SB	12:00	IP	3	853	622	1,475	178	175	175	186	186	212	224	266	102		0.21	0.21	0.21	0.22	0.22	0.25	0.26	0.31	0.12	
	SB	13:00	IP	3	853	622	1,475	148	145	145	154	154	176	186	220	85		0.17	0.17	0.17	0.18	0.18	0.21	0.22	0.26	0.10	
	SB	14:00	IP	3	853	622	1,475	140	138	138	147	147	167	176	209	80		0.16	0.16	0.16	0.17	0.17	0.20	0.21	0.25	0.09	
	SB	15:00	IP	3	853	622	1,475	188	185	185	197	197	224	237	281	108		0.22	0.22	0.22	0.23	0.23	0.26	0.28	0.33	0.13	
	SB	16:00	PM	3	966	757	1,723	410	422	421	375	375	427	425	429	251		0.42	0.44	0.44	0.39	0.39	0.44	0.44	0.44	0.26	
	SB	17:00	PM	3	966	757	1,723	603	620	620	551	551	629	626	631	369		0.62	0.64	0.64	0.57	0.57	0.65	0.65	0.65	0.38	
	SB	18:00	OP1	4	1,160	847	2,008	590	585	585	446	446	486	496	509	452		0.51	0.50	0.50	0.38	0.38	0.42	0.43	0.44	0.39	
	SB	19:00	OP1	4	1,160	847	2,008	286	283	283	216	216	235	240	246	219		0.25	0.24	0.24	0.19	0.19	0.20	0.21	0.21	0.19	
	SB	20:00	OP1	2	580	424	1,004	160	158	158	121	121	132	134	138	122		0.28	0.27	0.27	0.21	0.21	0.23	0.23	0.24	0.21	
	SB	21:00	OP1	4	1,160	847	2,008	101	100	100	76	76	83	85	87	77		0.09	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.07	
	SB	22:00	OP1	2	580	424	1,004	46	46	46	35	35	38	39	40	35		0.08	0.08	0.08	0.06	0.06	0.07	0.07	0.07	0.06	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	

2047

Table 87: Brighton Main Line, Northbound, Fast, With Project 2047

NRP_47				671	671		671	2113-500	671-211	114-211	115-211	116-82	24-211	117-259	596-81	12-253	843-63	636-253	592-526	636-789	789-509
Fasts							Mins JT (London) -->	35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Scenario	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Fasts	NB	00:00	OP2	3	1,870	2,208	4,078	128	219	219	219	219	219	219	219	219	219	269	88	55	0
	NB	01:00	OP2	1	838	989	1,827	40	68	68	68	68	68	68	68	68	68	83	27	17	0
	NB	02:00	OP2	1	419	495	913	11	20	20	20	20	20	20	20	20	20	24	8	5	0
	NB	03:00	OP2	1	688	813	1,501	15	26	26	26	26	26	26	26	26	26	32	11	7	0
	NB	04:00	OP3	2	1,137	1,263	2,400	70	77	77	77	77	77	77	77	77	77	16	14	78	78
	NB	05:00	OP3	2	1,503	1,669	3,172	562	619	619	619	619	619	619	619	619	619	130	115	624	624
	NB	06:00	OP3	12	7,245	8,044	15,288	5,336	5,882	5,882	5,882	5,882	5,882	5,882	5,882	5,882	5,882	1,233	1,094	5,927	5,927
	NB	07:00	AM	16	10,475	10,098	20,573	8,422	10,448	10,484	10,484	10,484	10,484	10,484	10,484	10,484	10,484	5,870	5,247	7,454	7,454
	NB	08:00	AM	18	11,178	10,777	21,955	10,286	12,760	12,804	12,804	12,804	12,804	12,804	12,804	12,804	12,804	7,169	6,409	9,103	9,103
	NB	09:00	IP	14	8,433	7,392	15,825	5,726	10,781	10,781	10,781	10,781	10,781	10,781	10,781	10,781	10,781	6,745	5,183	4,926	4,926
	NB	10:00	IP	14	8,577	7,518	16,095	3,672	6,913	6,913	6,913	6,913	6,913	6,913	6,913	6,913	6,913	4,326	3,324	3,159	3,159
	NB	11:00	IP	14	8,210	7,197	15,407	3,077	5,793	5,793	5,793	5,793	5,793	5,793	5,793	5,793	5,793	3,625	2,785	2,647	2,647
	NB	12:00	IP	14	8,408	7,371	15,779	2,554	4,808	4,808	4,808	4,808	4,808	4,808	4,808	4,808	4,808	3,008	2,312	2,197	2,197
	NB	13:00	IP	13	7,834	6,867	14,701	2,068	3,893	3,893	3,893	3,893	3,893	3,893	3,893	3,893	3,893	2,436	1,872	1,779	1,779
	NB	14:00	IP	13	7,834	6,867	14,701	1,786	3,362	3,362	3,362	3,362	3,362	3,362	3,362	3,362	3,362	2,104	1,616	1,536	1,536
	NB	15:00	IP	13	8,002	7,015	15,017	1,615	3,042	3,042	3,042	3,042	3,042	3,042	3,042	3,042	3,042	1,903	1,462	1,390	1,390
	NB	16:00	PM	16	9,901	9,957	19,858	3,410	5,194	5,194	5,194	5,194	5,194	5,194	5,194	5,194	5,194	3,326	1,759	3,068	3,068
	NB	17:00	PM	17	10,554	10,613	21,167	4,336	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604	6,604	4,229	2,236	3,901	3,901
	NB	18:00	OP1	16	9,727	8,564	18,291	2,475	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	7,940	5,186	3,612	3,433	3,433
	NB	19:00	OP1	13	7,882	6,939	14,821	1,610	5,165	5,165	5,165	5,165	5,165	5,165	5,165	5,165	5,165	3,373	2,349	2,233	2,233
	NB	20:00	OP1	14	8,276	7,286	15,563	1,119	3,592	3,592	3,592	3,592	3,592	3,592	3,592	3,592	3,592	2,346	1,634	1,553	1,553
	NB	21:00	OP1	15	8,686	7,647	16,333	900	2,886	2,886	2,886	2,886	2,886	2,886	2,886	2,886	2,886	1,885	1,313	1,248	1,248
	NB	22:00	OP1	13	7,507	6,610	14,117	603	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,936	1,264	881	837	837
	NB	23:00	OP1	11	6,318	5,563	11,881	658	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	2,112	1,379	961	913	913

	35	30	47	43	40	33	28	24	22	18	17	7	14	12
	Seated load factor on departure													
Hour beginning	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
00:00	0.07	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.47	0.15	0.04	0.00
01:00	0.05	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.32	0.11	0.03	0.00
02:00	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.19	0.06	0.02	0.00
03:00	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.15	0.05	0.01	0.00
04:00	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.04	0.03	0.11	0.11
05:00	0.37	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.22	0.19	0.69	0.69
06:00	0.74	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.43	0.38	1.36	1.36
07:00	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	0.98	1.45	1.45
08:00	0.92	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.26	1.12	1.66	1.66
09:00	0.68	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.18	0.91	1.81	1.81
10:00	0.43	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.74	0.57	1.14	1.14
11:00	0.37	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.65	0.50	1.00	1.00
12:00	0.30	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.53	0.41	0.81	0.81
13:00	0.26	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.46	0.35	0.70	0.70
14:00	0.23	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.40	0.30	0.61	0.61
15:00	0.20	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.35	0.27	0.54	0.54
16:00	0.34	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.55	0.29	0.80	0.80
17:00	0.41	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.66	0.35	0.95	0.95
18:00	0.25	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.79	0.55	1.08	1.08
19:00	0.20	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.64	0.44	0.87	0.87
20:00	0.14	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.42	0.29	0.57	0.57
21:00	0.10	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32	0.22	0.44	0.44
22:00	0.08	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.17	0.34	0.34
23:00	0.10	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32	0.23	0.44	0.44

Table 88: Brighton Main Line, Northbound, Stoppers, With Project 2047

NRP_47				671	671		671	2113-500	671-2114	114-211	115-211	116-824	24-211	117-259	596-81	12-253	843-636	36-253	592-526	636-789	789-509
Stoppers					Mins JT (London) -->			35	30	47	43	40	33	28	24	22	18	17	7	14	12
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	2	1,150	1,875	3,026	41	144	143	143	141	138	138	138	140	140	160	0	50	0
	NB	01:00	OP2	1	515	840	1,356	13	45	44	44	44	43	43	43	44	44	49	0	16	0
	NB	02:00	OP2	0	258	420	678	4	13	13	13	13	12	12	12	13	13	14	0	5	0
	NB	03:00	OP2	1	423	690	1,114	5	17	17	17	17	17	17	17	17	17	19	0	6	0
	NB	04:00	OP3	1	435	576	1,011	13	15	15	15	15	15	16	22	24	24	6	5	29	29
	NB	05:00	OP3	1	575	761	1,336	101	124	124	124	124	122	129	178	194	194	45	39	230	230
	NB	06:00	OP3	5	2,771	3,668	6,439	958	1,178	1,180	1,180	1,177	1,161	1,230	1,694	1,844	1,845	431	368	2,186	2,186
	NB	07:00	AM	6	3,862	4,956	8,818	854	555	599	625	1,016	1,772	2,023	2,894	3,906	3,872	1,419	1,212	3,338	3,610
	NB	08:00	AM	6	4,122	5,288	9,410	1,044	678	731	763	1,241	2,164	2,471	3,534	4,771	4,729	1,732	1,480	4,077	4,409
	NB	09:00	IP	7	3,865	6,046	9,911	1,218	804	817	822	1,039	1,351	1,429	1,693	2,142	2,135	197	154	4,690	4,921
	NB	10:00	IP	7	3,931	6,150	10,081	781	516	524	527	666	867	917	1,086	1,374	1,369	126	99	3,007	3,156
	NB	11:00	IP	6	3,763	5,887	9,650	655	432	439	441	558	726	768	910	1,151	1,147	106	83	2,520	2,644
	NB	12:00	IP	7	3,854	6,029	9,883	543	359	364	366	463	603	638	755	955	952	88	69	2,092	2,195
	NB	13:00	IP	6	3,590	5,617	9,207	440	290	295	297	375	488	516	611	773	771	71	56	1,693	1,777
	NB	14:00	IP	6	3,590	5,617	9,207	380	251	255	256	324	421	446	528	668	666	61	48	1,463	1,535
	NB	15:00	IP	6	3,668	5,738	9,406	344	227	230	232	293	381	403	478	604	602	55	43	1,323	1,388
	NB	16:00	PM	4	2,418	3,940	6,358	433	816	660	661	666	464	464	507	582	582	0	0	1,569	1,466
	NB	17:00	PM	4	2,578	4,200	6,778	551	1,038	839	840	847	590	589	644	740	740	0	0	1,995	1,864
	NB	18:00	OP1	2	1,417	2,311	3,728	321	601	481	481	481	429	437	472	472	472	0	0	1,184	1,184
	NB	19:00	OP1	2	1,148	1,873	3,021	209	391	313	313	313	279	284	307	307	307	0	0	770	770
	NB	20:00	OP1	2	1,206	1,966	3,172	145	272	218	218	218	194	198	214	214	214	0	0	536	536
	NB	21:00	OP1	2	1,265	2,064	3,329	117	218	175	175	175	156	159	172	172	172	0	0	431	431
	NB	22:00	OP1	2	1,094	1,784	2,877	78	147	117	117	117	105	107	115	115	115	0	0	289	289
	NB	23:00	OP1	2	921	1,501	2,422	85	160	128	128	128	114	116	126	126	126	0	0	315	315

				35	30	47	43	40	33	28	24	22	18	17	7	14	12
				Seated LF													
Group	Direction	Hour beginning	Period	Three Bridges	Gatwick Airport	Horley	Salfords	Earlswood	Redhill	Merstham	Coulsdon South	Purley	South Croydon	East Croydon	Clapham Junction	East Croydon	Norwood Junction
Stoppers	NB	00:00	OP2	0.04	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	-	-	0.04	0.00
	NB	01:00	OP2	0.02	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	-	-	0.03	0.00
	NB	02:00	OP2	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.02	0.00
	NB	03:00	OP2	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-	-	0.01	0.00
	NB	04:00	OP3	0.03	0.04	0.04	0.04	0.04	0.03	0.04	0.05	0.06	0.06	0.05	0.04	0.09	0.09
	NB	05:00	OP3	0.18	0.22	0.22	0.22	0.22	0.21	0.23	0.31	0.34	0.34	0.28	0.24	0.56	0.56
	NB	06:00	OP3	0.35	0.43	0.43	0.43	0.42	0.42	0.44	0.61	0.67	0.67	0.55	0.47	1.10	1.10
	NB	07:00	AM	0.22	0.14	0.16	0.16	0.26	0.46	0.52	0.75	1.01	1.00	1.10	0.94	1.30	1.41
	NB	08:00	AM	0.25	0.16	0.18	0.19	0.30	0.52	0.60	0.86	1.16	1.15	1.26	1.07	1.49	1.61
	NB	09:00	IP	0.32	0.21	0.21	0.21	0.27	0.35	0.37	0.44	0.55	0.55	0.83	0.65	1.29	1.36
	NB	10:00	IP	0.20	0.13	0.13	0.13	0.17	0.22	0.23	0.28	0.35	0.35	0.52	0.41	0.82	0.86
	NB	11:00	IP	0.17	0.11	0.12	0.12	0.15	0.19	0.20	0.24	0.31	0.30	0.46	0.36	0.71	0.75
	NB	12:00	IP	0.14	0.09	0.09	0.10	0.12	0.16	0.17	0.20	0.25	0.25	0.37	0.29	0.58	0.61
	NB	13:00	IP	0.12	0.08	0.08	0.08	0.10	0.14	0.14	0.17	0.22	0.21	0.32	0.25	0.50	0.53
	NB	14:00	IP	0.11	0.07	0.07	0.07	0.09	0.12	0.12	0.15	0.19	0.19	0.28	0.22	0.43	0.46
	NB	15:00	IP	0.09	0.06	0.06	0.06	0.08	0.10	0.11	0.13	0.16	0.16	0.25	0.19	0.38	0.40
	NB	16:00	PM	0.18	0.34	0.27	0.27	0.28	0.19	0.19	0.21	0.24	0.24	-	-	0.65	0.61
	NB	17:00	PM	0.21	0.40	0.33	0.33	0.33	0.23	0.23	0.25	0.29	0.29	-	-	0.77	0.72
	NB	18:00	OP1	0.23	0.42	0.34	0.34	0.34	0.30	0.31	0.33	0.33	0.33	-	-	0.84	0.84
	NB	19:00	OP1	0.18	0.34	0.27	0.27	0.27	0.24	0.25	0.27	0.27	0.27	-	-	0.67	0.67
	NB	20:00	OP1	0.12	0.23	0.18	0.18	0.18	0.16	0.16	0.18	0.18	0.18	-	-	0.44	0.44
	NB	21:00	OP1	0.09	0.17	0.14	0.14	0.14	0.12	0.13	0.14	0.14	0.14	-	-	0.34	0.34
	NB	22:00	OP1	0.07	0.13	0.11	0.11	0.11	0.10	0.10	0.11	0.11	0.11	-	-	0.26	0.26
	NB	23:00	OP1	0.09	0.17	0.14	0.14	0.14	0.12	0.13	0.14	0.14	0.14	-	-	0.34	0.34

Table 89: Brighton Main Line, Southbound, Fast, With Project 2047

NRP_47				671	671		671	901-526	592-909	015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Fasts							Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
Fasts	SB	00:00	OP2	1	490	511	1,001	7	28	0	0	144	144	144	144	144	144	144	144	144	180
Fasts	SB	01:00	OP2	1	327	341	667	2	9	0	0	44	44	44	44	44	44	44	44	44	55
Fasts	SB	02:00	OP2	0	105	109	214	1	2	0	0	12	12	12	12	12	12	12	12	12	16
Fasts	SB	03:00	OP2	1	327	341	667	2	7	0	0	34	34	34	34	34	34	34	34	34	43
Fasts	SB	04:00	OP3	4	2,130	2,136	4,265	54	61	242	242	252	252	252	252	252	252	252	252	252	54
Fasts	SB	05:00	OP3	6	3,611	3,622	7,233	110	123	491	491	510	510	510	510	510	510	510	510	510	109
Fasts	SB	06:00	OP3	11	6,916	6,936	13,852	374	420	1,672	1,672	1,738	1,738	1,738	1,738	1,738	1,738	1,738	1,738	1,738	370
Fasts	SB	07:00	AM	15	8,603	9,437	18,040	1,407	2,493	3,090	3,090	4,625	4,625	4,625	4,625	4,625	4,625	4,625	4,625	4,625	2,153
Fasts	SB	08:00	AM	18	10,804	11,851	22,655	1,425	2,524	3,129	3,129	4,685	4,685	4,685	4,685	4,685	4,685	4,685	4,685	4,685	2,181
Fasts	SB	09:00	IP	21	12,830	12,619	25,450	1,618	2,253	2,731	2,732	4,512	4,512	4,512	4,512	4,512	4,514	4,514	4,514	4,516	2,522
Fasts	SB	10:00	IP	18	10,778	10,601	21,379	1,252	1,744	2,114	2,114	3,492	3,492	3,492	3,492	3,492	3,494	3,494	3,494	3,495	1,952
Fasts	SB	11:00	IP	16	9,874	9,711	19,585	1,151	1,603	1,943	1,943	3,210	3,210	3,210	3,210	3,210	3,211	3,211	3,211	3,213	1,794
Fasts	SB	12:00	IP	16	9,654	9,495	19,149	1,286	1,790	2,170	2,170	3,585	3,585	3,585	3,585	3,585	3,586	3,586	3,586	3,588	2,004
Fasts	SB	13:00	IP	17	10,112	9,945	20,057	1,547	2,155	2,612	2,612	4,314	4,314	4,314	4,314	4,314	4,316	4,316	4,316	4,318	2,412
Fasts	SB	14:00	IP	16	9,886	9,723	19,609	1,915	2,666	3,232	3,233	5,339	5,339	5,339	5,339	5,339	5,342	5,342	5,342	5,344	2,985
Fasts	SB	15:00	IP	18	10,807	10,629	21,437	2,663	3,709	4,496	4,496	7,426	7,426	7,426	7,426	7,426	7,430	7,430	7,430	7,433	4,152
Fasts	SB	16:00	PM	15	9,484	9,461	18,944	4,851	5,648	5,079	5,465	8,607	8,607	8,607	8,607	8,607	8,607	8,607	8,607	8,610	5,707
Fasts	SB	17:00	PM	18	11,424	11,396	22,821	7,155	8,332	7,492	8,062	12,697	12,697	12,697	12,697	12,697	12,697	12,697	12,697	12,701	8,419
Fasts	SB	18:00	OP1	17	10,053	9,239	19,292	6,592	7,280	7,883	7,931	12,785	12,785	12,785	12,785	12,785	12,785	12,785	12,785	12,784	10,322
Fasts	SB	19:00	OP1	12	7,404	6,804	14,207	3,722	4,110	4,451	4,478	7,219	7,219	7,219	7,219	7,219	7,219	7,219	7,219	7,219	5,828
Fasts	SB	20:00	OP1	14	8,404	7,723	16,126	2,478	2,737	2,964	2,982	4,807	4,807	4,807	4,807	4,807	4,807	4,807	4,807	4,806	3,881
Fasts	SB	21:00	OP1	14	8,249	7,581	15,830	1,912	2,111	2,286	2,300	3,708	3,708	3,708	3,708	3,708	3,708	3,708	3,708	3,708	2,994
Fasts	SB	22:00	OP1	11	6,642	6,104	12,746	1,862	2,056	2,227	2,240	3,612	3,612	3,612	3,612	3,612	3,612	3,612	3,612	3,611	2,916
Fasts	SB	23:00	OP1	8	5,058	4,649	9,707	863	953	1,032	1,039	1,674	1,674	1,674	1,674	1,674	1,674	1,674	1,674	1,674	1,352

Mins JT (London) -->	-	7	-	12	14	18	22	24	28	33	40	43	47	30
	Seated LF													
Hour beginning	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
00:00	0.03	0.12	0.00	0.00	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.37
01:00	0.01	0.06	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.17
02:00	0.01	0.05	0.00	0.00	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.15
03:00	0.01	0.04	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13
04:00	0.05	0.05	0.24	0.24	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.03
05:00	0.06	0.06	0.29	0.29	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.03
06:00	0.10	0.11	0.52	0.52	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05
07:00	0.31	0.56	0.75	0.75	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.25
08:00	0.25	0.45	0.60	0.60	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.20
09:00	0.23	0.32	0.47	0.47	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.20
10:00	0.21	0.29	0.43	0.44	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.18
11:00	0.21	0.30	0.44	0.44	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.18
12:00	0.24	0.34	0.50	0.50	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.21
13:00	0.28	0.39	0.57	0.57	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.24
14:00	0.35	0.49	0.73	0.73	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.30
15:00	0.45	0.63	0.92	0.92	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.38
16:00	0.93	1.08	1.19	1.28	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.60
17:00	1.14	1.33	1.45	1.56	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	0.74
18:00	1.05	1.16	2.10	2.11	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.03
19:00	0.80	0.89	1.61	1.62	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.79
20:00	0.47	0.52	0.94	0.95	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.46
21:00	0.37	0.41	0.74	0.75	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.36
22:00	0.45	0.49	0.90	0.90	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.44
23:00	0.27	0.30	0.55	0.55	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.27

Table 90: Brighton Main Line, Southbound, Stoppers, With Project 2047

NRP_47				671	671		671	901-526	592-909	.015-77	789-636	636-843	43-253	12-259	596-211	117-82	24-211	116-211	115-211	114-67	71-5000
Stoppers					Mins JT (London) -->			-	7	-	12	14	18	22	24	28	33	40	43	47	30
				All services				Calibrated load on Departure (1hr)													
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
	SB	00:00	OP2	2	1,362	1,994	3,356	8	29	0	0	548	548	536	535	534	532	532	532	532	313
	SB	01:00	OP2	2	908	1,328	2,236	2	9	0	0	168	168	165	164	164	163	163	163	163	96
	SB	02:00	OP2	1	292	427	719	1	3	0	0	47	47	46	46	46	46	46	46	46	27
	SB	03:00	OP2	2	908	1,328	2,236	2	7	0	0	129	129	127	126	126	126	126	126	126	74
	SB	04:00	OP3	1	534	774	1,308	5	8	123	123	116	116	118	109	108	108	108	108	112	4
	SB	05:00	OP3	2	906	1,312	2,219	9	16	248	248	234	234	238	221	219	219	219	219	226	9
	SB	06:00	OP3	3	1,736	2,513	4,249	32	54	847	847	797	797	810	753	748	748	748	748	771	29
	SB	07:00	AM	4	2,273	3,158	5,431	0	0	1,089	1,155	540	540	540	496	491	346	451	460	624	155
	SB	08:00	AM	4	2,855	3,966	6,821	0	0	1,103	1,170	547	547	547	502	498	350	457	466	632	157
	SB	09:00	IP	6	3,518	5,737	9,255	0	0	1,344	1,318	724	724	681	650	641	448	477	481	512	164
	SB	10:00	IP	5	2,955	4,819	7,774	0	0	1,040	1,020	561	561	527	503	496	347	370	372	396	127
Stoppers	SB	11:00	IP	5	2,707	4,415	7,122	0	0	956	938	515	515	485	462	456	319	340	342	364	116
	SB	12:00	IP	5	2,647	4,317	6,964	0	0	1,068	1,047	575	575	541	516	509	356	379	382	407	130
	SB	13:00	IP	5	2,773	4,521	7,294	0	0	1,285	1,261	693	693	651	621	612	429	457	460	489	156
	SB	14:00	IP	5	2,711	4,420	7,131	0	0	1,590	1,560	857	857	806	769	758	530	565	569	606	194
	SB	15:00	IP	5	2,963	4,832	7,795	0	0	2,212	2,170	1,192	1,192	1,121	1,070	1,054	738	786	791	842	269
	SB	16:00	PM	5	2,562	3,653	6,215	0	0	2,713	2,564	2,104	2,104	1,614	1,211	1,107	834	706	681	665	455
	SB	17:00	PM	5	3,086	4,400	7,486	0	0	4,003	3,782	3,104	3,104	2,381	1,786	1,634	1,230	1,041	1,004	981	671
	SB	18:00	OP1	4	2,252	2,908	5,159	65	72	3,494	3,494	2,116	2,116	2,060	1,759	1,631	895	841	807	722	1,053
	SB	19:00	OP1	3	1,658	2,141	3,800	37	40	1,973	1,973	1,195	1,195	1,163	993	921	505	475	456	407	595
	SB	20:00	OP1	3	1,882	2,430	4,313	25	27	1,314	1,314	795	795	775	661	613	336	316	303	271	396
	SB	21:00	OP1	3	1,848	2,386	4,233	19	21	1,013	1,013	614	614	598	510	473	260	244	234	209	305
	SB	22:00	OP1	3	1,488	1,921	3,409	18	20	987	987	598	598	582	497	461	253	237	228	204	297
	SB	23:00	OP1	2	1,133	1,463	2,596	9	9	458	458	277	277	270	230	214	117	110	106	94	138

				-	7	-	12	14	18	22	24	28	33	40	43	47	30
				Seated LF													
Group	Direction	Hour beginning	Period	London Victoria	Clapham Junction	London Bridge	Norwood Junction	East Croydon	South Croydon	Purley	Coulsdon South	Merstham	Redhill	Earlswood	Salfords	Horley	Gatwick Airport
	SB	00:00	OP2	0.04	0.14	0.00	0.00	0.40	0.40	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.23
	SB	01:00	OP2	0.02	0.06	0.00	0.00	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.11
	SB	02:00	OP2	0.01	0.06	0.00	0.00	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.09
	SB	03:00	OP2	0.01	0.05	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.08
	SB	04:00	OP3	0.05	0.09	0.28	0.28	0.22	0.22	0.22	0.20	0.20	0.20	0.20	0.20	0.21	0.01
	SB	05:00	OP3	0.06	0.10	0.33	0.33	0.26	0.26	0.26	0.24	0.24	0.24	0.24	0.24	0.25	0.01
	SB	06:00	OP3	0.11	0.19	0.59	0.59	0.46	0.46	0.47	0.43	0.43	0.43	0.43	0.43	0.44	0.02
	SB	07:00	AM	0.00	0.00	0.62	0.65	0.24	0.24	0.24	0.22	0.22	0.15	0.20	0.20	0.27	0.07
	SB	08:00	AM	0.00	0.00	0.50	0.53	0.19	0.19	0.19	0.18	0.17	0.12	0.16	0.16	0.22	0.05
	SB	09:00	IP	-	-	0.38	0.37	0.21	0.21	0.19	0.18	0.18	0.13	0.14	0.14	0.15	0.05
	SB	10:00	IP	-	-	0.35	0.35	0.19	0.19	0.18	0.17	0.17	0.12	0.13	0.13	0.13	0.04
Stoppers	SB	11:00	IP	-	-	0.35	0.35	0.19	0.19	0.18	0.17	0.17	0.12	0.13	0.13	0.13	0.04
	SB	12:00	IP	-	-	0.40	0.40	0.22	0.22	0.20	0.20	0.19	0.13	0.14	0.14	0.15	0.05
	SB	13:00	IP	-	-	0.46	0.45	0.25	0.25	0.23	0.22	0.22	0.15	0.16	0.17	0.18	0.06
	SB	14:00	IP	-	-	0.59	0.58	0.32	0.32	0.30	0.28	0.28	0.20	0.21	0.21	0.22	0.07
	SB	15:00	IP	-	-	0.75	0.73	0.40	0.40	0.38	0.36	0.36	0.25	0.27	0.27	0.28	0.09
	SB	16:00	PM	0.00	0.00	1.31	1.24	0.82	0.82	0.63	0.47	0.43	0.33	0.28	0.27	0.26	0.18
	SB	17:00	PM	0.00	0.00	1.60	1.51	1.01	1.01	0.77	0.58	0.53	0.40	0.34	0.33	0.32	0.22
	SB	18:00	OP1	0.09	0.10	2.26	2.26	0.94	0.94	0.91	0.78	0.72	0.40	0.37	0.36	0.32	0.47
	SB	19:00	OP1	0.07	0.08	1.73	1.73	0.72	0.72	0.70	0.60	0.56	0.30	0.29	0.27	0.25	0.36
	SB	20:00	OP1	0.04	0.05	1.02	1.02	0.42	0.42	0.41	0.35	0.33	0.18	0.17	0.16	0.14	0.21
	SB	21:00	OP1	0.03	0.04	0.80	0.80	0.33	0.33	0.32	0.28	0.26	0.14	0.13	0.13	0.11	0.17
	SB	22:00	OP1	0.04	0.04	0.97	0.97	0.40	0.40	0.39	0.33	0.31	0.17	0.16	0.15	0.14	0.20
	SB	23:00	OP1	0.02	0.03	0.59	0.59	0.24	0.24	0.24	0.20	0.19	0.10	0.10	0.09	0.08	0.12

Table 91: Arun Valley, Northbound, All, With Project 2047

NRP_47				2136	2136		2136	2121-2122	2122-721	721-2133	2133-2134	2134-2135	2135-2136	2136-2113	2113-5000	5000-671
Fasts																
				All services				Calibrated load on Departure (1hr)								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	05:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0
	NB	06:00	OP3	2	1,173	693	1,866	509	509	282	311	311	323	333	454	454
	NB	07:00	AM	3	1,992	1,189	3,181	861	1,157	1,053	1,089	1,089	1,113	1,660	1,535	1,535
	NB	08:00	AM	3	1,896	1,131	3,027	988	1,328	1,208	1,249	1,249	1,277	1,904	1,761	1,761
	NB	09:00	IP	2	1,277	755	2,032	732	796	664	664	664	664	964	914	914
	NB	10:00	IP	2	1,155	683	1,838	625	680	567	567	567	567	823	780	780
Fasts	NB	11:00	IP	2	1,155	683	1,838	476	518	432	432	432	432	627	594	594
	NB	12:00	IP	2	1,155	683	1,838	369	401	335	335	335	335	486	461	461
	NB	13:00	IP	2	1,155	683	1,838	306	333	278	278	278	278	403	382	382
	NB	14:00	IP	2	1,155	683	1,838	248	270	225	225	225	225	327	310	310
	NB	15:00	IP	2	1,155	683	1,838	260	282	236	236	236	236	342	324	324
	NB	16:00	PM	2	1,216	725	1,940	444	481	521	521	521	521	682	588	588
	NB	17:00	PM	2	1,216	725	1,940	597	647	700	700	700	700	917	791	791
	NB	18:00	OP1	2	1,188	703	1,891	368	377	370	370	370	370	525	503	503
	NB	19:00	OP1	2	1,075	635	1,710	218	223	219	219	219	219	311	298	298
	NB	20:00	OP1	2	1,075	635	1,710	106	108	106	106	106	106	151	144	144
	NB	21:00	OP1	2	1,188	703	1,891	113	116	114	114	114	114	162	155	155
	NB	22:00	OP1	2	1,075	635	1,710	78	80	79	79	79	79	112	107	107
	NB	23:00	OP1	1	848	501	1,349	60	61	60	60	60	60	85	82	82

				Seated LF								
Group	Direction	Hour beginning	Period	Billingshurst	Christs Hospital	Horsham	Littlehaven	Faygate	Ifield	Crawley	Three Bridges	Gatwick Airport
	NB	00:00	OP2	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	-	-	-	-	-	-	-	-	-
	NB	06:00	OP3	0.43	0.43	0.24	0.27	0.27	0.28	0.28	0.39	0.39
	NB	07:00	AM	0.43	0.58	0.53	0.55	0.55	0.56	0.83	0.77	0.77
	NB	08:00	AM	0.52	0.70	0.64	0.66	0.66	0.67	1.00	0.93	0.93
	NB	09:00	IP	0.57	0.62	0.52	0.52	0.52	0.52	0.75	0.72	0.72
	NB	10:00	IP	0.54	0.59	0.49	0.49	0.49	0.49	0.71	0.68	0.68
Fasts	NB	11:00	IP	0.41	0.45	0.37	0.37	0.37	0.37	0.54	0.51	0.51
	NB	12:00	IP	0.32	0.35	0.29	0.29	0.29	0.29	0.42	0.40	0.40
	NB	13:00	IP	0.27	0.29	0.24	0.24	0.24	0.24	0.35	0.33	0.33
	NB	14:00	IP	0.21	0.23	0.19	0.19	0.19	0.19	0.28	0.27	0.27
	NB	15:00	IP	0.22	0.24	0.20	0.20	0.20	0.20	0.30	0.28	0.28
	NB	16:00	PM	0.37	0.40	0.43	0.43	0.43	0.43	0.56	0.48	0.48
	NB	17:00	PM	0.49	0.53	0.58	0.58	0.58	0.58	0.75	0.65	0.65
	NB	18:00	OP1	0.31	0.32	0.31	0.31	0.31	0.31	0.44	0.42	0.42
	NB	19:00	OP1	0.20	0.21	0.20	0.20	0.20	0.20	0.29	0.28	0.28
	NB	20:00	OP1	0.10	0.10	0.10	0.10	0.10	0.10	0.14	0.13	0.13
	NB	21:00	OP1	0.10	0.10	0.10	0.10	0.10	0.10	0.14	0.13	0.13
	NB	22:00	OP1	0.07	0.07	0.07	0.07	0.07	0.07	0.10	0.10	0.10
	NB	23:00	OP1	0.07	0.07	0.07	0.07	0.07	0.07	0.10	0.10	0.10

Table 92: Arun Valley, Southbound, All, With Project 2047

NRP_47				2136	2136		2136	5000-2113	2113-2136	2136-2135	2135-2134	2134-2133	2133-721	721-2122	2122-2121	2121-2120									
Fasts																									
				All services				Calibrated load on Departure (1hr)									Seated LF								
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst	Gatwick Airport	Three Bridges	Crawley	Ifield	Faygate	Littlehaven	Horsham	Christs Hospital	Billingshurst
	SB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-
	SB	05:00	OP3	0	157	93	250	8	13	14	14	14	13	13	24	29	0.05	0.08	0.09	0.09	0.09	0.08	0.08	0.15	0.18
	SB	06:00	OP3	2	1,016	600	1,616	35	56	58	58	58	56	55	102	122	0.03	0.05	0.06	0.06	0.06	0.06	0.05	0.10	0.12
	SB	07:00	AM	2	1,151	686	1,836	261	353	362	362	362	362	345	325	308	0.23	0.31	0.31	0.31	0.31	0.31	0.30	0.28	0.27
	SB	08:00	AM	2	794	473	1,268	207	281	288	288	288	288	275	258	244	0.26	0.35	0.36	0.36	0.36	0.36	0.35	0.33	0.31
	SB	09:00	IP	2	1,277	755	2,032	360	461	469	469	469	469	501	528	428	0.28	0.36	0.37	0.37	0.37	0.37	0.39	0.41	0.34
	SB	10:00	IP	2	1,155	683	1,838	218	279	284	284	284	284	303	320	259	0.19	0.24	0.25	0.25	0.25	0.25	0.26	0.28	0.22
Fasts	SB	11:00	IP	2	1,155	683	1,838	190	243	248	248	248	248	264	279	226	0.16	0.21	0.21	0.21	0.21	0.21	0.23	0.24	0.20
	SB	12:00	IP	2	1,155	683	1,838	244	313	319	319	319	319	340	359	291	0.21	0.27	0.28	0.28	0.28	0.28	0.29	0.31	0.25
	SB	13:00	IP	2	1,155	683	1,838	276	353	359	359	359	359	384	405	328	0.24	0.31	0.31	0.31	0.31	0.31	0.33	0.35	0.28
	SB	14:00	IP	2	1,155	683	1,838	335	430	437	437	437	437	466	492	399	0.29	0.37	0.38	0.38	0.38	0.38	0.40	0.43	0.35
	SB	15:00	IP	2	1,155	683	1,838	494	634	645	645	645	645	688	726	588	0.43	0.55	0.56	0.56	0.56	0.56	0.60	0.63	0.51
	SB	16:00	PM	2	1,250	745	1,995	712	894	704	696	696	688	803	630	559	0.57	0.72	0.56	0.56	0.56	0.55	0.64	0.50	0.45
	SB	17:00	PM	3	1,910	1,139	3,049	1,128	1,415	1,114	1,102	1,102	1,089	1,270	997	885	0.59	0.74	0.58	0.58	0.58	0.57	0.66	0.52	0.46
	SB	18:00	OP1	3	1,619	1,085	2,703	1,034	1,264	1,085	1,081	1,081	1,073	1,328	1,084	944	0.64	0.78	0.67	0.67	0.67	0.66	0.82	0.67	0.58
	SB	19:00	OP1	2	1,059	710	1,769	598	731	628	626	626	621	769	628	547	0.57	0.69	0.59	0.59	0.59	0.59	0.73	0.59	0.52
	SB	20:00	OP1	2	1,365	915	2,280	381	465	400	398	398	395	489	399	348	0.28	0.34	0.29	0.29	0.29	0.29	0.36	0.29	0.25
	SB	21:00	OP1	2	1,059	710	1,769	284	347	298	297	297	295	364	298	259	0.27	0.33	0.28	0.28	0.28	0.28	0.34	0.28	0.24
	SB	22:00	OP1	2	1,171	785	1,956	250	306	262	262	262	260	321	262	228	0.21	0.26	0.22	0.22	0.22	0.22	0.27	0.22	0.20
	SB	23:00	OP1	1	835	560	1,395	170	207	178	177	177	176	218	178	155	0.20	0.25	0.21	0.21	0.21	0.21	0.26	0.21	0.19

Table 93: North Downs Line, Westbound, All, With Project 2047

NRP_47				2130	2130		2130	671-2114	824-2132	2132-2131	2131-2130	2130-2129	2129-2128	2128-2127	2127-2126	2126-681	681-2053										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford	Gatwick Airport	Redhill	Reigate	Betchworth	Dorking Deepdene	Dorking West	Gomshall	Chilworth	Shalford	Guildford
All	NB	00:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	01:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
	NB	05:00	OP3	2	553	403	956	31	53	42	42	33	33	34	34	34	37	0.06	0.10	0.08	0.08	0.06	0.06	0.06	0.06	0.06	0.07
	NB	06:00	OP3	3	1,105	807	1,912	83	144	115	113	89	89	91	91	92	100	0.07	0.13	0.10	0.10	0.08	0.08	0.08	0.08	0.08	0.09
	NB	07:00	AM	3	976	761	1,737	251	476	367	390	435	435	522	522	528	574	0.26	0.49	0.38	0.40	0.45	0.45	0.53	0.54	0.54	0.59
	NB	08:00	AM	3	976	761	1,737	139	263	203	216	241	241	289	289	292	317	0.14	0.27	0.21	0.22	0.25	0.25	0.30	0.30	0.30	0.33
	NB	09:00	IP	3	995	726	1,721	142	450	460	462	407	407	431	431	436	494	0.14	0.45	0.46	0.46	0.41	0.41	0.43	0.43	0.44	0.50
	NB	10:00	IP	3	995	726	1,721	105	331	339	340	299	299	317	317	321	364	0.11	0.33	0.34	0.34	0.30	0.30	0.32	0.32	0.32	0.37
	NB	11:00	IP	3	995	726	1,721	86	271	278	279	245	245	260	260	263	299	0.09	0.27	0.28	0.28	0.25	0.25	0.26	0.26	0.26	0.30
	NB	12:00	IP	3	995	726	1,721	82	259	265	266	234	234	248	248	251	285	0.08	0.26	0.27	0.27	0.24	0.24	0.25	0.25	0.25	0.29
	NB	13:00	IP	3	995	726	1,721	80	255	261	262	230	230	244	244	247	280	0.08	0.26	0.26	0.26	0.23	0.23	0.25	0.25	0.25	0.28
	NB	14:00	IP	3	995	726	1,721	111	352	360	362	318	318	338	338	341	387	0.11	0.35	0.36	0.36	0.32	0.32	0.34	0.34	0.34	0.39
	NB	15:00	IP	3	995	726	1,721	167	530	543	545	479	479	508	509	514	583	0.17	0.53	0.55	0.55	0.48	0.48	0.51	0.51	0.52	0.59
	NB	16:00	PM	3	966	757	1,723	315	825	636	605	642	642	622	622	651	960	0.33	0.85	0.66	0.63	0.66	0.66	0.64	0.64	0.67	0.99
	NB	17:00	PM	3	966	757	1,723	233	610	470	448	475	475	460	460	481	710	0.24	0.63	0.49	0.46	0.49	0.49	0.48	0.48	0.50	0.74
	NB	18:00	OP1	3	1,031	753	1,785	305	969	710	609	570	570	580	580	594	672	0.30	0.94	0.69	0.59	0.55	0.55	0.56	0.56	0.58	0.65
	NB	19:00	OP1	2	516	377	892	151	481	352	302	283	283	287	288	295	333	0.29	0.93	0.68	0.59	0.55	0.55	0.56	0.56	0.57	0.65
	NB	20:00	OP1	3	1,031	753	1,785	143	456	334	287	268	268	273	273	280	316	0.14	0.44	0.32	0.28	0.26	0.26	0.26	0.26	0.27	0.31
	NB	21:00	OP1	3	1,031	753	1,785	28	90	66	56	53	53	54	54	55	62	0.03	0.09	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06
	NB	22:00	OP1	2	516	377	892	18	57	42	36	34	34	34	34	35	40	0.03	0.11	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.08
	NB	23:00	OP1	2	516	377	892	36	114	83	72	67	67	68	68	70	79	0.07	0.22	0.16	0.14	0.13	0.13	0.13	0.13	0.14	0.15

Table 94: North Downs Line, Eastbound, All, With Project 2047

NRP_47				2130	2130		2130	681-2126	2126-2127	2127-2128	2128-2129	2129-2130	2130-2131	2131-2132	2132-824	824-2116	2114-671										
All																											
				All services				Calibrated load on Departure (1hr)										Seated LF									
Group	Direction	Hour beginning	Period	No of Services (1hr)	Seating Capacity	Standing Capacity	Total Capacity	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport	Guildford	Shalford	Chilworth	Gomshall	Dorking West	Dorking Deepdene	Betchworth	Reigate	Redhill	Gatwick Airport
All	SB	00:00	OP2	1	166	121	287	24	24	24	24	24	25	25	29	31		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.17	0.19	
	SB	01:00	OP2	1	166	121	287	5	5	5	5	5	5	5	6	6		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	
	SB	02:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	
	SB	03:00	OP2	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	
	SB	04:00	OP3	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	
	SB	05:00	OP3	3	995	726	1,721	43	43	43	44	44	47	47	68	73		0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.07	0.07	
	SB	06:00	OP3	3	995	726	1,721	316	314	314	320	320	345	348	500	537		0.32	0.32	0.32	0.32	0.32	0.35	0.35	0.50	0.54	
	SB	07:00	AM	3	748	700	1,448	555	499	499	562	562	494	526	820	418		0.74	0.67	0.67	0.75	0.75	0.66	0.70	1.10	0.56	
	SB	08:00	AM	3	748	700	1,448	475	427	427	481	481	423	450	702	358		0.64	0.57	0.57	0.64	0.64	0.57	0.60	0.94	0.48	
	SB	09:00	IP	3	853	622	1,475	324	318	318	339	339	381	403	473	182		0.38	0.37	0.37	0.40	0.40	0.45	0.47	0.55	0.21	
	SB	10:00	IP	3	853	622	1,475	297	291	292	310	310	349	369	433	167		0.35	0.34	0.34	0.36	0.36	0.41	0.43	0.51	0.20	
	SB	11:00	IP	3	853	622	1,475	231	227	227	241	241	271	287	337	130		0.27	0.27	0.27	0.28	0.28	0.32	0.34	0.40	0.15	
	SB	12:00	IP	3	853	622	1,475	208	204	204	217	217	244	258	303	117		0.24	0.24	0.24	0.26	0.26	0.29	0.30	0.36	0.14	
	SB	13:00	IP	3	853	622	1,475	172	169	169	180	180	202	214	251	97		0.20	0.20	0.20	0.21	0.21	0.24	0.25	0.29	0.11	
	SB	14:00	IP	3	853	622	1,475	163	160	161	171	171	192	203	239	92		0.19	0.19	0.19	0.20	0.20	0.23	0.24	0.28	0.11	
	SB	15:00	IP	3	853	622	1,475	219	215	216	229	229	258	273	320	123		0.26	0.25	0.25	0.27	0.27	0.30	0.32	0.38	0.14	
	SB	16:00	PM	3	966	757	1,723	483	495	494	447	447	502	501	499	304		0.50	0.51	0.51	0.46	0.46	0.52	0.52	0.52	0.31	
	SB	17:00	PM	3	966	757	1,723	710	728	728	657	657	739	737	735	447		0.74	0.75	0.75	0.68	0.68	0.77	0.76	0.76	0.46	
	SB	18:00	OP1	4	1,160	847	2,008	690	684	685	526	526	569	580	590	522		0.59	0.59	0.59	0.45	0.45	0.49	0.50	0.51	0.45	
	SB	19:00	OP1	4	1,160	847	2,008	334	331	331	255	255	275	281	285	253		0.29	0.29	0.29	0.22	0.22	0.24	0.24	0.25	0.22	
	SB	20:00	OP1	2	580	424	1,004	187	185	185	142	142	154	157	159	141		0.32	0.32	0.32	0.25	0.25	0.27	0.27	0.27	0.24	
	SB	21:00	OP1	4	1,160	847	2,008	118	117	117	90	90	97	99	101	89		0.10	0.10	0.10	0.08	0.08	0.08	0.09	0.09	0.08	
	SB	22:00	OP1	2	580	424	1,004	54	54	54	41	41	45	45	46	41		0.09	0.09	0.09	0.07	0.07	0.08	0.08	0.08	0.07	
	SB	23:00	OP1	0	0	0	0	0	0	0	0	0	0	0	0	0		-	-	-	-	-	-	-	-	-	

Appendix H

Network Summary Statistics

Future baseline

Table 95: Network Summary Statistics - Future baseline 2029

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	33,946.60	32,703.60	23,695.50	35,073.20
Over Capacity Queues (PCU-Hrs)	67,682.90	75,667.10	15,906.30	44,399.50
Link Cruise Times (PCU-Hrs)	2,559,401.50	2,648,071.00	2,117,147.50	2,813,394.00
Total Travel Times (PCU-Hrs)	2,661,031.00	2,756,441.80	2,156,749.30	2,892,866.80
Travel Distance (PCU-Hrs)	182,863,696.00	189,994,416.00	163,392,032.00	202,031,248.00
Average Speed (PCU-Hrs)	68.7	68.9	75.8	69.8

Table 96: Network Summary Statistics - Future baseline 2032

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	35,539.80	34,773.00	25,269.10	37,040.80
Over Capacity Queues (PCU-Hrs)	74,991.40	85,655.00	17,859.40	48,314.40
Link Cruise Times (PCU-Hrs)	2,671,967.80	2,766,171.30	2,215,890.80	2,947,127.50
Total Travel Times (PCU-Hrs)	2,782,499.00	2,886,599.30	2,259,019.30	3,032,482.80
Travel Distance (PCU-kms)	190,451,136.00	198,017,376.00	170,954,208.00	211,485,552.00
Average Speed (kph)	68.4	68.6	75.7	69.7

Table 97: Network Summary Statistics - Future baseline 2038

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	38,665.40	37,921.60	27,991.40	39,818.40
Over Capacity Queues (PCU-Hrs)	89,380.60	106,844.40	21,758.50	55,567.80
Link Cruise Times (PCU-Hrs)	2,887,209.00	2,988,404.30	2,403,762.00	3,202,859.30
Total Travel Times (PCU-Hrs)	3,015,255.00	3,133,170.30	2,453,511.80	3,298,245.50
Travel Distance (PCU-kms)	203,479,600.00	211,556,000.00	183,890,016.00	227,592,272.00
Average Speed (kph)	67.5	67.5	74.9	69.0

Table 98: Network Summary Statistics - Future baseline 2047

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	41,119.70	41,332.00	30,613.40	42,711.20
Over Capacity Queues (PCU-Hrs)	109,637.00	136,647.80	26,100.70	66,144.10
Link Cruise Times (PCU-Hrs)	3,158,600.00	3,267,204.80	2,635,019.50	3,518,356.00
Total Travel Times (PCU-Hrs)	3,309,356.80	3,445,184.50	2,691,733.50	3,627,211.30
Travel Distance (PCU-kms)	218,160,912.00	226,737,840.00	198,422,096.00	245,670,608.00
Average Speed (kph)	65.9	65.8	73.7	67.7

With Project

Table 99: Network Summary Statistics - With Project 2029

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	34,061.10	32,713.90	23,726.30	35,064.10
Over Capacity Queues (PCU-Hrs)	67,818.40	76,134.50	15,911.60	44,396.80
Link Cruise Times (PCU-Hrs)	2,559,799.00	2,648,451.50	2,117,265.30	2,813,366.30
Total Travel Times (PCU-Hrs)	2,661,678.50	2,757,300.00	2,156,903.30	2,892,827.00
Travel Distance (PCU-kms)	182,886,256.00	190,014,848.00	163,401,136.00	202,031,232.00
Average Speed (kph)	68.7	68.9	75.8	69.8

Table 100: Network Summary Statistics - With Project 2032

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	35,855.00	34,981.40	25,354.90	37,170.40
Over Capacity Queues (PCU-Hrs)	75,060.30	85,863.20	17,910.90	48,558.70
Link Cruise Times (PCU-Hrs)	2,674,210.80	2,768,260.80	2,217,219.80	2,948,613.50
Total Travel Times (PCU-Hrs)	2,785,126.00	2,889,105.30	2,260,485.50	3,034,342.80
Travel Distance (PCU-kms)	190,593,808.00	198,153,696.00	171,058,080.00	211,585,664.00
Average Speed (kph)	68.4	68.6	75.7	69.7

Table 101: Network Summary Statistics - With Project 2038

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	38,670.70	38,206.30	28,207.10	40,015.00
Over Capacity Queues (PCU-Hrs)	90,275.90	108,955.20	21,856.40	56,046.10
Link Cruise Times (PCU-Hrs)	2,890,784.00	2,992,416.00	2,406,831.50	3,205,707.30
Total Travel Times (PCU-Hrs)	3,019,730.50	3,139,577.80	2,456,895.00	3,301,768.30
Travel Distance (PCU-kms)	203,716,864.00	211,813,264.00	184,125,200.00	227,789,200.00
Average Speed (kph)	67.5	67.5	74.9	69.0

Table 102: Network Summary Statistics - With Project 2047

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	41,581.60	41,637.80	30,772.00	42,976.80
Over Capacity Queues (PCU-Hrs)	109,151.40	135,218.90	26,362.80	66,632.20
Link Cruise Times (PCU-Hrs)	3,161,752.00	3,269,677.80	2,636,894.30	3,519,963.00
Total Travel Times (PCU-Hrs)	3,312,485.00	3,446,534.30	2,694,029.00	3,629,572.00
Travel Distance (PCU-kms)	218,352,192.00	226,920,672.00	198,563,296.00	245,784,256.00
Average Speed (kph)	65.9	65.8	73.7	67.7

Construction

Table 103: Network Summary Statistics - Airfield Construction 2029

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	34,163.80	32,692.70	23,751.40	35,107.40
Over Capacity Queues (PCU-Hrs)	67,569.30	75,779.10	15,856.70	44,394.30
Link Cruise Times (PCU-Hrs)	2,559,563.80	2,648,157.80	2,117,205.80	2,813,416.80
Total Travel Times (PCU-Hrs)	2,661,296.80	2,756,629.50	2,156,814.00	2,892,918.50
Travel Distance (PCU-kms)	182,870,816.00	189,996,112.00	163,393,792.00	202,032,432.00
Average Speed (kph)	68.7	68.9	75.8	69.8

Table 104: Network Summary Statistics - Highway Construction 2029

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	34,182.00	32,975.90	23,742.30	35,057.90
Over Capacity Queues (PCU-Hrs)	67,509.40	75,642.20	15,907.70	44,334.60
Link Cruise Times (PCU-Hrs)	407,404.50	402,404.20	308,682.00	439,018.30
Total Travel Times (PCU-Hrs)	509,095.80	511,022.30	348,332.00	518,410.80
Travel Distance (PCU-kms)	15,356,701.00	15,170,066.00	13,453,242.00	15,874,313.00
Average Speed (kph)	30.2	29.7	38.6	30.6

Cumulative Development

Table 105: Network Summary Statistics - Cumulative Development Future baseline 2029

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	34,122.90	32,933.30	23,756.40	35,150.30
Over Capacity Queues (PCU-Hrs)	67,384.90	75,575.20	15,885.80	44,322.90
Link Cruise Times (PCU-Hrs)	2,559,667.30	2,648,362.30	2,117,279.80	2,813,543.30
Total Travel Times (PCU-Hrs)	2,661,175.00	2,756,870.80	2,156,922.00	2,893,016.50
Travel Distance (PCU-kms)	182,874,560.00	190,001,984.00	163,398,096.00	202,038,896.00
Average Speed (kph)	68.7	68.9	75.8	69.8

Table 106: Network Summary Statistics - Cumulative Development With Project 2029

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	34,247.20	32,929.10	23,792.60	35,176.90
Over Capacity Queues (PCU-Hrs)	67,739.40	75,745.30	15,895.90	44,463.60
Link Cruise Times (PCU-Hrs)	2,560,221.00	2,648,674.00	2,117,371.00	2,813,571.50
Total Travel Times (PCU-Hrs)	2,662,207.80	2,757,348.50	2,157,059.50	2,893,212.00
Travel Distance (PCU-kms)	182,906,288.00	190,024,048.00	163,406,192.00	202,041,024.00
Average Speed (kph)	68.7	68.9	75.8	69.8

Table 107: Network Summary Statistics - Cumulative Development Future baseline 2032

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	35,873.40	35,090.10	25,410.70	37,134.30
Over Capacity Queues (PCU-Hrs)	74,923.80	86,281.00	17,842.00	48,499.50
Link Cruise Times (PCU-Hrs)	2,672,460.80	2,766,811.00	2,216,181.80	2,947,493.00
Total Travel Times (PCU-Hrs)	2,783,258.00	2,888,182.00	2,259,434.30	3,033,126.80
Travel Distance (PCU-kms)	190,474,704.00	198,039,552.00	170,969,920.00	211,507,040.00
Average Speed (kph)	68.4	68.6	75.7	69.7

Table 108: Network Summary Statistics - Cumulative Development With Project 2032

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	36,167.50	35,473.40	25,481.20	37,358.40
Over Capacity Queues (PCU-Hrs)	75,202.50	86,176.80	17,892.20	48,898.50
Link Cruise Times (PCU-Hrs)	2,674,631.00	2,768,760.80	2,217,542.00	2,949,140.30
Total Travel Times (PCU-Hrs)	2,786,001.00	2,890,411.00	2,260,915.50	3,035,397.00
Travel Distance (PCU-kms)	190,615,920.00	198,177,360.00	171,077,184.00	211,619,152.00
Average Speed (kph)	68.4	68.6	75.7	69.7

Table 109: Network Summary Statistics - Cumulative Development Future baseline 2038

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	39,059.80	38,408.10	28,224.20	40,109.40
Over Capacity Queues (PCU-Hrs)	89,942.00	108,638.50	21,810.40	56,428.00
Link Cruise Times (PCU-Hrs)	2,888,211.30	2,989,521.50	2,404,284.30	3,204,190.50
Total Travel Times (PCU-Hrs)	3,017,213.00	3,136,568.00	2,454,318.80	3,300,727.80
Travel Distance (PCU-kms)	203,525,792.00	211,608,288.00	183,920,352.00	227,681,712.00
Average Speed (kph)	67.5	67.5	74.9	69.0

Table 110: Network Summary Statistics - Cumulative Development With Project 2038

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	38,956.90	38,723.00	28,458.40	40,352.90
Over Capacity Queues (PCU-Hrs)	90,894.00	110,346.60	21,937.30	57,089.20
Link Cruise Times (PCU-Hrs)	2,891,099.30	2,993,254.00	2,407,353.50	3,206,563.80
Total Travel Times (PCU-Hrs)	3,020,950.00	3,142,323.50	2,457,749.30	3,304,005.80
Travel Distance (PCU-kms)	203,738,432.00	211,859,760.00	184,156,000.00	227,854,624.00
Average Speed (kph)	67.4	67.4	74.9	69.0

Table 111: Network Summary Statistics - Cumulative Development Future baseline 2047

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	41,464.50	41,743.20	30,886.20	42,883.00
Over Capacity Queues (PCU-Hrs)	110,471.80	138,175.50	26,200.10	66,746.20
Link Cruise Times (PCU-Hrs)	3,159,367.80	3,267,838.00	2,635,357.00	3,519,330.80
Total Travel Times (PCU-Hrs)	3,311,304.00	3,447,756.80	2,692,443.50	3,628,960.00
Travel Distance (PCU-kms)	218,199,600.00	226,771,072.00	198,437,936.00	245,746,656.00
Average Speed (kph)	65.9	65.8	73.7	67.7

Table 112: Network Summary Statistics - Cumulative Development With Project 2047

	AM1	AM2	IP	PM
Transient Queues (PCU-Hrs)	42,100.80	42,186.30	30,961.00	43,076.70
Over Capacity Queues (PCU-Hrs)	109,894.10	137,066.00	26,428.70	67,096.50
Link Cruise Times (PCU-Hrs)	3,161,800.00	3,270,902.00	2,637,271.50	3,521,305.30
Total Travel Times (PCU-Hrs)	3,313,795.00	3,450,154.30	2,694,661.30	3,631,478.30
Travel Distance (PCU-kms)	218,367,104.00	226,960,928.00	198,582,944.00	245,863,584.00
Average Speed (kph)	65.9	65.8	73.7	67.7

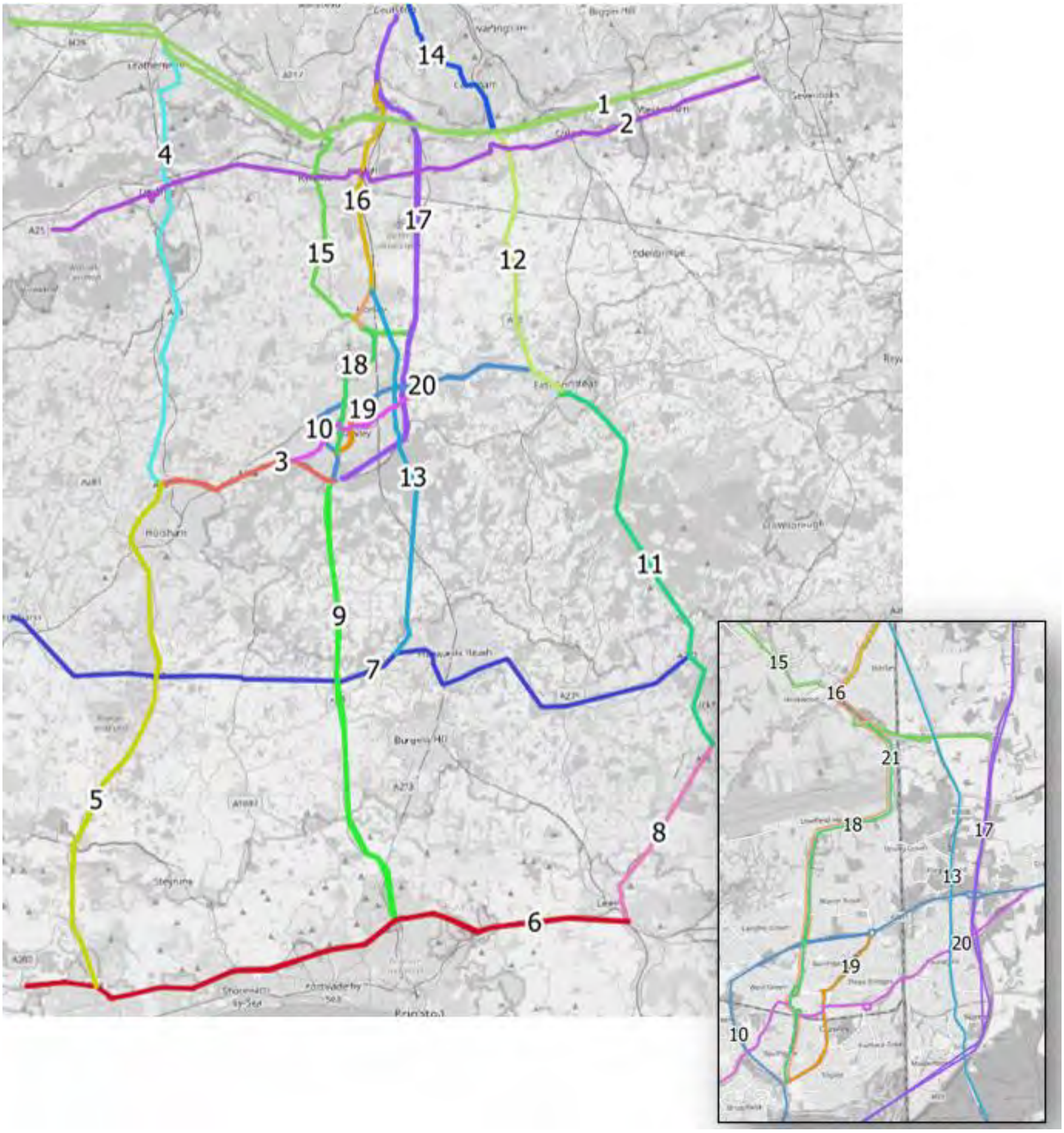
Appendix I

Forecast Validation Journey Time Routes

Table 113: Validation journey time routes

ID	Description	Direction
1	M25: J5 – J10	EB, WB
2	A25: Gomshall – A21	EB, WB
3	A264: A23_A24	EB, WB
4	A24: A264 - M25 J9	NB, SB
5	A24: A27 - A264	NB, SB
6	A27: A280 - A26	EB, WB
7	A272: Billingshurst - A22	EB, WB
8	A26: A27 - A22	NB, SB
9	A23: A27 - M23	NB, SB
10	Crawley: A23 - A2011 - A624	EB, WB
11	A22: A26 – East Grinstead	NB, SB
12	A22: East Grinstead - M25 J6	NB, SB
13	B2036: A272 - Horley	NB, SB
14	B2030: M25 J6 - A23	NB, SB
15	A23/A217: M23 J9 - M25 J8	NB, SB
16	A23: Longbridge Roundabout - J7	NB, SB
17	M23: J11 – A237 Coulsdon	NB, SB
18	Crawley - Gatwick	NB, SB
19	A2004: Southgate - Northgate	NB, SB
20	A2220: Horsham Road – Copthorne Way	EB. EB
21	Southgate Roundabout – Horley	NB, SB

Figure 2: Validation journey time routes



2029

Figure 3: Highway journey times – base validation routes, 2029 Future baseline and 2029 With Project - AM1

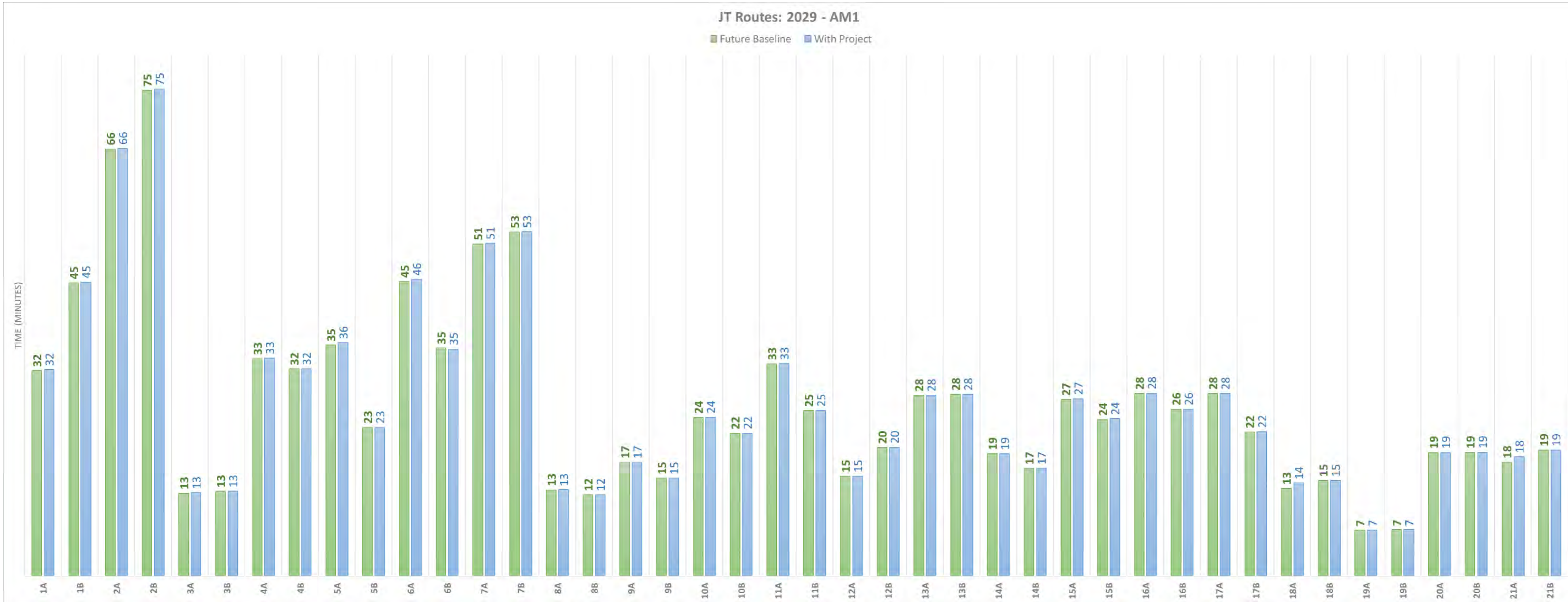


Figure 4: Highway journey times – base validation routes, 2029 Future baseline and 2029 With Project - AM2

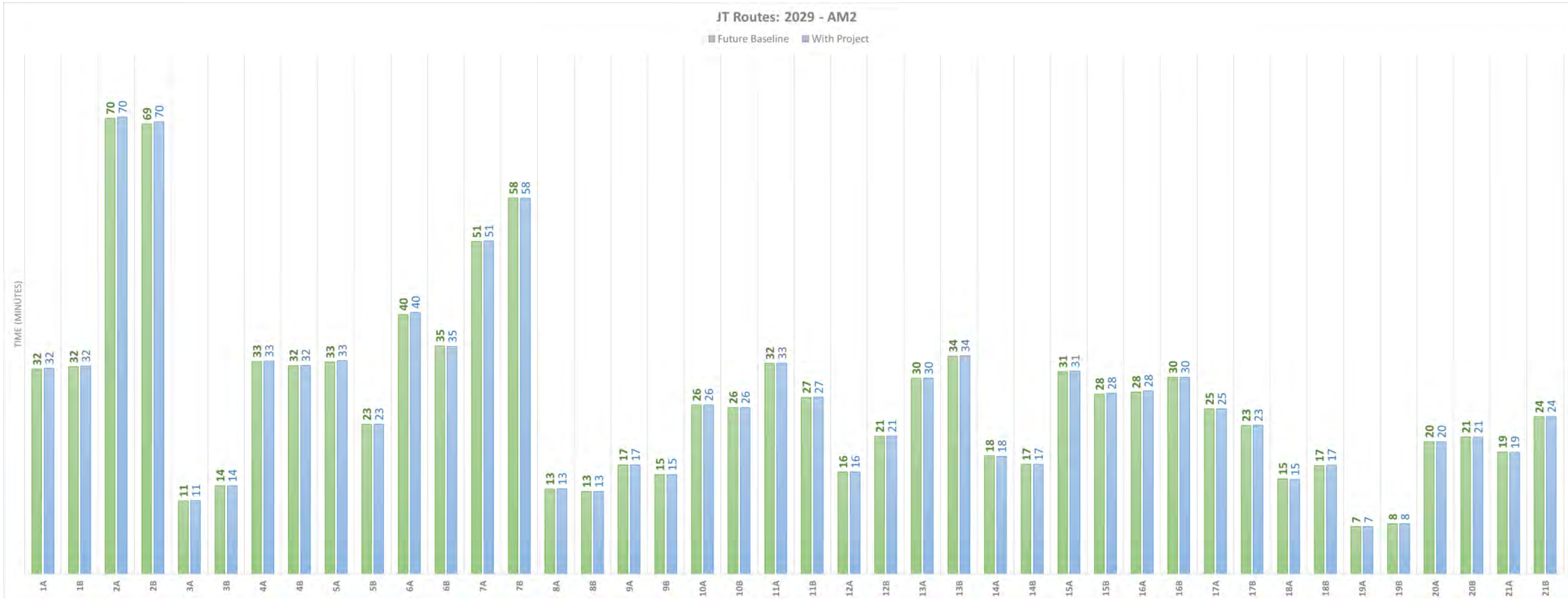


Figure 5: Highway journey times – base validation routes, 2029 Future baseline and 2029 With Project – IP

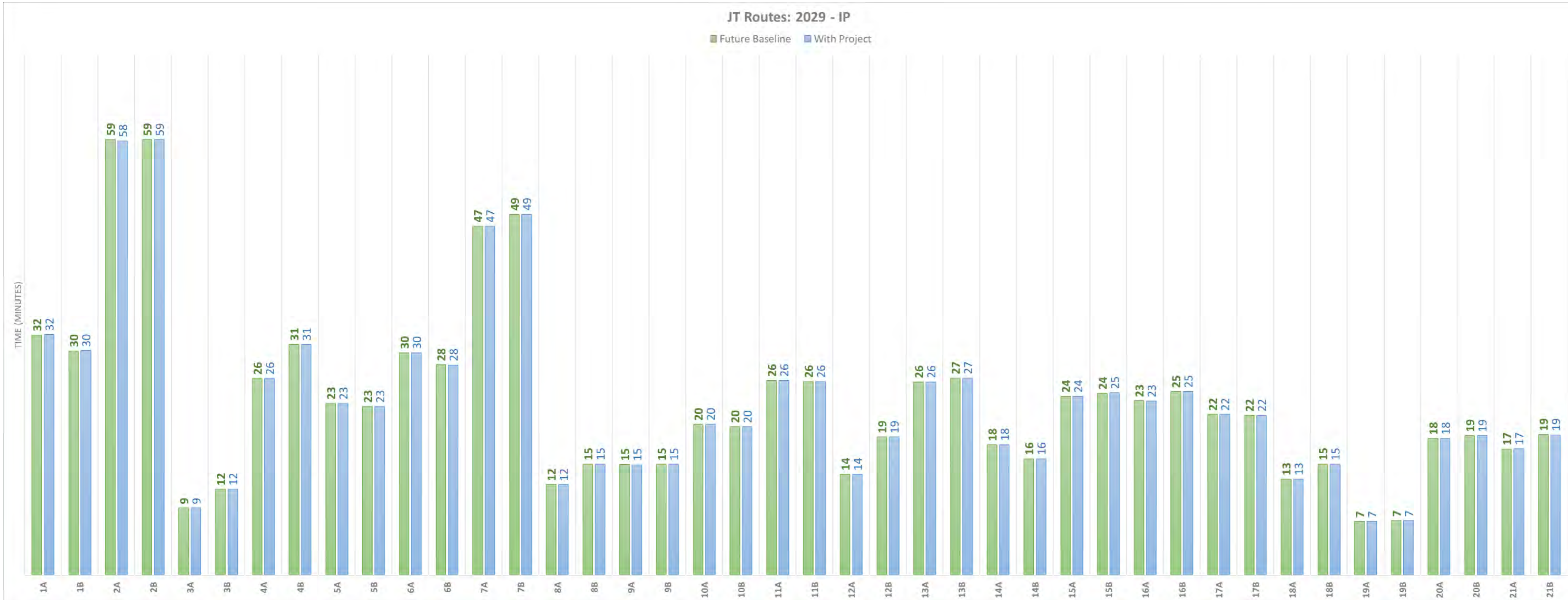
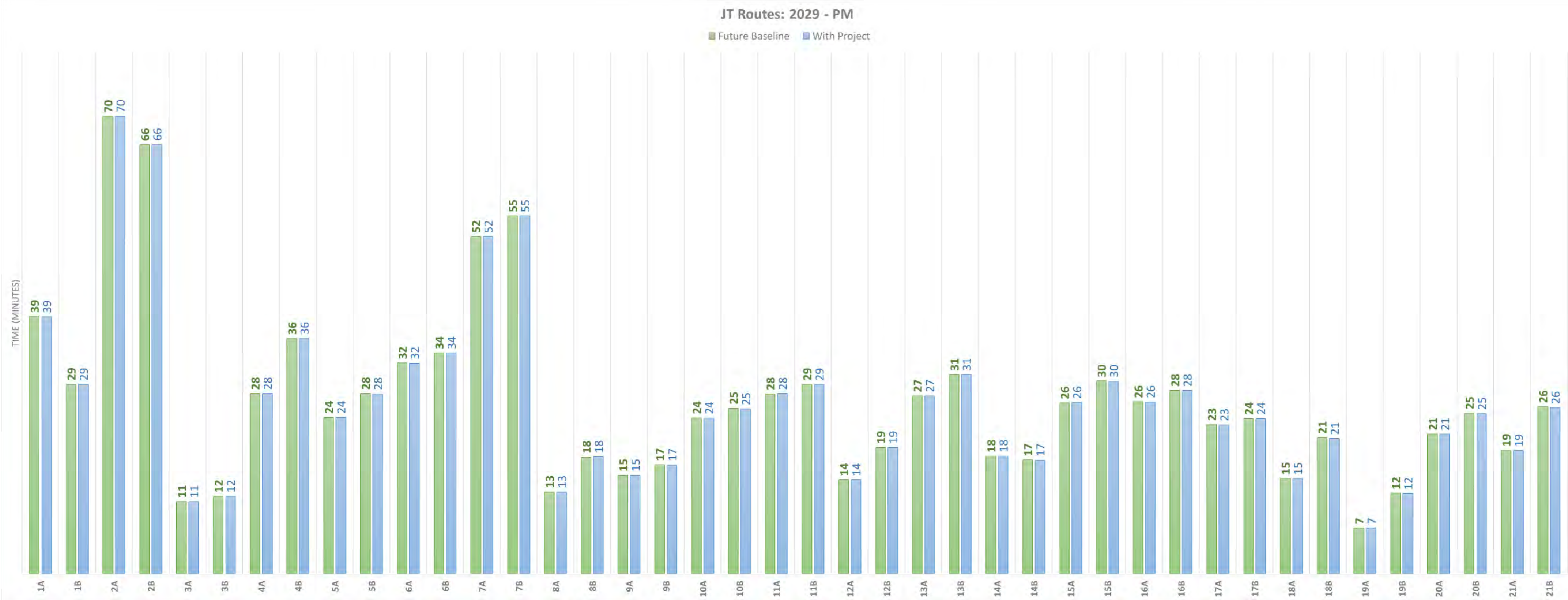


Figure 6: Highway journey times – base validation routes, 2029 Future baseline and 2029 With Project – PM



2032

Figure 7: Highway journey times – base validation routes, 2032 Future baseline and 2032 With Project – AM1

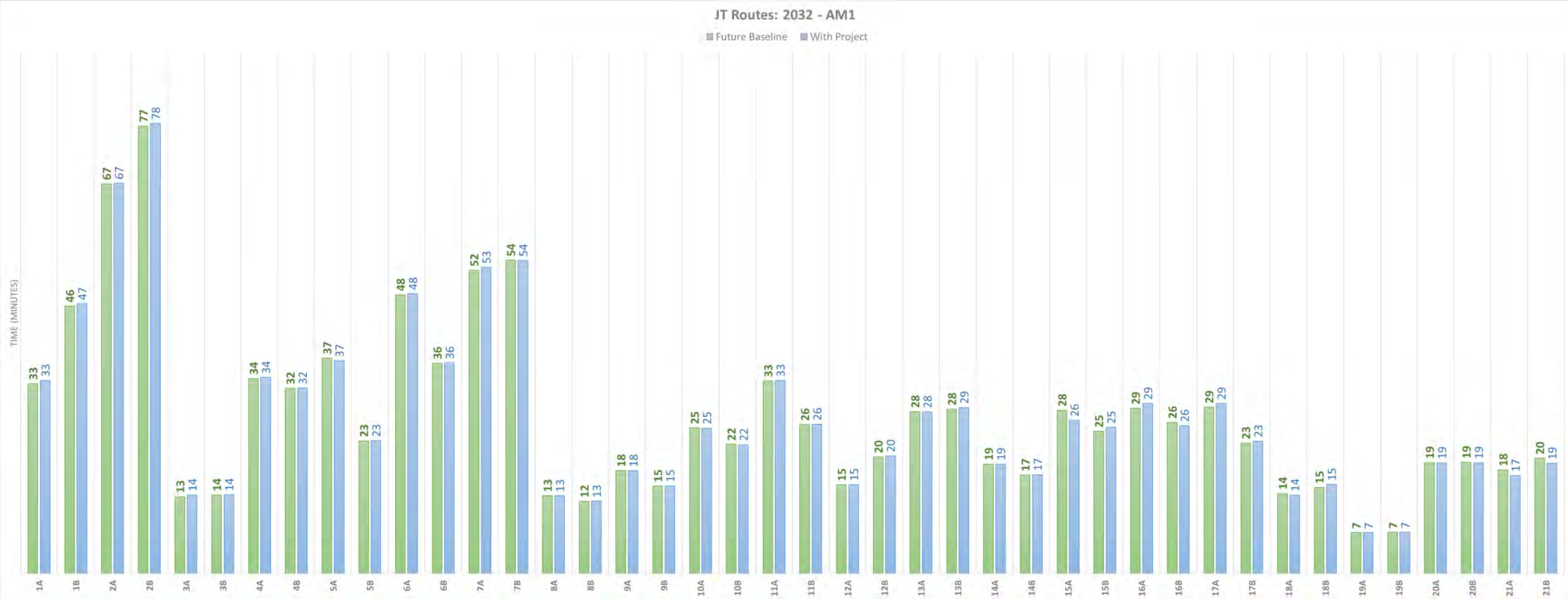


Figure 8: Highway journey times – base validation routes, 2032 Future baseline and 2032 With Project – AM2

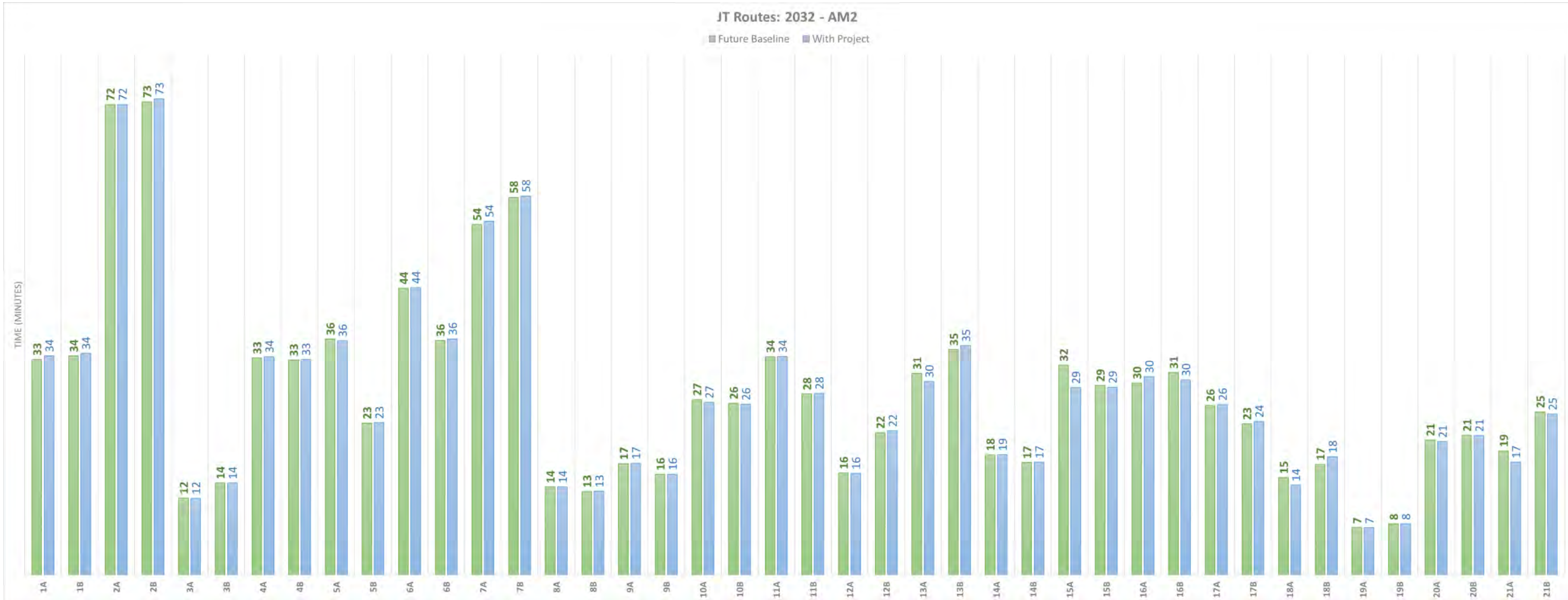


Figure 9: Highway Journey Times – Base Validation Routes, 2032 Future baseline and 2032 With Project – IP

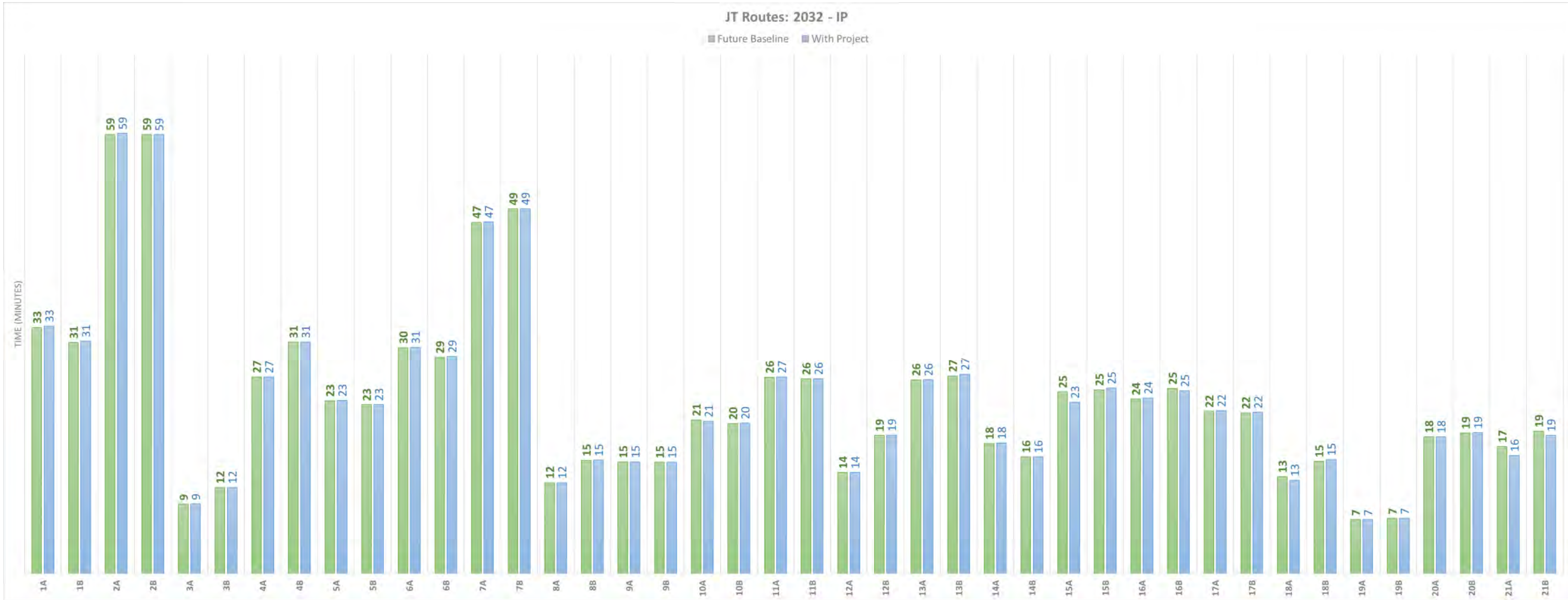
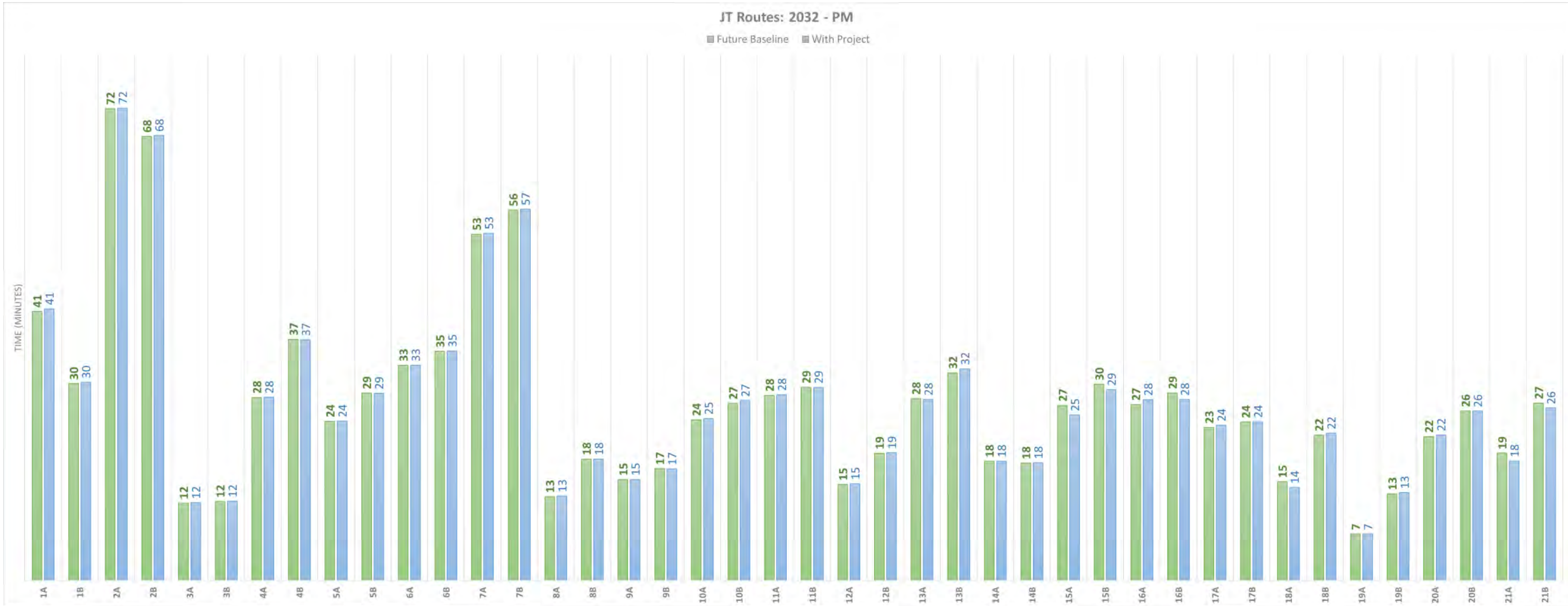


Figure 10: Highway Journey Times – Base Validation Routes, 2032 Future baseline and 2032 With Project – PM



2038

Figure 11: Highway Journey Times – Base Validation Routes, 2038 Future baseline and 2038 With Project – AM1

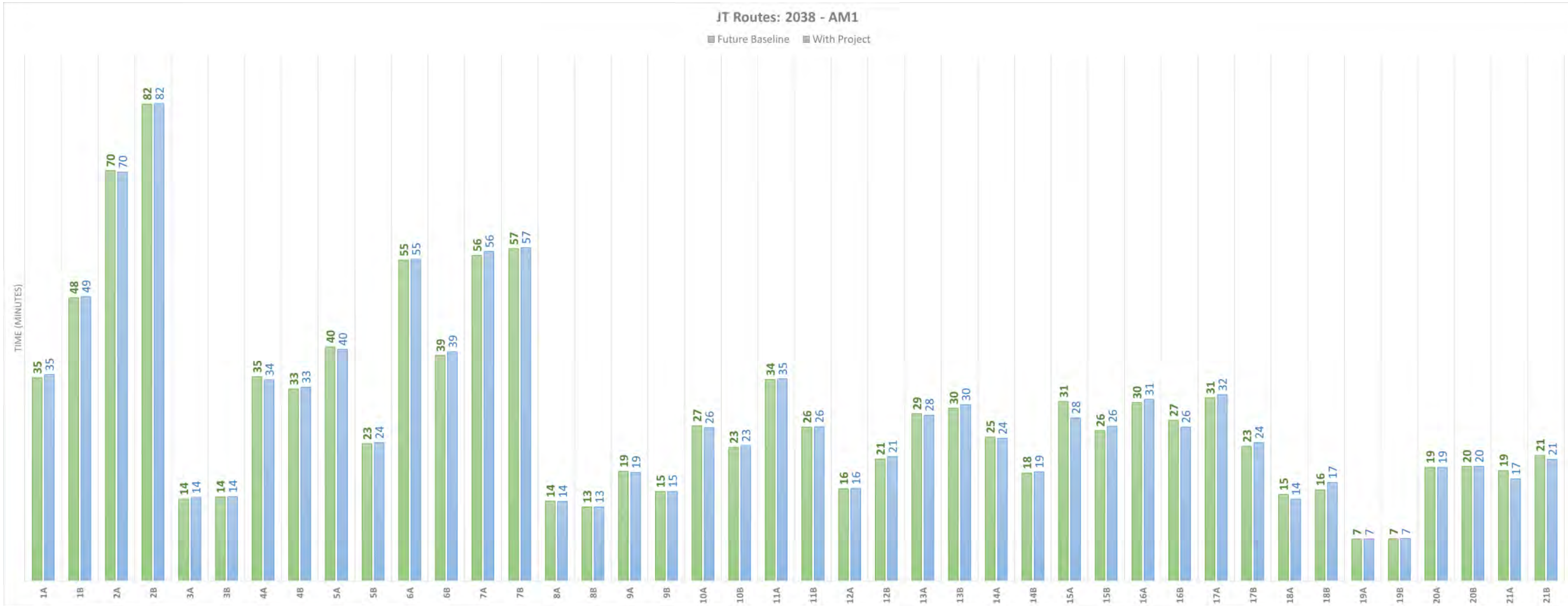


Figure 12: Highway Journey Times – Base Validation Routes, 2038 Future baseline and 2038 With Project – AM2

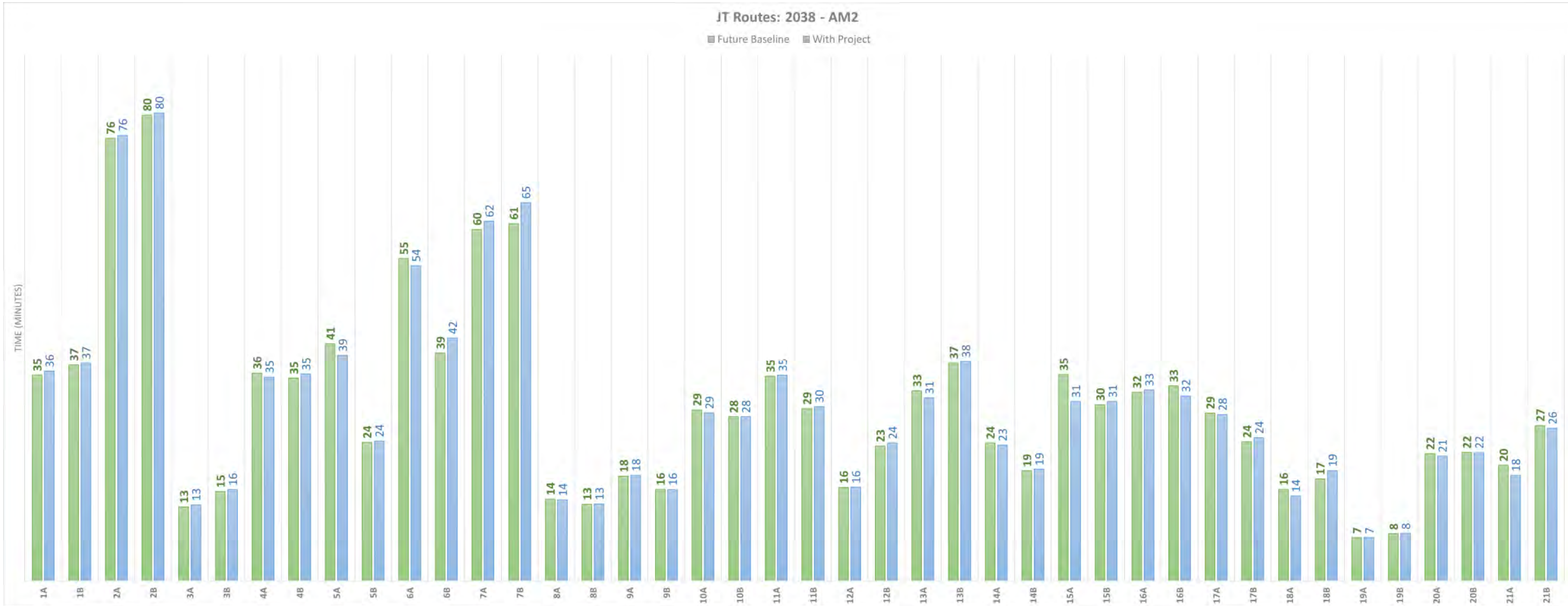


Figure 13: Highway Journey Times – Base Validation Routes, 2038 Future baseline and 2038 With Project – IP

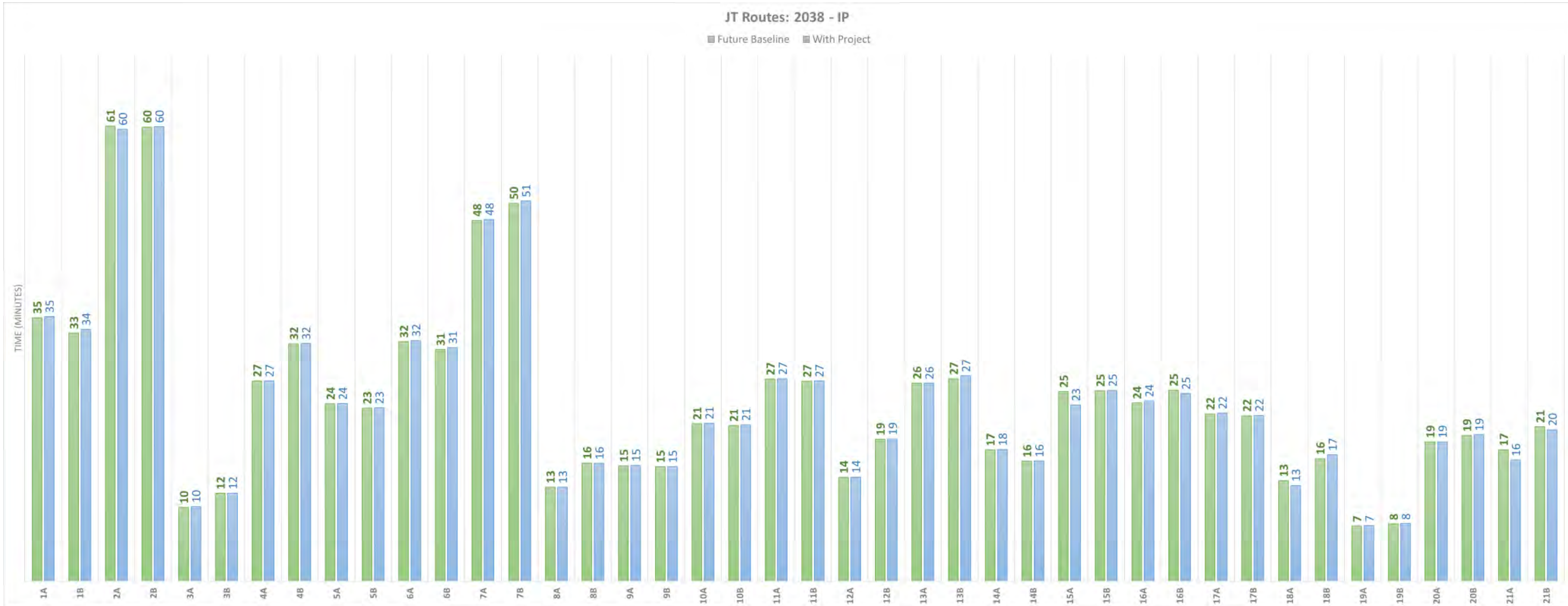
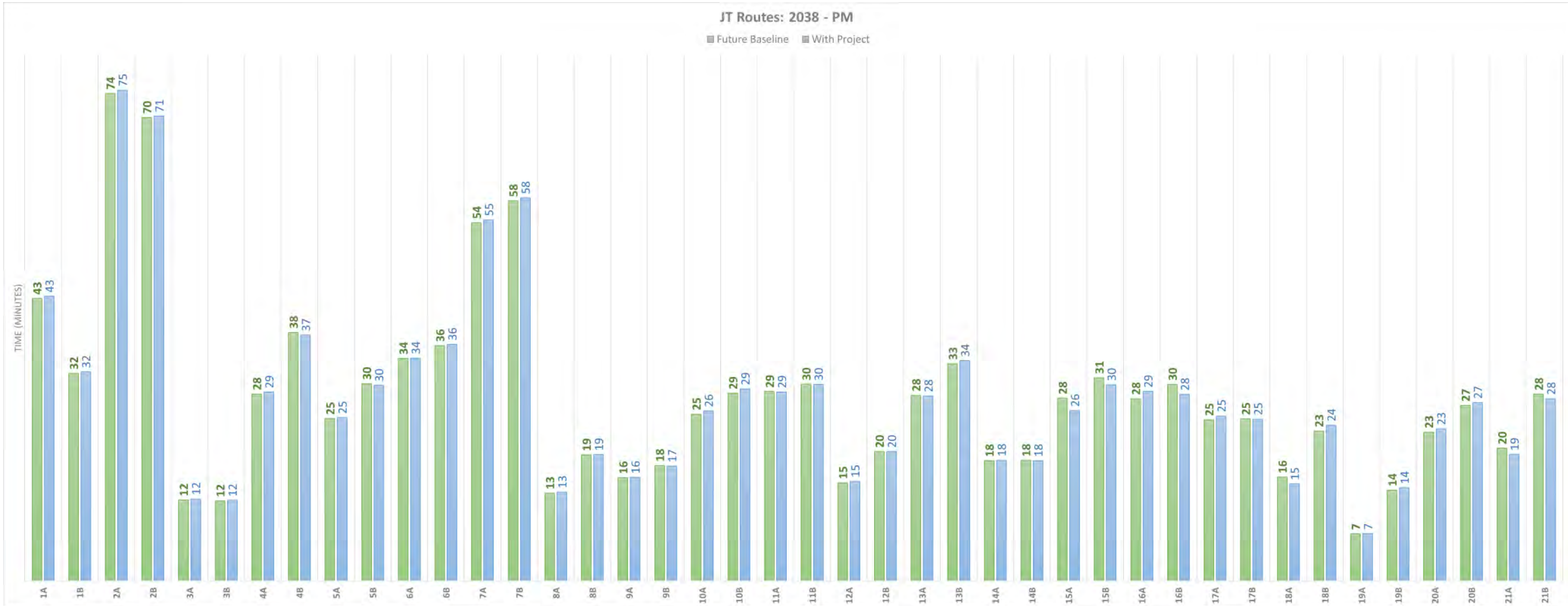


Figure 14: Highway Journey Times – Base Validation Routes, 2038 Future baseline and 2038 With Project – PM



2047

Figure 15: Highway Journey Times – Base Validation Routes, 2047 Future baseline and 2047 With Project – AM1

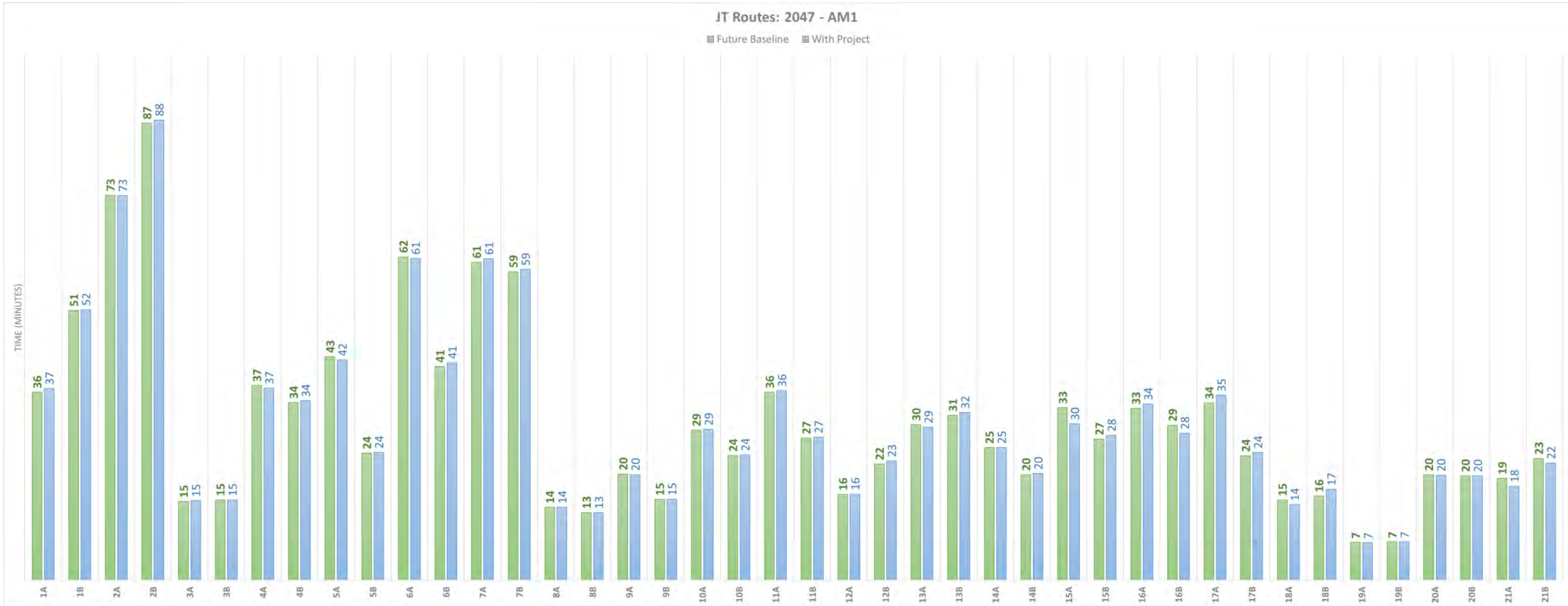


Figure 16: Highway Journey Times – Base Validation Routes, 2047 Future baseline and 2047 With Project – AM2

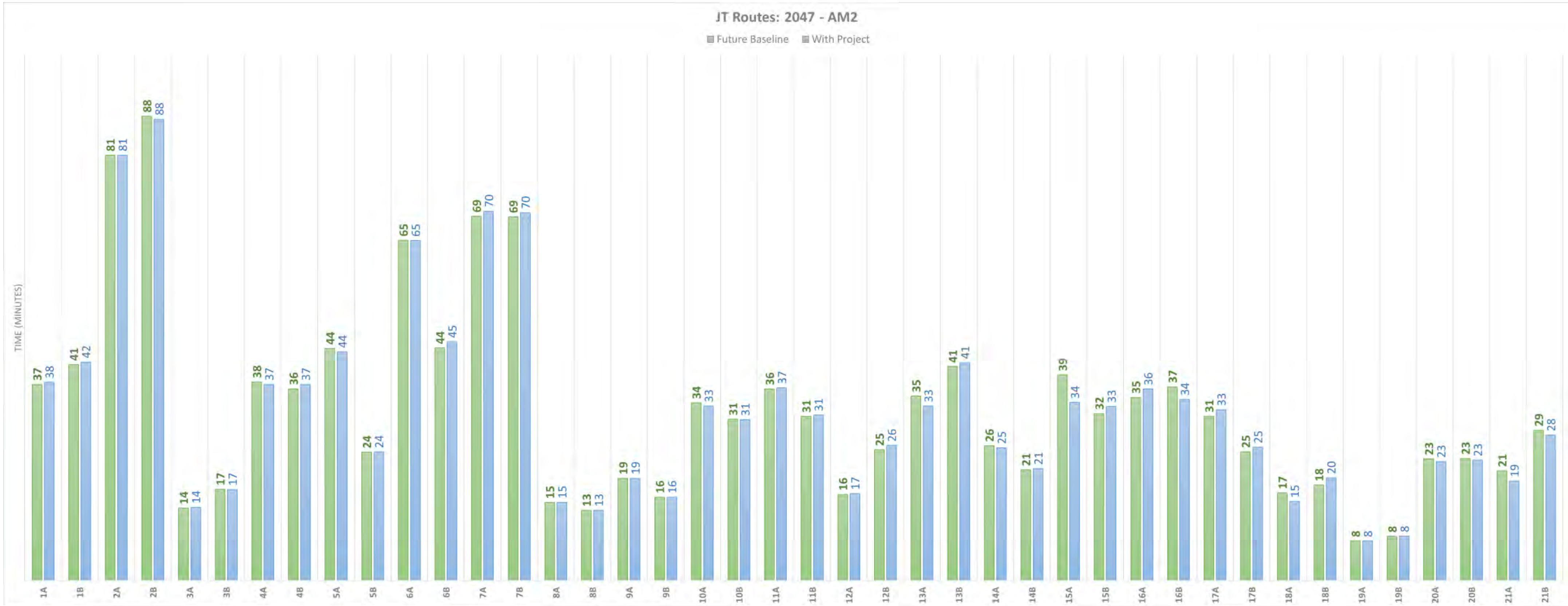


Figure 17: Highway Journey Times – Base Validation Routes, 2047 Future baseline and 2047 With Project – IP

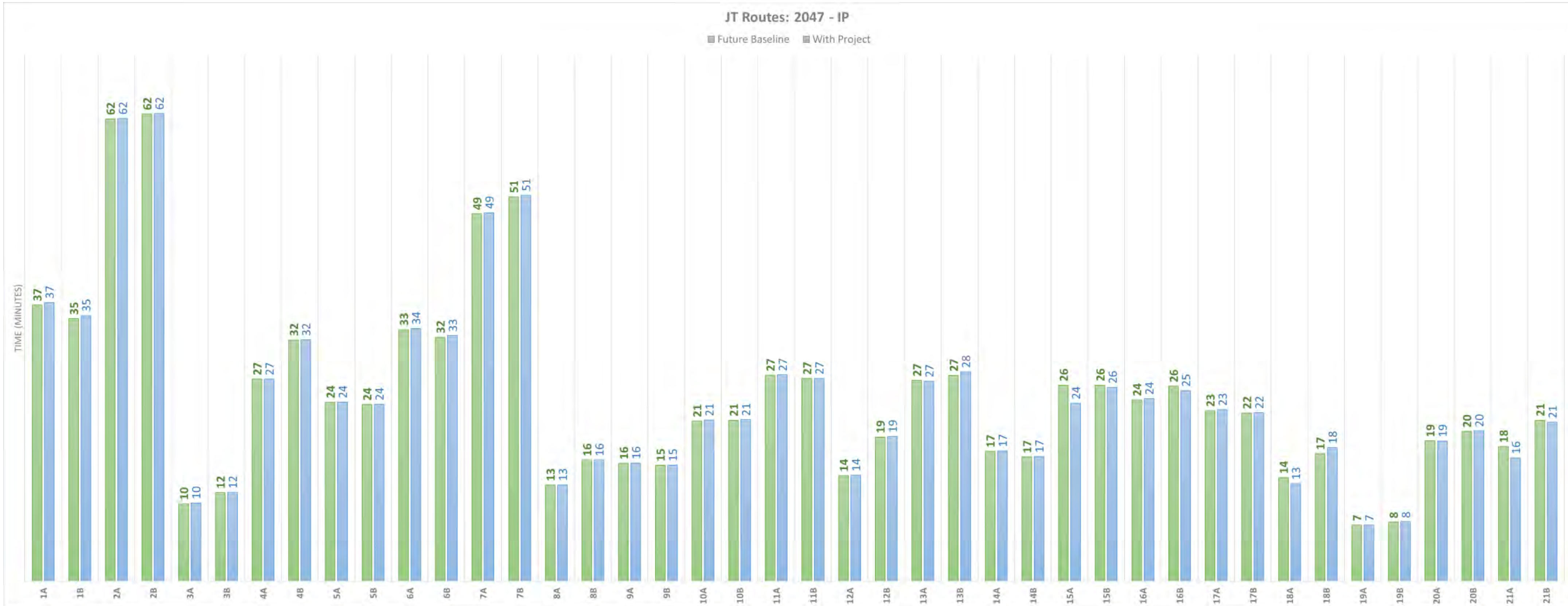


Figure 18: Highway Journey Times – Base Validation Routes, 2047 Future baseline and 2047 With Project – PM