

# HyNet North West

## ENVIRONMENTAL STATEMENT (VOLUME III)

### Appendix 17.13 Transport Assessment

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 –  
Regulations 8(1)(c)

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# 1. INTRODUCTION

~~1.1.1. This Transport Assessment (TA) forms part of an application by the Applicant to the Secretary of State (SoS) for a Development Consent Order (DCO) for the Hynet Carbon Dioxide Pipeline (The DCO Proposed Development).~~

~~1.1.1. This Revision CB of **Appendix 17.13 – Transport Assessment** replaces and supersedes **Revision A (APP-161) and Revision B (CR1-042)**. **Appendix 17.13 (Revision CB)** has been updated to consider the following proposed design changes as outlined in **Table i.i** of **Chapter I** of the ES Addendum:~~

- ~~• Extension in construction working hours to include Saturday morning working (PS05)~~
- ~~— Extension of the Newbuild Infrastructure Boundary to enable access to Ince AGI from the adopted highway (PS06)~~
- ~~— Removal of Shotton Lane Centralised Compound (PS27)~~
- ~~• Change to application of compulsory powers for Encire land access (PS30)~~

1.1.2. Definition of terms used in this chapter may be found in the **Glossary (Document Reference D.1.7)**.

1.1.3. This TA is also accompanied by a number of figures, listed in **Table 1** and contained in **Annex B**.

**Table 1 - List of Figures**

Figure	Description
<b>Figure 1 (Sheets 1 to 26)</b>	Annual Average Daily Traffic (AADT) Construction Traffic Network Diagrams
<b>Figure 2 (Sheets 1 to 18)</b>	Peak Hour Construction Traffic Network Diagrams

1.1.4. The TA has considered the impact of construction, operation and maintenance traffic associated with the DCO Proposed Development on the operation of the transport network within the Traffic and Transport Zone of Influence (Zoi).

1.1.5. As part of this assessment, proposed construction traffic routes, construction Access Locations, and temporary Access Tracks have been identified to facilitate construction traffic associated with the various elements of the DCO Proposed Development.

1.1.6. These construction traffic routes, construction Access Locations and Access Tracks have been identified with the aim of providing safe, efficient and adequate access to facilitate the construction of the various elements of the DCO Proposed Development.

- 1.1.7. The final proposed construction traffic routes **Figure 17.4 Construction Traffic Routes (Volume IV)** reflect close engagement and consultation with the Flintshire County Council (FCC) and Cheshire West and Chester Council (CWCC).
- 1.1.8. The design, location, and traffic management associated with Access Locations **Figure 17.5 Access Locations (Volume IV)** reflect appropriate guidance, such as TAN 18 (**Ref. 26**) and Manual for Streets (MfS) (**Ref. 24**), and the outcome of liaison with each LHA. The approach to access for both permanent and temporary Access Locations is documented in the Access Principles Note which is presented in the **Outline Construction Traffic Management Plan Annex D (Document Reference: D.6.5.3)**.
- 1.1.9. **The Access and Rights of Way Plans Regulation 5(2)(k) (Document Reference D.2.5)** should be referenced as the definitive record for the proposed access arrangements associated with the DCO Proposed Development.
- 1.1.10. A reasonable worst-case approach has been undertaken in respect of construction traffic on the safe operation of the transport network; considering the peak month of traffic across the programme for the DCO Proposed Development. As agreed with LHAs in scoping this TA **Appendix 17.12 Scoping Note (Volume III)**, no junctions are forecast to experience 30 or more two-way trips in either of the peak hours. No junction modelling was therefore necessary. The impacts at key junctions on construction traffic routes has however been presented within this TA, and considered in a qualitative assessment.
- 1.1.11. On the basis of this qualitative assessment, some locations have been identified where it is considered appropriate to introduce a restriction on HGV movements at peak hours; for example in locations where congestion and queuing is experienced. These are summarised below:
- Deeside Lane/ Sealand Road;
  - B5127/ B5125;
  - Brookside/ B5125;
  - B5125/ Upper Aston Hall Lane; and
  - A5119/ Starkey Lane.
- 1.1.12. The mitigation measures are set out in this TA and in the **Outline Construction Traffic Management Plan (OCTMP) (Document Reference 6.5.3)**. For capacity based mitigation, it is proposed that movements at the locations listed above would be controlled to reduce the effect on the operation of junctions during peak network hours.
- 1.1.13. The existing road safety conditions were examined for links and junctions within along proposed construction traffic routes. This assessment (**Appendix 17.3**

**Personal Injury Accident Summary, Volume III**) identified clusters along proposed construction traffic routes. Clusters are defined as locations where four or more Personal Injury Accidents (PIAs) have been reported within the most recent 60 months for which data is available.

- 1.1.14. In these locations, road and weather conditions, severity, likely contributory factors, and the roads users involved were considered to determine the impact of increases in construction traffic associated with the DCO Proposed Development. Where it has been assessed that construction traffic would have an impact on highways safety, location-specific mitigation is proposed.
- 1.1.15. The operation and maintenance requirements for the DCO Proposed Development have been discussed in the TA. This considers the type and volume of operation and maintenance traffic and permanent access requirements to DCO Proposed Development infrastructure.
- 1.1.16. An Interim Worker Travel Plan has been produced (see **Appendix 17.4, Volume III**) to demonstrate the commitment to sustainable transport by the Applicant and to indicate the measures that could be undertaken to meet sustainable transport ambitions and reduce the number of single occupancy worker trips to the DCO Proposed Development and minimise the impacts along proposed construction traffic routes.
- 1.1.17. This TA has established the baseline transport conditions within the Zone of Influence and considered the effect of the DCO Proposed Development on the operation of the transport network.
- 1.1.18. Following this assessment, it is considered that, with the implementation of mitigation measures outlined in this TA, and detailed within the Traffic and Transport ES Chapter and OCTMP, that the construction traffic associated with the DCO Proposed Development could be accommodated without compromising the effective operation of the transport network within the Zol.

## **1.2. OBJECTIVES**

- 1.2.1. This TA has been prepared in order to consider the existing highways and transport infrastructure within the Traffic and Transport Zone of Influence and to assess, in detail, the highways and transport movements associated with construction traffic that would be generated by the DCO Proposed Development, and the effect these movements would have on transport infrastructure.
- 1.2.2. This TA includes the identification of construction traffic access and routing strategies, a qualitative assessment at junctions, and a road safety review of links and junctions within the study area.



- 1.2.3. This assessment has been used to identify suitable management and mitigations measures as set out in the **Outline Construction Traffic Management Plan (OCTMP) (Document Reference: D.6.5.3)**.

1.2.4. The TA sections headings are summarised below:

- Introduction;
- Proposed Development;
- Existing Conditions;
- Planning Policy and Legislation;
- Construction Traffic Access;
- Construction Traffic Routing Strategy;
- Impact Assessment Methodology;
- Junction Impact Assessment;
- Highway Safety;
- Mitigation; and
- Conclusions and Recommendations.

### 1.3. KEY DOCUMENTS

1.3.1. This TA is an appendix to the **Chapter 17 - Traffic and Transport (Volume II)** which assesses the likely environmental effects associated with the DCO Proposed Development. In this document, routes used by construction traffic for the DCO Proposed Development (referred to as 'construction traffic routes' are given a link sensitivity based on their type and character, and the number and type of 'Built Environment Indicators' (BEI)<sup>1</sup> present along the route. The ES also includes the identification of BEI that might be used by sensitive affected parties and an assessment of the significance of any potential environmental effects resulting from the construction traffic using those routes.

1.3.2. The **OCTMP (Document Reference: 6.5.3) and Appendix 17.14 - Interim Worker Travel Plan (Volume III)** should also be read alongside this document.

1.3.3. Together, these documents provide a thorough assessment of the traffic and transport impacts of the DCO Proposed Development and set out measures proposed to mitigate the potential effects identified.

### 1.4. SCOPING

1.4.1. **Table 2** provides a summary of the consultation undertaken to inform the Traffic and Transport assessment.

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<sup>1</sup> Built Environment Indicators are residential dwellings, footpaths, cycle paths or other features of the built environment indicating the presence of potential affected parties such as; people at home people in workplaces, sensitive groups (children, elderly and disabled), sensitive locations (hospitals, places of worship, schools historic buildings) ,people walking, people cycling and road users.

- 1.4.2. The purpose of these meetings was:
- To introduce the Project and DCO Proposed Development to key stakeholders;
  - Discuss and agree the approach to assessment;
  - Scope supporting technical documentation including the Transport Assessment, Outline Construction Traffic Management Plan, and Interim Worker Travel Plan;
  - Discuss topic specific issues such as methods of construction, working locations, and construction traffic routes; and
  - Confirm approach to data collections and surveys.

1.4.3. All parties confirmed a willingness to work collaboratively to ensure robust assessment work and to maintain an ongoing dialogue as the DCO Proposed Development develops.

1.4.4. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 5 - EIA Methodology (Volume II) of this ES and Appendix 17.2 Methodology (Volume III)**.

1.4.5. This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following the assessment carried out within the **Preliminary Environmental Information Report (PEIR) (Document Reference D.0.9.17)**.

**ELEMENTS SCOPED OUT OF THE ASSESSMENT**

1.4.6. The elements shown in **Table 2** are not considered to give rise to likely significant effects as a result of the DCO Proposed Development and have therefore not been considered within this assessment

**Table 2 - Elements Scoped Out of The Assessment**

<b>Element Scoped Out</b>	<b>Justification</b>
<b>Operational Stage</b>	The operation of the DCO Proposed Development would not result in significantly increased traffic flow or changes to traffic composition.
<b>Decommissioning</b>	Decommissioning activities are not anticipated to occur for a significant length of time and it is not possible for Traffic and Transport baseline conditions to be robustly understood.

- 1.4.7. It is anticipated that the operation of the DCO Proposed Development, including maintenance, would not result in any significant traffic and transport effects. Traffic generated by the DCO Proposed Development during the operational stage would typically relate to staff travel and infrequent maintenance activities that would have an imperceptible impact upon the operation of the Traffic and Transport network. Therefore, the operational stage of the DCO Proposed Development has been scoped out of the assessment.
- 1.4.8. Similarly, decommissioning of the DCO Proposed Development at its end of life has been excluded from the assessment. Whilst these activities could generate a notable volume of traffic, these would not be expected to occur until a significant number of years into the future, at such a time when future baseline conditions would be very different, and difficult to predict accurately at this time.

#### **ELEMENTS SCOPED INTO THE ASSESSMENT**

- 1.4.9. There are a range of potential traffic effects that could be caused by the DCO Proposed Development without, or prior to, the implementation of mitigation measures. These potential traffic effects are limited exclusively to the construction of the DCO Proposed Development.
- 1.4.10. The scoping process identified the potential for temporary effects due to increases in traffic flow (i.e. Increases in Light Goods Vehicle (LGV) and Heavy Goods Vehicle (HGV) Traffic) and changes to traffic composition (i.e., increased proportion of HGVs) through construction.

## 2. PROPOSED DEVELOPMENT

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2.1.1. This section provides a summary of the DCO Proposed Development and associated Traffic and Transport Impacts. Further details of the DCO Proposed Development are presented in **Chapter 3 - Description of the DCO Proposed Development (Document Reference: 6.2.3) (Volume II)**.

### 2.2. OVERVIEW OF CONSTRUCTION STAGE IMPACTS

2.2.1. Construction activities would generate vehicular movements by HGVs and LGVs, delivering plant and materials, and for staff working at each site. Access to working locations from the LRN would require the provision of temporary and permanent access tracks.

2.2.2. This traffic and transport assessment has used a reasonable worst-case scenario in terms of the allocation of construction traffic to the highway network in the Zone of Influence; considering 'Peak Month' construction activity, forecast to be during August 2024.

2.2.3. A wide variety of vehicle types would be used for the construction of the DCO Proposed Development. Vehicles would be required to transport people, equipment and materials.

2.2.4. Volumes of Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) associated with the construction phase of the DCO Proposed Development are detailed and assessed in **Appendix 17.7 Construction Traffic Flows (Volume III)**.

2.2.5. For the purposes of the TA and EIA, the construction vehicles have been classified as follows, in accordance with the Driver and Vehicle Standards Agency Lorry types and weights guide (**Ref. 13) (Annex D)**:

- LGV: Vehicle 3.5 tonnes (t) or below in gross weight; and
- HGV: defined as any vehicle exceeding 3.5t gross weight.

2.2.6. **Table 3** outlines the vehicle classification and typical vehicle types that would be required for the construction of the DCO Proposed Development.

**Table 3 - Typical Construction Vehicle Classifications**

LGVs	HGVs
<b>Car, Van, 4x4 pick up, welfare van, Minibus</b>	Excavator, soil compactor, HIAB/winch tractor, tractor and trailer, 10 m and 12 m rigid vehicles, 20 t tippers, concrete mixers, 14m and 16.5 m articulated vehicles, low loaders, cranes

- 2.2.7. It should be noted that the list of vehicles is not exhaustive and that the precise type and composition of the fleet of construction vehicles used will be determined by the appointed Construction Contractor(s).
- 2.2.8. Construction traffic volumes have been estimated based on information provided by the Applicant based on working experience of similar projects. Once a Construction Contractor is appointed, should any changes to estimated construction traffic arise they would be captured in an updated CTMP.
- 2.2.9. For all working locations, construction traffic includes:
- Workforce Travel;
  - LGV deliveries of construction materials and equipment;
  - HGV deliveries of plant and equipment (e.g. pipe sections, cables, electrical equipment, valves); and
  - HGV deliveries of bulk civils materials including aggregate and backfilling materials.
- 2.2.10. Further information on the volume and timing of vehicular movements associated with the DCO Proposed Development is presented within **Section 8** of this TA.

### 3. BASELINE ENVIRONMENT

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3.1.1. This section describes the baseline conditions for the existing highway infrastructure local to the DCO Proposed Development and outlines the existing public transport, walking, and cycling opportunities.

#### 3.2. DESK STUDY

3.2.1. Desktop studies, site audits and traffic surveys have been undertaken to understand the baseline conditions for each mode of transport. This has included the use of the following online resources:

- Google Maps Service **(Ref. 1)**;
- Google Earth Pro. **(Ref. 2)**;
- CWCC Council Interactive Mapping Service. **(Ref. 3)**;
- FCC Council 'Spectrum Spatial' Mapping Service. **(Ref. 4)**;
- DfT 'Countpoint' Road Traffic Statistics Mapping Service. **(Ref. 5)**;
- Sustrans' National Cycle Network Map. **(Ref. 6)**;
- Welsh Government (NMWTRA) Network Map. **(Ref. 7)**;
- National Highways (Highway's England) website. **(Ref. 8)**; and
- 'CrashMap' Personal Injury Accident Online Service **(Ref. 9)**.

3.2.2. The desktop exercise involved the identification of relevant Traffic and Transport related infrastructure and receptors. This included, for example, the suitability of roads to cater for HGV and LGV traffic, the location of PRow and Cycle Routes, the location of personal injury accidents, and network constraints including weight and height limits at bridge crossings. Using the above, and professional judgement, a number of locations were identified as being appropriate to collect baseline traffic count data. This is discussed further below.

#### 3.3. ZONE OF INFLUENCE (ZOI)

3.3.1. The Zoi for the Traffic and Transport EIA is presented in **Figure 17.1 Traffic and Transport Zone of Influence (Volume IV)**.

3.3.2. Construction traffic will need to access working areas and Construction Compounds through temporary access points and non-public access bespoke haul routes. All roads and junctions within the Zoi fall under the control of FCC, CWCC, NMWTRA, and National Highways.

3.3.3. The Zone of Influence was identified during the scoping stage and is based on the professional judgement as to the extent to which Traffic and Transport effects may materialise.

- 3.3.4. In determining the Zol, consideration has been given to the principle that impacts will be direct or indirect. Direct impacts will occur where the DCO Proposed Development crosses, or is located along, a key transport receptor, such as a road or rail line. Indirect impacts will occur where construction traffic uses the existing highway network and thereby increases traffic volumes and potentially the proportion of Heavy Goods Vehicles (HGVs). The Zol primarily reflects where indirect effects may be experienced on road links.
- 3.3.5. The Traffic and Transport Infrastructure within the Zol for each section of the DCO Proposed Development is summarised in **Appendix 17.6 Section by Section Descriptions (D.6.3.17.6) (Volume III)**. A description of relevant highway links within the Zol is presented in **Annex C**.

### **3.4. SITE VISITS AND SURVEYS**

- 3.4.1. The Traffic and Transport team carried out site visits at various road links within the Zol, considering the most up to date alignment of the DCO Proposed Development. During each site visit the team observed existing conditions, measured carriageway widths, and took photographs.
- 3.4.2. Site visits were carried out on the following dates:
- Monday 25 October 2021;
  - Thursday 28 October 2021;
  - Friday 12 November 2021;
  - Thursday 26 May 2022; and
  - Friday 10 June 2022.
- 3.4.3. The purpose of the site visits was to take photographs of relevant project locations, understand any local constraints, and to establish baseline traffic conditions.

#### **AUTOMATIC TRAFFIC COUNT (ATC) SURVEYS**

- 3.4.4. Automatic Traffic Count (ATC) surveys, using pneumatic tubes installed over the carriageway, have been undertaken across 99 no. locations to provide 24-hour, 7 day per week flows, as well as traffic speed information. The ATC data is classified so that the proportions of Light Goods Vehicles (LGVs) and HGVs may be derived. In accordance with DfT WebTAG Modelling Guidance (**Ref. 10**), which recommends that traffic flows are derived using a 'neutral' month (for example, a month that is unlikely to feature school holidays), the majority of the data (82 sites) was collected in October 2021 and March 2022. Surveys were undertaken at the remaining locations (17 sites) in July and December 2022 outside of the school holidays in FCC and CWCC.



- 3.4.5. During the meeting on 14 May 2021 CWCC discussed the timings of traffic surveys in light of Covid-19 travel restrictions and their potential influence on travel patterns. Since then, National Highways has issued an advice note (30 July 2021) (**Ref. 11**) confirming that traffic surveys were now being permitted on the Strategic Road Network subject to certain requirements. Consequently, the ATC surveys presented in this report were commissioned over a two-week period to ensure greater confidence in the data, and compliance with this document. The Traffic and Transport team has subsequently discussed this with CWCC who confirmed that they were permitting traffic surveys to be carried out across their network on the basis of the National Highways advice.
- 3.4.6. All ATC locations which captured traffic data within the DCO Traffic and Transport Zone of Influence are presented in **Figure 17.2 ATC Locations (Volume IV)**.
- 3.4.7. **Table 4** presents the range of traffic survey data obtained for use in the assessment.

**Table 4 - ATC Survey Data**

<b>Date</b>	<b>Duration</b>
<b>4 – 18 October 2021</b>	14 Day 24Hr
<b>18 – 24 March 2022</b>	7 Day 24Hr
<b>12 – 19 July 2022</b>	7 Day 24Hr
<b>6 – 12 December 2022</b>	7 Day 24Hr

- 3.4.8. At each site, a 7-day or 14-day continuous period classified count with 15-minute intervals by direction was captured. Data was collected in the form of classified counts inclusive of personal vehicle, LGVs, and HGVs.

#### **ADDITIONAL TRAFFIC DATA SOURCES**

- 3.4.9. Additional traffic flows data has been sourced from the Department for Transport's (DfT) Countpoint (**Ref. 5**) Road Traffic Statistics for the following locations:
- A5117 West of J10 M53 (DfT Countpoint Site 37813);
  - A5104 (DfT Countpoint Site 30671);
  - A5117 4 Bypass Road (DfT Countpoint Site 27768); and
  - A5119 Flint Mountain (DfT Countpoint Site 10669).

#### **CRASHMAP DATA**

- 3.4.10. Personal Injury Accident (PIA) data has been sourced from the Crashmap database for the most recently available five-year period for which data is available (2017-2021) along all of the identified construction traffic routes.

3.4.11. All PIA locations for this time period are presented in **Figure 17.3 Personal Injury Accident Locations (Volume IV)**. The assessment of PIA on construction traffic routes for the DCO Proposed Development is presented within **Appendix 17.3 Personal Injury Accident Summary (Volume III)**.

## 4. PLANNING, GUIDANCE, AND LEGISLATION

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- 4.1.1. This section of the TA discusses the DCO Proposed Development in the context of national and local planning policy. The assessments conducted within this TA take into consideration the following documents and appropriate design guidance documents such as Manual for Streets (**Ref. 24**) and Manual for Streets 2 (**Ref. 25**) (MfS and MfS2 respectively), the Design Manual for Roads and Bridges (**Ref. 26**) and Planning Policy Wales' Technical Advice Note (TAN) 18 (**Ref. 27**).
- 4.1.2. Policy relevant to Traffic and Transport includes the following:
- Welsh Government 'Planning Policy Wales' Edition 11 (2021) (**Ref. 14**);
  - The National Development Framework: Future Wales – The National Plan 2040 (**Ref. 15**);
  - The Wales Transport Strategy 2021 (**Ref. 16**);
  - North Wales Local Transport Plan (**Ref. 17**);
  - Flintshire Local Development Plan (2015-2030) (**Ref. 18**);
  - Flintshire Unitary Development Plan 2000-2015 (Superseded) (**Ref. 19**);
  - Ministry of Housing, Communities, and Local Government 'The National Planning Policy Framework' (NPPF) (2021) (**Ref. 20**);
  - Cheshire West and Chester Council Local Plan Part 1 (**Ref. 21**);
  - Cheshire West and Chester Council Local Plan Part 2 (**Ref. 22**); and
  - Cheshire West and Chester Local Transport Plan (**Ref. 23**).
- 4.1.3. A planning statement has been prepared as part of the DCO application (**Document Reference: D.5.4**) which sets out information regarding compliance with relevant national and local planning policies.

## 4.2. WALES

### PLANNING POLICY WALES – EDITION 11 (2021)

- 4.2.1. Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs and policy clarification letters comprise national planning policy.

- 4.2.2. It provides specific guidance in relation to Transport Assessment, stating that:
- “Transport Assessments can be required for any proposed development if the planning authority considers that there is a justification or specific need. Transport Assessments provide the basis for negotiation on scheme details, including the level of parking, and measures to improve walking, cycling, and public transport access, as well as measures to limit or reduce levels of air and noise pollution. They should cover the transport impacts during construction phase of the development, as well as when built and in use. Transport Assessments also provide an important basis for the preparation of Travel Plans.”*
- 4.2.3. In regard to movement associated with transport it states:
- “Existing infrastructure must be utilised and maximised, wherever possible. Where new infrastructure is necessary to mitigate transport impacts of a development and to maximise accessibility by sustainable non-car modes, it should be integrated within the development layout and beyond the boundary, as appropriate”*

#### **TECHNICAL ADVICE NOTE (TAN) 18**

- 4.2.4. PPW is supported by 21 topic-based Technical Advice Notes (TANs). TAN 18 (**Ref. 27**) (Transport), published in March 2007, sets out the Welsh Government’s aim for integration of land use planning and transport in order to achieve a sustainable pattern of development.
- 4.2.5. Section 6 focuses on the needs of walkers and cyclists and the requirement to safeguard routes for walkers, cyclists and horse-riders. Whilst the DCO Proposed Development would require temporary diversion/ closure of a number of PRoW during the construction stage, these temporary closures would be agreed with the local authorities and managed accordingly.
- 4.2.6. The requirements for new accesses are set out within section 9.16 of TAN 18, with the visibility standards detailed within Annex B of TAN 18. In accordance with the guidance, speed surveys have been undertaken along all links where temporary Access Points would be required, to inform the visibility requirements.
- 4.2.7. Annex D of TAN 18 focuses specifically on ‘Transport Assessment’ and emphasises the importance of undertaking early scoping discussions with local authorities. As described within **Section 1**, consultation has been undertaken with LHAs in preparation of this TA.

## **FUTURE WALES: THE NATIONAL PLAN 2040**

- 4.2.8. Future Wales – the National Plan 2040 is Wales’ national development framework, setting the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities in Wales.
- 4.2.9. It references the important role the new Wales Transport Strategy will play in delivering a more sustainable transport network over the plan period.
- 4.2.10. Policy 11 and Policy 12 focus on how to achieve national and regional connectivity for all modes.
- 4.2.11. It goes on to reference Planning Policy Wales and its policy framework for addressing air quality, soundscape and noise. Accordingly, when proposing new transport infrastructure or new development, average population exposure to air and noise pollution should be reduced and soundscapes improved where it is practical and feasible to do so.

## **LLWYBR NEWYDD: THE WALES TRANSPORT STRATEGY 2021**

- 4.2.12. Llwybr Newydd: the Wales Transport Strategy sets out Wales’ ambitions for the next 20 years in order to achieve an accessible, sustainable and efficient transport system. Priorities have been given to reduce people’s need to travel, provide accessible, sustainable and efficient transport service and infrastructure for people and goods, and encourage modal shift to sustainable transport. The strategy ensures that the Wales’ transport system will contribute to the social, environmental, economic and cultural well-being of Wales.
- 4.2.13. The strategy aligns with Future Wales – the National Plan 2040 and sets out the directions of regional transport plans. It states that the Sustainable Transport Hierarchy will be used when planning new developments. A target of 45% journeys to be made by public transport, walking and cycling have been set by 2040. Walk- and cycle-friendly design and connectivity to public transport are to be considered when building new developments.

## **NORTH WALES LOCAL TRANSPORT PLAN**

- 4.2.14. The North Wales Local Transport Plan (NWLTP) has been jointly prepared by the North Wales Local Authorities in response to the Welsh Government requirement for Local Transport Plans to be submitted in 2015. The Plan is a statutory document for transport in the region. It sets out a range of interventions and schemes, to address the impact on transport from Nationally Significant Infrastructure Projects, including capacity and safety enhancement/pinch-point improvements.

4.2.15. The NWLTP identifies the improvement scheme for A494/A55 route as a regional priority project, it describes the improvement scheme is to:

*“Develop local Highway Network to accommodate any lack of capacity and resilience issues on the Trunk Road network. Scheme would reduce impact on current local Network to alleviate congestion on Deeside corridor, remediation schemes to reduce environment impact on adjoining communities and schemes to risk / reduce impact to the local network from critical failure of the nationally strategic routes into Wales.*”

### **FLINTSHIRE LOCAL DEVELOPMENT PLAN 2015-2030**

4.2.16. Flintshire Local Development Plan 2015-2030 adopted 24 January 2023 sets out the planning strategy for Flintshire up to 2030. It sits within the framework of PPW, and other regional plans, strategies and proposals. One of the objectives of the Local Development Plan is to *“Promote a sustainable and safe transport system that reduces reliance on the car.”* Policy STR5 (Transport and Accessibility) is as follows.

*“Sustainable economic growth and development can only be delivered by the maintenance and enhancement of an integrated, accessible, usable, safe and reliable transport network. The development of Flintshire’s transport infrastructure therefore underpins the Council’s economic ambition and in turn, informs the provision of a sustainable pattern of development. Where appropriate new development and associated transport infrastructure should therefore:*

- *Facilitate accessibility to employment, homes, services, and facilities by locating development in places with access to integrated transport infrastructure, thereby reducing the need to travel;*
- *Promote the implementation of an integrated transport solution in Flintshire, involving road, rail, bus, park and ride / share and active travel improvements;*
- *Promote road and rail improvements to support Flintshire’s sub-regional role as a strategic gateway and hub;*
- *Ensure that the local highway network either has, or can be upgraded, to provide capacity to accommodate sustainable levels of development;*
- *Facilitate improvements to the quality, attractiveness and availability of public transport options;*
- *Provide walking and cycling routes, linking in with active travel networks and green infrastructure networks;*
- *Adopt a sustainable approach to the design, function and layout of new development, including providing appropriate levels of parking; and*
- *Support the movement of freight by rail or water.”*

## **FLINTSHIRE UNITARY DEVELOPMENT PLAN 2000-2015**

4.2.17. The Flintshire County Council Unitary Development Plan 2000-2015 has been superseded by the Flintshire Local Development Plan 2015-2030. It sets out the strategy to develop Flintshire's built and natural environment with a balance between the needs of the community and a sustainable development. Section STR 2 states that new development will be expected to incorporate, wherever practicable, the following requirements:

- *“Minimising the number and length of journeys especially by private car;*
- *Making the best use of existing roads and addressing congestion and safety issues through traffic management and calming measures;*
- *Enabling the efficient use of and improvements to public transport;*
- *Enabling alternative means of travel including cycling and walking;*
- *Facilitating the transfer of freight from road to rail or water; and*
- *Facilitating the provision and use of telecommunications.”*

## **4.3. ENGLAND**

### **NATIONAL PLANNING POLICY FRAMEWORK (NPPF) 2021**

4.3.1. The National Planning Policy Framework (NPPF) (2021) does not contain specific policies for Nationally Significant Infrastructure Projects (NSIPs) for which particular considerations apply. Paragraph 5 states: *“These are determined in accordance with the decision-making framework set out in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are considered both important and relevant (which may include the National Planning Policy Framework). National policy statements form part of the overall framework of national planning policy, and are a material consideration in decisions on planning applications”.*

### **CHESHIRE WEST AND CHESTER LOCAL PLAN PART 1 AND 2**

4.3.2. The Cheshire West and Chester Local Plan aims to deliver and promote sustainable travel choices and sets out policies to direct new development to places accessible from existing transport networks and planning obligations will be sought to fund the necessary works to enhance the local transport network. Policy STRAT 10: Transport and Accessibility states the following:

*“In accordance with the key priorities for transport set out in the Local Transport Plan, development and associated transport infrastructure should:*

- *Provide and develop reliable and efficient transport networks that support sustainable economic growth in the borough and the surrounding area;*
- *Reduce carbon emissions from transport and take steps to adapt our transport networks to the effects of climate change;*
- *Contribute to safer and secure transport and promote forms of transport that are beneficial to health;*
- *Improve accessibility to jobs and key services which help support greater equality of opportunity; and*
- *Ensure that transport helps improve quality of life and enhances the local environment.*

4.3.3. In order to minimise the need for travel, proposals for new development should be located so as they are accessible to local services and facilities by a range of transport modes.

4.3.4. *New development will be required to demonstrate that:*

- *Additional traffic can be accommodated safely and satisfactorily within the existing, or proposed, highway network;*
- *Satisfactory arrangements can be made to accommodate the additional traffic before the development is brought into use;*
- *Appropriate provision is made for access to public transport and other alternative means of transport to the car; and*
- *Measures have been incorporated to improve physical accessibility and remove barriers to mobility, especially for disabled and older people. The safety of all road users should be taken into account in the design and layout of new developments.*

#### **CHESHIRE WEST AND CHESTER LOCAL TRANSPORT PLAN**

4.3.5. The Cheshire West and Chester Local Transport Plan (CW&C LTP) sets out Cheshire West and Chester Council's plans and proposals to improve local transport for the period 2011 to 2026. One of the aims in the CW&C LTP is tackling climate change, in which it states one of its actions is to “*undertake transport assessment for all new development to assess overall accessibility and suitability to support sustainable travel patterns*”.



## 5. CONSTRUCTION TRAFFIC ACCESS

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- 5.1.1. There are a number of existing and new access locations proposed to facilitate the construction of various elements of the DCO Proposed Development. Access locations are presented in **Figure 17.5 Access Locations (Volume IV)**.
- 5.1.2. **The Access and Rights of Way Plans Regulation 5(2)(k) (Document Reference D.2.5)** should be referenced as the definitive record for the proposed access arrangements associated with the DCO Proposed Development.
- 5.1.3. All the proposed access locations are located on the local road network (LRN) and have been identified to maximise use of existing access locations and meet the construction requirements of the DCO Proposed Development. The proposed access locations will provide a link from the existing LRN to the DCO Proposed Development via temporary access tracks.
- 5.1.4. Temporary access locations would be designed and constructed to accommodate the most onerous vehicle type and manoeuvre required for construction. The temporary access points are dictated by the construction traffic routes and construction activity and would comprise the following types:
- Road Crossing (i.e. no turning movements for HGVs);
  - Left in/ Right out;
  - Right in/ Left Out; or
  - All Movements.
- 5.1.5. In addition to this definition, access locations are also categorised as 'Primary' or 'Secondary'. Primary access locations are those which will serve any of the below locations:
- Centralised Compounds;
  - Above Ground Installations (AGIs); or
  - Block Valve Stations.
- 5.1.6. These are designated as such to reflect that they are key working locations across the DCO Proposed Development where construction traffic is likely to be of a relatively higher volume and sustained over a longer period of the construction programme.
- 5.1.7. All other access locations are designated as Secondary accesses. These are designated as such to reflect that at these locations construction traffic volumes are anticipated to be significantly lower and/or over a much shorter duration than the Primary Accesses.
- 5.1.8. Primary Accesses include both temporary and permanent access locations. Secondary access locations are comprised of temporary access locations only for occasional operational access.

5.1.9. This assessment considers defined construction traffic routes to Primary Access Locations. Further information on the methodology and matters scoped into the Traffic and Transport assessment is presented in **Appendix 17.2 Methodology (Volume III)**.

## **5.2. COMPOUNDS**

5.2.1. A series of compounds would be established along the DCO Proposed Development Working Width; either 'Centralised', 'Trenchless', or 'Localised'. Trenchless compounds are not considered within this assessment.

### **CENTRALISED COMPOUNDS**

5.2.2. Centralised Compounds would be the major centres of construction traffic activity for the DCO Proposed Development and would be in place for the duration of the programme.

5.2.3. Centralised Compounds will be distributed along the Newbuild Carbon Dioxide Pipeline Working Width. Central Compounds are likely to include the following: Security cabin, Material laydown areas and yards, Warehouse Workshops Offices / meeting rooms, Workers welfare facilities and Power generation facilities.

5.2.4. There are ~~six~~ seven proposed Centralised Compounds to complete the works, and one back-up compound (Sealand Road compound). The Centralised Compounds are expected to remain in place for the duration of the construction stage of the project.

5.2.5. The summaries presented in the following sub-sections describe how these locations would be used in construction of the Newbuild Carbon Dioxide Pipeline, AGI and BVS.

### **LOCALISED COMPOUNDS**

5.2.6. Localised Compounds would be required for specific activities including for example AGI, BVS, and trenchless drilling activities. They would be in place for as long as is required to complete those activities.

5.2.7. HGV and LGV access would be required for workers and in order to deliver and store plant, equipment, and bulk civils.

## 6. CONSTRUCTION TRAFFIC ROUTING STRATEGY

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- 6.1.1. In order to provide vehicular access and facilitate construction of the various elements of the DCO Proposed Development there are three types of road network to be utilised.
- The routing strategy is based on the following principles:
    - Provide safe and efficient construction access for the DCO Proposed Development;
    - Reduce as far as reasonably practicable, and mitigate to an acceptable level, disruption to the public;
    - Where practical use the shortest route between the access point and the SRN;
    - As far as reasonably practicable avoid sensitive receptors;
    - Use temporary off-road access tracks to reduce the impact on the LRN; and
    - Construction routes have been identified based upon their suitability to accommodate HGV and LGV traffic.

6.1.2. For the purposes of assessment HGVs are defined as any vehicle exceeding 3.5t gross weight. As far as reasonably practicable, HGV routes maximise use of the SRN.

6.1.3. Proposed construction traffic routes for LGVs and HGVs are presented in **Figure 17.4 (Volume IV)** and are summarised in **Table 5**.

### 6.2. DIVERSION ROUTES

6.2.1. Open trench road crossings will necessitate the closure of roads and implementation of diversion routes. Road closures are anticipated to last a maximum of two weeks.

6.2.2. Proposed diversion routes have been discussed and shared with CWCC and FCC officers.

6.2.3. These are presented in **Figure 17.7 Road Diversions (Volume IV)**.

**Table 5 - Construction Traffic Routes**

Reference	Element of Works	SRN Junction	Links
CC CTR 1	Stanlow	J14 M56	A5117 1, B5132 Cryers Lane
CC CTR 2	Picton Lane	J10 M53	A5117 2, Little Stanney Lane, Picton Lane
CC CTR 3	Chorlton Lane	J10 M53	A5117 2, Rake Lane, Little Rake Lane, Chorlton Lane
CC CTR 4*	Sealand <a href="#">Central Road</a> *	A494 Deeside Park	A548 Sealand Road
CC CTR 5	Wood Farm	A494 Deeside Park	A548 Sealand Road
CC CTR 6	<a href="#">Sandycroft River Dee</a>	J36 A55	A5104, Manor Lane, B5129
<del>CC CTR 7</del>	<del>Shotton Lane</del>	<del>A494/ B5125/ B5127 Roundabout</del>	<del>B5125-3</del>
CC CTR 8a	Northop Hall AGI	J33A A55	Brookside, <del>B5125-1</del>
CC CTR 8b	Northop Hall AGI	J33 A55	B5125 2, B5126, A5119
AGI CTR 1	Ince AGI	J14 M56	A5117 1, Ince Lane, Ash Road, Pool Lane, Pool Lane North
AGI CTR 2	Stanlow AGI	J14 M56	A5117 1, Pool Lane
AGI CTR 3a	Northop Hall AGI	J33A A55	Brookside, <del>B5125-1</del>
AGI CTR 3b	Northop Hall AGI	J33 A55	B5125 2, B5126, A5119
AGI CTR 4	Flint AGI	J33 A55	A5119 2, Starkey Lane, Allt-Goch Lane
BVS CTR 1	Rock Bank BVS	J10 M53	A5117 2, Rake Lane, Little Rake Lane, Chorlton Lane
BVS CTR 2	Mollington BVS	A494 Deeside Park	A5117 4, A540, Overwood Lane
BVS CTR 3	Aston Hill BVS	A494/ B5125/ B5127 Roundabout	B5125 4, Upper Aston Hall Lane, Lower Aston Hall Lane
BVS CTR 4	Cornist Lane BVS	J32a A55	B5123, Bryntyrion Road, Lleprog Lane
BVS CTR 5	Pentre Halkyn BVS	J32a A55	B5123, Bryn Emlyn, Ffordd Groes, B5121
BVS CTR 6	Babell BVS	J31 A55	B5122, Racecourse Lane

\*Sealand [Central Road](#) is a back-up compound that would be used if ~~for example,~~ Wood Farm is not available.

## 7. IMPACT ASSESSMENT METHODOLOGY

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- 7.1.1. The following are considered to be the key parameters for the Traffic and Transport assessment:
- Baseline and Future Baseline HGV and LGV traffic flows for construction traffic routes;
  - Forecast LGV and HGV Proposed Project peak year traffic flows;
  - Construction traffic routes and access locations (embedded mitigation); and
  - Sensitivity of highway links along construction traffic routes.
- 7.1.2. Access would be required to secondary locations<sup>2</sup> during the construction phase of the DCO Proposed Development. Access to these locations is temporary and anticipated to take place over a matter of days or weeks and/or traffic volumes in these locations are anticipated to be negligible. The assessment therefore does not consider the impact of construction traffic serving secondary locations. Measures to ensure safe and suitable access in these locations has been considered as part of the **Outline Construction Traffic Management Plan (OCTMP) (Document Reference: D.6.5.3)**. Further information on these activities and the role of secondary access is also presented within the OCTMP, which is an appendix to the **Outline Construction Environmental Plan (CEMP) (Document Reference: D.6.5.4)**.

### 7.2. ASSESSMENT SCENARIO

- 7.2.1. For the purposes of assessment, a reasonable worst-case scenario has been considered. For Traffic and Transport this relates to the Peak Month of construction traffic across the entire DCO Proposed Development, expected to be in August 2024. In practice, the actual peak month may vary due to changes in the construction schedule. Nonetheless this month represents the peak period of activity across the DCO Proposed Development.
- 7.2.2. Further information on the profile of construction traffic activity across the programme is presented in **Appendix 17.8 Construction Traffic Profiles (Volume III)**.

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<sup>2</sup> Access locations are also categorised as 'Primary' or 'Secondary'. Primary access locations are those which will serve any of the below locations:

- Centralised Compounds;
- Above Ground Installations (AGIs); or
- Block Valve Stations

All other access locations are designated as Secondary accesses. These are designated as such to reflect that at these locations construction traffic volumes are anticipated to be significantly lower and/or over a much shorter duration than the Primary Accesses.

## 7.3. ASSUMPTIONS AND LIMITATIONS

7.3.1. To ensure transparency within the EIA process, the following limitations and assumptions have been identified. Some of these assumptions would be adopted to add robustness to the assessment and represent a worst-case scenario. At the time of writing, the following assumptions have been identified and will be used in the assessment:

- The assessment considers the effects of construction traffic on prescribed construction traffic routes to Centralised Compounds, AGI and BVS;
- All HGV and LGV construction traffic is assumed to originate from the SRN and would route along prescribed construction traffic routes;
- The proposed working hours are 0800-1800 from Monday to Friday and 0800-1300 on Saturday. It is assumed that the construction traffic generation on a Saturday will be half of that on a weekday. Therefore, an assessment considering a daily traffic profile has been undertaken using weekday construction traffic flows which represent a reasonable 'worst-case' scenario.
- The assessment will consider all vehicles with a weight in excess of 3.5 tonnes as HGVs; and
- All vehicle movements quoted are assumed to be two-way; i.e. 40 movements would consist of 20 inbound and 20 outbound trips.

## 7.4. TRIP GENERATION

7.4.1. Construction traffic volumes have been estimated based on the constructability report and information provided separately by the engineering team. They have been provided on a task by task basis for each of the Newbuild Carbon Dioxide Pipeline, BVS and AGI.

7.4.2. Traffic and Transport Impacts for the DCO Proposed Development are primarily likely to be realised during the construction stage, anticipated to be over a period of around 16 months, between April 2024 and July 2025.

7.4.3. AADT profiles of construction traffic are presented in **Appendix 17.8 Construction Traffic Profiles (Volume III)**. **Annex F** presented the volume of vehicles associated with the construction phase of the DCO Proposed Development across the programme. The tables in **Annex I** and **Annex J** present two-way vehicular movements along each construction traffic route and each link, respectively on a weekday during the anticipated project peak month (August 2024).

### CONSTRUCTION TRAFFIC SUMMARY BY PROJECT ELEMENT

7.4.4. A summary of the vehicular movements associated with construction activities is set out below.

- Newbuild Carbon Dioxide Pipeline;
- Above Ground Installations; and
- Block Valve Stations.

### **NEWBUILD CARBON DIOXIDE PIPELINE**

- 7.4.5. The majority of the pipeline will be constructed via open trench method with trenchless methods used at complex crossings, such as at major roads, watercourses, and rail Infrastructure.
- 7.4.6. For each of the pipelines, following the survey of the route, the Working Width will be established. This will be undertaken in sections and requires construction of laydown areas, establishment of site offices including any security huts, removal and localised storage of topsoil, and erection of temporary fencing for both safety and security.
- 7.4.7. Construction traffic will be generated by the transportation of materials required for pipeline construction. All pipe material will be delivered to the respective centralised compounds and stockpiled there. It will then be distributed to each of the local work-fronts by HGV/ tractor and trailer and strung out within the Working Width.
- 7.4.8. Construction traffic will also include that associated with the specialist trenchless crossing plant and equipment, worker travel, and the transportation of bulk civils material.
- 7.4.9. Pipe sections will be distributed along the length of the route from a centralised compound. Where reasonably practical, all pipeline sections, materials, plant, and equipment will be transported along the Working Width. Where this is not feasible due to physical constraints (e.g., major waterways, roads, and rail lines), these items will be transported via the LRN.
- 7.4.10. As described earlier within this Section (**Section 7.4**) and **Appendix 17.2 Methodology (Volume III)**, it is anticipated that trenchless crossing compounds and access to the Working Width from the LRN, using secondary access points, will only generate a material volume of construction traffic for a matter of days or weeks. Access to trenchless compounds and secondary access points outside of these periods of activities would be negligible.
- 7.4.11. However, construction traffic at centralised compounds, associated with the transportation and storage of bulk deliveries, worker traffic, pipeline sections, as well as plant and equipment, will be sustained throughout the construction programme. This is demonstrated in **Appendix 17.8 Construction Traffic Profiles (Volume III)**.

## **BLOCK VALVE STATIONS AND ABOVE GROUND INSTALLATIONS**

- 7.4.12. Installation of BVSs and AGIs includes the provision of new permanent vehicular access for ongoing maintenance once the DCO Proposed Development is operational.
- 7.4.13. During construction, the construction of BVSs and AGIs will generate vehicular movements by HGVs and LGVs, delivering plant and materials, and for construction staff. In these locations, the temporary access location and temporary access track will be upgraded during the construction phase to provide permanent access for operation and maintenance activities.
- 7.4.14. Construction activities will take place over a shorter duration than at centralised compounds. Construction traffic volumes are also forecast to be less than at centralised compounds. This is demonstrated in **Appendix 17.7 Construction Traffic Flows (Volume III)** and **Appendix 17.8 Construction Traffic Profiles (Volume III)**.
- 7.4.15. A works programme has been developed for each element of the DCO Proposed Development. Each programme reflects the cumulative vehicle movements expected to be generated by the DCO Proposed Development. Following a distribution and assignment exercise (discussed in the preceding chapter), weekday daily peak month flows have been derived for each construction traffic route and link. These are presented in **Annex I** and **Annex J**, respectively.

## **STAFF**

- 7.4.16. The construction workforce for the DCO Proposed Development will primarily be of a migratory nature; travelling to the region and staying in local accommodation during the working week. Workers will travel from local accommodation to working locations each day.
- 7.4.17. Staff will travel to the Centralised Compound at the start of each day and subsequently travel to working locations; 'localised' compounds associated with Trenchless Horizontal Directional Drilling (HDD), for example.
- 7.4.18. It is typical for development of this nature that staff will be transported from Centralised Compounds to work-fronts by minibuses and pick-ups.
- 7.4.19. For the construction of BVS and AGI it is anticipated that workers will not travel to the Centralised Compound and would instead travel directly to working locations. It will therefore be necessary for any car-sharing or minibus scheme to target worker accommodation locations. This is considered in **Appendix 17.14 - Interim Worker Travel Plan (IWTP) (Volume III)**.
- 7.4.20. The peak number of workers across the DCO Proposed Development is anticipated to be in the region of 624 and the average across the programme is



in the region of 223. This accounts for the staff across all three elements of the DCO Proposed Development.

- 7.4.21. The traffic generation profiles presented in **Annex F, Annex G, Annex H and Annex J** account for the movement of staff along each highway link via LGVs.
- 7.4.22. As described above, given the linear nature of the DCO Proposed Development and the number of concurrent working locations, which includes ~~95 existing and 48~~ a number of existing and new access locations, not all HGVs and LGVs would be required to access the same area of the DCO Proposed Development at the same time. It is therefore anticipated that the trips would be dispersed across the network and would not be focused in one area.

## **7.5. TRIP DISTRIBUTION AND ASSIGNMENT**

- 7.5.1. Consideration has been given to construction traffic routes for LGVs and HGVs during construction of the DCO Proposed Development. ALL movements are not specifically assessed in this TA.
- 7.5.2. Construction traffic routes have been identified according to the suitability of links and junctions to accommodate HGVs, the proximity of the route to temporary Access Points, consideration of buildability and LHA responses to statutory consultation and discussions with LHAs at subsequent meetings.
- 7.5.3. In order to ensure a robust assessment of the impacts along construction traffic routes, and for consistency with the ES it is assumed that both HGVs and LGVs will travel along prescribed construction traffic routes.
- 7.5.4. Each construction traffic route is assigned an associated SRN Junction (**Table 5**) and Centralised Compound, BVS, or AGI.
- 7.5.5. LGV and HGV traffic has been assigned along all links comprising the route between the SRN and element of the DCO Proposed Development. Network diagrams have been prepared (**Annex B**) which present the assignment of traffic on a daily basis and for the AM and PM peak hours.

### **DAILY TRAFFIC PROFILE**

- 7.5.6. To maximise productivity within core working hours Monday-Friday (0800-1800) and Saturday (0800-1300), the Construction Contractor(s) will require a period of up to one hour before and up to one hour after core working hours for the start-up and close-down of activities. This will include HGV and LGV traffic for deliveries, movement to place of work, unloading, maintenance and general preparation works.
- 7.5.7. For HGV traffic it is assumed that HGV traffic would arrive across the day; having a flat distribution between 0700 and 1900 (0700 and 1400 on Saturdays). This assumption is based on the Applicant's experience on working on similar projects.

- 7.5.8. Workers would primarily travel prior to, and after, the network peak hours. This is again based on the Applicant's engineering team's experience on working on similar projects.
- 7.5.9. They have estimated that around 60% of all LGV movements would take place before 0800-0900 and after 1700-1800. However, to add to the robustness of the assessment, it has been assumed that 45% of movements would take place before and after these hours, respectively.
- 7.5.10. In addition to worker travel, other LGVs would require access to the site steadily throughout the day. It has therefore been assumed during the interpeak period (0900-1700) that the movements of LGVs would be consistent in each hour at any given location.
- 7.5.11. The ~~daily~~ Monday to Friday traffic profile is presented in **Annex H** of this TA. The traffic profile for Saturday has not been included however will follow a similar pattern of vehicle arrivals in the one hour start-up and close-down periods as outlined above.

## 8. JUNCTION IMPACT ASSESSMENT

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- 8.1.1. This section provides an overview of the assessment undertaken to determine the likely impact of DCO Proposed Development on construction traffic along links. Impacts are only considered along construction traffic routes, which comprise links on the LRN only.
- 8.1.2. In meetings with the relevant authorities in Wales and England as well as the **Appendix 1.1 Scoping Report (Volume III)** and **PEIR (Document Reference D.0.9.17)**, the project team advised that the impacts on the SRN would be scoped out of the assessment.
- 8.1.3. A Scoping Note (**Annex A**) was submitted to the LHAs. As part of this scoping exercise it was agreed that junction modelling would be required where two-way movements exceeded 30. Trips in either of the peak hours (0800-0900 and 1700-1800) respectively. Consequently, each junction has been through a sifting exercise to determine whether they would meet the criteria for junction modelling.

### SCENARIO

- 8.1.4. To ensure a reasonable worst-case assessment, and consistency with the ES Chapter, the anticipated Project Peak Month (August 2024) has been used as the basis for the assessment of the impact on each junction. As set out in **Section 7.3**, an assessment considering a daily traffic profile is undertaken using weekday construction traffic flows which represent a robust worst-case scenario. Some elements of the DCO Proposed Development would not be under construction during the Project Peak Month. In order to ensure that a reasonable worst-case impact is considered in these locations, the assessment has applied the peak volume of construction traffic associated with that location.
- 8.1.5. In reality, this would not occur as they are programmed to take place outside of August 2024. These locations are as follows:
- AGI CTR 2 – Stanlow AGI (Peak Month: January 2025);
  - AGI CTR 3a and 3b – Northop Hall [AGI](#) (Peak Month: March 2025);
  - BVS CTR 4 – Cornist Lane [BVS](#) (Peak Month: December 2024);
  - BVS CTR 5 – Pentre Halkyn [BVS](#) (Peak Month: December 2024); and
  - BVS CTR 6 – Babel [BVS](#) (Peak Month: December 2024).
- 8.1.6. In addition, peak volume of the construction traffic flows associated with Ince AGI have been assigned to both Pool Lane and Ince Lane to ensure a robust assessment. In reality, the construction traffic will travel between Ince AGI and the LRN using one of the two routes, not both to peak volumes.
- 8.1.7. The purpose of the junction sifting exercise is to identify those links subject to 30 or more two-way trips during either of the peak hours. **Annex J** presents the

total number of two-way trips by HGVs and LGVs on each link that forms part of a construction traffic routes.

### **SENSITIVITY TEST**

- 8.1.8. For additional robustness, a scenario has been considered in which the percentage of construction traffic during the peak hours is double that presented in **Annex J. Table 6** presents the outcomes of the junction sifting exercise.

**Table 6 - Development Trips at Key LRN Junctions**

JUNCTION	LOCATION (LAT/LONG)	TYPE	PROJECT PEAK MONTH (AUGUST 2024)						SENSITIVITY TEST					
			AM PEAK HOUR (0800-0900)			PM PEAK HOUR (1700-1800)			AM PEAK HOUR (0800-0900)			PM PEAK HOUR (1700-1800)		
			ARR	DEP	TOT	ARR	DEP	TOT	ARR	DEP	TOT	ARR	DEP	TOT
<b>A5117/ Ince Lane</b>	53.268713, -2.8069183	Signal	10	10	20	10	10	20	20	20	40	20	20	40
Ince Lane/ Ash Road	53.269929, -2.8077310	Priority T-Junction	2	2	4	2	2	4	4	4	8	4	4	8
A5117/ Pool lane/ B5132 Cryers lane	53.268325, -2.8238994	Signal	9	9	18	9	9	18	18	18	36	18	18	36
A5117/ Kinsey Road	53.261359, -2.8791395	Signal	8	8	16	8	8	16	16	16	32	16	16	32
A5117/ Little Stanney lane	53.260762, -2.8803197	Priority T-Junction	8	8	16	8	8	16	16	16	32	16	16	32
A5117/ Rake Lane	53°15'35"N, 002°52'59"W	Priority T-Junction	6	6	12	6	6	12	12	12	24	12	12	24
Old Farm Road/ A548 Sealand Road	53.217154, -2.9995331	4-Arm Roundabout	6	6	12	6	6	12	12	12	24	12	12	24
Deeside Lane/ Sealand Road	53.210601, -2.9671106	Priority T-Junction	6	6	12	6	6	12	12	12	24	12	12	24
B5125/ A5104	53.169048, -2.9869455	4-Arm Roundabout	<u>106</u>	<u>106</u>	<u>2042</u>	<u>106</u>	<u>106</u>	<u>2042</u>	<u>2042</u>	<u>2042</u>	<u>4024</u>	<u>2042</u>	<u>2042</u>	<u>4024</u>
<b>B5125/ Manor Lane</b>	53.174380, -3.0013382	3-Arm Roundabout	<u>106</u>	<u>106</u>	<u>2042</u>	<u>106</u>	<u>106</u>	<u>2042</u>	<u>2042</u>	<u>2042</u>	<u>4024</u>	<u>2042</u>	<u>2042</u>	<u>4024</u>
<b>B5129/ Manor Lane</b>	53.184796, -2.9865324	4-Arm Roundabout	<u>106</u>	<u>106</u>	<u>2042</u>	<u>106</u>	<u>106</u>	<u>2042</u>	<u>2042</u>	<u>2042</u>	<u>4024</u>	<u>2042</u>	<u>2042</u>	<u>4024</u>
<b>B5127/ B5125</b>	53.192391, -3.0546150	Priority T-Junction	<u>03</u>	<u>03</u>	<u>06</u>	<u>03</u>	<u>03</u>	<u>06</u>	<u>06</u>	<u>06</u>	<u>042</u>	<u>06</u>	<u>06</u>	<u>042</u>
<b>Brookside/ B5125</b>	53.202492, -3.0986327	Priority T-Junction	<u>107</u>	<u>09</u>	<u>107</u>	<u>107</u>	<u>09</u>	<u>107</u>	<u>207</u>	<u>70</u>	<u>1420</u>	<u>720</u>	<u>70</u>	<u>1420</u>
<b>B5126/ B5125</b>	53.207247, -3.1193072	Priority T-Junction	<u>09</u>	<u>107</u>	<u>107</u>	<u>09</u>	<u>107</u>	<u>107</u>	<u>07</u>	<u>720</u>	<u>1420</u>	<u>70</u>	<u>720</u>	<u>1420</u>
<b>B5126/ A5119</b>	53.206527, -3.1317164	Signal	<u>09</u>	<u>107</u>	<u>107</u>	<u>09</u>	<u>107</u>	<u>107</u>	<u>07</u>	<u>207</u>	<u>2044</u>	<u>07</u>	<u>207</u>	<u>2044</u>

JUNCTION	LOCATION (LAT/LONG)	TYPE	PROJECT PEAK MONTH (AUGUST 2024)						SENSITIVITY TEST					
			AM PEAK HOUR (0800-0900)			PM PEAK HOUR (1700-1800)			AM PEAK HOUR (0800-0900)			PM PEAK HOUR (1700-1800)		
			ARR	DEP	TOT	ARR	DEP	TOT	ARR	DEP	TOT	ARR	DEP	TOT
<b>B5125/ Upper Aston Hall Lane</b>	53.188727, -3.0411288	Priority T-Junction	3	3	6	3	3	6	6	6	12	6	6	12
<b>A5119/ Starkey lane</b>	53.217071, -3.1353602	Priority T-Junction	2	2	4	2	2	4	4	4	8	4	4	8
<b>J32A Offslip/ B5123</b>	53.243184, -3.1928641	Priority T-Junction	3	3	6	3	3	6	6	6	12	6	6	12
<b>B5123/ Village Road</b>	53.241084, -3.1965441	Priority T-Junction	3	3	6	3	3	6	6	6	12	6	6	12
<b>Village Road/ Ffordd Groes</b>	53.242054, -3.1984538	Priority T-Junction	3	3	6	3	3	6	6	6	12	6	6	12
<b>Ffordd Groes/ B5121</b>	53.248872, -3.2407790	Priority Crossroad	3	3	6	3	3	6	6	6	12	6	6	12
<b>B5122/ Unnamed Road 1</b>	53.264632, -3.3118495	Priority Crossroad	3	3	6	3	3	6	6	6	12	6	6	12

Note: Development trips experienced at junctions above the 30 two-way movement threshold have been coloured pink.

## 8.2. JUNCTION SIFTING RESULTS

- 8.2.1. No junction is forecast to experience more than 30 two-way trips during the peak months for the core scenario (August 2024 Project Peak Month).
- 8.2.2. In the sensitivity test, ~~seven~~ ~~three~~ junctions are forecast to incur 30 or more trips in the AM and PM peak periods:
- A5117/ Ince Lane;
  - A5117/ Pool Lane/ B5132 Cryers Lane;
  - A5117/ Kinsey Road; ~~and~~
  - A5117/ Little Stanney Lane;
  - B5125/ A5104;
  - B5125/ Manor Lane; and
  - B5129/ Manor Lane.
- 8.2.3. At junctions A5117/ Kinsey Road and A5117/ Little Stanney Lane, 32 two-way movements are forecast; marginally above the 30 two-way trip threshold agreed with the LHAs. 40 two-way movements at junction A5117/ Ince Lane and 36 two-way movements at A5117/ Pool Lane/ B5132 Cryers Lane are forecast based on an overestimated construction traffic generation by Ince AGI. This is to ensure that traffic impact on both routes of Ince AGI have been assessed. It should be noted that the construction traffic of Ince AGI would follow one of the two routes on the LRN, therefore, the forecast two-way movement at junctions A5117/ Ince Lane and A5117/ Pool Lane/ B5132 Cryers Lane would be less than the results presented in the sensitivity test.
- ~~8.2.3.~~8.2.4. At junctions B5125/ A5104, B5125/ Manor Lane and B5129/ Manor Lane, 40 two-way movements are forecast based on an overestimated construction traffic generation by ~~Sandycroft~~River Dee and Northop Hall Centralised Compounds. ~~‡~~The forecasted two-way movements for the junctions would be less than the results presented in the sensitivity test.
- ~~8.2.4.~~8.2.5. It should also be noted that the scenario assumes that 45% of LGV traffic would arrive prior to the AM Peak and depart after the PM peak. The Applicant's engineering team have advised that typically around 60% of vehicular arrivals and departures would take place prior to the AM peak and following the PM peak.
- ~~8.2.5.~~8.2.6. Furthermore, the traffic assignment assumes that all LGV traffic would follow these routes. In practice some LGV traffic may use alternative routes depending on their location of origin. Consequently, impacts in reality may be less than assessed.
- ~~8.2.6.~~8.2.7. It is considered that these assumptions add further robustness to the findings of the assessment and provide confidence in the ability of the local highway

network to accommodate temporary increases in construction traffic associated with the DCO Proposed Development.

~~8.2.7-8.2.8.~~ On the basis of the junction sifting exercise and thresholds agreed with LHAs through the Scoping Note (**Annex A**), it has been determined that there is no need for junction modelling to be carried out at any of the junctions along prescribed construction traffic routes for the DCO Proposed Development.

### 8.3. QUALITATIVE ASSESSMENT

- 8.3.1. Notwithstanding the findings of the sifting exercise, the impact of construction traffic, and existing road conditions has been considered through consultation responses, site audits and liaison with LHAs.
- 8.3.2. There are locations where existing conditions may mean that it is appropriate to control, or restrict the movements of DCO Proposed Development construction traffic at certain times.
- 8.3.3. These junctions are listed below in **Table 7**, along with a commentary on the rationale for the proposed restriction.
- 8.3.4. It should be noted that all restrictions relate to HGV traffic. As discussed earlier and presented in **Annex H** of this TA, LGV volumes, particularly associated with worker traffic, would be concentrated before and after the AM and PM peak hours respectively.
- 8.3.5. These matters are considered in **Appendix 17.3 Personal Injury Accident Summary (Volume III)**, **OCTMP (Document Reference: D.6.5.3)**, and **Chapter 17 Traffic and Transport (Volume II)** respectively.
- 8.3.6. Further explanation on the types of mitigation is provided in the **Section 11** of this TA.

**Table 7 - Qualitative Assessment Outcomes**

Junction	Proposed Timing Restriction	Rationale
<b>DEESIDE LANE/ SEALAND ROAD</b>	No HGV Egress from Wood Farm Compound 0800-0900 or 1700-1800	<ul style="list-style-type: none"> <li>• High volume of traffic (approx. 1500 vehs/hr) in each of the peak hours at the Deeside Lane Junction.</li> <li>• Residential/employment access on single track lane with proposed one-way system</li> </ul>
<b>B5127/ B5125</b>	No HGV arrivals to Shotton Lane	<ul style="list-style-type: none"> <li>• <del>Observed queuing arising from right turning traffic at the junction leading to queuing back onto the</del></li> </ul>



Junction	Proposed Timing Restriction	Rationale
	<del>compound 0800-0900 or 1700-1800.</del>	<del>A494 roundabout, creating significant congestion.</del>
<b>BROOKSIDE/ B5125</b>	No HGV arrivals at Northop Hall AGI Compounds 0800-0900 or 1700-1800.	<ul style="list-style-type: none"> <li>Residential road with on street parking</li> <li>Gradient at junction with B5125 could make HGV egress difficult and lead to queuing/ inconvenience for residents.</li> </ul>
<b>B5125/ UPPER ASTON HALL LANE</b>	No HGV movements (0800-0900 and 1500-1600)	<ul style="list-style-type: none"> <li>Avoid Hawarden High School drop off/ collection times</li> </ul>
<b>A5119/ STARKEY LANE</b>	No HGV movements from 0800-0900 or 1700-1800	<ul style="list-style-type: none"> <li>High volume of traffic (1100 vehs/hr) in each of the peak hours at the A5119/ Starkey Lane Junction</li> </ul>

8.3.7. As **Table 7** shows, a total of ~~five~~four locations have been identified. It should be noted that timing restrictions are also proposed on adjacent links to mitigate environmental effects or in response to other identified risks. Where this is the case, this is discussed in the Construction Traffic Risk Register contained within the **OCTMP (Document Reference: 6.5.3)**.

8.3.8. Note that the junction identified in the sensitivity test as marginally exceeding 30 vehicles per hour have not been included within **Table 7**. All junctions are located on the Strategic Road Network and provide high vehicular capacity and access to existing leisure and employment sites. The additional traffic that could hypothetically arise from the sensitivity test (essentially 2 additional vehicles per minute) will not have a material impact on the operation of the junction.

#### **DEESIDE LANE/ SEALAND ROAD**

8.3.9. Deeside Lane serves a number of residential properties and commercial interests around Wood Farm. The **OCTMP (Document Reference D.6.5.3)** identifies a proposed one-way system serving the Wood Farm compound to overcome constraints on Deeside Lane. Traffic volumes on A548 Sealand Road are high during the peak hours. HGVs turning movements from Deeside Lane at this time would increase delays and queuing at the junction with the A548 Sealand Road. It is therefore proposed to restrict the egress of HGVs from the Wood Farm site during the peak hours.

### **B5127/ B5125**

8.3.10. This junction was identified as being sensitive to increases in HGV and LGV traffic through consultation responses and site audits. In particular, it was observed that a queue of right turning traffic develops from the B5127 turning into the B5125. This queue then extends into the circulatory carriageway of the adjacent A494 junction roundabout, creating delay and queuing on other arms of the junction.

8.3.11. ~~It is therefore proposed to restrict HGV movements associated with the Shotton Lane compound at peak times to avoid contributing the issue experienced in this location. It is therefore proposed to restrict HGV movements accessing the DCO proposed Development at this location at peak times to avoid contributing the issue experienced in this location.~~

### **BROOKSIDE/ B5125**

8.3.12. Brookside is a residential road, with a notable incline towards its junction with the B5125. The **OCTMP (Document Reference D.6.5.3)** identifies a proposed one-way system from A55 J33A in order to overcome constraints through Northop Hall AGI and along Brookside (e.g. on-street parking). HGVs egressing the junction during peak times would contribute to delays at this junction and it is therefore proposed to restrict inbound movements of HGVs to the Northop Hall AGI compounds during these times.

### **B5125/ UPPER ASTON HALL LANE**

8.3.13. At the B5125/ Upper Aston Hall Lane junction, parking, turning movements, and pedestrian activity at the junction were observed to lead to capacity issues around the start and end of the school day. The ES has also identified the need to introduce a restriction on the B5125 to minimise the exposure of sensitive user groups (i.e. schoolchildren) to increases in HGV traffic to minimise environmental effects. It is therefore proposed to restrict access for HGVs to the Aston Hall during these times.

### **A5119/ STARKEY LANE**

8.3.14. The A5119 / Starkey Lane junction is a priority junction with right turn ghost island. Traffic flows on the A5119 are high during the AM and PM peak hours. This volume of opposing traffic would increase the delay associated with large, slow moving HGVs making turning movements in and out of Starkey Lane. It is therefore proposed to restrict access for HGVs during these times.

## **8.4. SUMMARY**

8.4.1. No junction is forecast to experience more than 30 two-way trips during the peak months for the core scenario (August 2024 Project Peak Month).

- 8.4.2. Based on this threshold – agreed with LHAs via the Scoping Note (**Annex A**) – there is no requirement to model any junction located along the prescribed construction traffic routes for the DCO Proposed Development.
- 8.4.3. Notwithstanding that, the TA has considered, qualitatively, the likely impact of construction traffic at key junctions located along prescribed construction traffic routes. This assessment considers observed road conditions in these locations, discussions with LHAs, and consultation responses received. Having done so, five locations have been identified where it would be appropriate to introduce timing restrictions to minimise the impact of construction traffic on the safe operation of these junctions.
- 8.4.4. The details, timings, and rationale for the controls are summarised in **Table 7**.

## 9. HIGHWAY SAFETY

- 9.1.1. In considering highway safety a methodology has been adopted in which Personal Injury Accident (PIA) clusters are identified on construction traffic routes based upon the density and severity (clustering) of reported collisions within the most recent 60 months for which data is available.
- 9.1.2. All effects on Highway Safety arising from the DCO Proposed Development would be temporary. Rather than consider only those locations where pre-mitigation effects are calculated to be significant, the adopted method considers PIA history on all of the proposed Construction Traffic routes.
- 9.1.3. The likely impacts of construction traffic are then considered on the basis of the location specific contributory factors and a professional judgement of the likelihood of environmental effects arising from the proposed increases in construction traffic.
- 9.1.4. This process, and its findings, are set out in **Appendix 17.3 PIA Summary (Volume III)**.
- 9.1.5. However, for ease of reference a summary of the findings of the PIA assessment carried out for **Chapter 17 Traffic and Transport (Volume II)** is presented below.
- 9.1.6. **Table 8** summarises the total number of PIAs – by severity - on construction traffic routes for the DCO Proposed Development.

**Table 8 - Personal Injury Accidents Summary**

Slight	Serious	Fatal	Total
63	10	2	75

- 9.1.7. All PIAs located along construction traffic routes within the Zol are presented in **Appendix 17.3 Personal Injury Accident Summary (Volume III)** and **Figure 17-3 Personal Injury Accident Locations (Volume IV)**
- 9.1.8. A total of four clusters have been identified on proposed construction traffic routes within the Traffic and Transport Zone of Influence, as follows:
- **Cluster Reference 1** – A5117 1/ Rake Lane junction.  
Construction Traffic Route(s): CTR BVS 1, CTR CC 3.
  - **Cluster Reference 2** – Rake Lane/Little Rake Lane Junction.  
Construction Traffic Route(s): CTR BVS 1, CTR CC 3.
  - **Cluster Reference 3** – A540 Parkgate Road.  
Construction Traffic Route(s): CTR BVS 2.
  - **Cluster Reference 4** – A540 Parkgate Road Roundabout.  
Construction Traffic Route(s): CTR BVS 2.

### **CLUSTER REFERENCE 1 – A5117 1/RAKE LANE JUNCTION**

- 9.1.9. There was a cluster of four incidents around the A5117 1/Rake Lane junction over the study period. All reported PIAs in this location were slight in severity and occurred during daylight hours. 50% of the reported PIAs in this time involved motorcyclists.

### **CLUSTER REFERENCE 2 - RAKE LANE/LITTLE RAKE LANE JUNCTION**

- 9.1.10. There was a cluster of four incidents around the Rake Lane/Little Rake Lane junction over the last 60 months. Three of the incidents had a severity of slight, and one of them was serious (Reference: 2019070230436).

### **CLUSTER REFERENCE 3 – A540 PARKGATE ROAD/ LONG LANE JUNCTION**

- 9.1.11. Of the seven PIAs recorded during this period, six of the incidents were slight in severity. Regrettably, one fatal PIA occurred during this period. Five of the incidents happened during daylight, and the road conditions were wet or damp on one occasion (Reference: 2020070117327). In all the slight incidents one of the vehicles was making a manoeuvre, all of these incidents were associated with the Long Lane junction and involved either turning or slowing down or moving off.
- 9.1.12. The Fatal PIA (Reference: 2020070712723) occurred during darkness and involved a head-on collision between a motorcyclist and an overtaking vehicle.

### **CLUSTER REFERENCE 4 – A540 PARKGATE ROUNDABOUT**

- 9.1.13. There was a cluster of six incidents around Parkgate Roundabout over the last 60 months. Three of these incidents were on Parkgate Road on the junction approach (References: 2019070673636; 2020070061931 and 2021070018037), and three were on the roundabout near the off slip from the A494 (References: 2018070075790; 2018070107650 and 2018070155784).

### **SUMMARY**

- 9.1.14. All PIA within the ZoI - located on prescribed construction traffic routes – have been assessed. Where clusters were identified, location specific contributory factors have been considered. Where it is considered that increases in construction traffic would have an impact on highway safety, mitigation is proposed.
- 9.1.15. Further discussion around mitigation identified through the PIA assessment is contained within **Appendix 17.3 PIA Summary (Volume III)** and the **OCTMP (Document Reference: D.6.5.3)**.

## 10. MITIGATION

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10.1.1. A range of mitigation is proposed in response to the Traffic and Transport assessment. They may be categorised as follows:

- Embedded Mitigation;
- Secondary (Environmental) Mitigation;
- Secondary (Risk Based) Mitigation; and
- Secondary (Junction Impact) Mitigation.

10.1.2. A summary of each type of mitigation is summarised below. All mitigation proposed associated with the Traffic and Transport Assessment is presented within the **OCTMP (Document Reference: D.6.5.3)**.

### 10.2. EMBEDDED MITIGATION

10.2.1. Embedded mitigation has been provided for the DCO Proposed Development by establishing construction traffic routes to the DCO works locations which are suitable to accommodate HGVs and LGVs. The DCO Proposed Development has also sought to maximise use of existing access locations.

10.2.2. Further description of the selection of construction traffic routes is presented in the **OCTMP (Document Reference: D.6.5.3)**.

### 10.3. SECONDARY (ENVIRONMENTAL) MITIGATION

10.3.1. Environmental mitigation relates to the outcomes of **Chapter 17 Traffic and Transport (Volume II)**. Mitigation measures proposed seek to address locations where significant effects were calculated arising from increases in construction traffic arising from the DCO Proposed Development. These measures include:

- Traffic management on highway links;
- Temporary speed reductions;
- Implementation of a Travel Plan; and
- Timing restrictions for construction traffic movements on highway links.

### 10.4. SECONDARY (RISK BASED) MITIGATION

10.4.1. Risk based mitigation reflects the outcomes of site audits and a desktop review of each construction traffic route. Risk based mitigation considers the geometry of highway links, visibility, the speed and composition of traffic, and the swept paths of construction vehicles on each highway link.

10.4.2. Measures categorised as 'Risk Based' include:

- Traffic management on highway links;

- Temporary speed reductions;
- Timing restrictions for construction traffic movements on highway links;
- Safety measures for vulnerable road users on HGVs; and
- Temporary closure and diversions of PRoW

## 10.5. SECONDARY (JUNCTION IMPACT) MITIGATION

- 10.5.1. Junction Impact mitigation comprises the measures identified to ensure that the DCO Proposed Development would not have an unacceptable impact on the safe operation of junctions located on construction traffic routes; in locations where congestion currently occurs for example.
- 10.5.2. As discussed in the previous sections (s) a qualitative assessment of the impacts at junctions has been applied. The number of turning movements at key junctions during each of the peak hours has been assessed and presented in **Table 6**.
- 10.5.3. No junction is forecast to experience more than 30 two-way trips during the peak months for the core scenario (August 2024 Project Peak Month).
- 10.5.4. Notwithstanding that, mitigation was proposed to mitigate the impacts of DCO Proposed Development construction traffic at sensitive junctions within the Zol.
- 10.5.5. These are locations that have been identified in preparation of this TA, through site visit observations, and from consultation with the LHAs. In response to these sensitivities, timing restriction have been proposed which are presented in **Table 7**.

## 10.6. SUMMARY

- 10.6.1. Mitigation associated with the TA is primarily the 'Junction Impact' mitigation discussed above. In addition, a range of mitigation has been identified in development of the DCO Proposed Development to address the impacts arising from the construction phase.
- 10.6.2. This has been achieved through site and desktop audit of construction traffic routes, discussion with LHAs, and the environmental assessment of traffic and transport impacts.
- 10.6.3. All mitigation associated with the DCO Proposed Development relating to traffic and transport is contained within the **OCTMP (Document Reference: 6.5.3)**.

## 11. CONCLUSIONS AND RECOMMENDATIONS

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- 11.1.1. This Transport Assessment (TA) forms part of an application by the Applicant to the Secretary of State (SoS) for a Development Consent Order (DCO) for the HyNet Carbon Dioxide Pipeline (The DCO Proposed Development).
- 11.1.2. The TA has considered the impact of construction, operation and maintenance traffic associated with the DCO Proposed Development on the operation of the transport network within the Traffic and Transport Zone of Influence (Zoi).
- 11.1.3. As part of this assessment, proposed construction traffic routes, temporary Access Locations, and temporary Access Tracks have been identified to facilitate construction traffic associated with the various elements of the DCO Proposed Development.
- 11.1.4. **The Access and Rights of Way Plans Regulation 5(2)(k) (Document Reference D.2.5)** should be referenced as the definitive record for the proposed access arrangements associated with the DCO Proposed Development.
- 11.1.5. These construction traffic routes, temporary Access Locations and Access Tracks have been identified with the aim of providing safe, efficient and adequate access to facilitate the construction of the various elements of the DCO Proposed Development.
- 11.1.6. The final proposed construction traffic routes **Figure 17.4 Construction Traffic Routes (Volume IV)** reflect close engagement and consultation with the Flintshire County Council (FCC) and Cheshire West and Chester Council (CWCC).
- 11.1.7. The design, location, and traffic management associated with Access Locations **Figure 17.5 Access Locations (Volume IV)** reflect appropriate guidance, such as TAN 18 (**Ref. 27**) and Manual for Streets (MfS) (**Ref. 24**), and the outcome of liaison with each LHA. The approach to access for both permanent and temporary Access Locations is documented in the Access Principles Note which is presented in the **Outline Construction Traffic Management Plan Annex D (Document Reference: D.6.5.3)**.
- 11.1.8. On the basis of this qualitative assessment, some locations have been identified where it is considered appropriate to introduce a restriction on HGV movements at peak hours; for example in locations where congestion and queuing is experienced.
- 11.1.9. The mitigation measures are set out in this TA and in the **OCTMP (Document 6.5.3)**. For capacity based mitigation, movements at the locations listed above will be controlled to reduce the effect on the operation of junctions during peak network hours.



- 11.1.10. The existing road safety conditions were examined for links and junctions within along proposed construction traffic routes. This assessment (**Appendix 17.3 Personal Injury Accident Summary (Volume III)**) identified clusters along proposed construction traffic routes. Clusters are defined as locations where four or more Personal Injury Accidents (PIAs) have been reported within the most recent 60 months for which data is available.
- 11.1.11. In these locations, road and weather conditions, severity, likely contributory factors, and the roads users involved were considered to determine the impact of increases in construction traffic associated with the DCO Proposed Development. Where it has been assessed that construction traffic would have an impact on highways safety, location-specific mitigation will be implemented.
- 11.1.12. The operation and maintenance requirements for the DCO Proposed Development have been discussed in the TA. This considers the type and volume of operation and maintenance traffic and permanent access requirements to DCO Proposed Development infrastructure.
- 11.1.13. An **Interim Worker Travel Plan (Appendix 17.14, Volume III)** has been produced to demonstrate the commitment to sustainable transport by the Applicant and to indicate the measures that could be undertaken to meet sustainable transport ambitions and reduce the number of single occupancy worker trips to the DCO Proposed Development and minimise the impacts along proposed construction traffic routes.

## **11.2. CONCLUSIONS**

- 11.2.1. This TA has established the baseline transport conditions within the Zone of Influence and considered the effect of the DCO Proposed Development on the operation of the transport network.
- 11.2.2. Following this assessment, it is considered that, with the implementation of mitigation measures outlined in this TA, and detailed within the Traffic and Transport ES Chapter and OCTMP, the construction traffic associated with the DCO Proposed Development could be accommodated without compromising the safe and effective operation of the transport network within the Zol.

## 12.

## REFERENCES

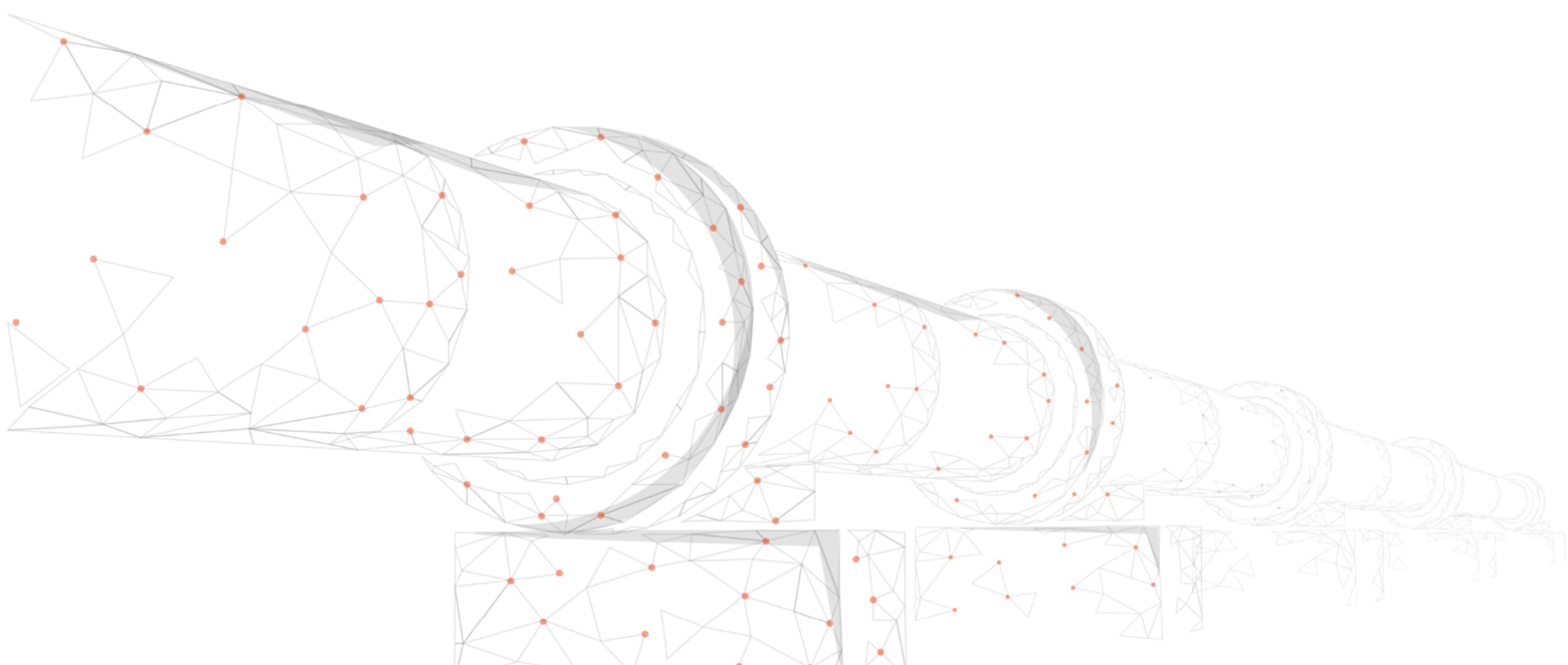
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- **Ref. 1** - Google Maps Service (August 2022) <https://www.google.co.uk/maps>.
- **Ref. 2** - Google Earth Pro (August 2022) <https://earth.google.com/web/>.
- **Ref. 3** - CWCC Council Interactive Mapping Service (August 2022) <https://maps.cheshirewestandchester.gov.uk/cwac/webmapping>.
- **Ref. 4** - FCC Council 'Spectrum Spatial' Mapping Service (August 2022) <https://fccmapping.flintshire.gov.uk/connect/analyst/mobile>.
- **Ref. 5** - DfT 'Countpoint' Road Traffic Statistics Mapping Service (July 2022) <https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints>.
- **Ref. 6** - Sustrans' National Cycle Network Map (July 2022) <https://www.sustrans.org.uk/national-cycle-network>.
- **Ref. 7** - Welsh Government (NMWTRA) Network Map (August 2022) <https://traffic.wales/welsh-government-strategic-road-network-map>.
- **Ref. 8** - National Highways (Highway's England) website August 2022) <https://nationalhighways.co.uk/>.
- **Ref. 9** - 'CrashMap' Personal Injury Accident Online Service (August 2022) <https://www.crashmap.co.uk/>.
- **Ref. 10** - Department for Transport (2020) 'TAG Unit M1.2' – Data Sources and Surveys.
- **Ref. 11** - National Highways Chief Analysts Division Guidance on traffic data collection (September 2021).
- **Ref. 12** - Trip End Model Presentation Programme (TEMPro) v7.2 (8th August 2022) <https://www.gov.uk/government/publications/tempo-downloads>.
- **Ref. 13** - Department for Transport (DfT) Guide to Lorry Types and Weights (July 2013) <https://www.gov.uk/government/publications/guide-to-lorry-types-and-weights>.
- **Ref. 14** - Welsh Government 'Planning Policy Wales' Edition 11 (2021) [https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11\\_0.pdf](https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf).
- **Ref. 15** - Welsh Government *The National Development Framework: Future Wales – The National Plan 2040* (2021) <https://gov.wales/future-wales-national-plan-2040>.
- **Ref. 16** - Welsh Government *The Wales Transport Strategy 2021* (2021) <https://gov.wales/llwybr-newydd-wales-transport-strategy-2021>.
- **Ref. 17** - Conway Borough Council, Denbighshire County Council, Flintshire County Council, Gwynedd Council, Anglesey County Council, and Wrexham

Borough Council *North Wales Joint Local Transport Plan* (2015)  
<https://www.flintshire.gov.uk/en/PDFFiles/Planning/LDP-evidence-base/Local/North-Wales-Joint-Local-Transport-Plan-2015.pdf>.

- **Ref. 18** - Flintshire County Council *Local Development Plan* (2015-2030)  
<https://www.flintshire.gov.uk/en/Resident/Planning/Flintshire-Local-Development-Plan.aspx>.
- **Ref. 19** - Flintshire County Council *Unitary Development Plan* 2000-2015 (Superseded)  
<https://www.flintshire.gov.uk/en/Resident/Planning/Development-plans--policies.aspx>.
- **Ref. 20** - Ministry of Housing, Communities, and Local Government 'The National Planning Policy Framework' (NPPF) (2021)  
<https://www.gov.uk/government/publications/national-planning-policy-framework—2>.
- **Ref. 21** - Cheshire West and Chester Council *Local Plan Part 1: Strategic Policies* (2015)  
[https://consult.cheshirewestandchester.gov.uk/portal/cwc\\_ldf/adopted\\_cwac\\_lp/lp\\_1\\_adopted?tab=files](https://consult.cheshirewestandchester.gov.uk/portal/cwc_ldf/adopted_cwac_lp/lp_1_adopted?tab=files).
- **Ref. 22** - Cheshire West and Chester Council *Local Plan Part 2: Land Allocation and Detailed Policies* (2018).  
[https://consult.cheshirewestandchester.gov.uk/portal/cwc\\_ldf/cw\\_lp\\_part\\_two/](https://consult.cheshirewestandchester.gov.uk/portal/cwc_ldf/cw_lp_part_two/).
- **Ref. 23** - Cheshire West and Chester Council *Local Transport Plan* (2011).
- **Ref. 24** - Department for Transport *Manual for Streets* (2007).
- **Ref. 25** - Chartered Institute for Highways and Transportation *Manual for Streets 2* (2010).
- **Ref 26 - National Highways** *Design Manual for Roads and Bridges*.
- **Ref. 27** - Welsh Government *Technical Advice Note (TAN) 18* (2007).

# Annexures



# Annex A

## SCOPING NOTE



# Hynet North West DCO – Transport Assessment Scoping Note

<b>DATE:</b>	24 June 2022	<b>CONFIDENTIALITY:</b>	Confidential
<b>SUBJECT:</b>	Hynet North West Development Consent Order - Transport Assessment Scoping Note		
<b>PROJECT:</b>	70070865	<b>AUTHOR:</b>	LP
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## INTRODUCTION

### Hynet North West

The DCO Proposed Development will form part of HyNet North West which is a hydrogen supply and Carbon Capture and Storage (CCS) project. The goal of the Project is to reduce carbon dioxide emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. The Project is based on the production of low carbon hydrogen from natural gas. It includes the development of new hydrogen production plants, distribution pipelines, and the creation of CCS infrastructure. CCS prevents CO<sub>2</sub> entering the atmosphere by capturing it, compressing it, and transporting it for safe, permanent storage.

Hydrogen will be sent via a new distribution network to a range of industrial sites, for injection as a blend into the existing natural gas network and for use as a transport fuel. Resulting CO<sub>2</sub> would be captured and, together with CO<sub>2</sub> from local industry, which is already available, sent by pipeline for storage offshore in the nearby Liverpool Bay gas fields.

The Application for the DCO Proposed Development will seek consent for the construction and operation of the following components which form part of the CCS infrastructure:

- Ince Above Ground Installation (AGI) to Stanlow AGI Pipeline – a section of underground onshore pipeline to transport CO<sub>2</sub>.
- Stanlow AGI to Flint AGI Pipeline – a section of underground onshore pipeline to transport CO<sub>2</sub>.
- Flint AGI to Flint Connection - a section of underground onshore pipeline to transport CO<sub>2</sub>.
- Ince AGI, Stanlow AGI, Northop Hall AGI, and Flint AGI.
- Seven Block Valve Stations (BVSs) located along:
  - The proposed Stanlow AGI to Flint AGI Pipeline (three in total).
  - The existing Flint Connection to Point of Ayr (PoA) Terminal Pipeline (four in total).
- Other above ground infrastructure, including Cathodic Protection (CP) transformer rectifier cabinets and pipeline marker posts.
- Ancillary works integral to the construction of the Carbon Dioxide Pipeline, including Construction Compounds and temporary access tracks.

### Transport Assessment

In accordance with Cheshire West & Chester (CW&C) and Flintshire County Council's (FCC's) response to the ES Scoping Report and subsequent discussions with CW&C officers, a Transport Assessment (TA) will be required to consider the impacts of the Proposed Development. This Scoping Note sets out WSP's proposed scope for the TA. In addition to the matters considered within the TA, the TA should be read and considered alongside the following documents which will form part of the Development Consent Order (DCO) submission:

- Outline Construction Traffic Management Plan



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- Interim Worker Travel Plan
- Traffic and Transport Environmental Statement (ES) Chapter

## Approach to Scoping and Engagement

This Scoping Note has been prepared based on best available design information at the time of writing.

We are grateful for the productive discussions we have held with CW&C and FCC colleagues to date and wish to continue a collaborative approach to the Traffic & Transport Assessment for the project. We will endeavour to share at the earliest opportunity, where we are able, up to date design and assessment information in preparation of the ES Chapter, Transport Assessment, and other documentation listed in this Scoping Note. We hope that this will minimise delay; allowing agreement of key matters at an early a stage of the process as possible. As this information is shared we are happy to respond to any specific questions and discuss via calls/email exchanges, and virtual and/or in-person meetings should CW&C and FCC wish to do so. In any case we propose that regular scheduled sessions be held up to the point of submission of the Draft DCO, held between both LHAs and WSP.

## TRAFFIC AND TRANSPORT IMPACTS

This section provides a brief overview of the traffic movements anticipated to occur during the construction phase of the Proposed Development. It should be noted that the construction traffic volumes report at this time are high level, and likely to change to reflect the specifics of each work site.

Construction activity for the Proposed Development will be focused around ‘Centralised compounds’. These are locations where materials will be delivered to and from, where workers will arrive on site, where plant and equipment will be stored, and where possible, the points at which access to the construction corridor will be taken.

A period of site mobilisation will be required where equipment and bulk civils will be delivered to the site to, for example, create temporary access tracks, erect lighting and CCTV, import and export excavated material, and deliver plant and equipment.

Once the site is established construction traffic movements will primarily focus on the movement of civils material and material associated with excavation and backfilling at Above Ground Installation (AGI) and Block Valve Station (BVS) locations, and the delivery and movement of pipeline sections. Where possible, pipeline sections will be moved along the pipeline corridor, and would not require the use of the Local Road Network (LRN). There will, however, be some locations where it will be necessary to travel along the LRN to deliver pipeline sections to deliver to work fronts; meaning pipeline sections would be transported from centralised compounds to access locations on the LRN.



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Peak construction traffic is expected to occur during the phase where the pipelining works and heavy civils movements at AGI and BVS overlap. This is currently anticipated to occur in Spring 2025 however this is subject to changes in the draft programme.

**Table 1** summarises the anticipated daily and hourly HGV volumes (one-way) for a 'Peak Month' across the overall programme, and for an average month during the peak year (12 month period) for comparison. It is anticipated that this peak would last for a period of around 2 months at each site. Actual volumes at each site will reflect the length of pipeline constructed from that locations, the extent to which pipeline sections can be delivered along the corridor without the use of the LRN, and the volumes of excavated / backfill material required in each location.

Work activity will take place over one 12 hour shift pattern (anticipated at this time to be 0700-1900. The profile of HGV movements will be broadly consistent across each hour of the day. The hourly volumes presented in Table 1 assume an even split of HGV traffic across this 12 hour period.

*Table 1: Indicative HGV Volumes*

Location	Daily HGVS (Peak Month)	Hourly HGVS (Peak Month)	Daily HGVs (Average Month in Peak Year)	Hourly HGVs (Average Month in Peak Year)
Centralised Compound	42	4	38	3
AGI/ BVS	6	1	5	1
Deliveries to LRN Access Points	25	2	18	2

Volumes of LGVs in each location are subject to further refinement and will be shared with CW&C and FCC at the earliest opportunity.

LGV movements will be comprised of smaller deliveries, staff movements, and other engineering/ environmental activity. Workers will travel to centralised compounds in advance of the shift start (between 0600-0700) and depart after 1900. A significant proportion of LGV numbers will relate to the workforce. It is therefore anticipated that the impacts during the traditional peak hours (0800-0900 and 1700-1800) will be limited.





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## PROPOSED SCOPE

### Transport Assessment

A TA will be prepared to consider the existing highways and transport infrastructure within the 'Zone of Influence' and to assess, in detail, the highways and transport movements associated with construction traffic that would be generated by the Proposed Development, and the effect these movements would have on transport infrastructure. The ZOI was defined in the Preliminary Environment Information Report (PEIR) and includes all parts of the Local Road Network (LRN) i.e Non-Trunk Road Network) and transport infrastructure impacted by the proposed development. The ZOI submitted as part of the PEIR is presented in **Appendix A**. This Figure also presents ATC locations across the ZOI undertaken in 2021. Since that time a second phase of ATC surveys were commissioned in March 2022. A second phase An updated ZOI will be presented in the TA.

As outlined in the ES Scoping chapter, no assessment will be undertaken for the operational and decommissioning phases of the proposed development, as the traffic impact is likely to be negligible.

This TA will include the identification of construction traffic access and routeing strategies, capacity assessment at local junctions (scope TBC), and a road safety review of links and junctions within the Traffic & Transport Zone of Influence (ZOI).

This assessment will be used to identify management and mitigation measures to be set out in the Outline Construction Traffic Management Plan (OCTMP) and informs the residual effects to be reported in the Traffic and Transport chapter in the ES. The TA will serve as an Appendix to the ES chapter.

The structure and content of the TA is proposed as follows:

#### 1 Introduction

The introduction will set out the required background, scope and methodology, as well as the document purpose.

#### 2 Proposed Development

This section will describe the Proposed Development with specific reference to Traffic and Transport impacts. In particular it will set out how the Proposed Development is expected to be phased across the construction programme, the nature and duration of construction works, and the types of vehicles associated with specific activities. This will also include reference to Abnormal Load (AIL) numbers and routing.

#### 3 Existing Conditions

This section will describe existing conditions for active travel, public transport and the highway network across the ZOI as defined in the ES scoping report and appended to this document (**Appendix A**). This will include a road safety section, which will review local accident records within the local area over the



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previous five years and identify of any trends. In particular it will include the identification of any PIA 'Clusters' and/or Fatal PIAs on proposed construction traffic routes. Given the timescales for submission, WSP will utilise alternative sources for accident data i.e. CrashMap.

The Strategic Road Network (SRN) and Local Road Network (LRN) within the study area will be described. Descriptions of LRN links impacted by the Proposed Development will be provided including the phases of construction that are proposed to utilise the link and the type of construction traffic i.e. HGV/LGV or LGV only.

Data relating to the baseline conditions i.e. link flow data will be presented. If required, baseline turning count data will be included within the appendices.

The TA will also outline the existing public transport services, specifically any bus routes that share proposed construction routes. Consideration will also be given to rail services within the study area, although there is not anticipated to be any disruption to rail services as a consequence of the construction of the Proposed Development.

Given the nature of the Proposed Development, and the restriction on access to site working areas on foot or by bicycle, cycling and walking opportunities will be considered in terms of Public Rights of Way and the national /local cycling network that will be located either on, adjacent to or are intersected by or potentially impacted by construction traffic routes or the Proposed Development itself.

## 4 Policy Review

This section will consider the Proposed Development in terms of National, regional and local policy compliance.

## 5 Construction Traffic Access

There are approximately 90no. accesses across the Proposed Development within the jurisdiction of Flintshire County Council and Cheshire West and Chester Council. These are comprised of access to Centralised Compounds – where plant and materials are delivered to and stored - (Primary Accesses) and Secondary Accesses, which serve the pipeline corridor and local working areas. This section of the TA will describe how each access will be used and its design parameters. The arrangement of each access will be summarised in a 'Temporary Access Principles' Technical Note which has been submitted to each LHA alongside this Scoping Note. This note includes, information on swept path analysis, geometric layout, and visibility; in accordance with appropriate guidance such as the Design Manual for Roads and Bridges (DMRB), TAN 18, Manual for Streets and Manual for Streets 2.

## 6 Construction Traffic Route Strategy

This section will present the proposed construction traffic routes for the project. Each route will be assigned to access locations and work fronts<sup>1</sup>. As set out in the ES scoping chapter, construction traffic routes will commence from the Strategic Road Network (i.e. A55, M53, and M56). The selection of

<sup>1</sup> Work Fronts are sections of the Proposed Development; each served by a specified centralised compound.

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construction routes will be discussed in detail within the Outline Construction Traffic Management Plan (OCTMP) and summarised in this section of the TA. This section will also consider the impact of any road closures and diversion routes. Draft construction traffic routes to Centralised Compounds, Block Valve Stations, and Above Ground Installations (AGIs) are presented in **Appendix C**. These routes are subject to change depending on the Traffic and Transport assessment and in preparation of the OCTMP.

## 7 Junction Assessment Methodology

Construction traffic will be assigned along each construction traffic route from the SRN to access points. We proposed to use the threshold from the DfT's 'Guidance on Transport Assessment'<sup>2</sup> of 30 two-way trips in either of the peak hours to determine the need for junction modelling. Notwithstanding that, there may be junctions in rural locations with negligible baseline traffic flows. Where construction traffic flows exceed this threshold, we intend to, in agreement with CW&C, scope these out of the modelling exercise. All modelling would take the form of individual junction modelling using Junctions 11 (ARCADY/PICADY) and LinSig, if necessary.

## 8 Junction Assessment Results

Should junction modelling be required, this section will consider the outcomes of the junction modelling exercise and the significance of forecast impacts on queue lengths, delay, and capacity. Results will be presented in summary tables within the body of the report with more detailed model outputs appended to the TA.

## 9 Highways Safety

Using the baseline review completed in the evaluation of 'Existing Conditions', the TA will provide a qualitative assessment of the likely impacts of additional construction traffic on any clusters identified along the routes.

## 10 Mitigation

This section will describe any mitigation proposed to facilitate the proposed development. This will be defined as one of three categories of mitigation, set out below :

- Embedded Mitigation
- Risk-based Mitigation; and
- Assessment-based Mitigation.

Embedded mitigation refers to those measures incorporated into the design of the Proposed Development, including for example the siting of access locations and selection of construction traffic routes. Risk-based mitigation will include highways interventions or road safety measures proposed to address, for example, geometric constraints, or risks related to the outcomes of PIA analysis.

Assessment-based mitigation will include measures proposed to mitigate capacity constraints identified

<sup>2</sup> Now withdrawn



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from the junction modelling exercise. This might include, if necessary, restrictions on HGV/ delivery timings.

## 11 Operation and Maintenance

This section will set out the operation and maintenance requirements of the Proposed Development, noting that an assessment of the environmental impacts of the development have been scoped out of the ES chapter. Nonetheless this section will set out permanent access locations, maintenance and access requirements, parking, and any measures required to deliver safe access to these locations once the Proposed Development has been constructed and is fully operational.

## 12 Summary and Conclusions

This final chapter will summarise the key findings of the TA.

## Outline Construction Traffic Management Plan

Alongside the TA, WSP will prepare an Outline Construction Traffic Management Plan (OCTMP), to be appended to the Construction Environmental Management Plan (CEMP). The OCTMP will be a document that will be included within the tender package that will be provided to prospective contractors and will help:

- Ensure that movements of people, plant, and materials are achieved in a safe, efficient, and timely manner;
- Ensure that any impact to the local communities is reduced so far as reasonably practicable;
- Ensure construction traffic levels do not exceed an acceptable level during network peak periods.;
- Reduce and control construction vehicle trips where practicable;
- Ensure strategies and mitigation measures are implemented and adhered to through continued monitoring, review, and improvement of the OCTMP; and
- Limit the effects of construction traffic on the Local Road Network.

### 1 Introduction

Will set out the required background, scope and methodology information, as well as the document purpose.

### 2 The Proposed Development

This section will describe the Proposed Development with specific reference to Traffic and Transport impacts. In particular it will set out how the Proposed Development is expected to be phased across the construction programme, the nature and of construction works, and the types of vehicles associated with each activity. This will also include reference to Abnormal Load (AIL) numbers and routing.

### 3 Construction Traffic Access

This section of the OCTMP will describe in detail how each access will be used and its design. The arrangement of each access will be summarised in a 'Temporary Access Principle' Technical Note,

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annexed to the TA. This note will include, for example, information on swept path analysis, geometric layout, and visibility; in accordance with appropriate guidance such as the Design Manual for Roads and Bridges (DMRB), Manual for Streets and Manual for Streets 2. The OCTMP will include an ‘Access Risk Register’; identifying local constraints and proposed ways of working to ensure safe access is maintained to working locations and the adjacent highway network. This register will for example include reference to traffic flows, nearby PIAs, traffic speeds, environmental constraints, and proposed traffic management methods.

#### 4 Construction Traffic Route Strategy

This section will present the proposed construction traffic routes for the project. Each route will be assigned to access locations and work fronts. As set out in the ES scoping chapter, construction traffic routes will commence from the Strategic Road Network (i.e. A55, M53, and M56). The selection of construction routes will be discussed in detail within the Outline Construction Traffic Management Plan (OCTMP) and summarised in this section of the TA. This section will also consider the impact of road closure and diversions, their impact on the availability of construction traffic routes, and proposed alternative routes. Draft construction traffic routes to Centralised Compounds, Block Valve Stations, and Above Ground Installations (AGIs) are presented in **Appendix C**.

#### 5 Plant and Construction Materials

This section will set out the materials required for construction across the Proposed Development and the vehicles associated with the delivery of each. It will provide an explanation of the working methods and assumptions relating to the delivery and transportation of materials that inform the OCTMP and TA.

#### 6 Traffic Management

Traffic management methods would be used on roads where physical mitigation measures prove to be not reasonably practicable or cannot be accommodated during the construction period of the Proposed Development. This section will set out locations where traffic management may be required to facilitate safe construction of the proposed development. This will include temporary signage, temporary access traffic management, as well as the locations of road closures and proposed diversions, including anticipated scheduling and durations of closures.

#### 7 Public Rights of Way

In order to construct the various elements of the Proposed Development a number of existing PRoW would be affected. At this time it is understood that all diversions required to facilitate the development will be temporary. We have submitted proposed temporary diversions to the CW&C and FCC PRoW officers and seek to agree methods of PRoW management and diversion routes.

#### 8 Mitigation Measures

The need for specific mitigation measures would be discussed in ongoing consultation with CW&C once traffic volumes, access locations, and construction traffic routes are confirmed. Within the OCTMP the identification of mitigation will primarily relate to ‘embedded’ and ‘risk-based’ mitigation discussed within



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the TA scope. Where required the OCTMP will present details - in the form of drawings and figures - of any proposed highway schemes and/or traffic management arrangements

## 9 Monitoring, Review, and Improvement

The project will continue to engage with CW&C throughout construction. This section will set out how this is proposed be carried out and communicated to CW&C to ensure that the full CTMP is developed and adhered to throughout the life of the project.

## Interim Travel Plan

This document, appended to the TA, is intended to demonstrate the consideration given to sustainable transport and to identify the necessary measures that would be undertaken to meet the sustainable transport ambitions set out in National and Local planning policy documents.

An Interim Travel Plan (ITP) should encourage people to choose alternative transport modes over single occupancy car use and, where possible, reduce the need to travel at all. Such a plan would include a range of measures designed to achieve this goal.

In preparation of the proposed scope WSP has referred to Cheshire West and Chester Council's Travel Planning Supplementary Planning Document (SPD) (2015). It is intended that an Interim Travel Plan be prepared to accompany the DCO submission as the ultimate end user (i.e. Contractor) is not yet known. This ITP will therefore form the basis of a Full Travel Plan to be prepared by the appointed contractor. The ITP would be the first step in preparing a 'living document', to be monitored and updated as the project progresses.

Travel to work sites along the Proposed Development during construction traffic will be comprised of HGV and LGV movements. LGV movements are primarily comprised of contractor and other staff travel to work sites. Work sites will be access from a variety of road categories in urban and rural areas. For site security and safety reasons, the scope for staff to travel to site by walking, cycling, and public transport measures is very limited. However, the ITP will set out other measures to minimise the number of single occupancy car trips to working locations.

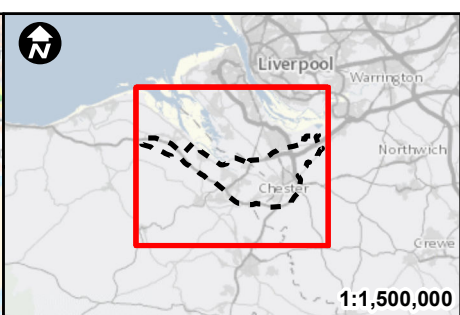
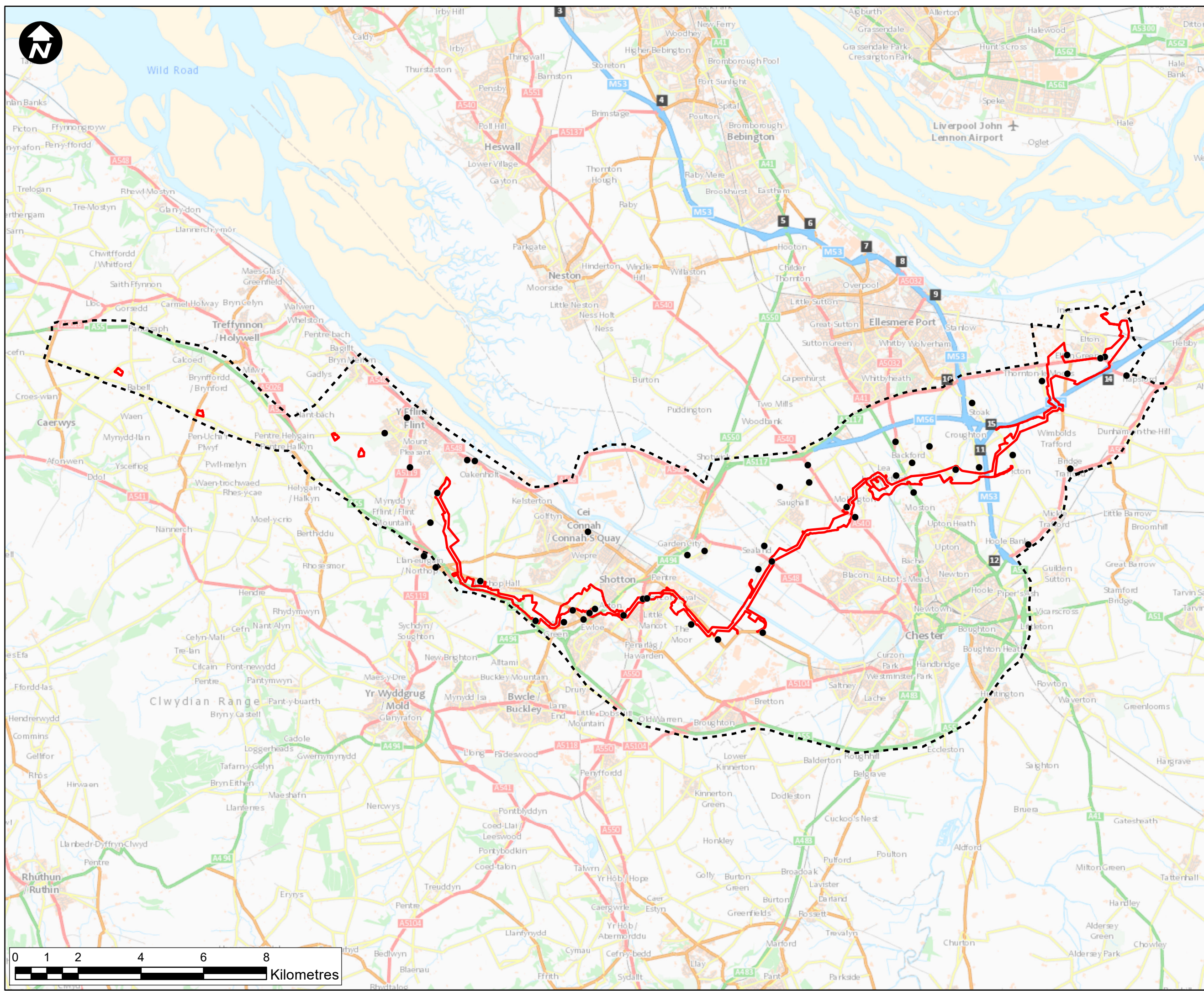
The ITP will follow the broad structure of Table 4.2 of the CW&C Travel Planning SPD (2015) however will be tailored to suit the nature of the Proposed Development. The ITP will be a document that will be included within the tender package that will be provided to prospective contractors and the contents will incorporate suggested measures that will reduce the need for workers to travel to working areas in single occupancy vehicles.



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## APPENDIX A: ZONE OF INFLUENCE (PEIR)



- Key:**
- ATC location
  - ▭ Newbuild Infrastructure Boundary
  - - - Traffic and Transport Zone of Influence

**Glossary:**  
 ATC = Automatic Traffic Count

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# HyNet North West

**PROJECT TITLE**  
 HYNET CARBON DIOXIDE PIPELINE

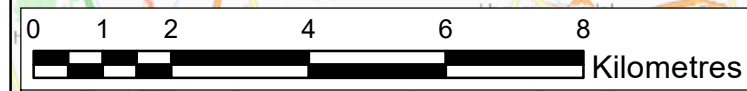
**DRAWING TITLE**  
 Figure 17.1 – Traffic and Transport: ZOI and ATC Locations

**DRAWING STATUS**  
 FOR INFORMATION

<b>DRAWN</b> NC	<b>CHECKED</b> JH	<b>APPROVED</b> DP	<b>AUTHORISED</b> LP
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<b>SCALE @ A3 SIZE</b> 1:110,000	<b>DATE</b> 21/01/2022	<b>REVISION</b> P01
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 EN70007-PA-PEI-17.1-Sheet1







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## APPENDIX B: CENTRALISED COMPOUND LOCATIONS

Centralised Compound	Location	LHA	Image
Stanlow	Cryers Lane B5132	CW&C	
Picton Lane	Picton Lane	CW&C	

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Centralised Compound	Location	LHA	Image
Chorlton Lane	Chorlton Lane	CW&C	
Sealand Road	A548 Sealand Road	FCC	

# Hynet North West DCO – Transport Assessment Scoping Note

<b>DATE:</b>	24 June 2022	<b>CONFIDENTIALITY:</b>	Confidential
<b>SUBJECT:</b>	Hynet North West Development Consent Order - Transport Assessment Scoping Note		
<b>PROJECT:</b>	70070865	<b>AUTHOR:</b>	LP
<b>CHECKED:</b>	AL	<b>APPROVED:</b>	AL

Centralised Compound	Location	LHA	Image
Wood Farm	A548 Sealand Road	FCC	
River Dee	B5129 Chester Road	FCC	

# Hynet North West DCO – Transport Assessment Scoping Note

<b>DATE:</b>	24 June 2022	<b>CONFIDENTIALITY:</b>	Confidential
<b>SUBJECT:</b>	Hynet North West Development Consent Order - Transport Assessment Scoping Note		
<b>PROJECT:</b>	70070865	<b>AUTHOR:</b>	LP
<b>CHECKED:</b>	AL	<b>APPROVED:</b>	AL

Centralised Compound	Location	LHA	Image
Shotton Lane	B5125	FCC	
Northop Hall	B5125	FCC	



# Hynet North West DCO – Transport Assessment Scoping Note

<b>DATE:</b>	24 June 2022	<b>CONFIDENTIALITY:</b>	Confidential
<b>SUBJECT:</b>	Hynet North West Development Consent Order - Transport Assessment Scoping Note		
<b>PROJECT:</b>	70070865	<b>AUTHOR:</b>	LP
<b>CHECKED:</b>	AL	<b>APPROVED:</b>	AL

## APPENDIX C: DRAFT CONSTRUCTION TRAFFIC ROUTES

CTR Information				Links				
Route No.	Type	Location	Access Location	SRN Junction	1	2	3	4
CC CTR 1	Two-Way	Stanlow	7E	J14 M56	A5117	B5132 Cryers Lane		
CC CTR 2	Two-Way	Picton Lane	16E	J10 M53	A5117	Little Stanney Lane	Picton Lane	
CC CTR 3a	Inbound	Chorlton Lane	23E	A5117/ M56 Dunkirk	A5117	A41	Rake Lane	Chorlton Lane
CC CTR 3b	Outbound	Chorlton Lane	23E	A5117/ M56 Dunkirk	Chorlton Lane	Rake Lane	A41*	A5117
CC CTR 4	Two-Way	Sealand Central	3N	A5117/ M56 Dunkirk	A5117	A494	A548 Sealand Road	
CC CTR 5	Two-Way	Wood Farm	40E	A5117/ M56 Dunkirk	A5117	A494	A548 Sealand Road	
CC CTR 6	Two-Way	Sandycroft	43E	J34 A55	A494	B5129		
CC CTR 7	Two-Way	Shotton Lane	66E	J34 A55	A494	B5125		
CC CTR 8a	Inbound	Northop Hall	76E	J34 A55	A494	B5125		
CC CTR 8b	Outbound	Northop Hall	76E	J33 A55	B5125	B5126	A5119	
AGI CTR 1	Two-Way	Grinsome Road AGI	1E	J14 M56	A5117	Ince Lane	Ash Road	
AGI CTR 2	Two-Way	Stanlow AGI	91E	J14 M56	A5117	Pool Lane		
AGI CTR 3a	Inbound	Northop Hall AGI	76E	J34 A55	A494	B5125		
AGI CTR 3b	Outbound	Northop Hall AGI	76E	J33 A55	B5125	B5126	A5119	
AGI CTR 4	Two-Way	Flint AGI	6N	J33 A55	A5119	Starkey Lane	Alt Goch Lane	
BVS CTR 1a	Inbound	Rock Bank	24E	A5117/ M56 Dunkirk	A5117	A41	Rake Lane	Chorlton Lane
BVS CTR 1b	Outbound	Rock Bank	24E	A5117/ M56 Dunkirk	Chorlton Lane	Rake Lane	A41	A5117
BVS CTR 2	Two-Way	Mollington	7N	Overwood Lane	A540	A494	M56	
BVS CTR 3	Two-Way	Aston Hall	55E	J34 A55	A494	B5125	Upper Aston Hall Lane	Lower Aston Hall Lane
BVS CTR 4	Two-Way	Cornist Lane	88E	J32a A55	B5123	Bryntyrion Road	Lleprog Lane	
BVS CTR 5	Two-Way	Pentre Halkyn	89E	J32a A55	B5123	Bryn Emlyn	Ffordd Groes	B5121
BVS CTR 6	Two-Way	Babell	90E	J31 A55	B5122			

\*U-turn at Chester Zoo Roundabout

# Annex B

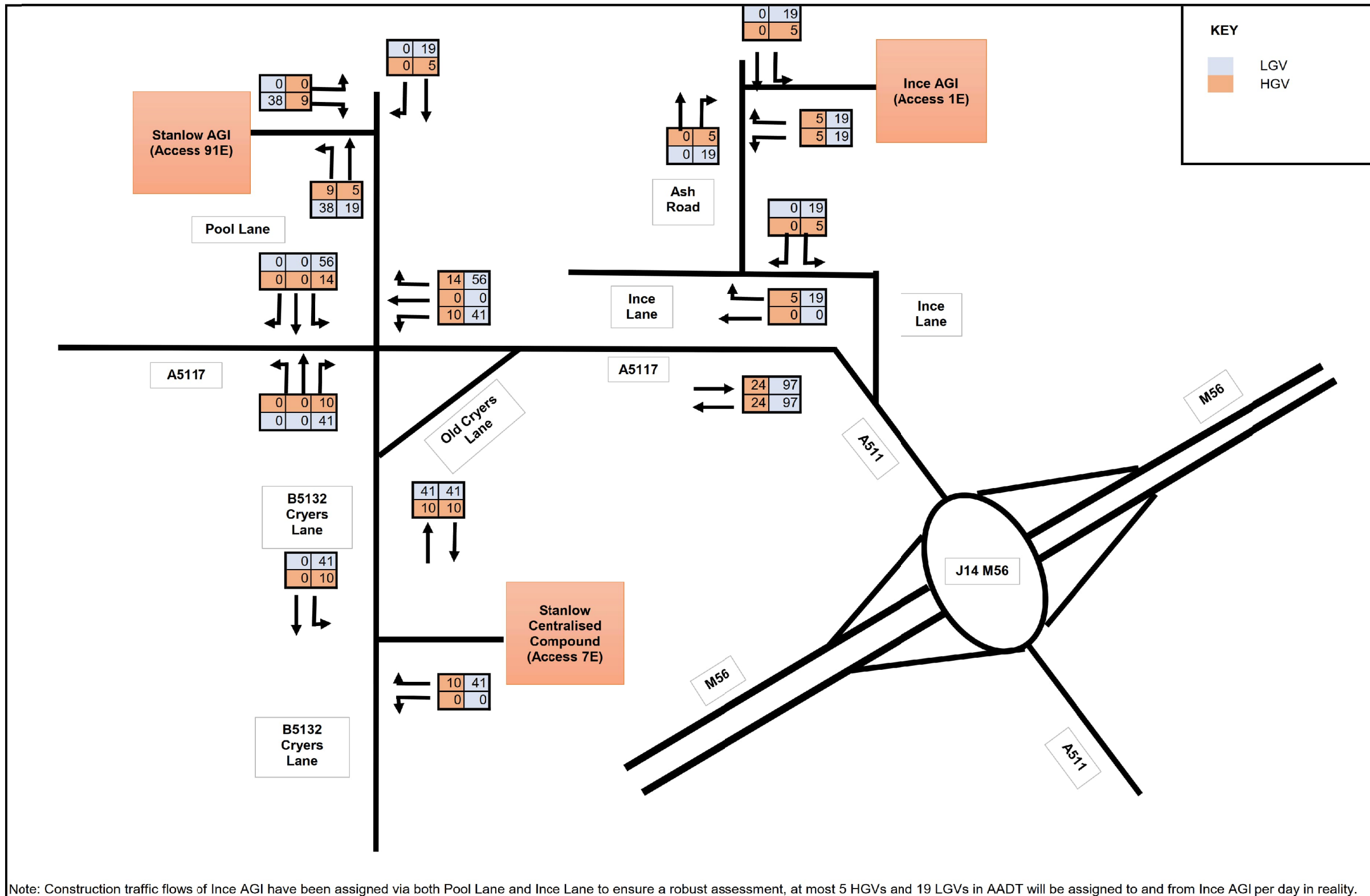
## FIGURES



Daily Vehicle Movements: Peak Month

CTR Area 1

HYNET NW DCO



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**HyNet North West**

PROJECT TITLE  
**HyNet Carbon Dioxide Pipeline DCO**

DRAWING TITLE  
AADT Construction Traffic Network Diagrams

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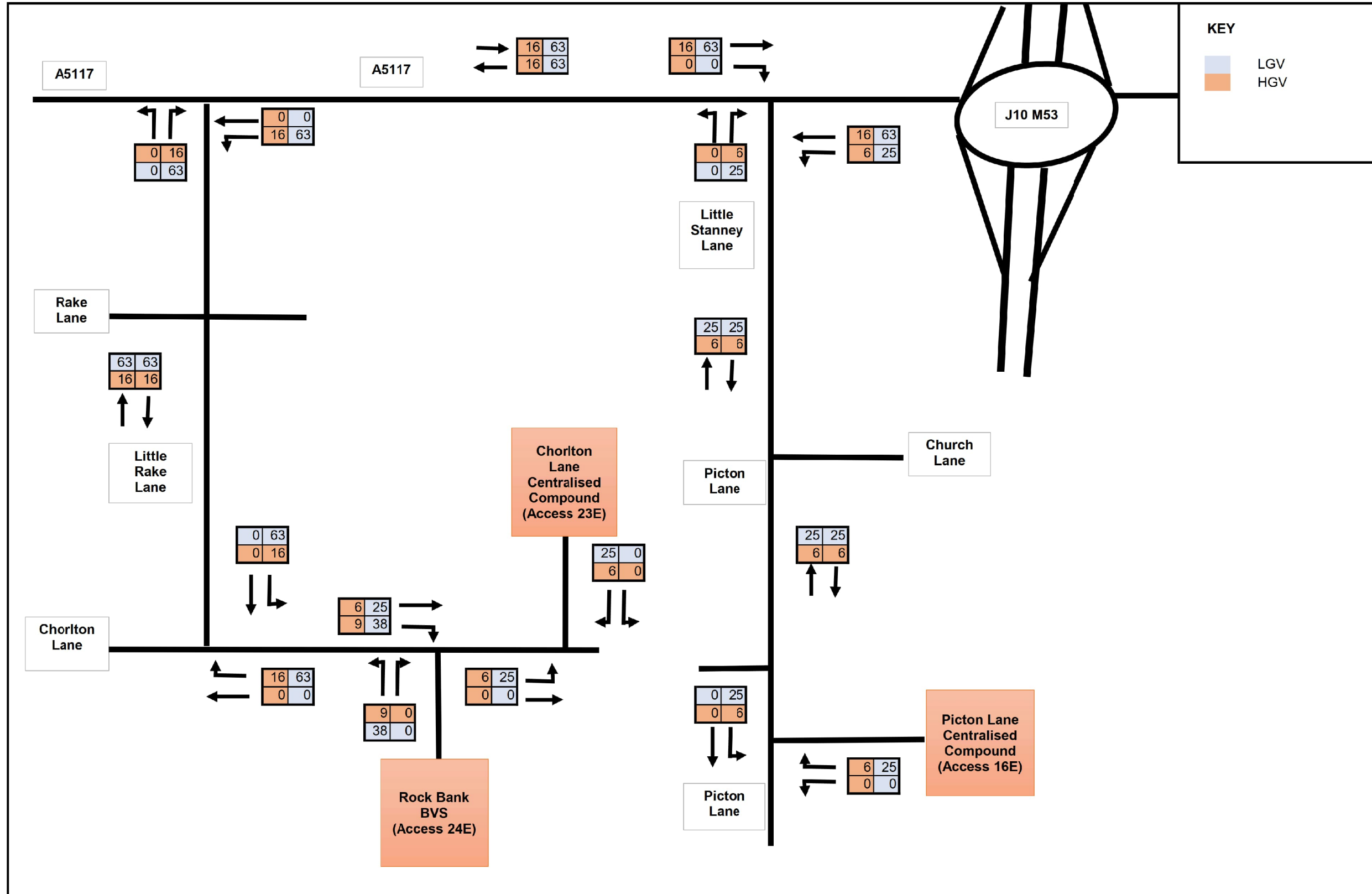
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Daily Vehicle Movements: Peak Month


CTR Area 2

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**KEY**

 LGV

 HGV

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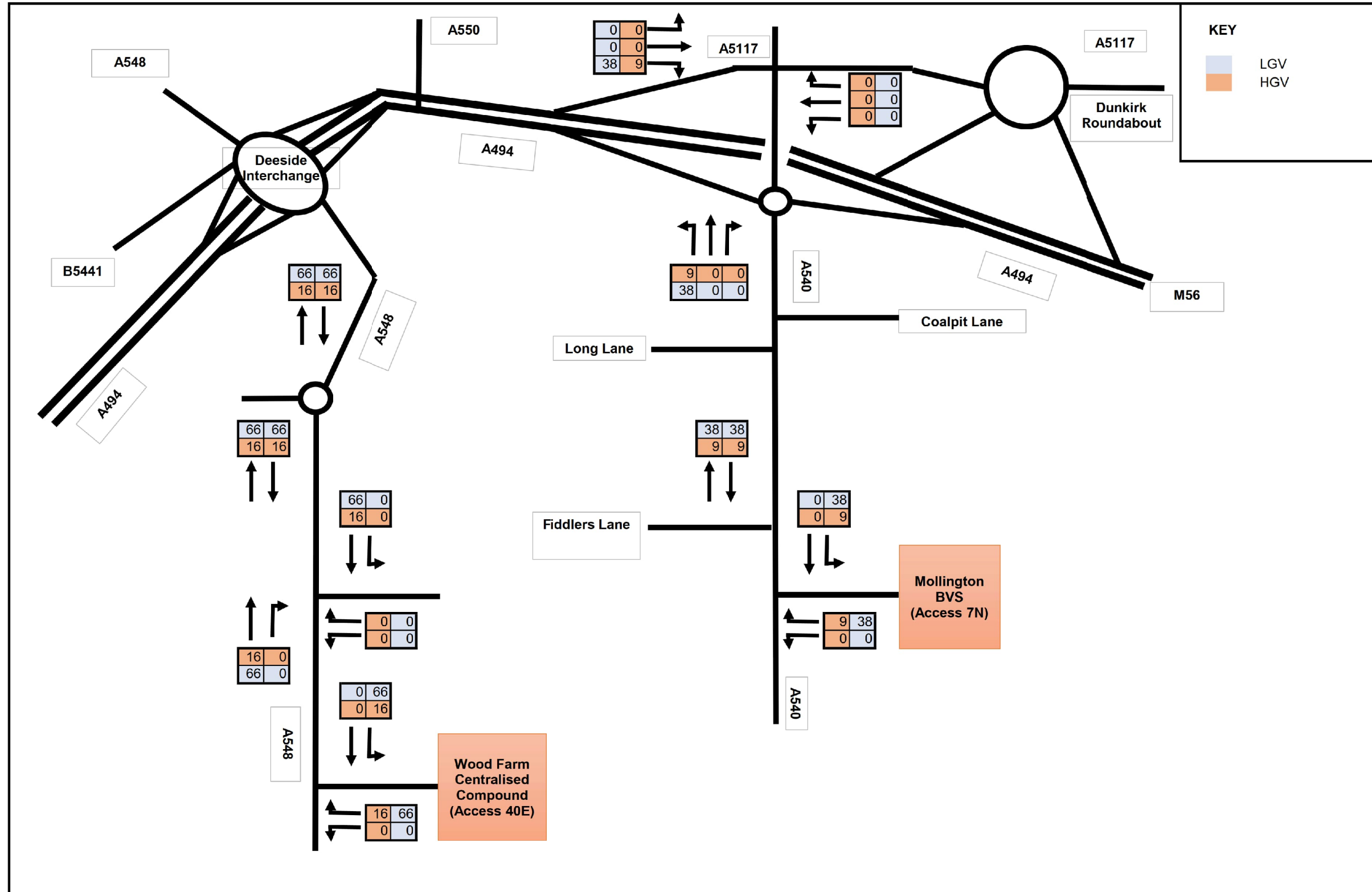




Daily Vehicle Movements: Peak Month

CTR Area 3

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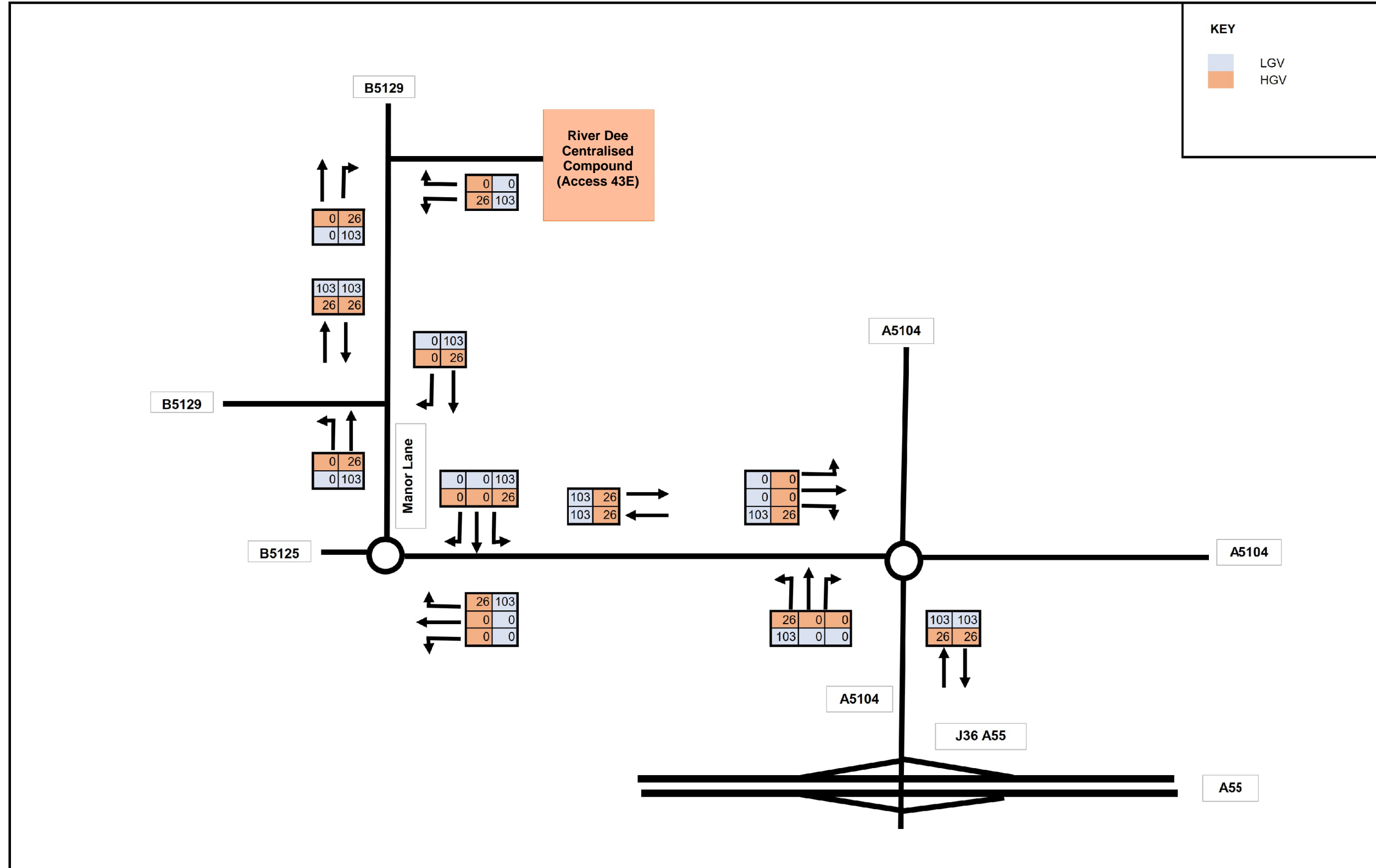
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Daily Vehicle Movements: Peak Month

CTR Area 4

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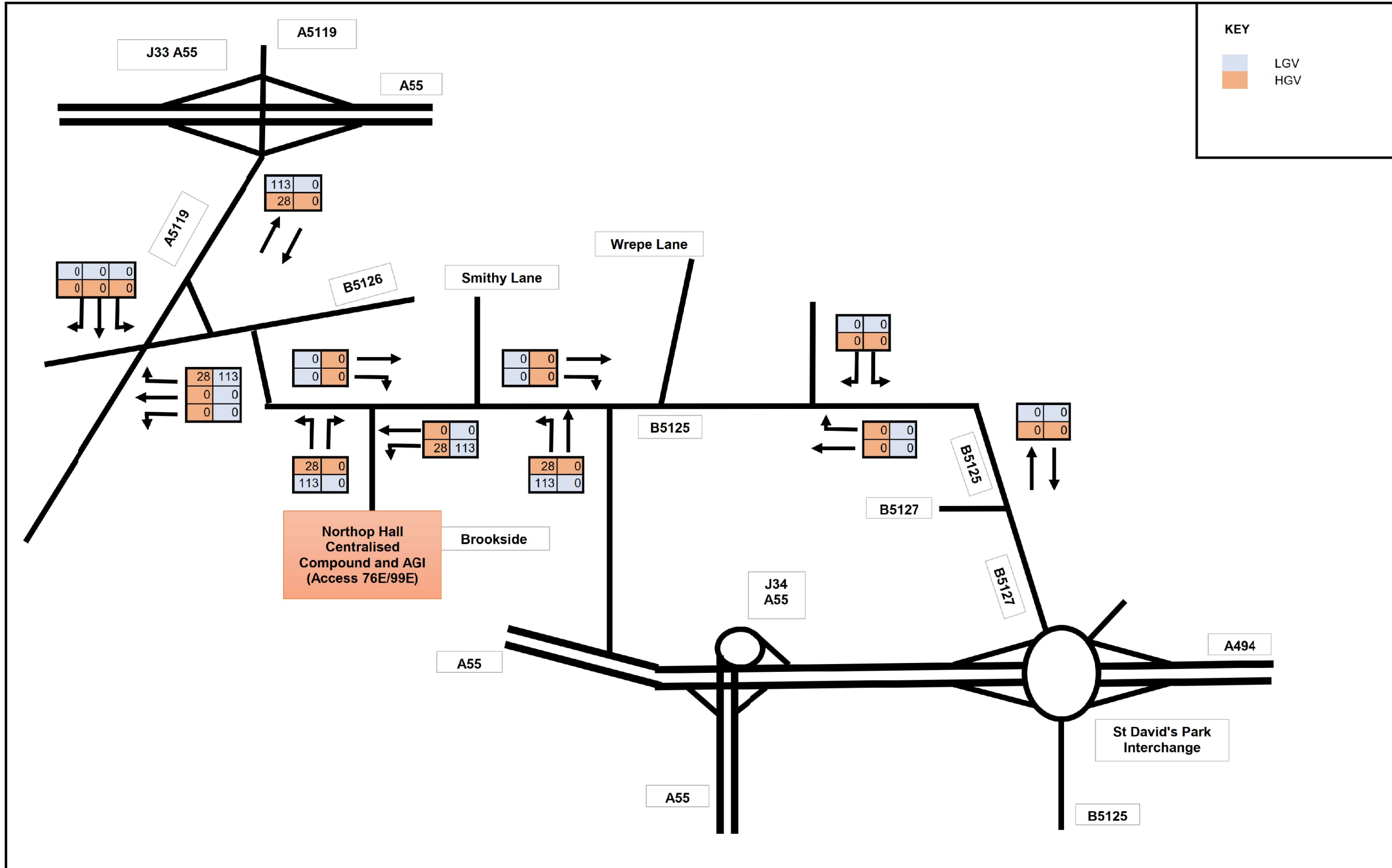
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Daily Vehicle Movements: Peak Month

CTR Area 5

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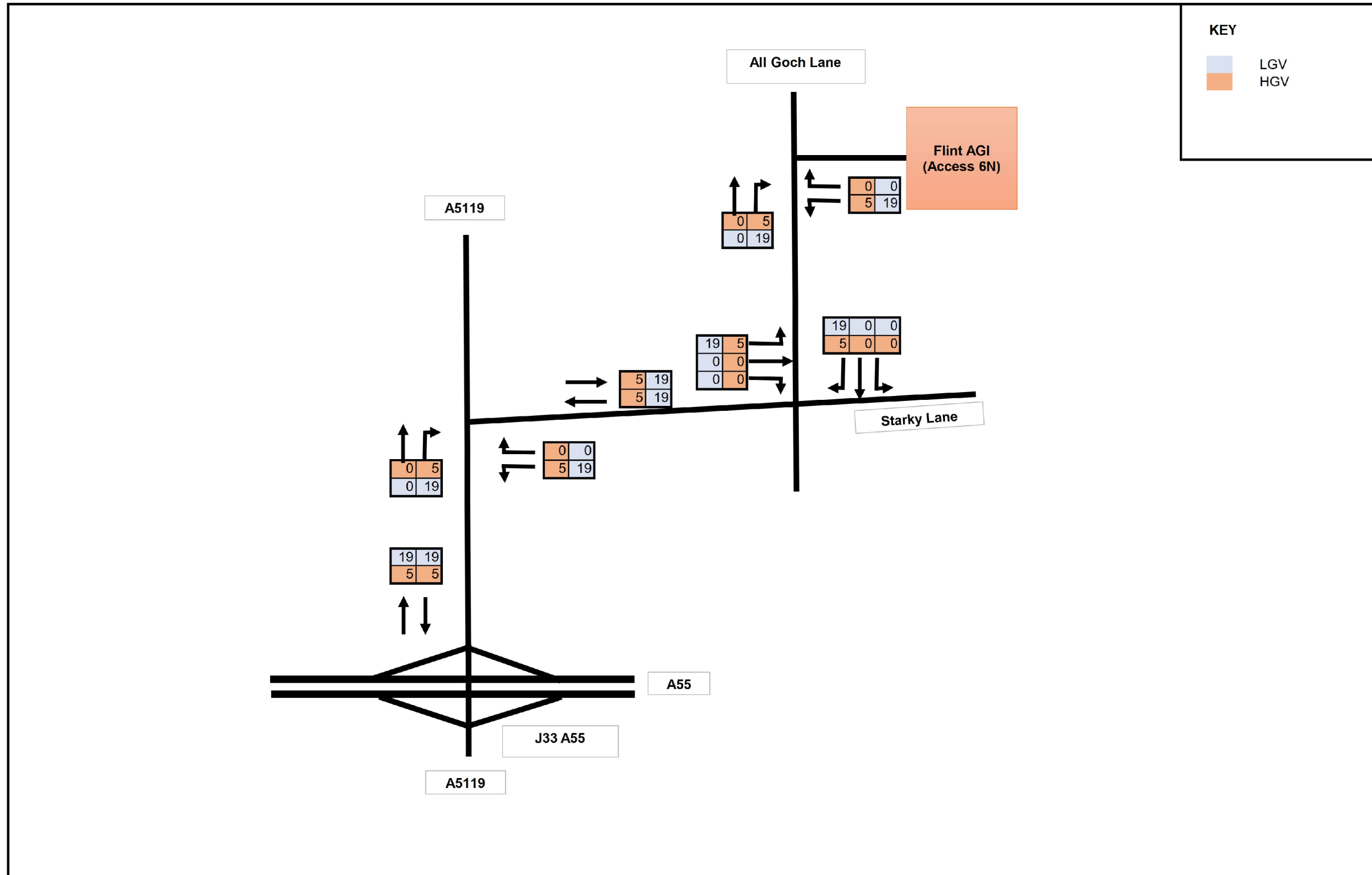
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Daily Vehicle Movements: Peak Month

CTR Area 6

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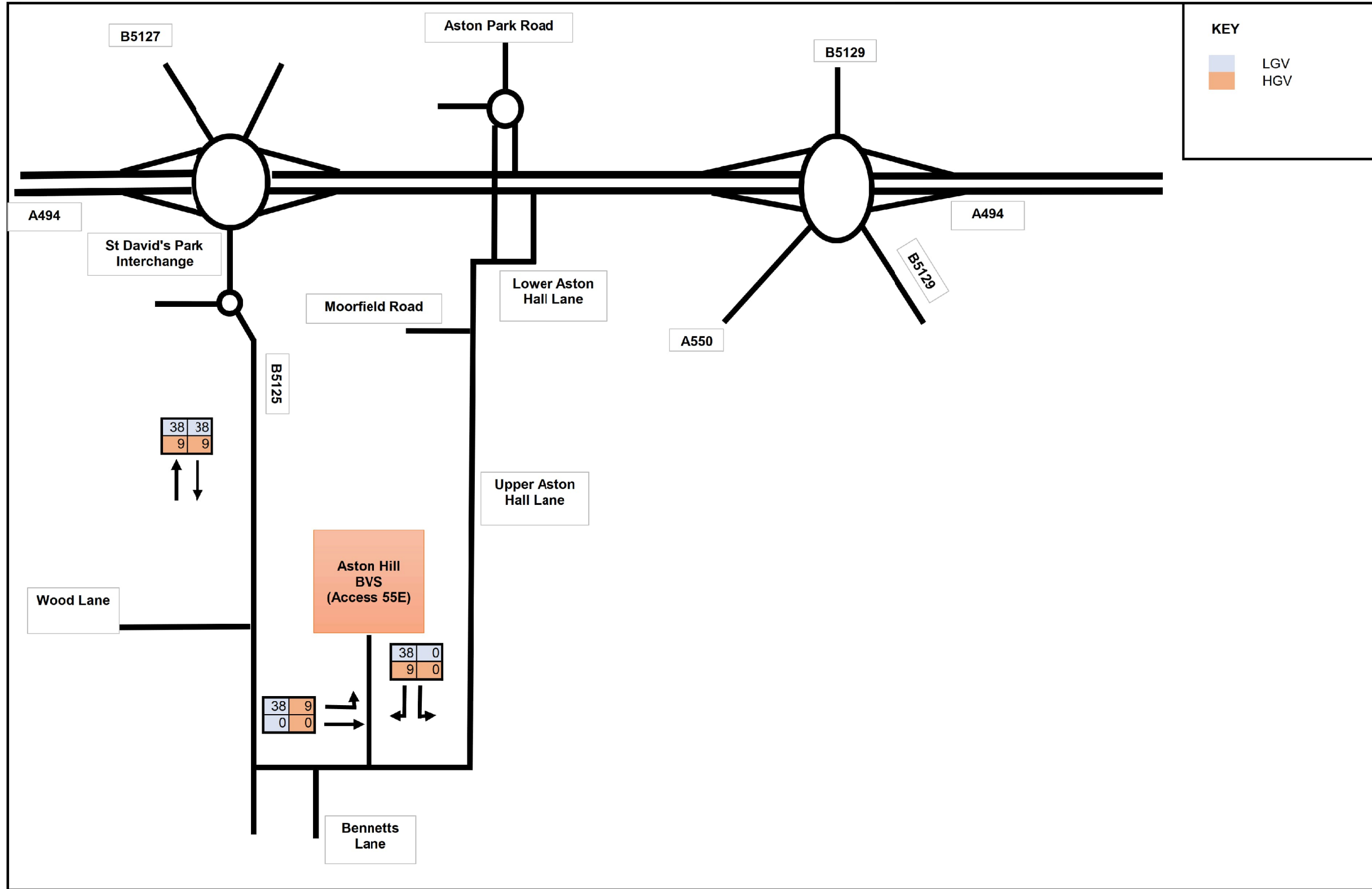
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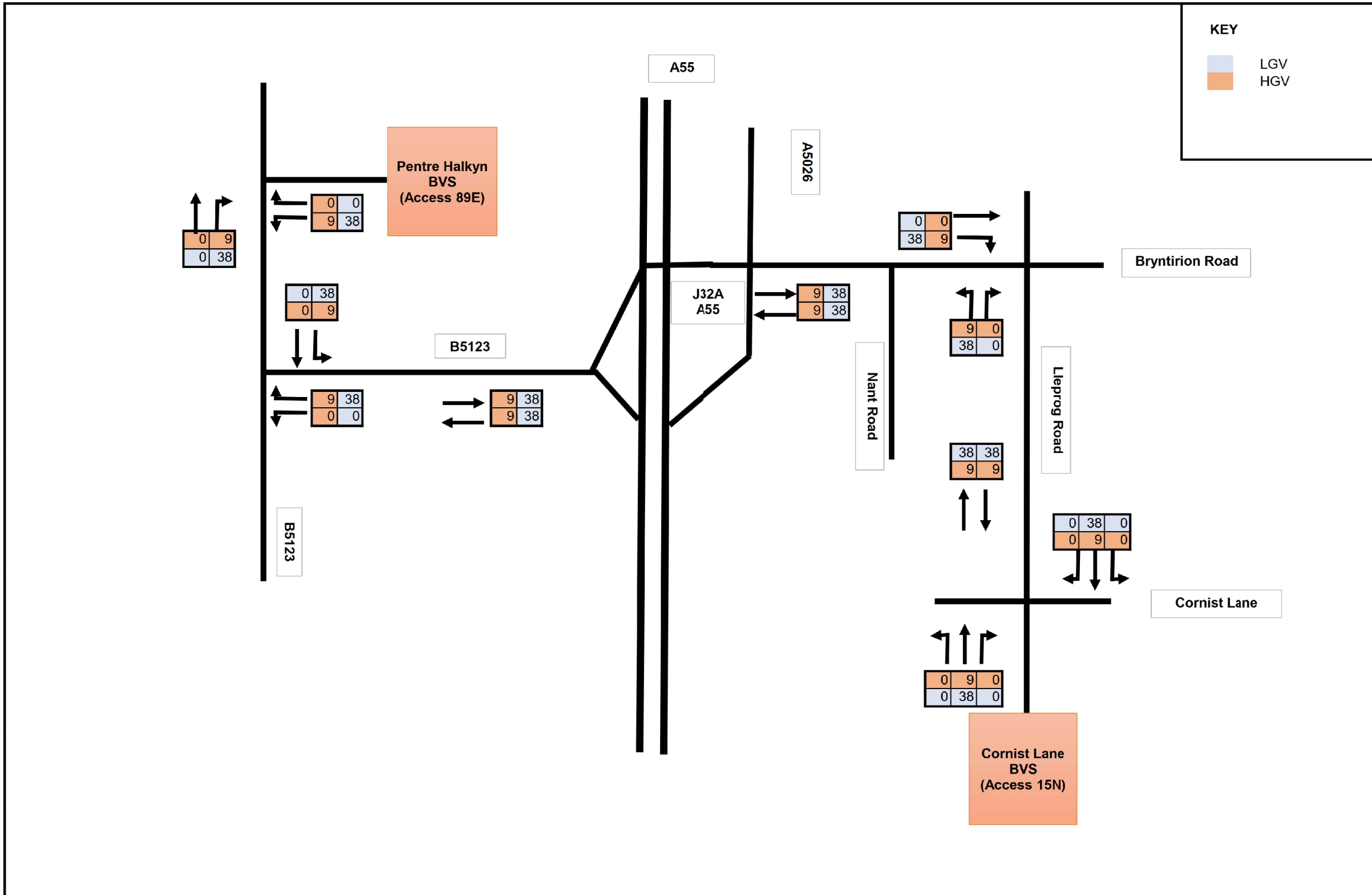
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Daily Vehicle Movements: Peak Month

CTR Area 8

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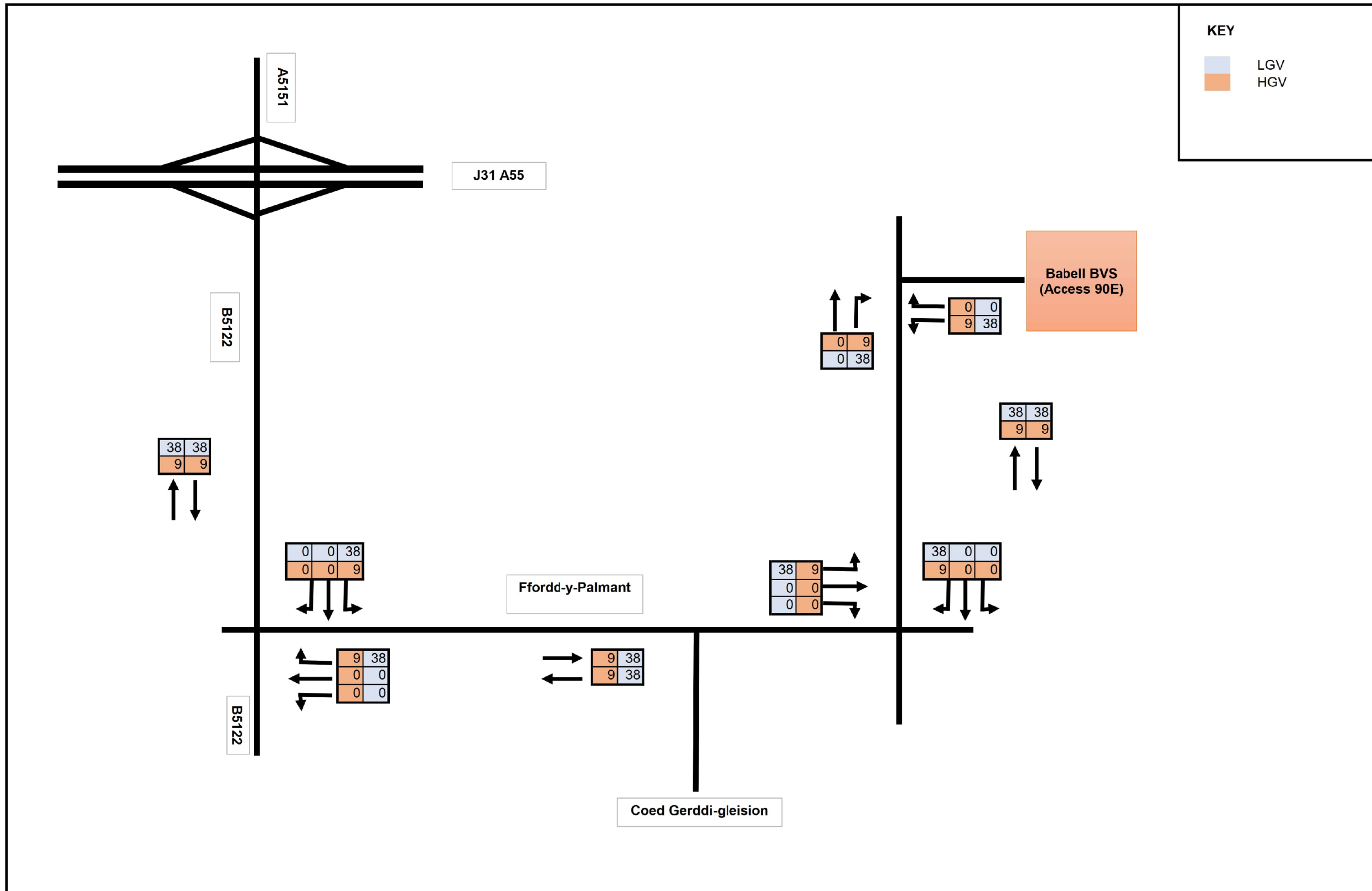
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Daily Vehicle Movements: Peak Month

CTR Area 9

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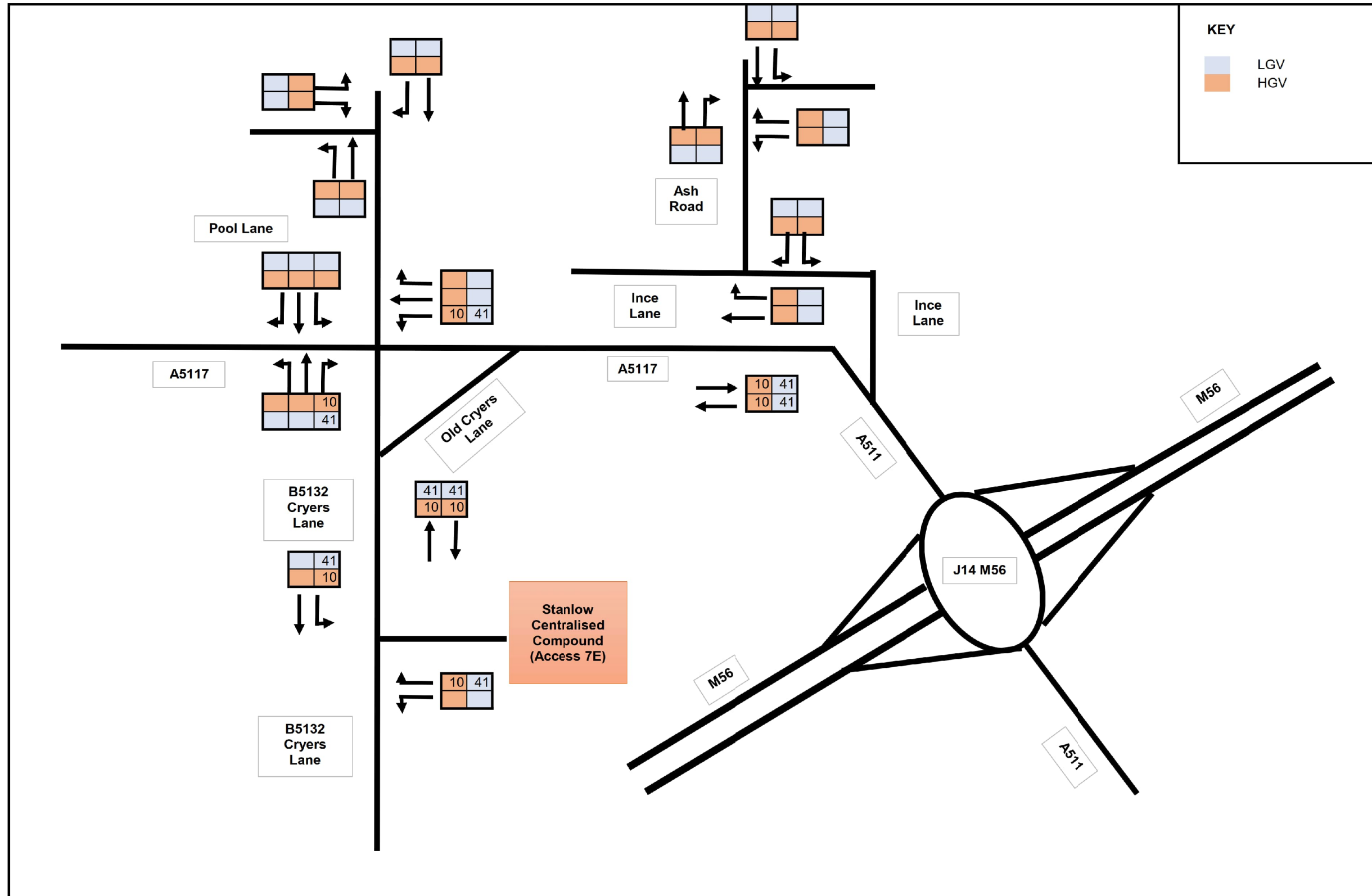
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Daily Vehicle Movements: Peak Month

CC CTR1 - Stanlow Centralised Compound

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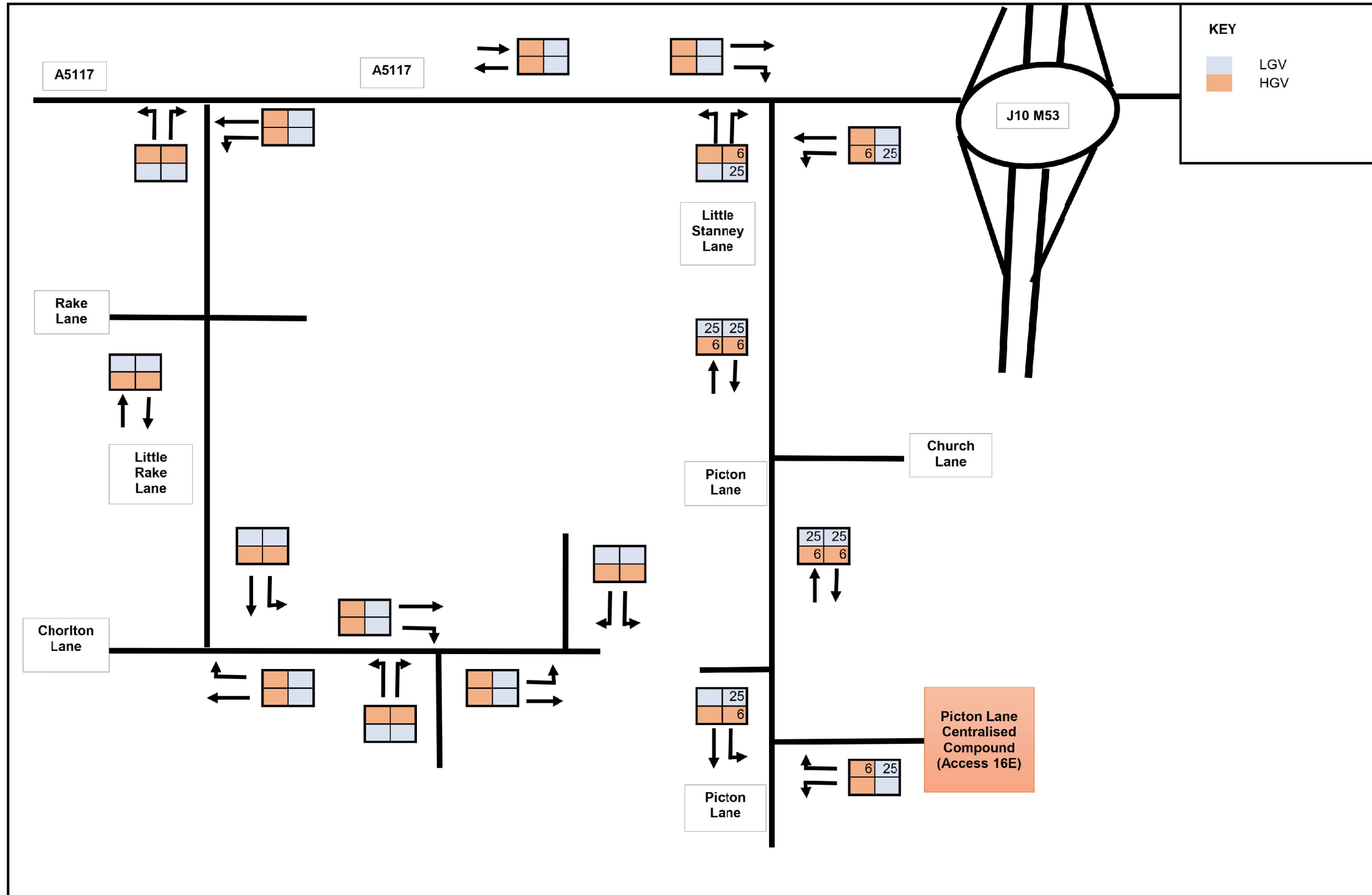




Daily Vehicle Movements: Peak Month

CC CTR 2 - Picton Lane Centralised Compound

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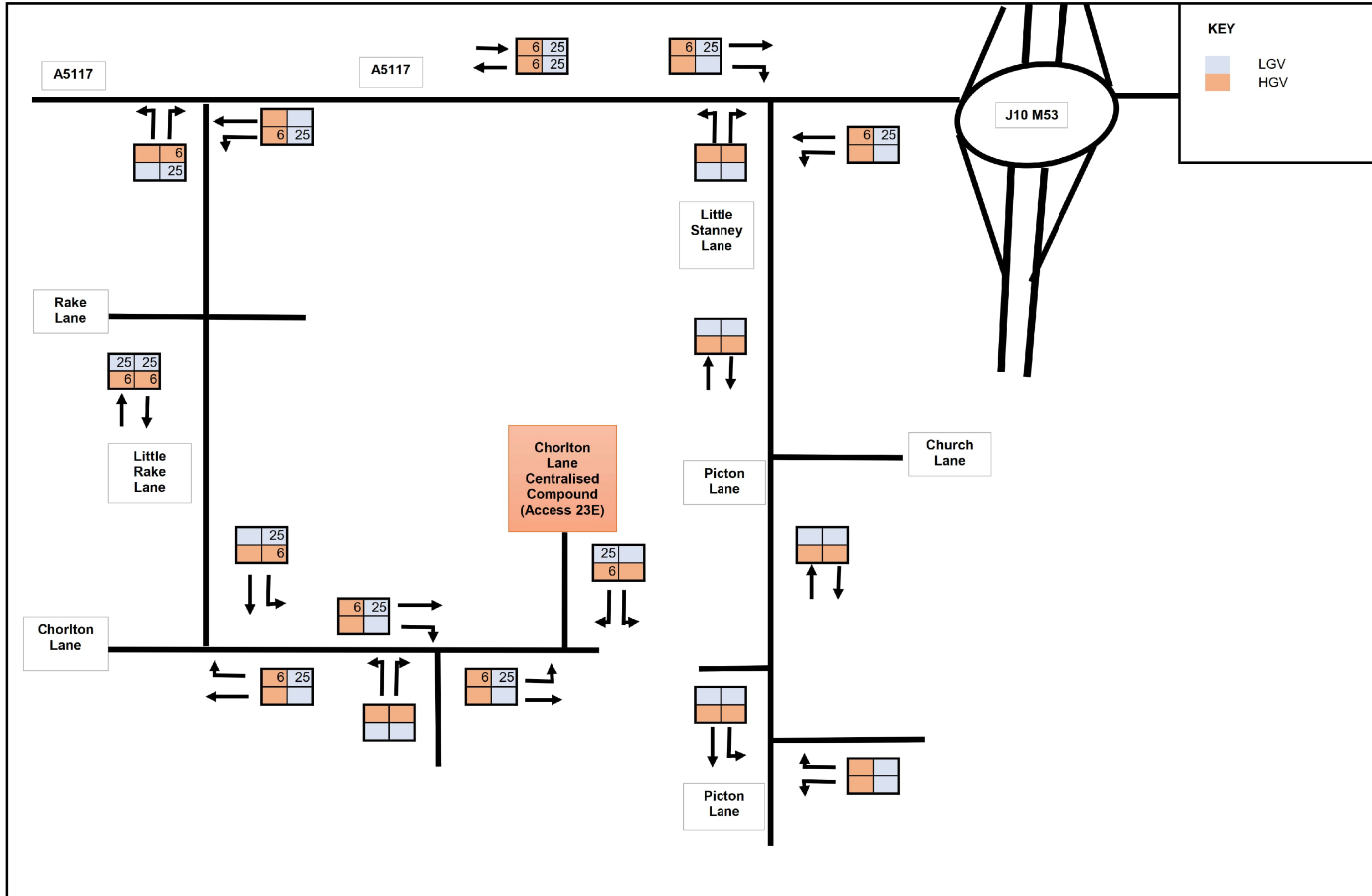
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Daily Vehicle Movements: Peak Month

CC CTR3 - Chorlton Lane Centralised Compound

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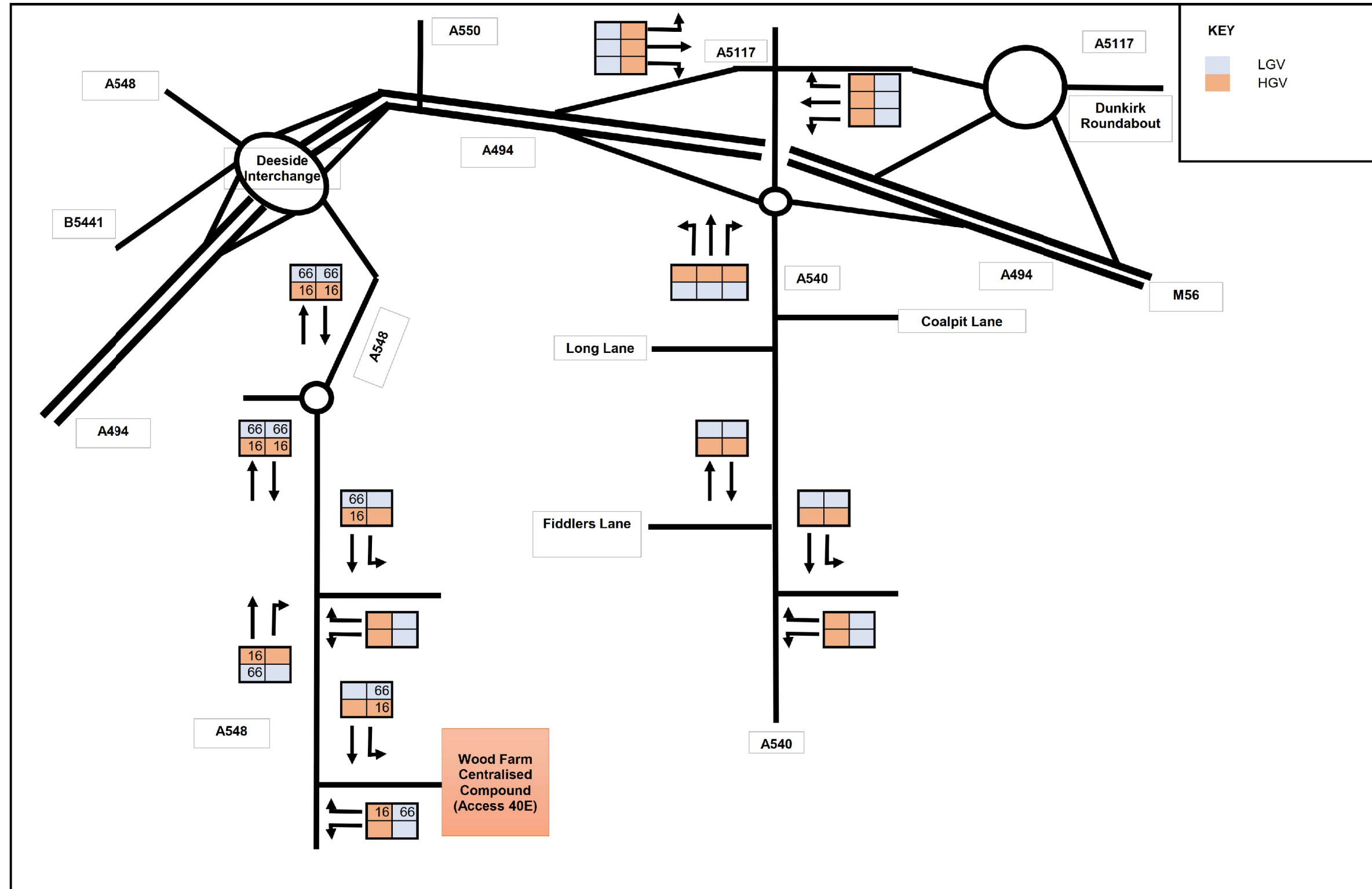
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Daily Vehicle Movements: Peak Month

CC CTR5 - Wood Farm Centralised Compound

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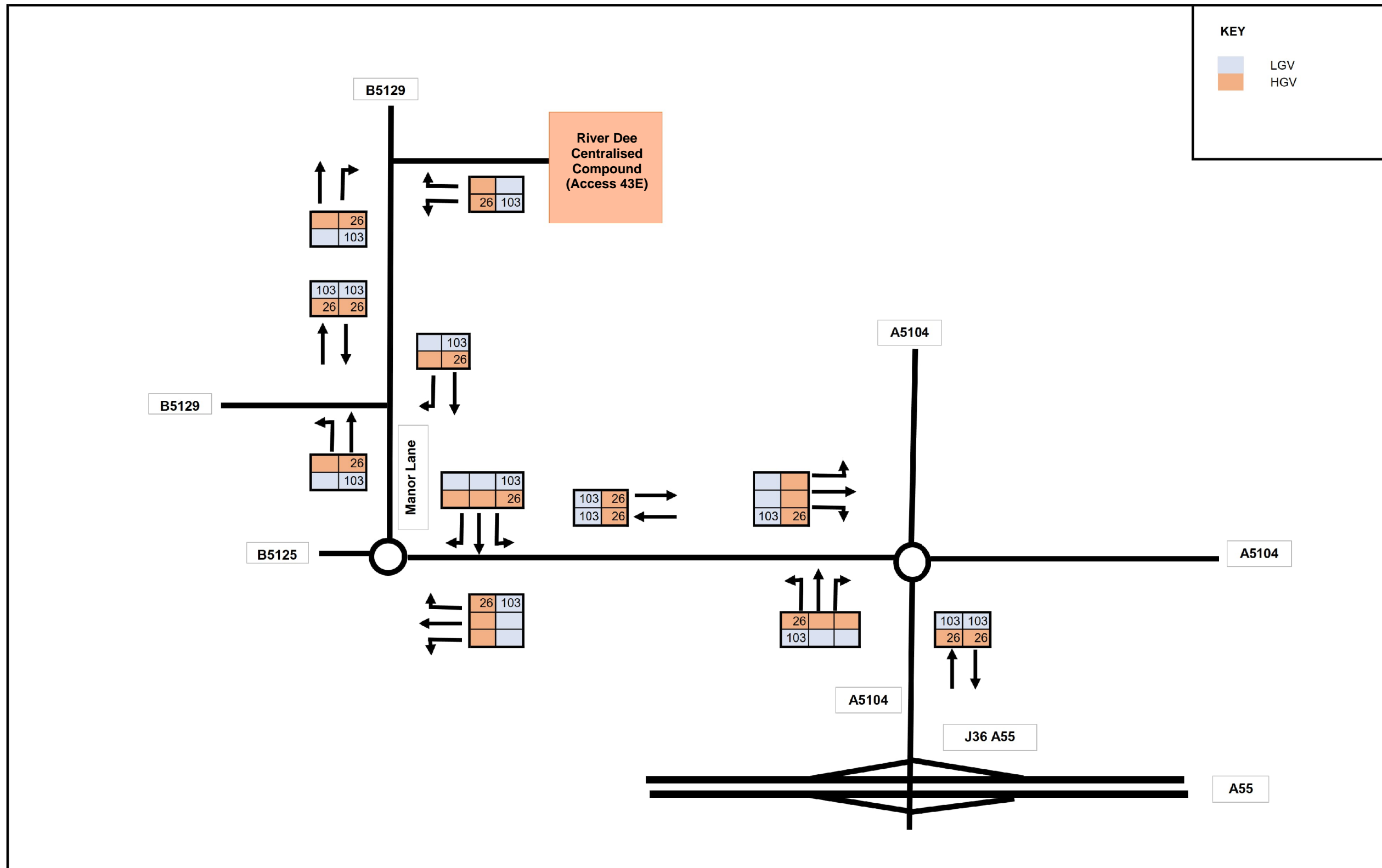
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Daily Vehicle Movements: Peak Month

CC CTR 6 - River Dee Centralised Compound

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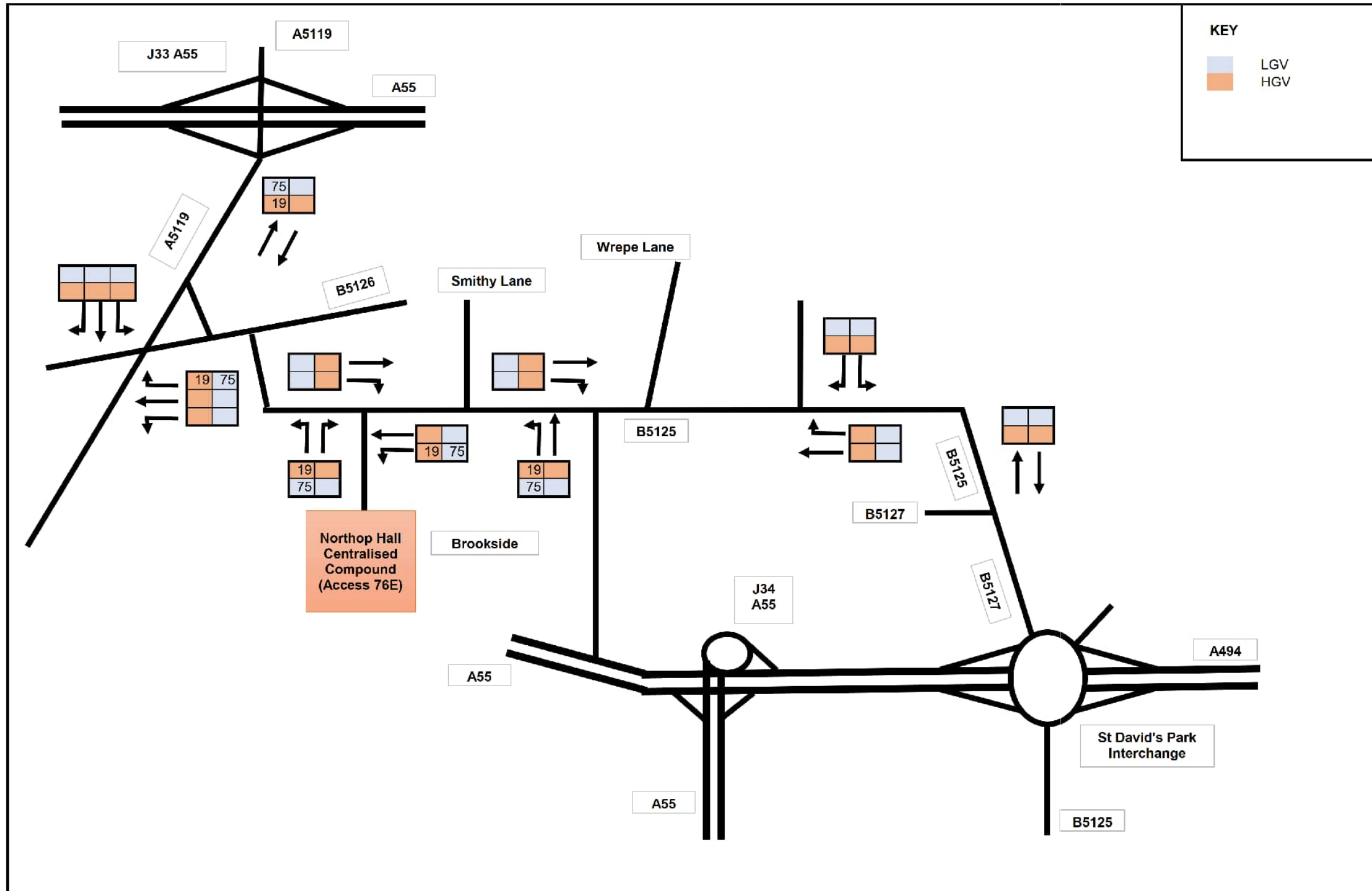
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Daily Vehicle Movements: Peak Month

CC CTR8 - Northop Hall Centralised Compound

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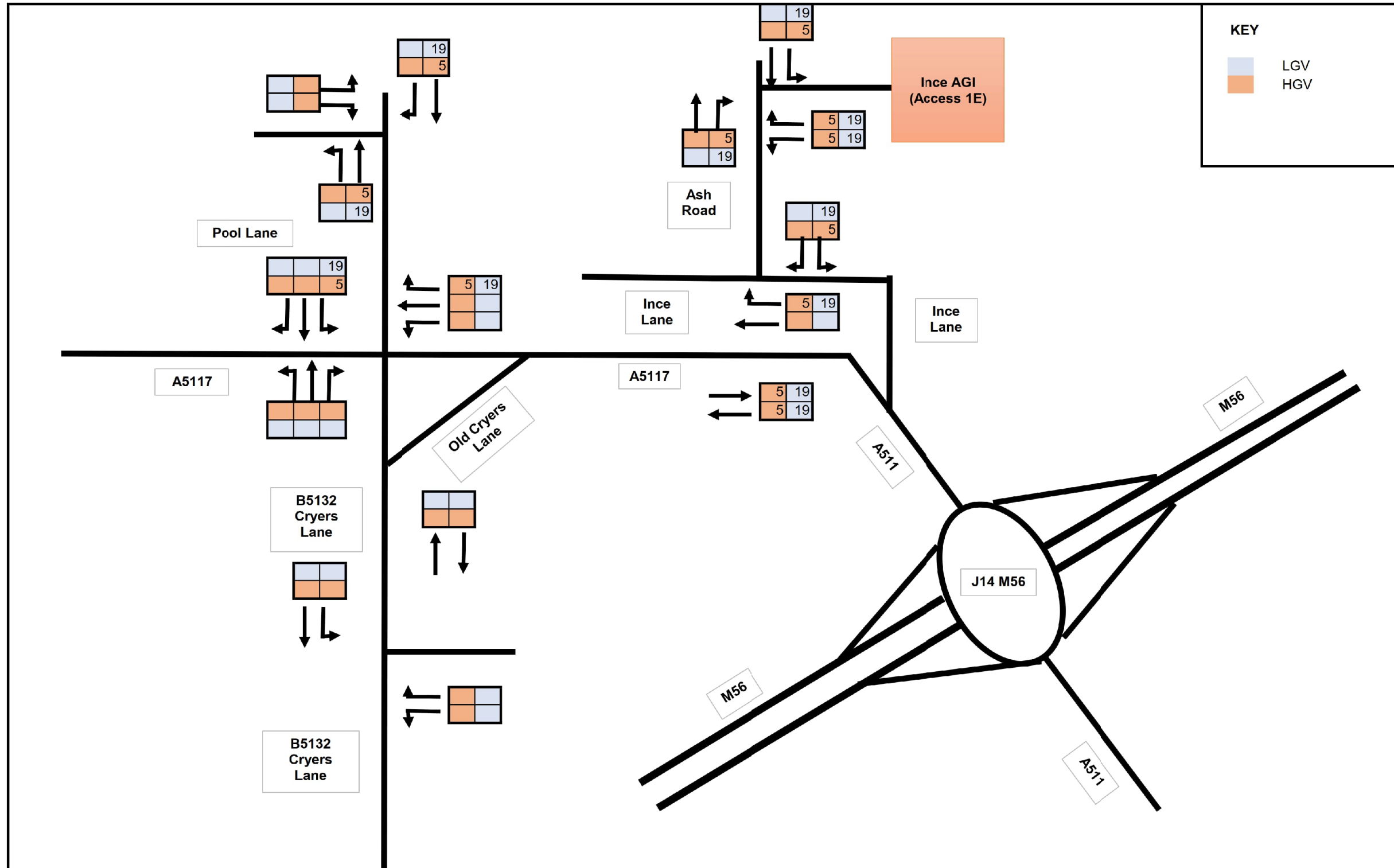
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Daily Vehicle Movements: Peak Month

AGI CTR1 - Ince Above Ground Installation

HYNET NW DCO



Note: Construction traffic flows of Ince AGI have been assigned via both Pool Lane and Ince Lane to ensure a robust assessment, at most 5 HGVs and 19 LGVs in AADT will be assigned to and from Ince AGI per day in reality.

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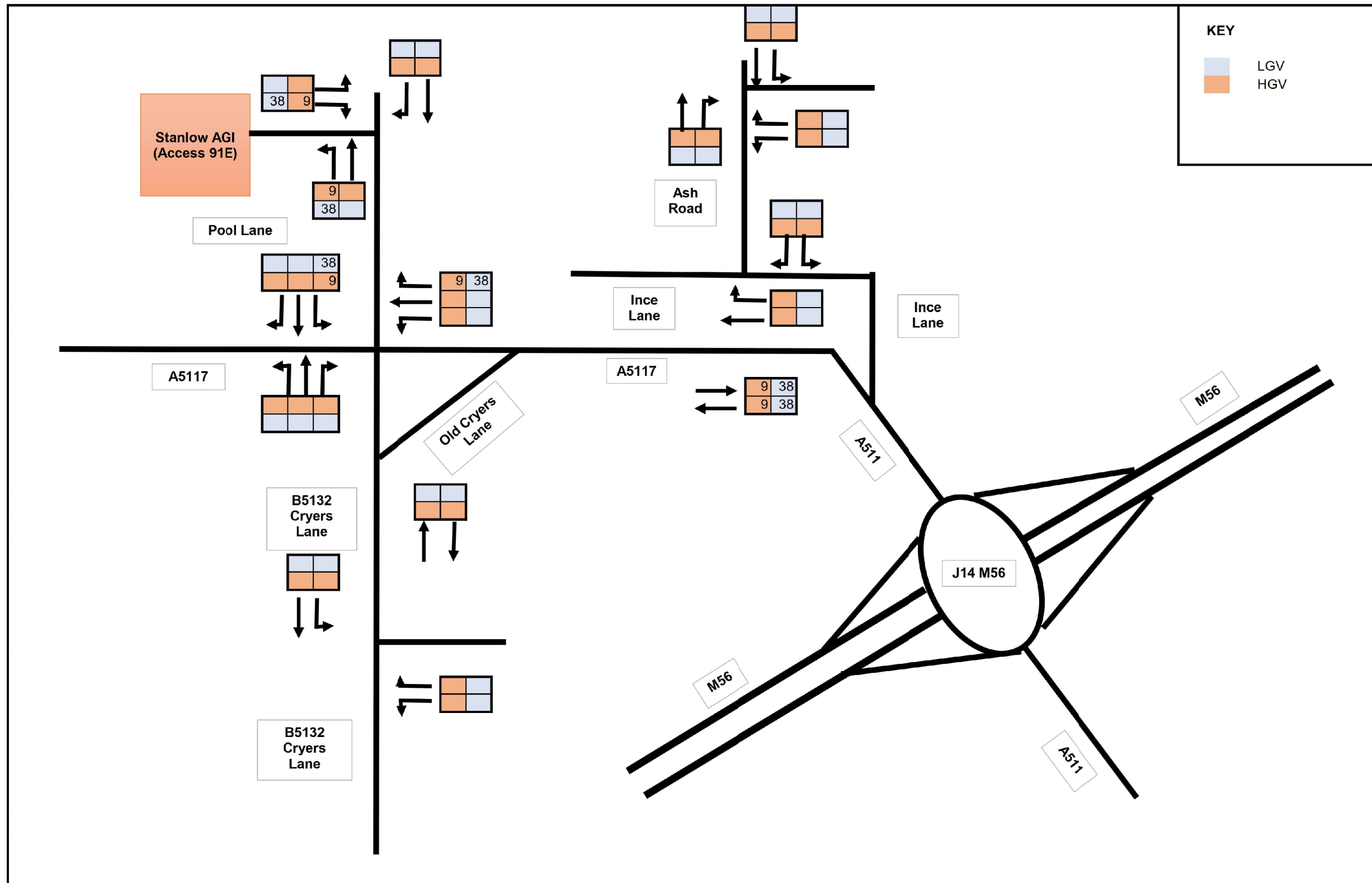
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Daily Vehicle Movements: Peak Month

AGI CTR2 - Stanlow Above Ground Installation

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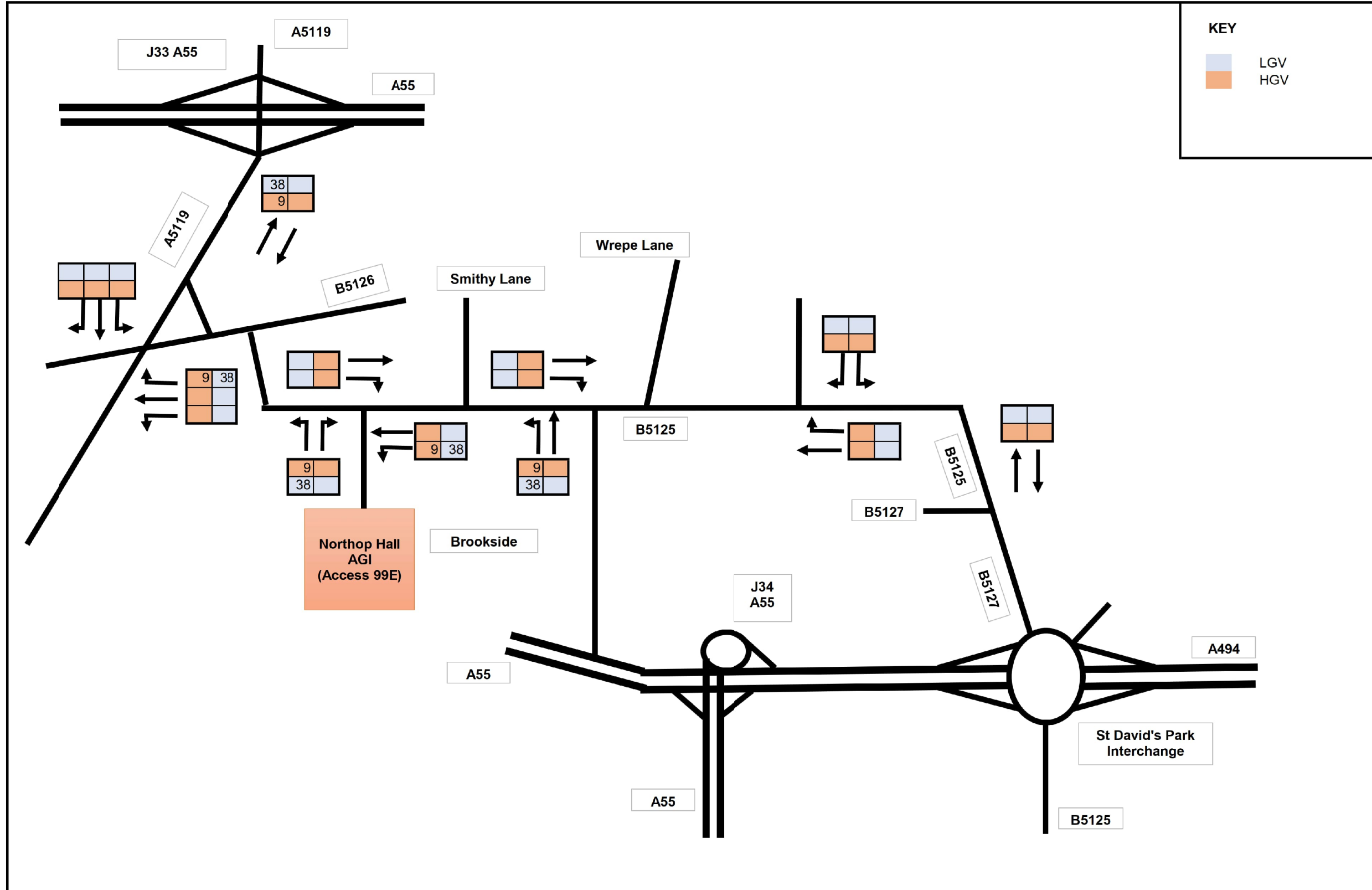
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Daily Vehicle Movements: Peak Month

AGI CTR3 - Northop Hall Above Ground Installation

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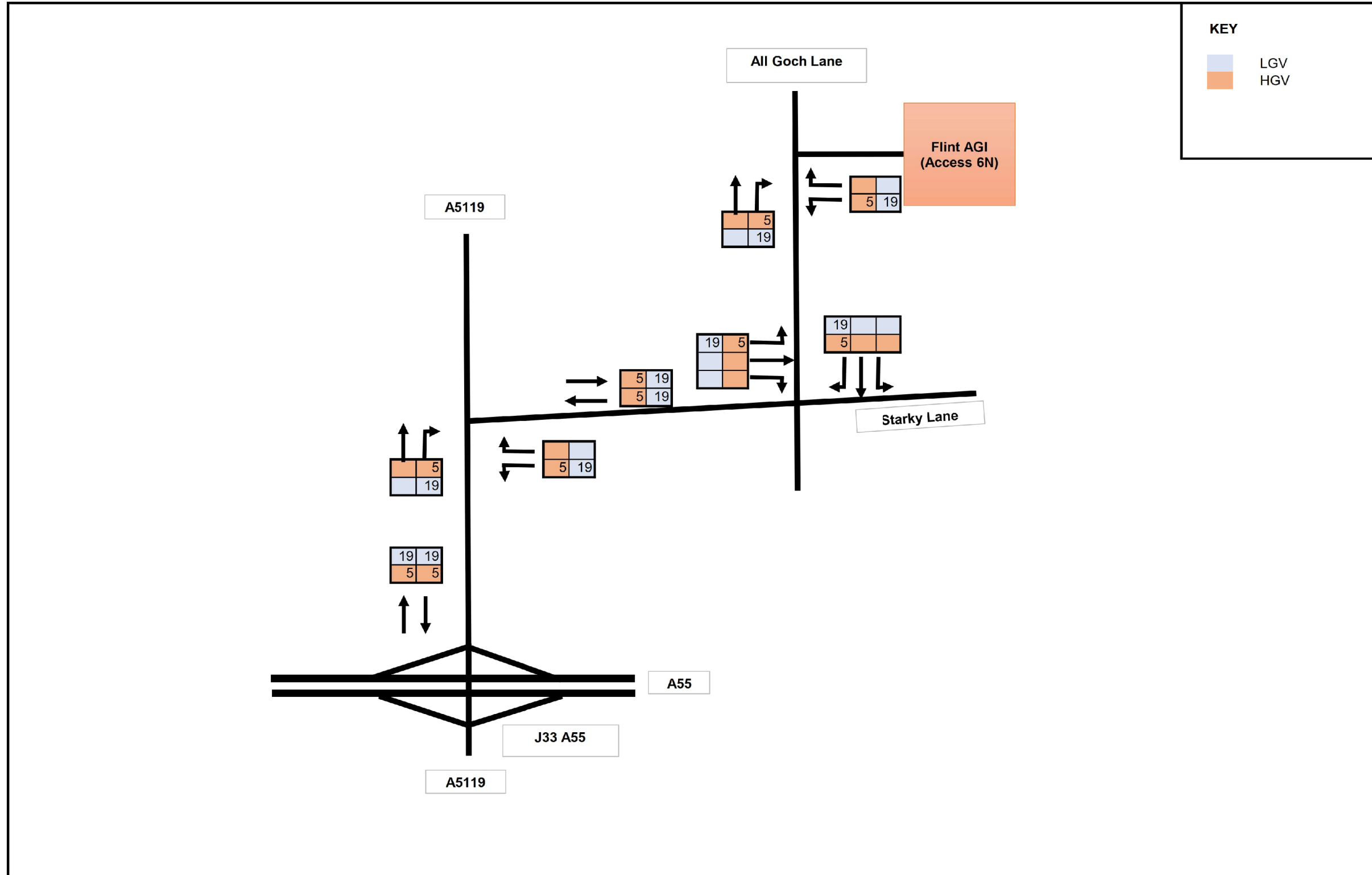




Daily Vehicle Movements: Peak Month

AGI CTR4 - Flint Above Ground Installation

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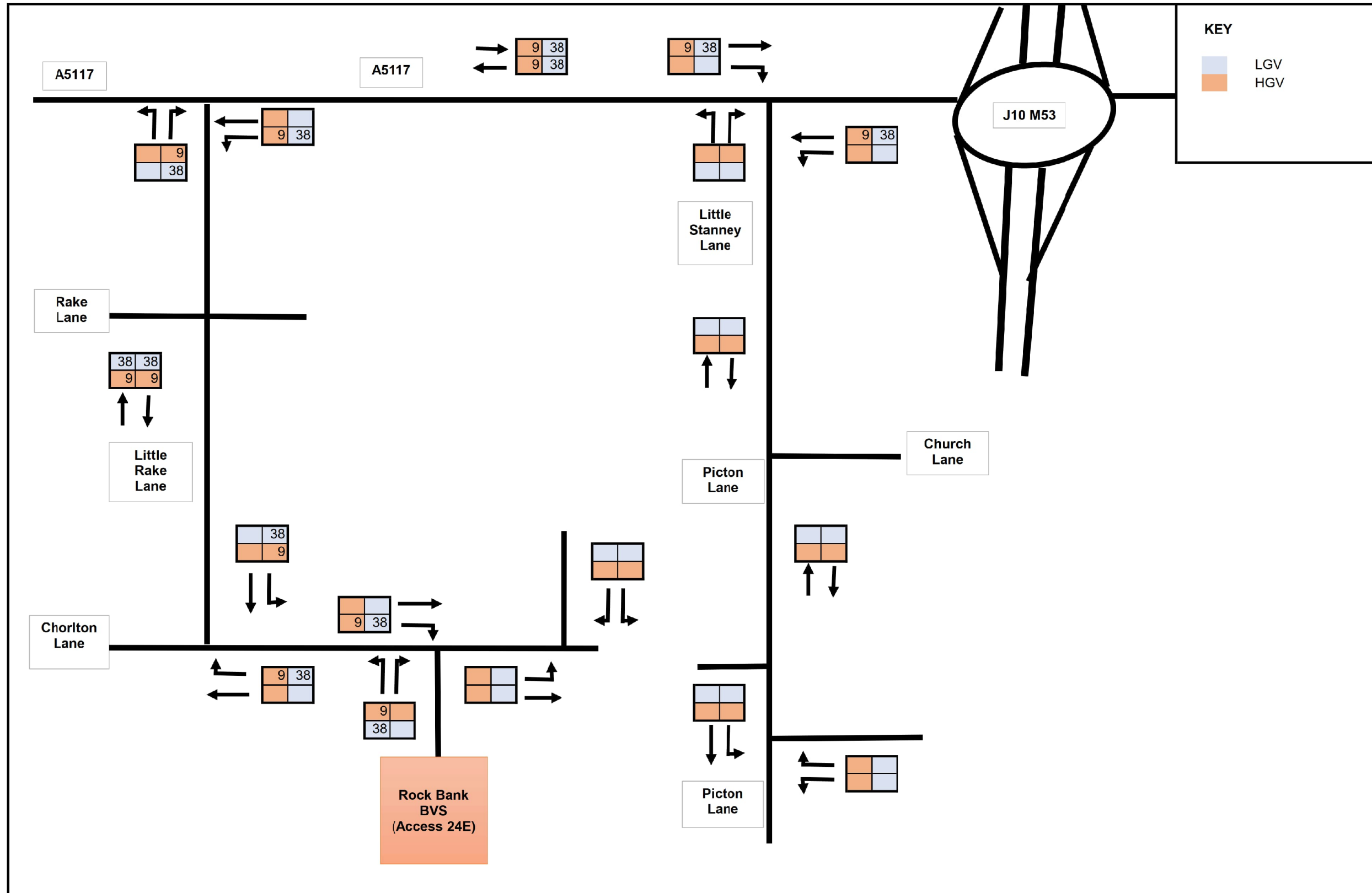
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Daily Vehicle Movements: Peak Month


BVS CTR1 - Rock Bank Block Valve Station

HYNET NW DCO



**KEY**

 LGV

 HGV

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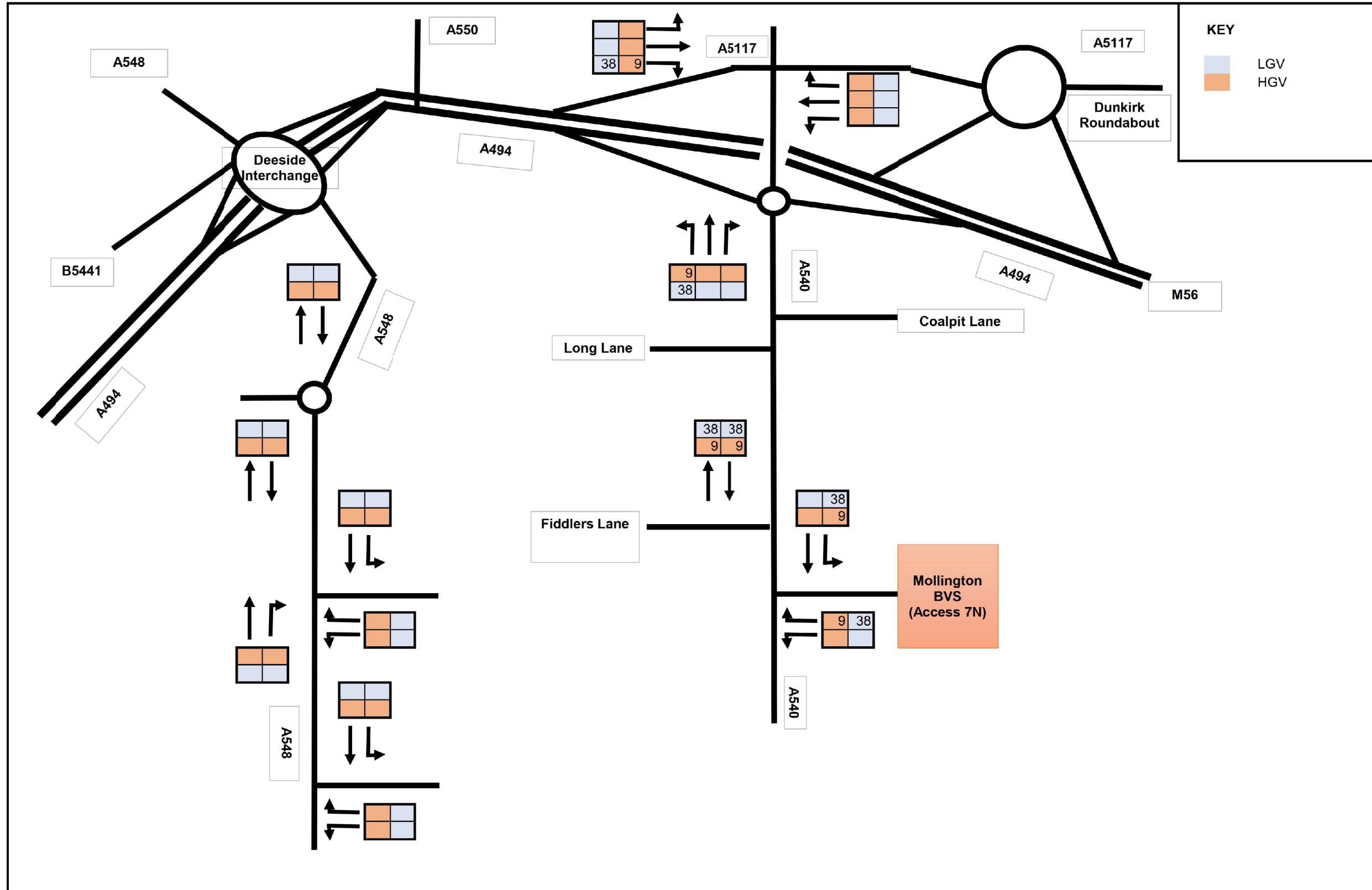
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Daily Vehicle Movements: Peak Month

BVS CTR2 - Mollington Block Valve Station

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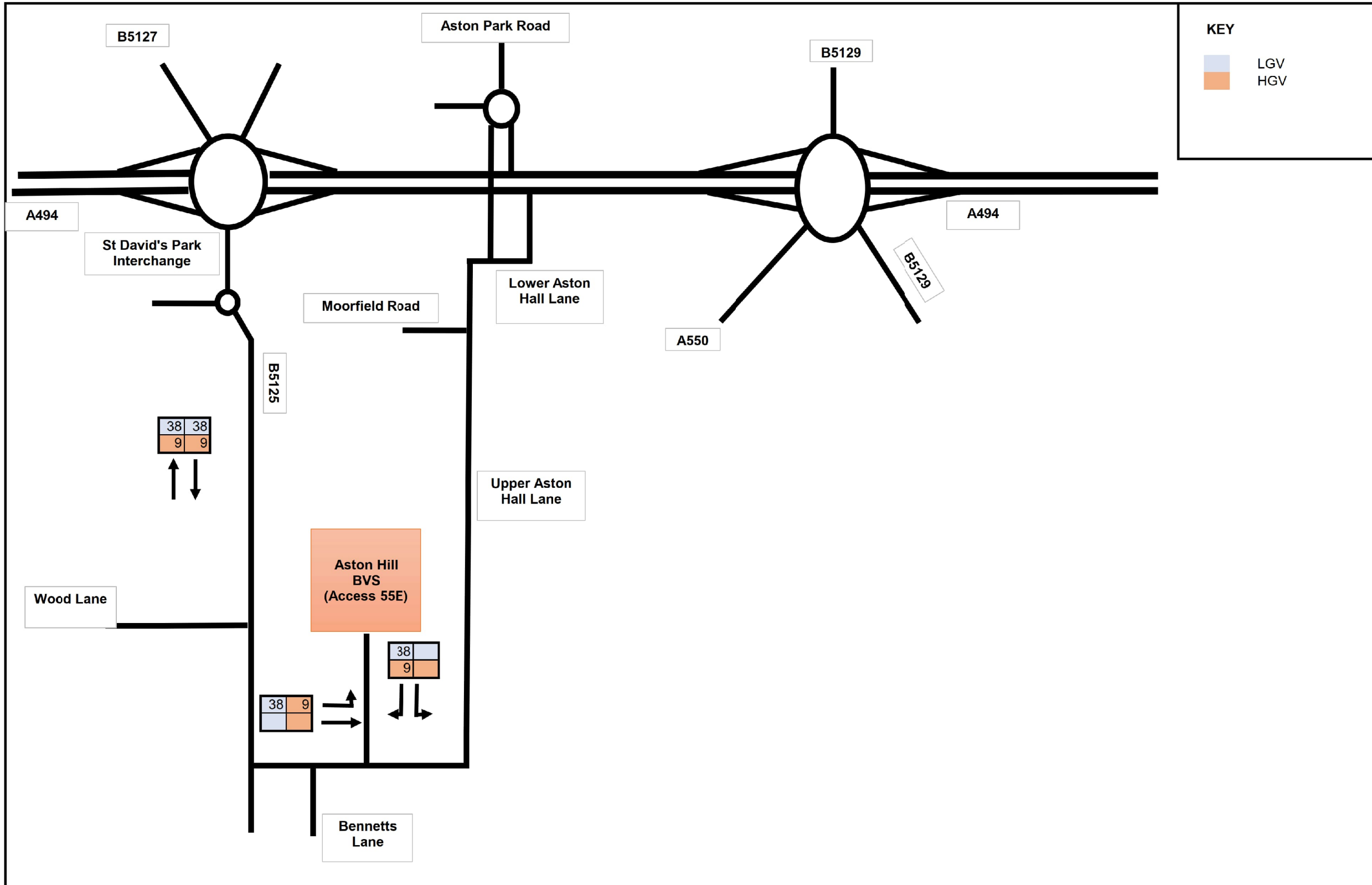
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Daily Vehicle Movements: Peak Month

BVS CTR3 - Aston Hill Block Valve Station

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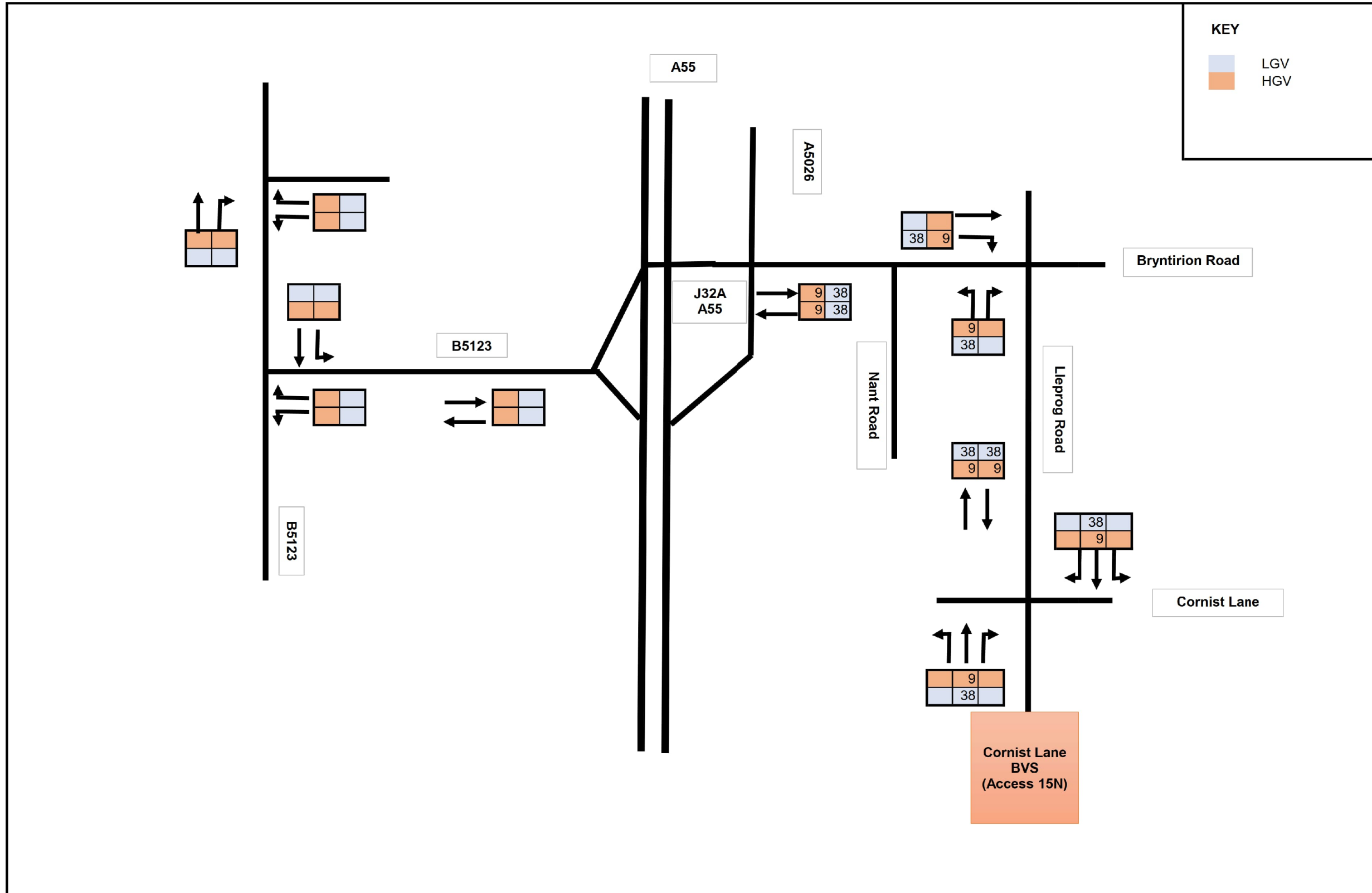
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Daily Vehicle Movements: Peak Month

BVS CTR4 - Cornist Lane Block Valve Station

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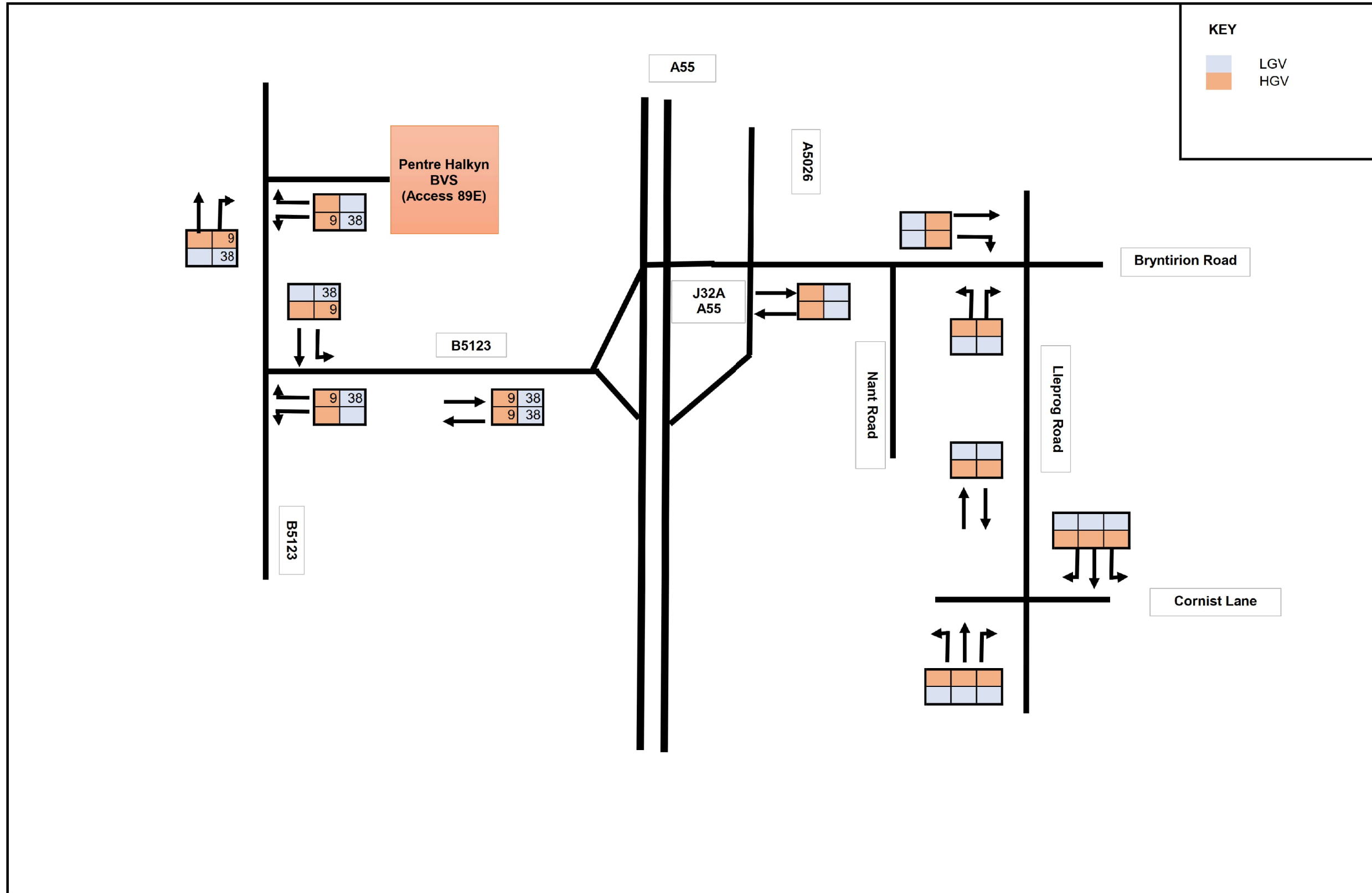
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
Daily Vehicle Movements: Peak Month


BVS CTR5 - Pentre Halkyn Block Valve Station

HYNET NW DCO



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 LGV

 HGV

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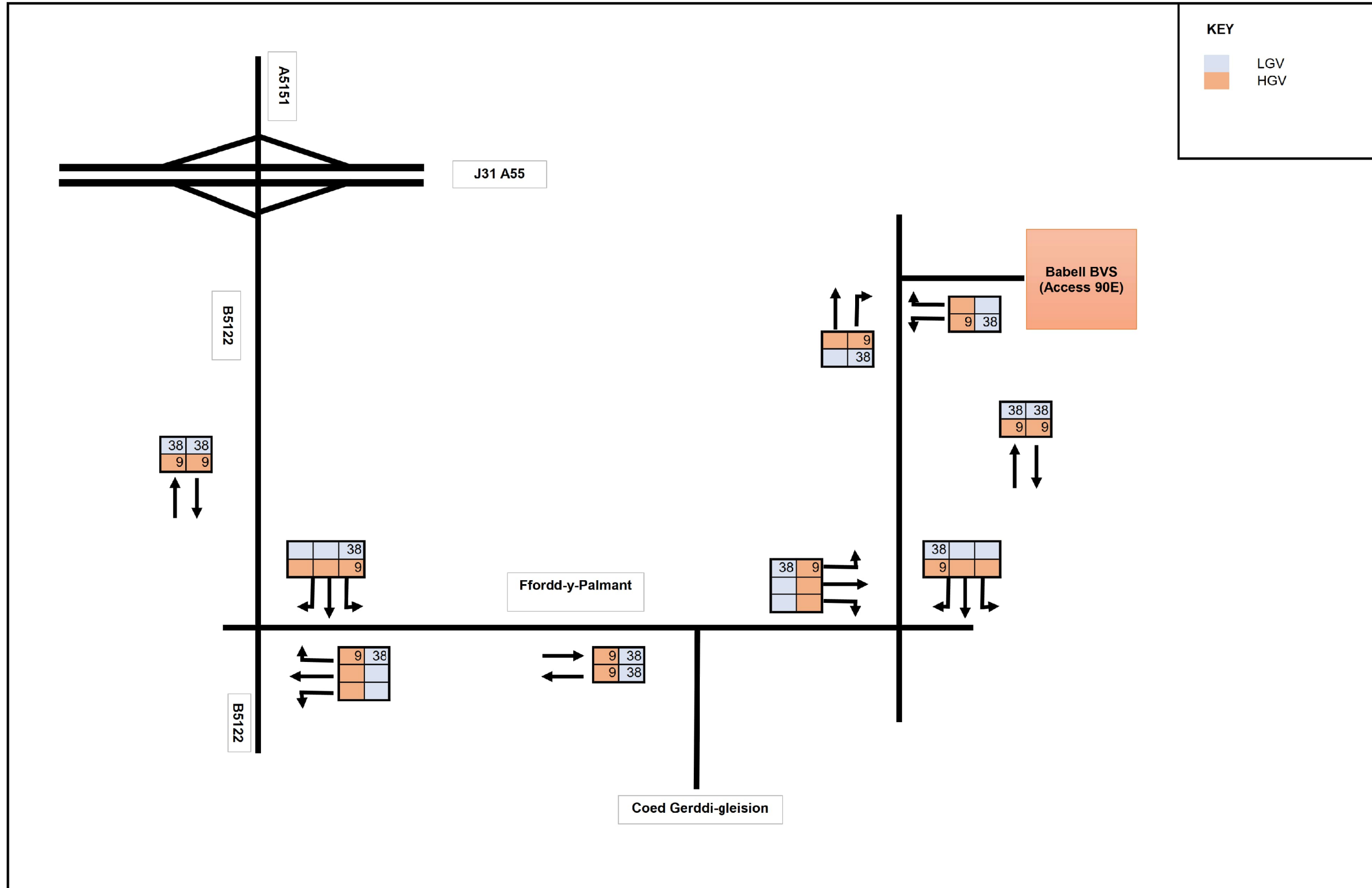
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Daily Vehicle Movements: Peak Month

BVS CTR6 - Babel Block Valve Station

HYNET NW DCO



**KEY**

LGV

HGV

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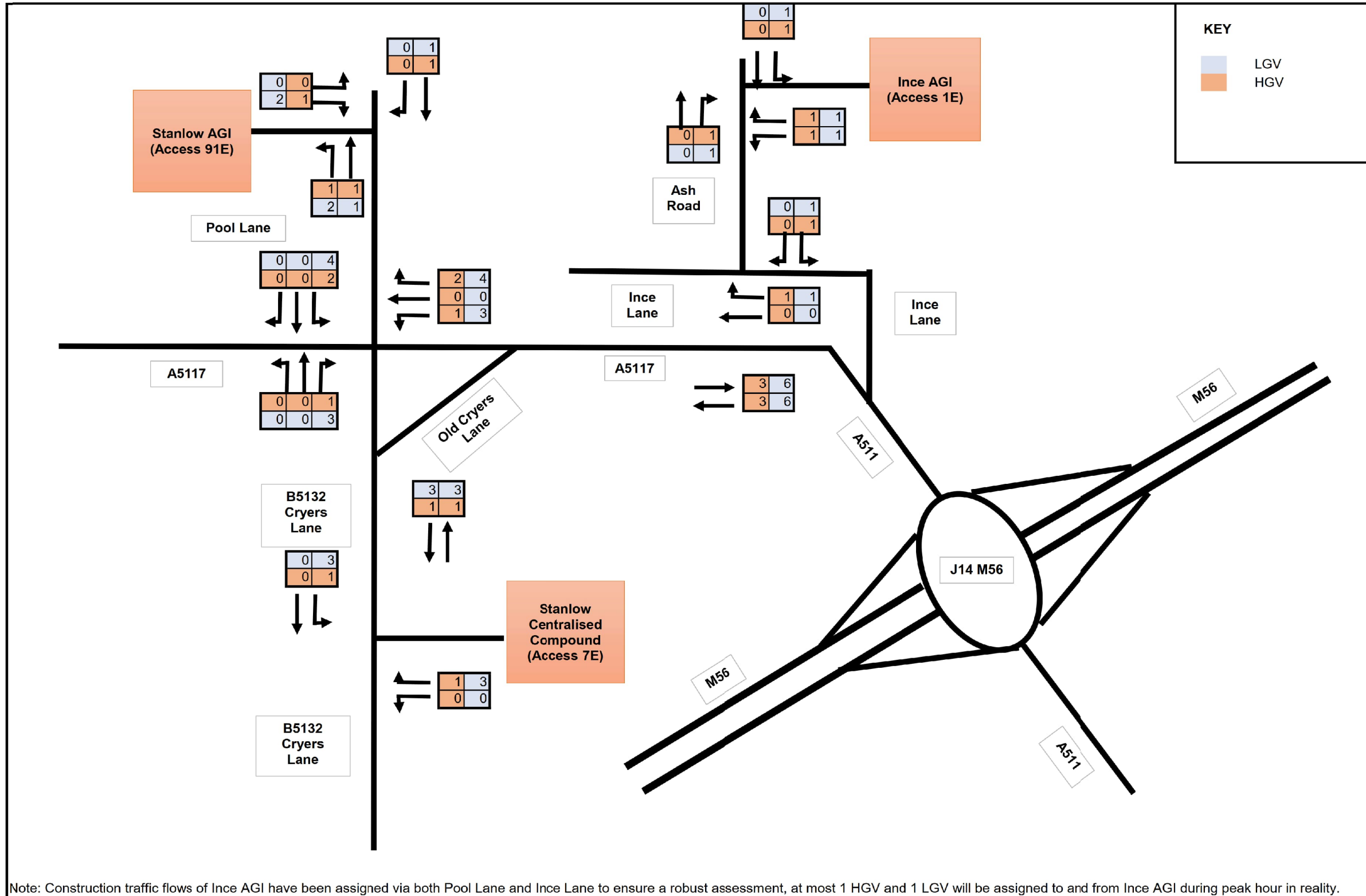
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 1

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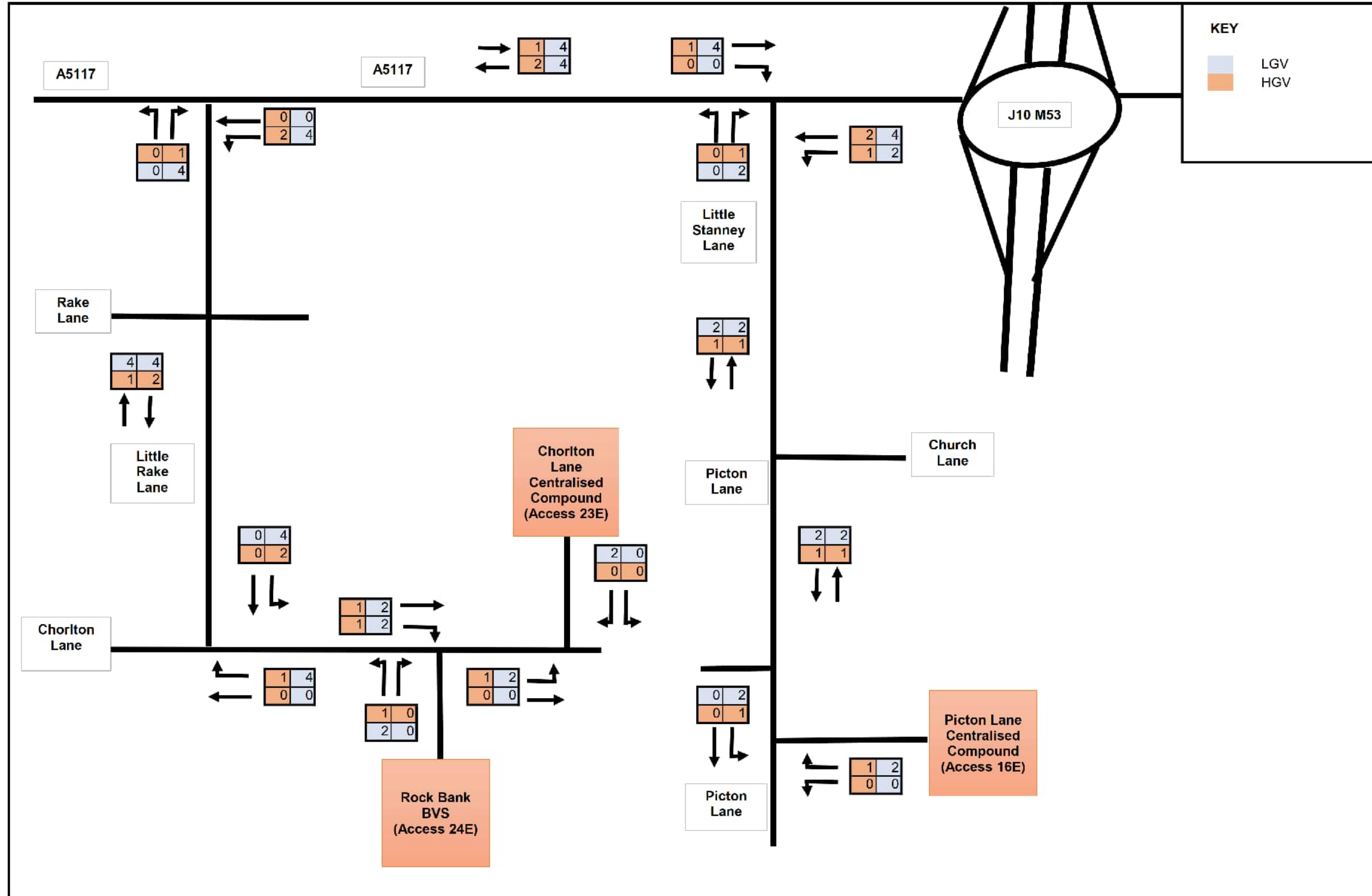




AM Peak Hour Vehicle Movements: Peak Month

CTR Area 2

HYNET NW DCO



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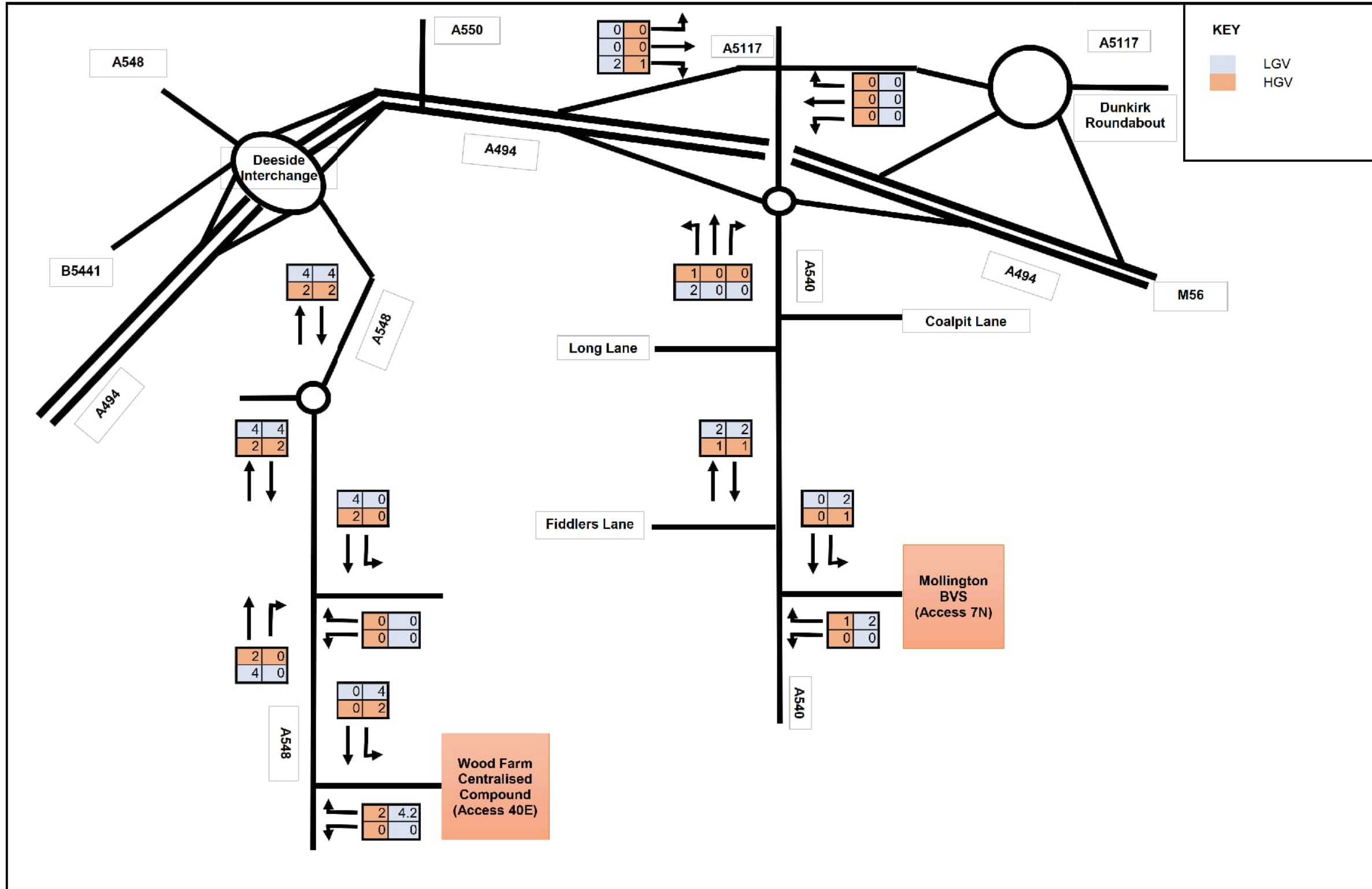
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 3

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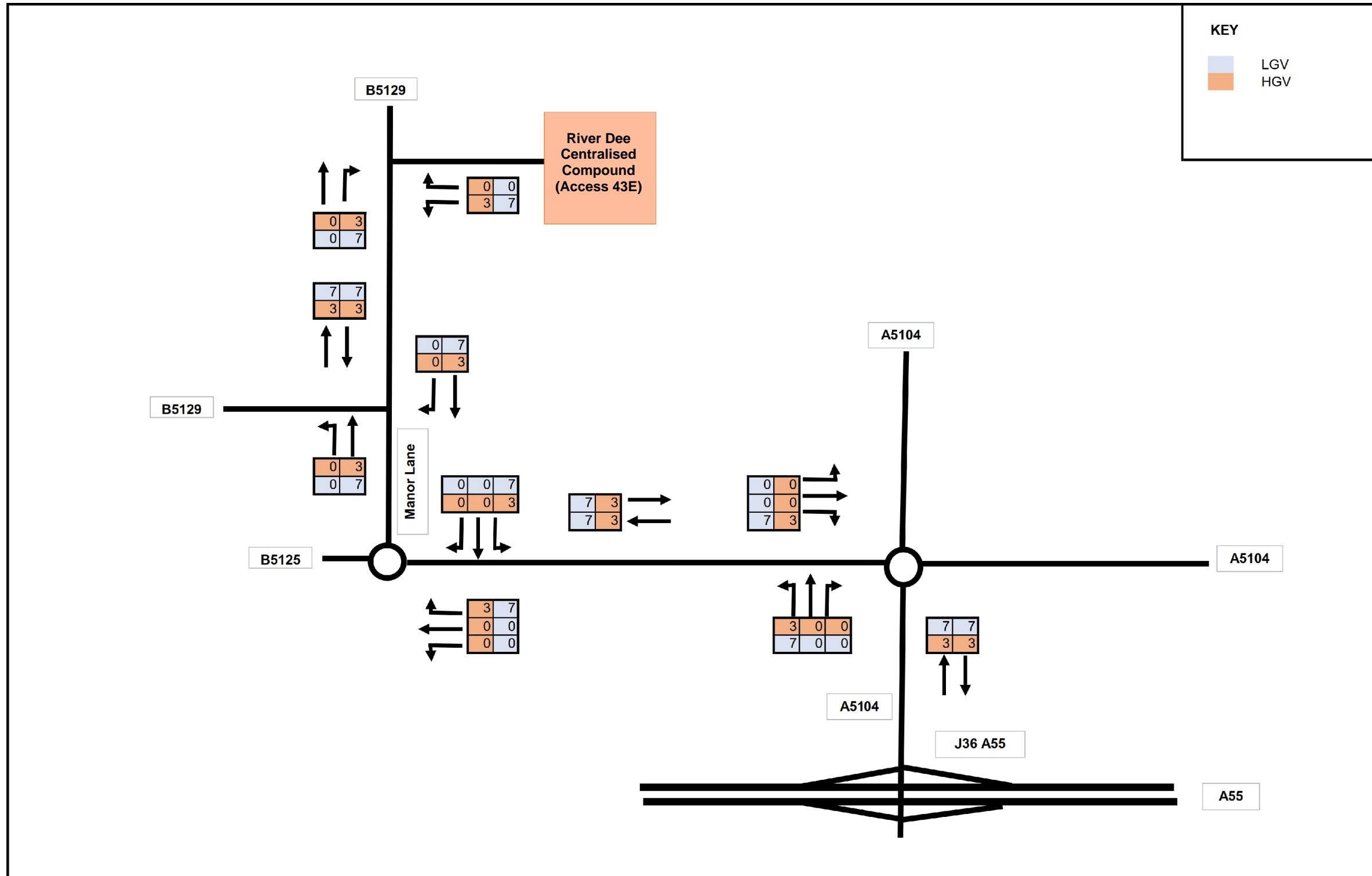
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 4

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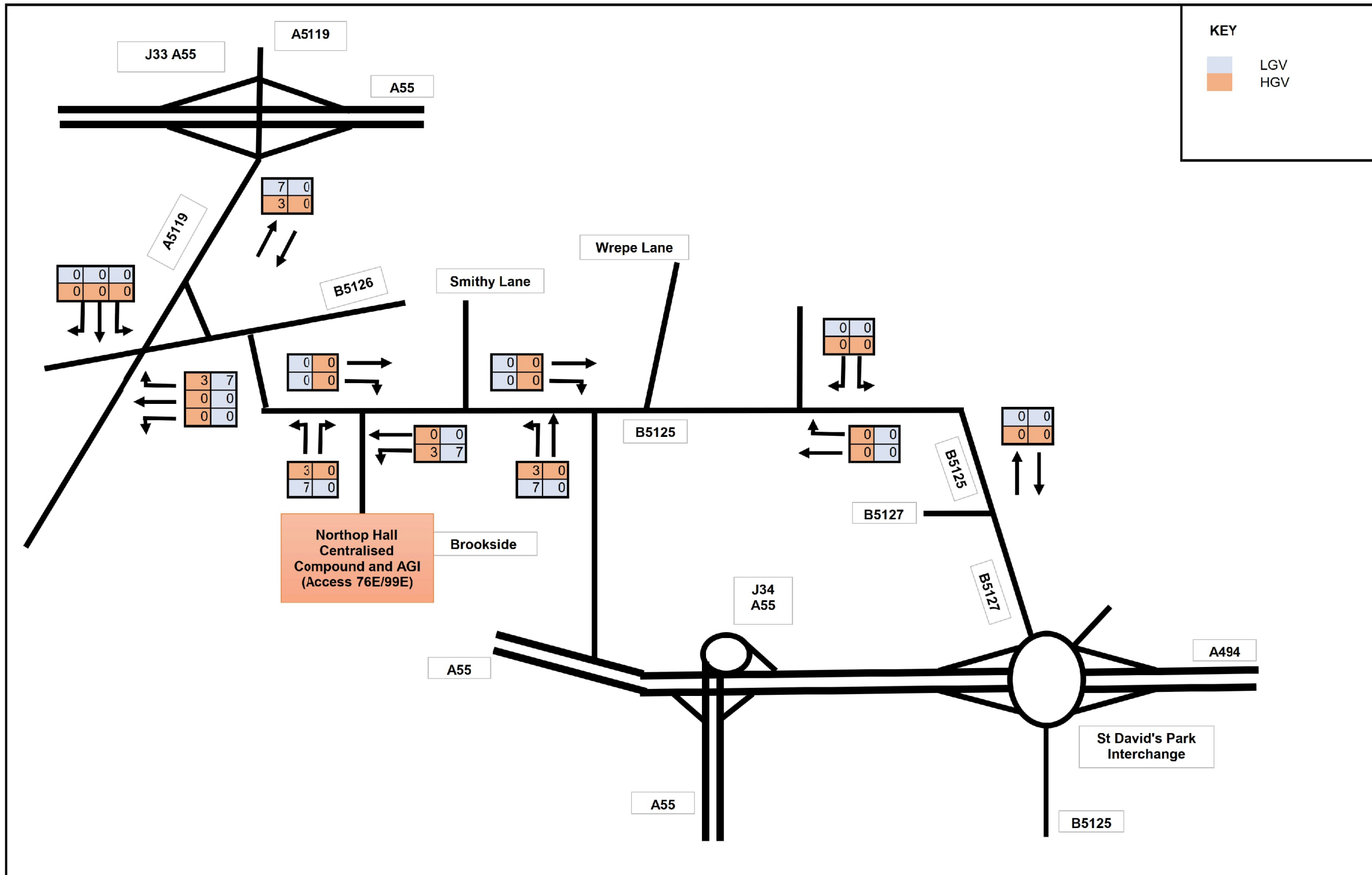
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 5

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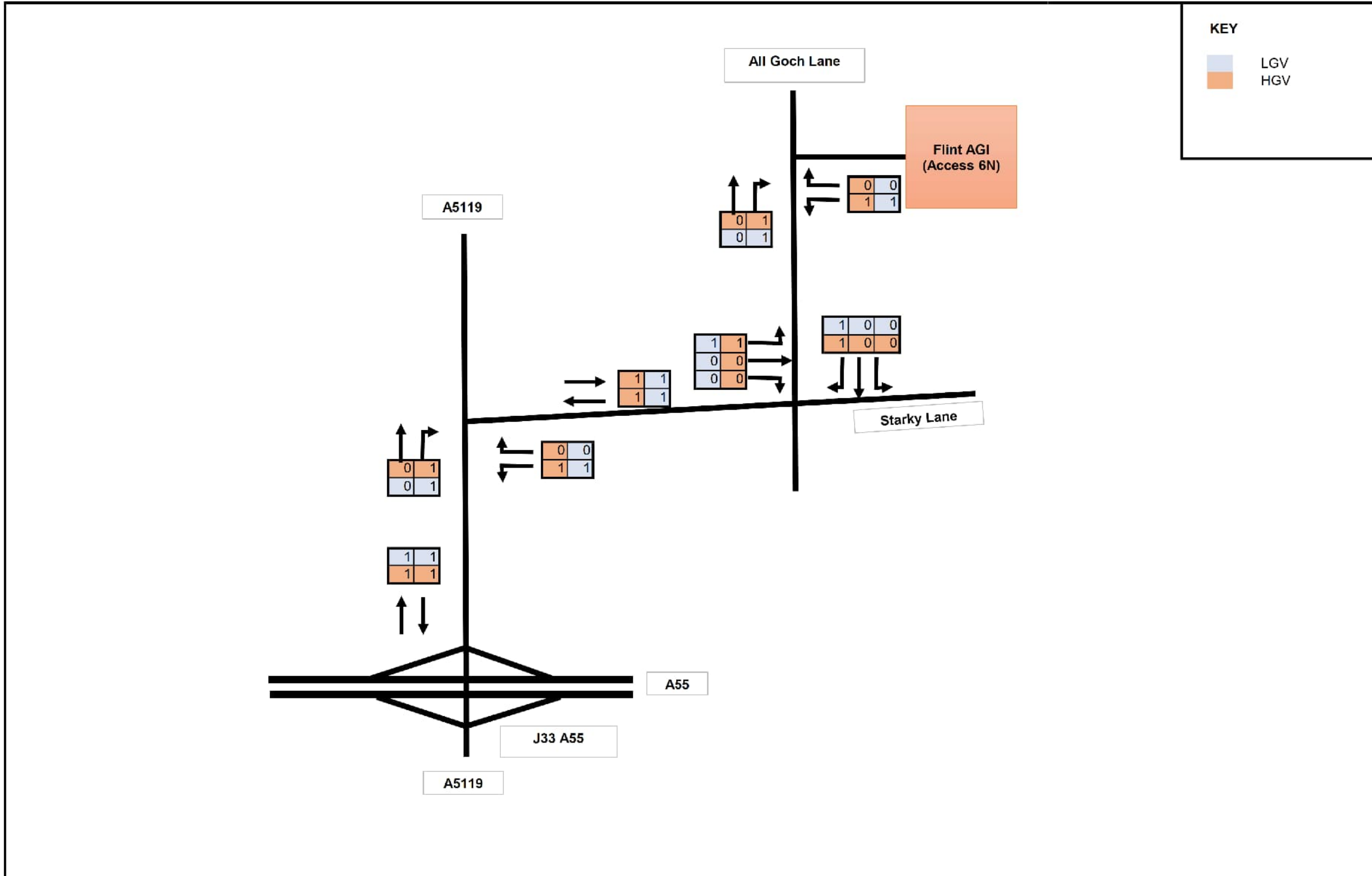
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 6

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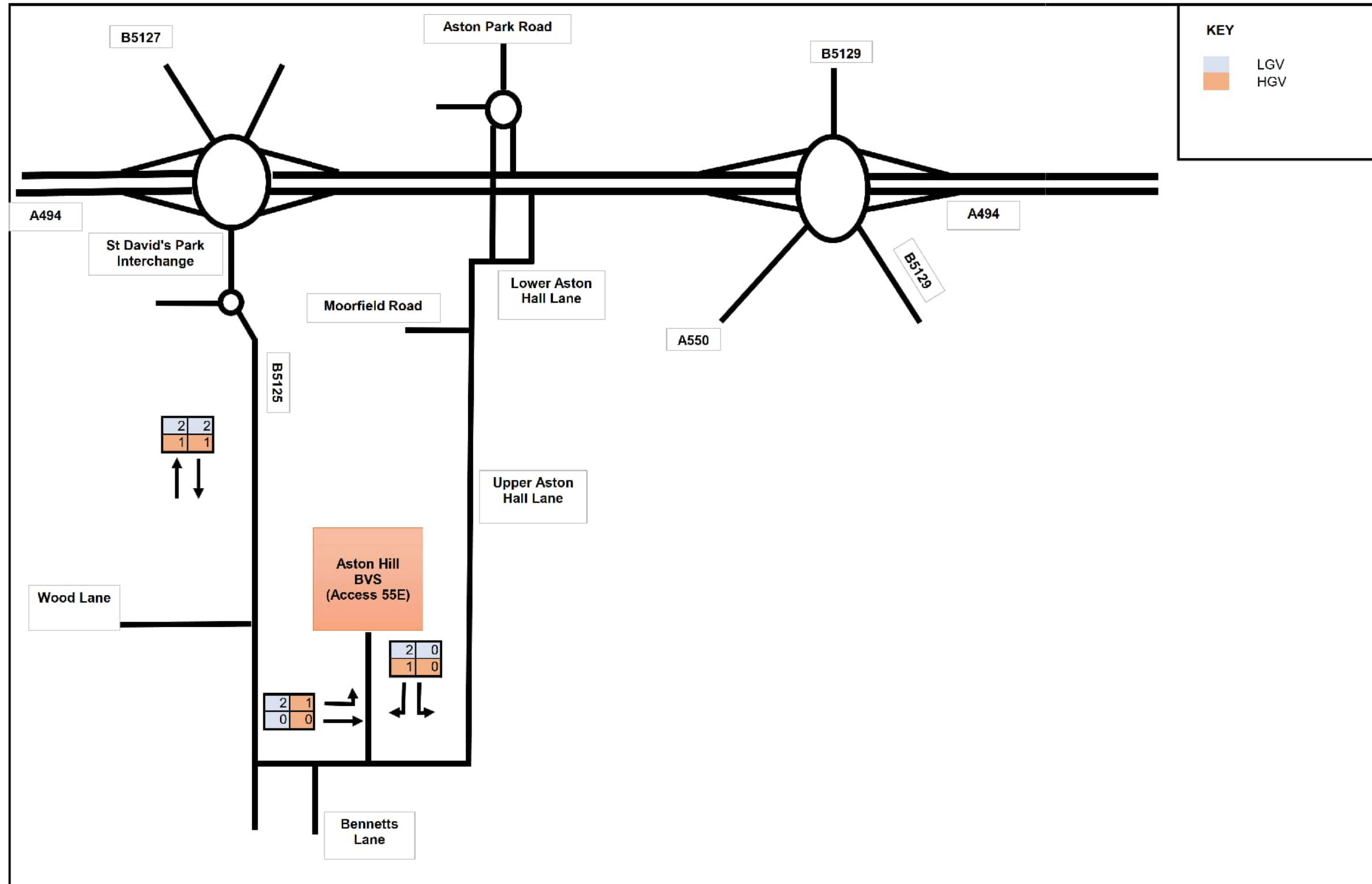
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 7

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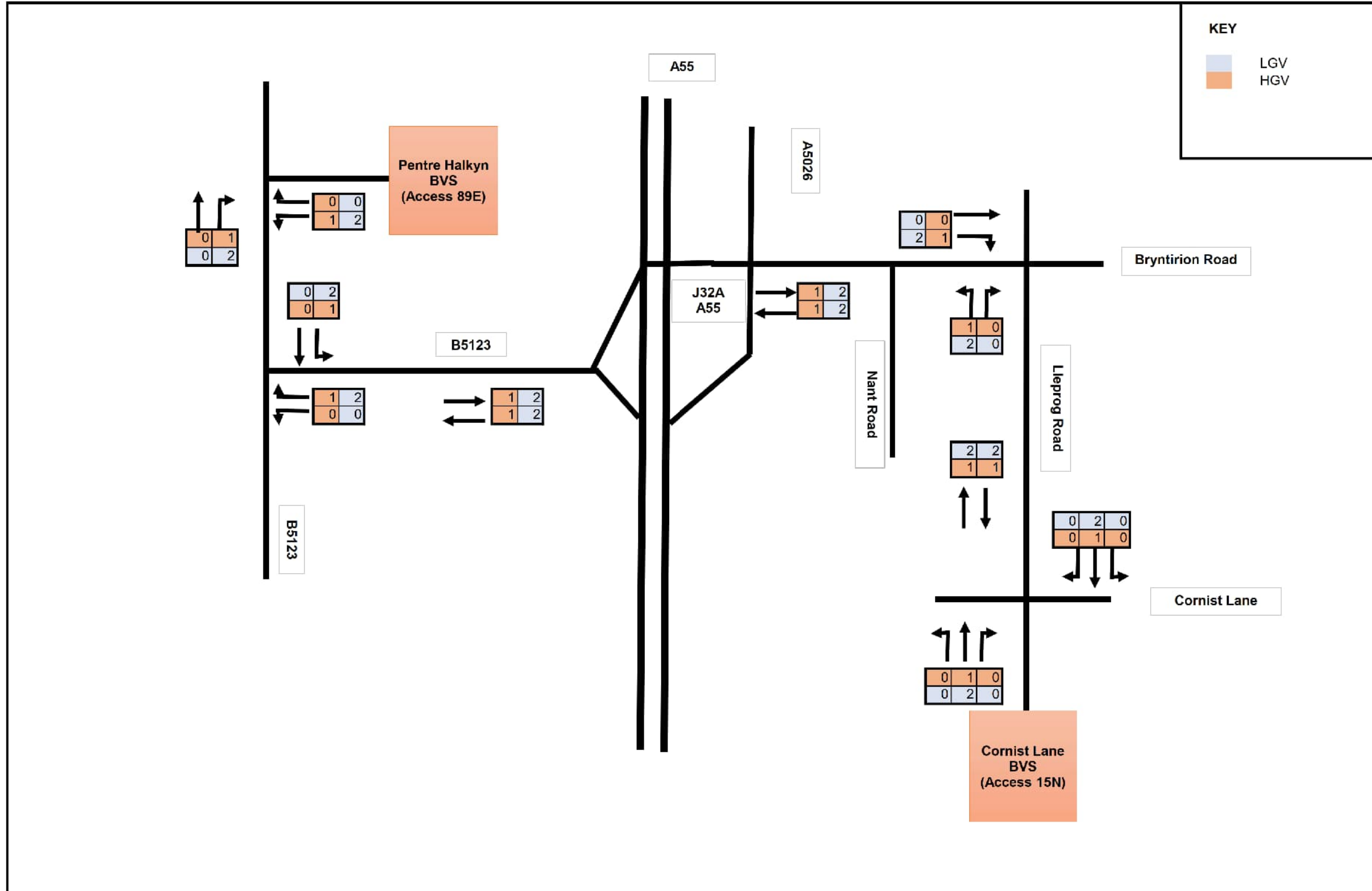
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AM Peak Hour Vehicle Movements: Peak Month

CTR Area 8

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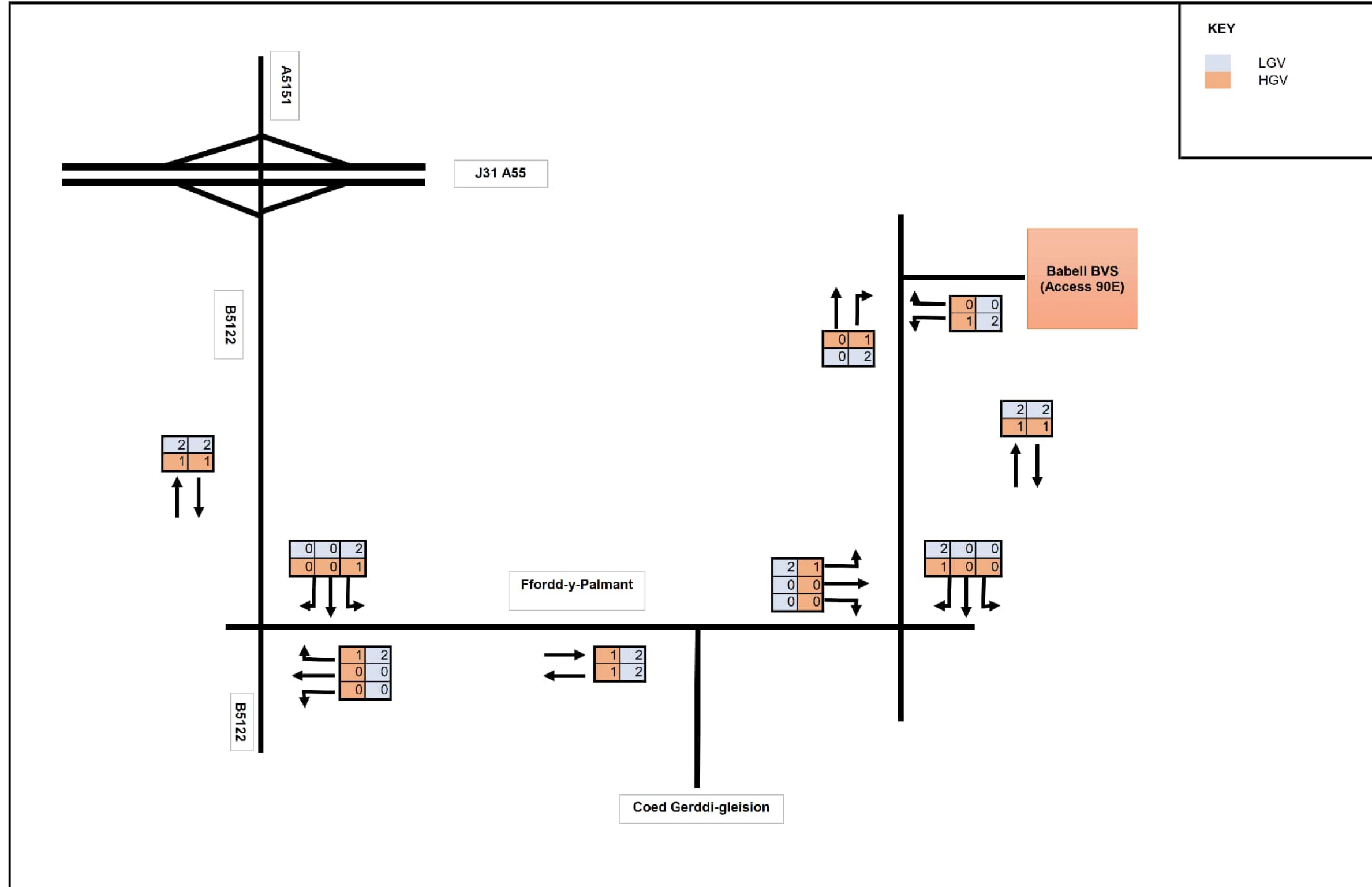
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AM Peak Hour Vehicle Movements: Peak Month


CTR Area 9

HYNET NW DCO



**KEY**

 LGV

 HGV

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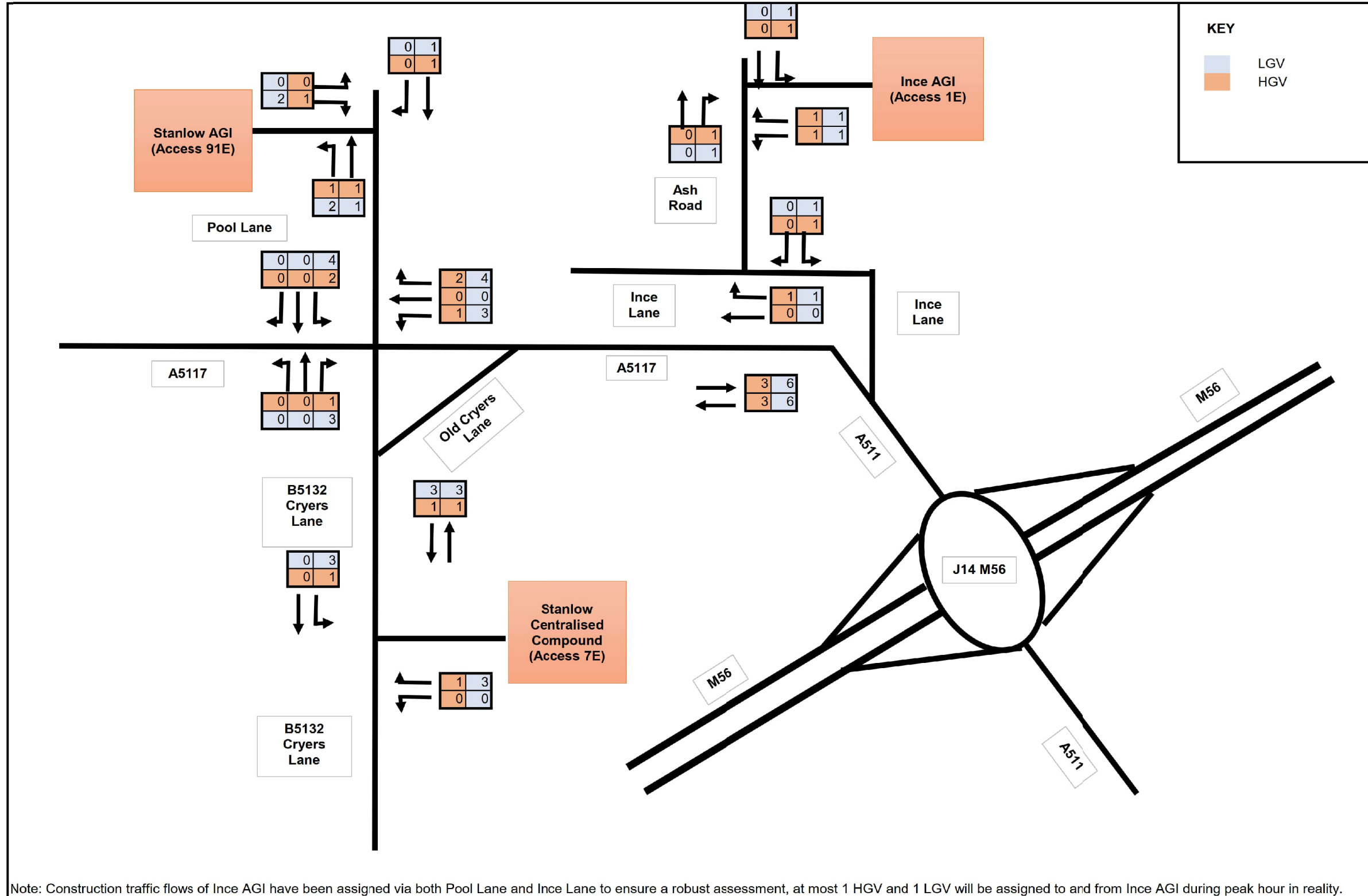




PM Peak Hour Vehicle Movements: Peak Month

CTR Area 1

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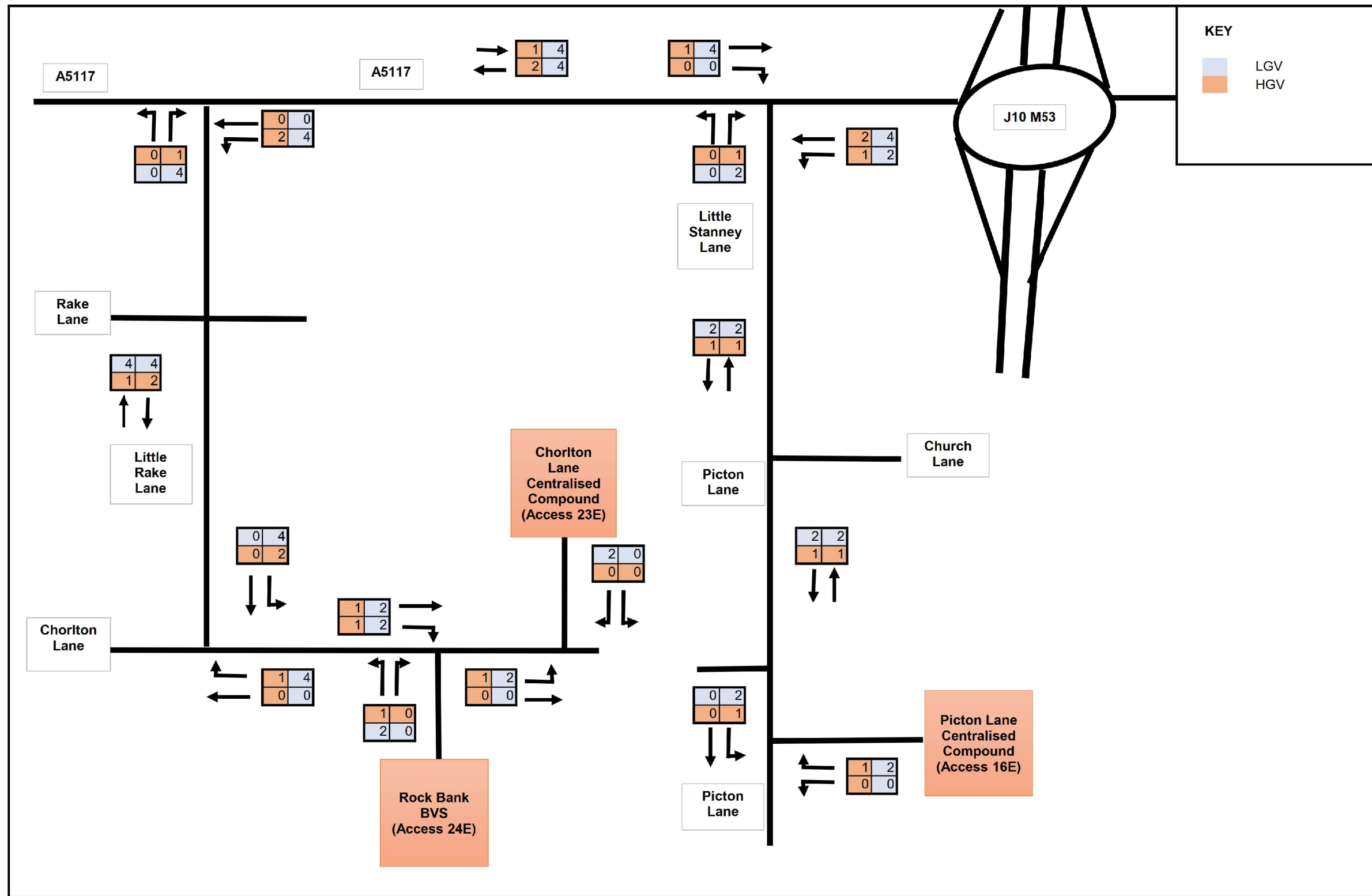
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 2

HYNET NW DCO



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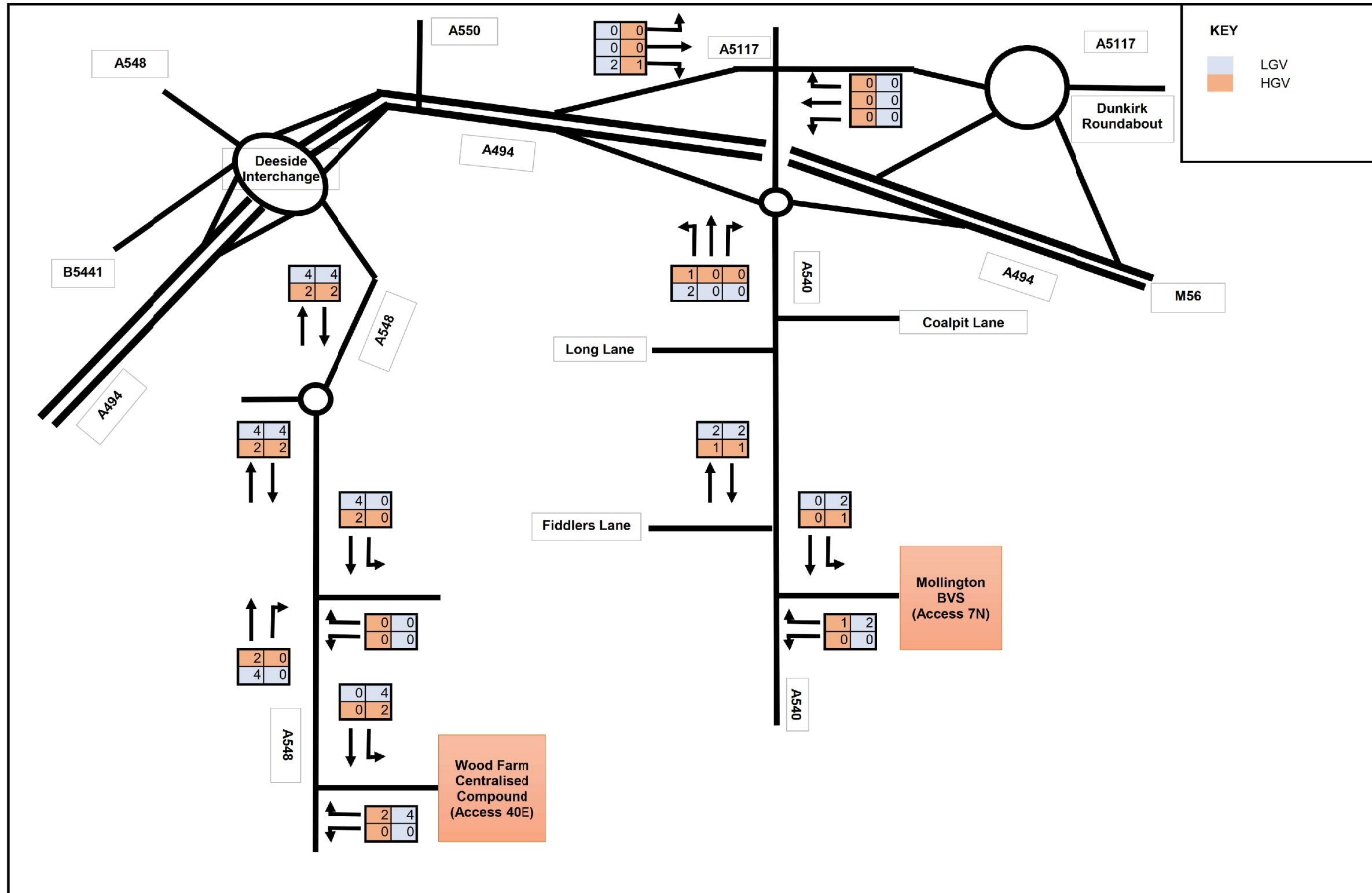
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 3

HYNET NW DCO



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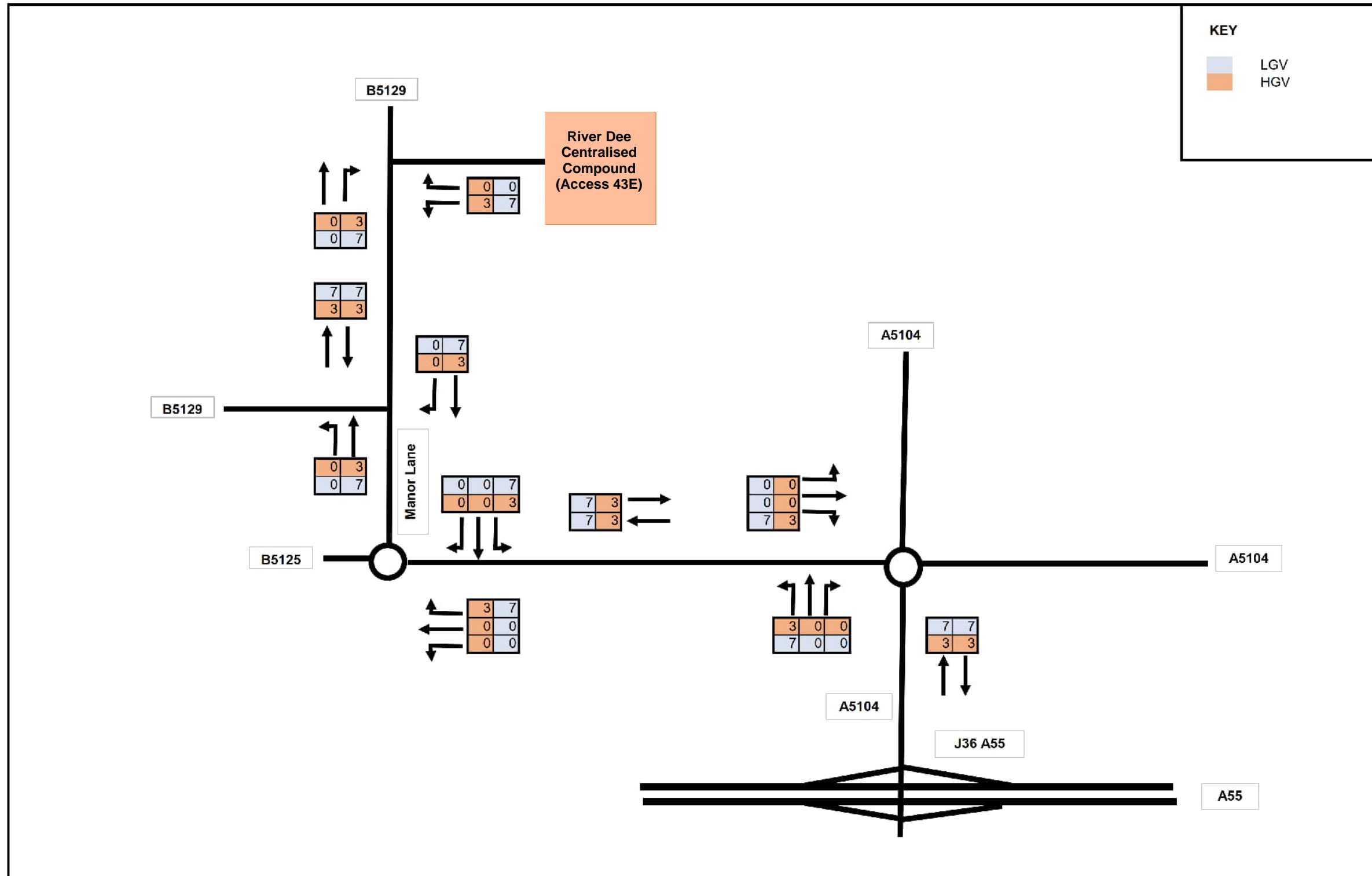
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 4

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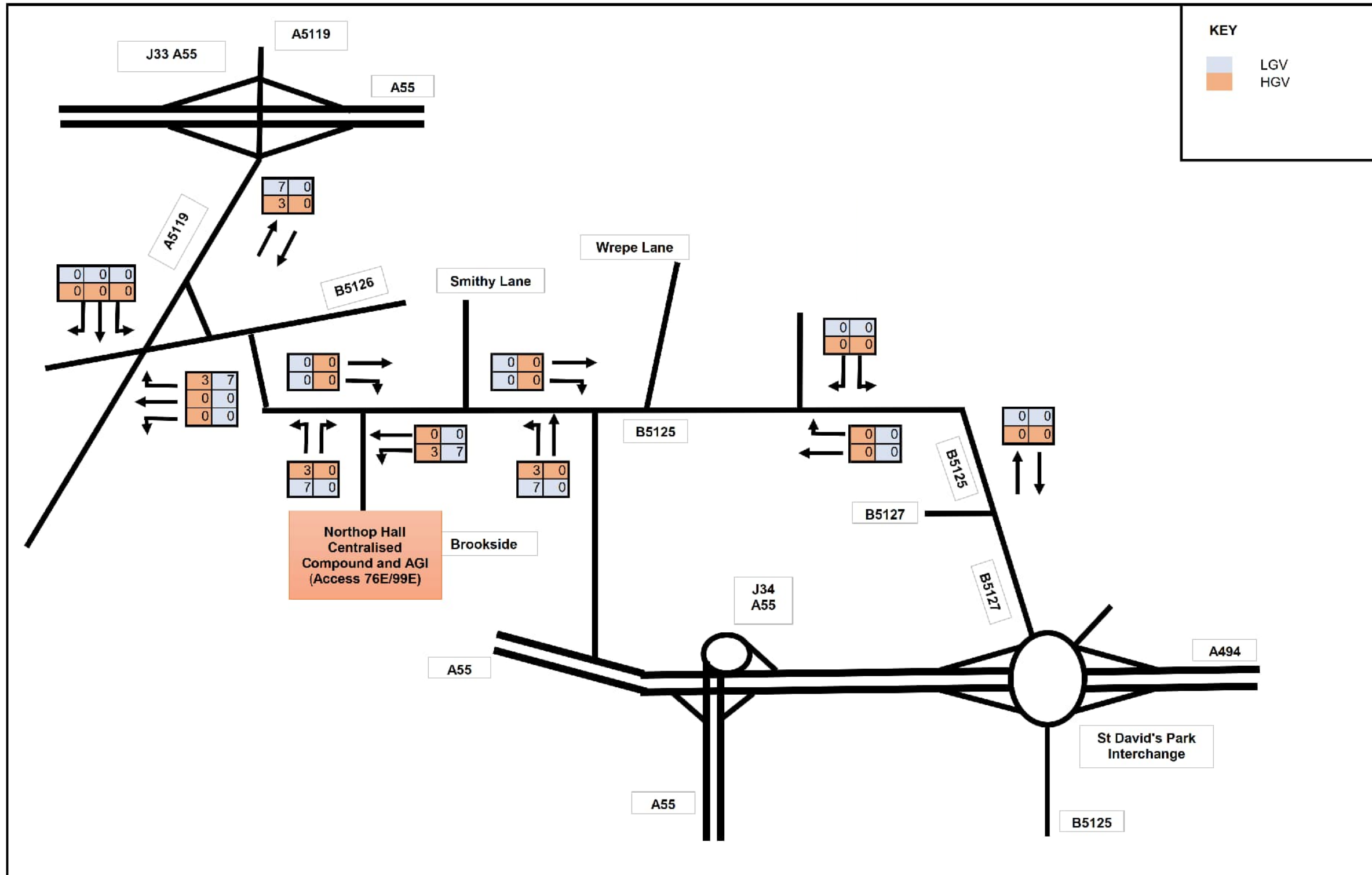
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 5

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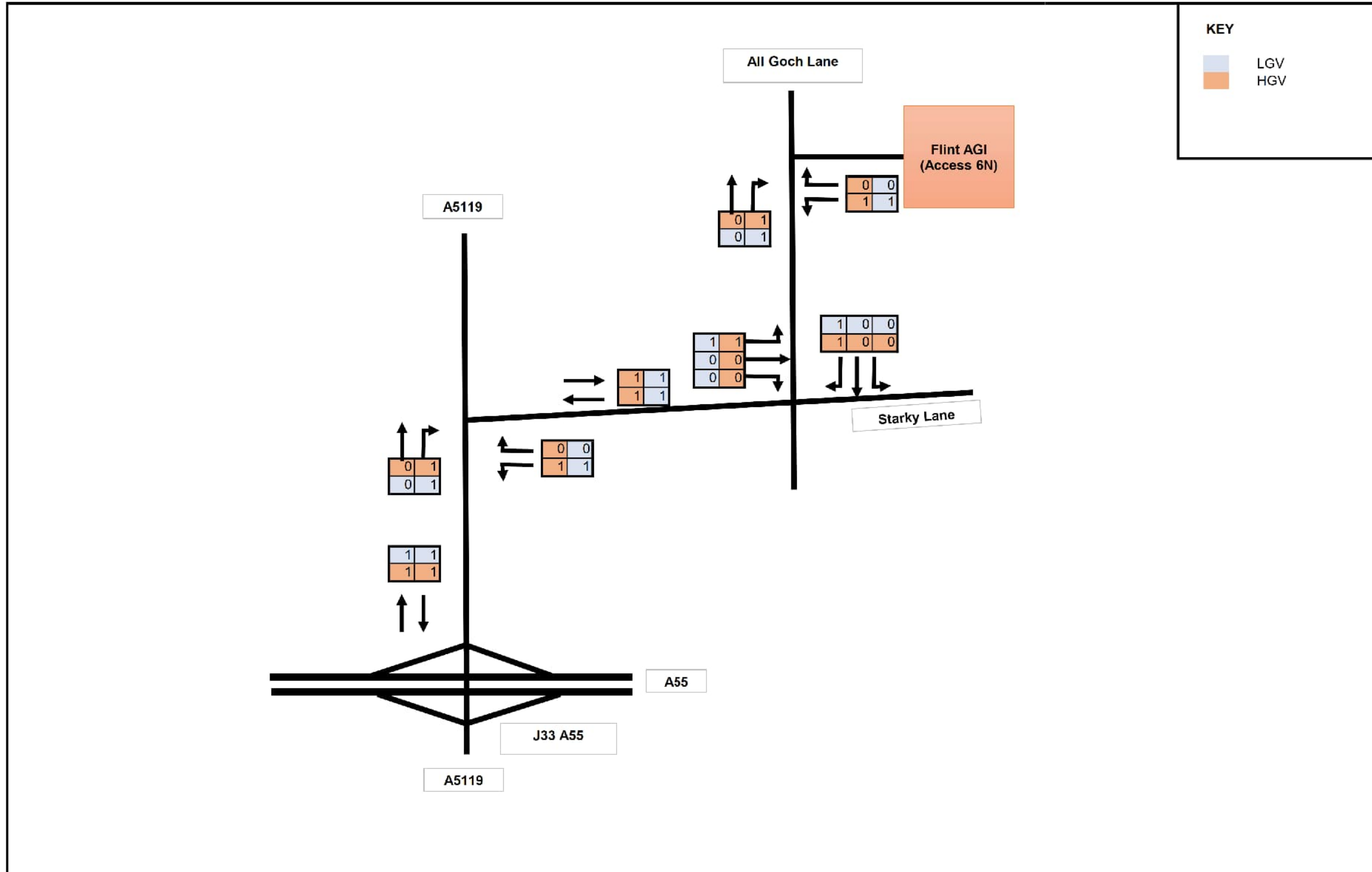
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 6

HYNET NW DCO



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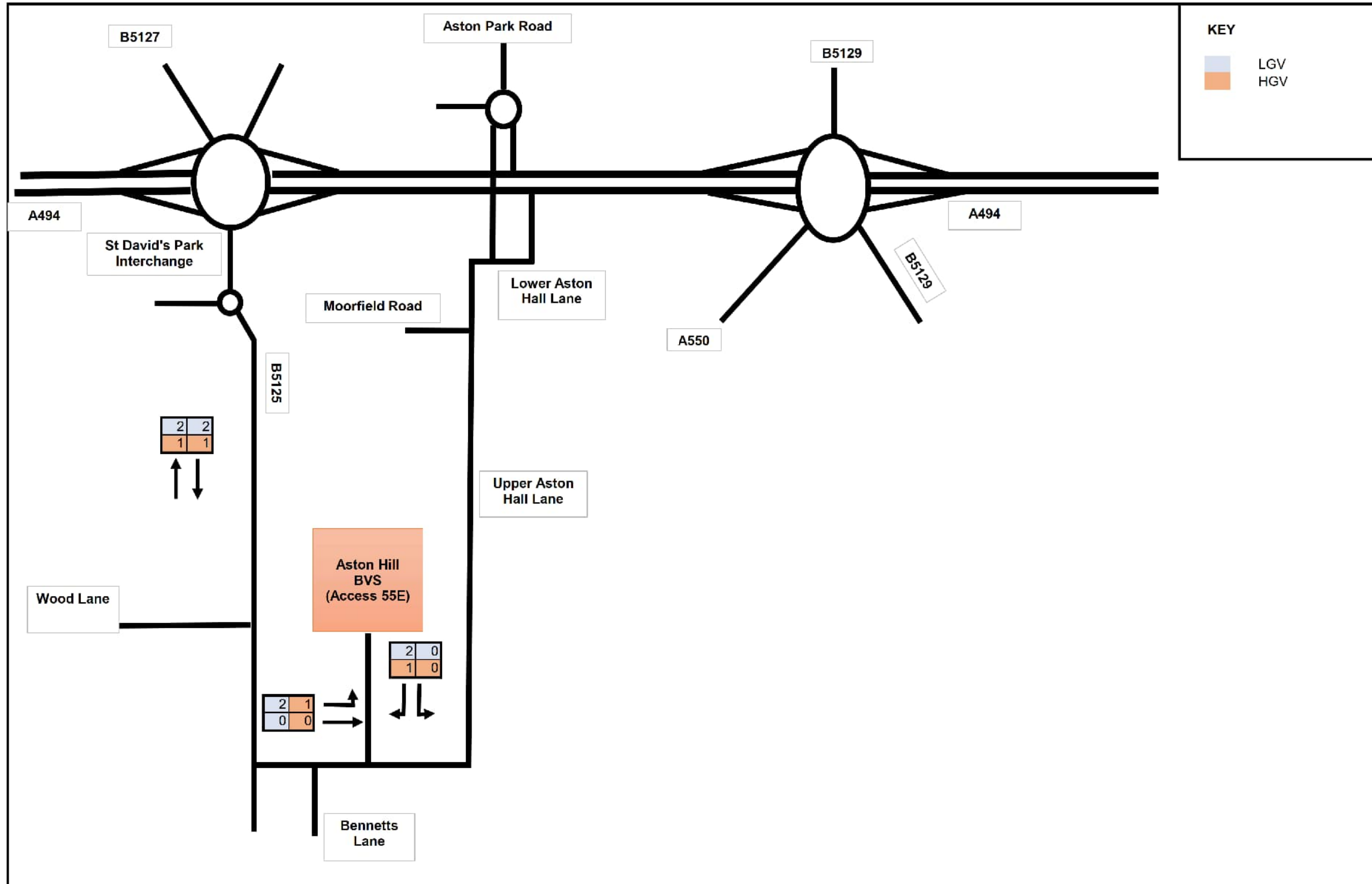
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 7

HYNET NW DCO



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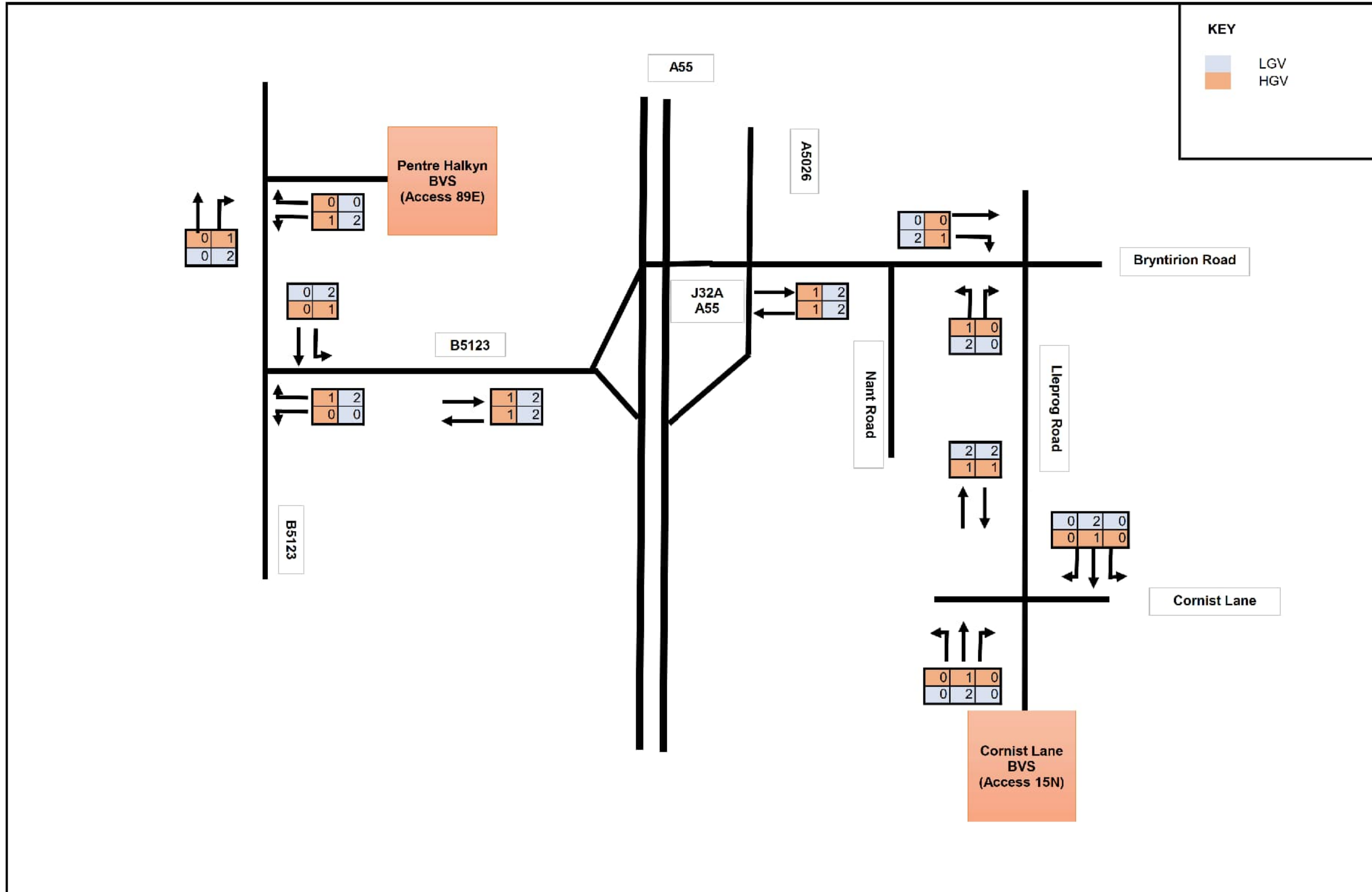
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PM Peak Hour Vehicle Movements: Peak Month

CTR Area 8

HYNET NW DCO



**KEY**

	LGV
	HGV

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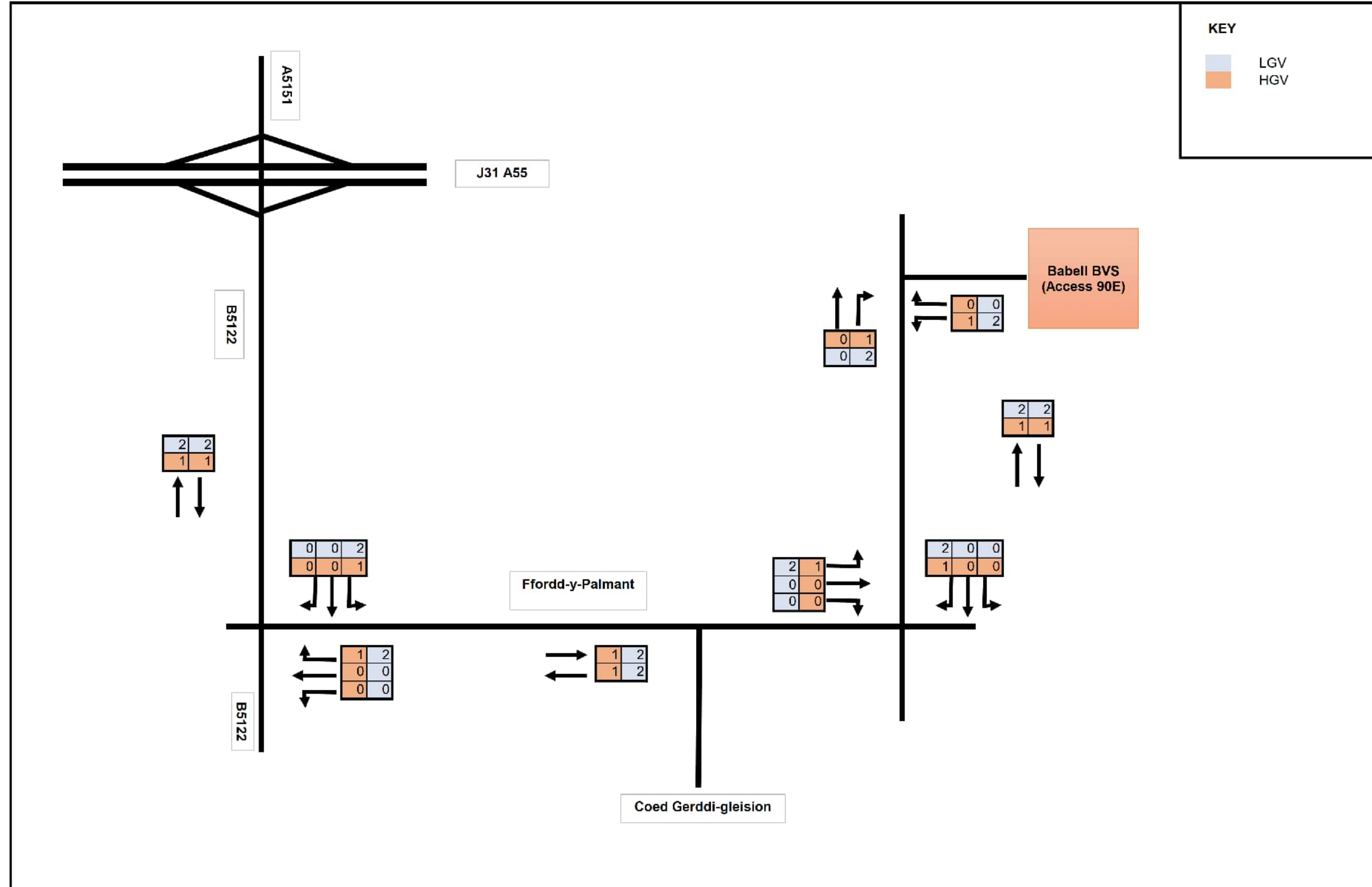




PM Peak Hour Vehicle Movements: Peak Month

CTR Area 9

HYNET NW DCO



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Figure 2 (Sheet 18)




# Annex C




## BASELINE CONDITIONS SUMMARY TABLE




Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
1	A5117 1		<p>The A5117 is a dual carriageway road that connects Stanlow Manufacturing Complex in the west to the M56 in the south-east.</p> <p>This section of the A5117 is subject to a speed limit of 60mph.</p> <p>This carriageway is 7.3m wide and has a large verge along its edge and central reservation.</p>	678	48	781	36
2	A5117 2		<p>The A5117 is a dual carriageway road that connects Stanlow Manufacturing Complex in the west to the M56 in the south-east.</p> <p>This section of the A5117 is subject to a speed limit of 60mph.</p> <p>This carriageway is 7.3m wide and has a large verge along its edge and central reservation.</p>	1588	31	1995	10
3	B5132 Cryers Lane		<p>The B5132 is a class B single 2-lane carriageway that connects the A5117 to the north with the settlement on Brudge Trafford to the south.</p> <p>This section of the B5132 is subject to a speed limit of 60mph.</p> <p>This carriageway is 7.3m wide. The road is flanked by ditches in both directions.</p>	134	4	170	2

Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
4	Little Stanney Lane		<p>Little Stanney Lane is a class C single 2-lane carriageway that connects the A5117 to the north to the settlement of Stoak to the southeast.</p> <p>This section of carriageway is subject to a speed limit of 60mph.</p> <p>This carriageway is 5.5m wide with a footway running parallel to the southeast bound carriageway.</p>	118	0	151	1
5	Picton Lane		<p>Picton Lane is a class C single 2-lane carriageway that connects the settlements of Stoak to the north with Picton to the southeast.</p> <p>This section of carriageway is subject to a speed limit of 60mph.</p> <p>This carriageway is 5.5 wide and flanked on both sides by large hedgerow.</p>	22	0	30	1
6	Rake Lane		<p>Rake Lane is a class C single 2-lane carriageway that connects the A41 (Liverpool Road) to the southwest with the settlements of Backford and Ellesmere Port to the north.</p> <p>This section of carriageway is subject to a speed limit of 60mph.</p> <p>This carriageway is 5.5m wide and is flanked by large hedgerow.</p>	188	1	150	0




Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
7	A548 Sealand Road		<p>Sealand Road is a class B single 2-lane carriageway that connects the settlements of Sealand in the northwest and Blacon to the southeast.</p> <p>This section of carriageway is subject to a speed limit of 50mph.</p> <p>This carriageway is 7.3m wide and has a footway running parallel to its northbound lane.</p>	1409	30	1534	11
8	B5129		<p>The B5129 is a class B single 2-lane carriageway that connects the settlement of Saltney Ferry to the east with Hawarden Airport to the south.</p> <p>This section of carriageway is subject to a speed limit of 60mph.</p> <p>This carriageway is 5.5m wide and has a footway along its southbound lane.</p>	298	4	304	1
9	B5125 1		<p>This section of the B5125 is the section between the Northop Hall AGI compound in and Northop Hall AGI (west of Brookside).</p> <p>The speed limit transition from the National Speed Limit (60mph) to</p> <p>The carriageway width varies but is on average around 6.0m-6.5m.</p> <p>The character becomes more residential to the east and rural to the west. Northop Hall AGI Cricket Club is located immediately north of this section.</p>	173	1	152	1




Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
10	B5125 2		<p>This section of the B5125 is the section between the Northop Hall AGI Compound and the B5126 to the west.</p> <p>It is predominantly rural in character and to the national speed limit.</p> <p>No footways are provided on this section. The carriageway is around 6.0m wide.</p>	173	1	152	1
11	B5126		<p>The B5126 runs in an east-west alignment between Connahs Quay and Shotton in the east to Northop Hall AGI in the West, crossing the A55 via an overbridge east of Northop.</p> <p>The section forming part of the DCO Proposed Development CTR is rural in character initially before transitioning to residential in Northop.</p> <p>It is subject to a 40mph speed limit.</p>	925	12	857	6
12	A5119 1		<p>The A5119 is a class A single 2-lane carriageway that connects the A548 with the settlement of Flint to the east.</p> <p>This section of carriageway is subject to a speed limit of 30mph.</p>	1268	21	1118	9




Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
13	Ince Lane		Ince Lane is an A class 2-lane single carriageway road southeast connecting the settlement of Elton in the northwest to the A5117 to the southeast. This section of Ince Lane is subject to a 40mph speed limit until a point immediately west of the Ash Road junction, where it reduces to a 30mph speed limit. The carriage way is approximately 10.5m wide with footways on each side.	532	20	481	9
14	Ash Road		Ash road is an Unclassified single 2-lane carriageway between Ince Lane in the South and The Encirc Glass Site Entrance to the north. It is subject to a 30mph speed limit.  The carriageway is around 7.3m in width with a hatched central reserve.  A footway is provided on the western side of the carriageway. There is a buffer of trees and vegetation between Ash Road and Elton.	300	31	309	17
15	Pool Lane		Pool Lane runs in a north south alignment between  The Stanlow Manufacturing Complex and the University of Chester Thornton Science Park is located to the west. Pool lane provides access to both of these locations and is industrial in nature.  It is a classified unnumbered road and subject to the national speed limit (60mph). It is around 15m wide, providing two lane in each direction.	380	58	384	44




Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
16	Starkey Lane		<p>Starkey Lane is an unclassified rural lane located east of the A5119. It provides access to Allt-goch Lane.</p> <p>It is subject to the national speed limit.</p> <p>It is rural in character and provides agricultural access and to a few residential properties.</p> <p>No footways are provided on Starkey Lane.</p>	25	1	26	0
17	Allt Goch Lane		<p>Allt-Goch Lane is an unclassified rural lane located east of the A5119. It is accessed from Starkey lane.</p> <p>It is subject to the national speed limit.</p> <p>It is rural in character and provides agricultural access and to a few residential properties.</p> <p>No footways are provided on Allt-Goch lane.</p> <p>It provides access, via Coed Onn Road, to flint in the North.</p>	14	0	15	0
18	Chorlton Lane		<p>Chorlton lane is an Unclassified rural lane situated to the north of Upton-by-Chester and the Shropshire Union Canal.</p> <p>It varies in width but is around 5.0m, providing passing place in a number of locations.</p> <p>It is rural in character and provides primarily residential and agricultural access.</p> <p>A 3.5t weight restrictions is in place to the south of Chorlton lane, minimising existing HGV use.</p>	27	0	31	0









Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
19	A540		<p>Parkgate Road is a class A wide single 2-lane carriageway that connects the M56 J16 to the northwest with Coalpit Lane to the southeast.</p> <p>This section of carriageway is subject to a speed limit of 50mph.</p> <p>This carriageway is 7.3m wide. This carriageway has a petrol station on the southbound side of the carriageway.</p>	1459	18	1434	7
20	Upper Aston Hall Lane		<p>Upper Aston Hall Lane is located to the north of the B5125 in Hawarden.</p> <p>At its southern end it is residential in nature, before coming more rural on approach to Lower Aston Hall Lane. There is a 3.98m height restriction at its northern end due to a railway crossing.</p> <p>A footway is provided on its western side where there is a residential frontage although this terminates north of the Hawarden and Ewloe Community Woodland.</p>	158	1	170	0
21	Lower Aston Hall Lane		<p>The is a class C single 2-lane carriageway that connects the settlements of Aston to the north with Hawarden and Ewloe to the south.</p> <p>This section of carriageway is subject to a speed limit of 30mph.</p> <p>This carriageway is 5.5m wide.</p>	187	1	136	1



Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
22	B5123		<p>This is a short section of the B5123 between Ffordd Groes and A55 J32A. It transitions from a 40mph speed limit in the east to 30mph on approach to Halkyn.</p> <p>it is subject to a steep incline westbound and does not provide footways.</p> <p>Residential properties are located on the northern side of the carriageway.</p>	491	42	435	8
23	Bryntyryion Road		<p>Bryn Tyrion Road is located east of A55 J32A and runs in an east-west alignment between this junction and Lleprog Lane.</p> <p>It is rural in character, approximately 5.0-5.5m in width and signed as being unsuited to Heavy Goods vehicles.</p> <p>there are not footways or street lighting on this link.</p>	164	1	177	1
24	Lleprog Lane		<p>Lleprog Lane is a narrow rural lane providing access to Lleprog Farm.</p> <p>It is single passing width for its length, providing agricultural access only.</p> <p>it si subject to the national speed limit.</p>	4	0	5	0

Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
25	Bryn Emlyn		<p>Bryn Emly is a short section of road between Ffordd Groes and B5132. It runs in a north south alignment between these links. Residential properties are located on each side of the carriageway.</p> <p>It is subject to a 30mph speed limit, street lit and footways are provided on each side of the road.</p>	164	1	177	1
26	Ffordd Groes		<p>Ffordd Groes is a rural road running in an east west alignment between Babell in the West and Pentre Halkyn in the east.</p> <p>It transitions to the national speed limit west of Pentre Halkyn where it becomes more rural.</p> <p>It provides access to the Halykn Quarry and is therefore subject to a high proportion of HGVs.</p>	160	21	125	1
27	B5121		<p>The B5121 is located at the western end of Ffordd Groes, South of Brynford.</p> <p>It is a rural B road subject to the national speed limit.</p> <p>It is unlit and does not provide footways on either side of the carriageway.</p> <p>It is approximately 6.50-7.0m wide.</p>	147	3	146	1

Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
28	B5122		<p>This Section of the B5122 is located in a north-south alignment south of A55 J33. It is a rural B road subject to the national speed limit.</p> <p>It is unlit and does not provide footways on either side of the carriageway.</p> <p>It is approximately 6.50-7.0m wide.</p>	437	15	458	6
29	A5104		<p>The A5104 runs through the settlement of Broughton between A55 J6 in the south and the Airbus Broughton Complex. It is subject to a 30mph speed limit and has street lighting.</p> <p>It is approximately 6.0m wide and provides footways on each side of the carriageway.</p>	N/A – DfT countpoint Site			
30	Manor Lane		<p>Manor Lane Links the B5125 to Hawarden Airport and provides access to Hawarden Industrial Park.</p> <p>It is subject to a 30mph speed limit and has an industrial character with some residential frontages</p> <p>Street lighting is provided along its length and footways are provided on each side of the carriageway.</p>	N/A – DfT countpoint Site			

Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
31	Little Rake Lane		<p>Little Rake Lane extends from the Rake Lane (adjacent Grove Fisheries) in the north to Choirlton Lane.</p> <p>it is rural in character although provides access to a number of residential properties.</p> <p>No footways or street lighting are provided along its length.</p> <p>It varies in length with sections below 5.0m particularly at its southern end. There are however sections of 5.0-5.5m. It is subject to the national speed limit.</p>	31	1	28	1
32	Brookside		<p>Brookside is located at the western end of the settlement of northp hall and provides a connection between A55 J33a and the B5125.</p> <p>It is subject to a steep incline on approach to the B5125 travelling north.</p> <p>It is primarily residential in character having a number of properties with direct access on its eastern extent.</p> <p>An environmental weight limit is in place with an exemption for access.</p>	273	1	253	0
33	A5117 4		<p>This section of the A5117 connects the A540 Parkgate Road to the M56 Dunkirk Junction.</p> <p>It has one eastbound lane and two westbound lanes on approach to the A540 signal junction.</p> <p>It is subject to the national speed limit</p>	N/A – DfT countpoint Site			












Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
34	Overwood Lane		<p>Overwood Lane is a class 3 C single 2-lane carriageway that connects the settlement of Mollington to the northeast with Parkgate Road to the southwest.</p> <p>This section of carriageway is subject to a speed limit of 60mph.</p> <p>This carriageway is approximately 5.5m wide and is flanked by large trees and hedgerows.</p>	42	1	37	0
35	Racecourse Lane		<p>Racecourse Lane is a narrow rural lane. It is subject to the national speed limit. It provides access to one or two residential properties and agricultural land.</p> <p>It has no street lighting or footways and is 2.50m in places and therefore does not permit two-way passing of vehicles.</p> <p>High hedgerows immediately abut the carriageway.</p>	2	0	4	0
36	B5125 4		<p>This section of the B5125 runs through Hawarden.</p> <p>Hawarden High School is accessed from this section opposite the junction with upper Aston Hall Lane.</p> <p>It is approximately 7.30m wide and provides access to residential properties, and local shops and services. It has a 30mph speed limit and is street lit.</p> <p>Footways are provided on each side of the carriageway.</p>	691	4	788	3

Link Ref.	Link	Image	Description of Key Features	AM Peak Hour Flow (Vehs)	AM Peak Hour HGV Flow (Vehs)	PM Peak Hour Flow (Vehs)	PM Peak Hour HGV Flows
37	A5119 2		<p>The A5119 is a class A single 2-lane carriageway that connects the settlements of Flint to the north with Flint Mountain to the south.</p> <p>This section of carriageway is subject to a speed limit of 60mph.</p> <p>This carriageway is approximately 9.0m wide. It is of a rural character although a footway is provided on its eastern side.</p>	1119	20	1048	13
38	Pool Lane North		<p>Pool Lane North runs in a north south alignment between the University of Chester, Thornton Science Park and Oil Sites Road. Pool Lane North provides access to nearby industrial locations.</p> <p>It is a classified unnumbered road and subject to a speed limit of 50mph. It is around 6.5m wide, providing one lane in each direction. Footways are present along some stretches on the eastern side, although are not continuous along the whole length of the link.</p>	273	45	252	26

# Annex D

## ATC VEHICLE CLASSIFICATIONS



Axes	Groups	Description	Class		Parameters	Dominant Vehicle	Aggregate
2	1 or 2	Very Short - Bicycle or Motorcycle	MC	1	$d(1) < 1.7\text{m} \ \& \ \text{axles} = 2$		1 (Light)
2	1 or 2	Short - Sedan, Wagon, 4WD, Utility, Light Van	SV	2	$d(1) \geq 1.7\text{m}, \ d(1) \leq 3.2\text{m} \ \& \ \text{axles} = 2$		
3, 4 or 5	3	Short Towing - Trailer, Caravan, Boat, etc.	SVT	3	$\text{groups} = 3, \ d(1) \geq 2.1\text{m}, \ d(1) \leq 3.2\text{m}, \ d(2) \geq 2.1\text{m} \ \& \ \text{axles} = 3, 4, 5$		
2	2	Two axle truck or Bus	TB2	4	$d(1) > 3.2\text{m} \ \& \ \text{axles} = 2$		2 (Medium)
3	2	Three axle truck or Bus	TB3	5	$\text{axles} = 3 \ \& \ \text{groups} = 2$		
>3	2	Four axle truck	T4	6	$\text{axles} > 3 \ \& \ \text{groups} = 2$		
3	3	Three axle articulated vehicle or Rigid vehicle and trailer	ART3	7	$d(1) > 3.2\text{m}, \ \text{axles} = 3 \ \& \ \text{groups} = 3$		3 (Heavy)
4	>2	Four axle articulated vehicle or Rigid vehicle and trailer	ART4	8	$d(2) < 2.1\text{m} \ \text{or} \ d(1) < 2.1\text{m} \ \text{or} \ d(1) > 3.2\text{m}$ $\text{axles} = 4 \ \& \ \text{groups} > 2$		
5	>2	Five axle articulated vehicle or Rigid vehicle and trailer	ART5	9	$d(2) < 2.1\text{m} \ \text{or} \ d(1) < 2.1\text{m} \ \text{or} \ d(1) > 3.2\text{m}$ $\text{axles} = 5 \ \& \ \text{groups} > 2$		
$\geq 6$	>2	Six (or more) axle articulated vehicle or Rigid vehicle and trailer	ART6	10	$\text{axles} = 6 \ \& \ \text{groups} > 2 \ \text{or} \ \text{axles} > 6 \ \& \ \text{groups} = 3$		
>6	4	B-Double or Heavy truck and trailer	BD	11	$\text{groups} = 4 \ \& \ \text{axles} > 6$		
>6	$\geq 5$	Double or triple road train or Heavy truck and two (or more) trailers	DRT	12	$\text{groups} \geq 5 \ \& \ \text{axles} > 6$		

# Annex E

## ATC SUMMARY DATA

Link No.	Authority	Link Name	85th %ile Speed (mph)	Year	2021/ 2022 Base											
					AM Veh	AM HGV	AM %HGV	PM Veh	PM HGV	PM %HGV	24hr AADT	24hr HGV AADT	%HGV (24hr AADT)	18hr AAWT	18hr HGV AAWT	%HGV (18hr AAWT)
1	CW&C	Ince Lane (between Ash Road and A5117)	32.9	2021	532	20	3.76%	481	9	1.91%	5621	219	3.90%	5966	238	3.99%
2	CW&C	Pool Lane (between ESSAR Industrial Estate Entrance and A5117)	45.0	2021	380	58	15.28 %	384	44	11.47%	4021	499	12.41%	4684	466	9.95%
3	CW&C	A5117 Eastbound (between Ince Lane and Pool Lane / B5132 Cryers Lane junction)	48.6	2021	310	25	8.07%	474	22	4.68%	4367	329	7.54%	4657	336	7.22%
4	CW&C	A5117 Westbound (between Ince Lane and Pool Lane / B5132 Cryers Lane junction)	51.2	2021	368	23	6.25%	307	14	4.43%	4156	313	7.52%	4361	337	7.73%
5	CW&C	A5117 (between M56 Junction 14 and Common Lane)	53.4	2021	1191	43	3.64%	1158	22	1.90%	11986	370	3.08%	12580	438	3.48%
6	CW&C	B5132 Cryers Lane (between A5117 and M56 Overbridge)	56.3	2021	134	4	2.61%	170	2	0.88%	1435	21	1.49%	1595	26	1.64%
7	CW&C	Thornton Green Lane (south of Park Road)	40.8	2021	40	0	0.75%	64	0	0.16%	473	4	0.91%	501	4	0.86%
8	CW&C	Little Stanney Lane (between M56 Overbridge and Church Lane)	47.8	2021	118	0	0.34%	151	1	0.40%	1411	12	0.83%	1469	11	0.77%
9	CW&C	Wervin Road (between Ashwood Lane and Fox Covert Lane)	42.4	2021	99	0	0.30%	100	0	0.30%	901	5	0.51%	964	6	0.58%
10	CW&C	Croughton Road (between Chorlton Lane and CLH Site Entrance)	36.1	2021	13	0	1.56%	7	0	1.37%	128	1	1.06%	139	1	0.94%
11	CW&C	A41 Liverpool Road (between Malta Road and Canal Bridge)	40.8	2021	2188	57	2.62%	1910	29	1.51%	22166	377	1.70%	22985	423	1.84%
12	CW&C	Picton Lane (between Ashwood Lane and Green Lane)	33.9	2021	22	0	0.90%	30	1	3.30%	296	8	2.63%	291	7	2.27%
13	CW&C	B5132 Ince Lane (between A56 Chester Road and Gowy Landfill Site entrance)	31.0	2021	203	15	7.42%	218	2	1.05%	2046	86	4.22%	2280	115	5.05%
14	CW&C	A5032 Whitby Road (between A41 Liverpool Road and Gordon Lane)	47.0	2021	876	9	1.03%	834	2	0.29%	10161	64	0.63%	10439	80	0.76%
15	CW&C	Little Rake Lane (between Rake Lane and Chorlton Lane)	39.1	2021	31	1	2.29%	28	1	2.15%	276	5	1.81%	296	6	1.96%
16	CW&C	Rake Lane (between Church Lane and A41 Liverpool Road)	41.6	2021	188	1	0.37%	150	0	0.27%	1457	8	0.57%	1595	10	0.62%
17	CW&C	Station Road (between A41 Liverpool Road and Demage Lane)	32.4	2021	175	1	0.63%	125	0	0.16%	1249	8	0.62%	1355	9	0.63%
18	CW&C	Overwood Lane (between A540 Parkgate Road and Townfield Lane)	40.7	2021	42	1	1.42%	37	0	0.55%	395	9	2.35%	411	10	2.31%
19	CW&C	A540 Parkgate Road (between Overwood Lane and Mollington)	49.8	2021	1221	17	1.42%	1184	6	0.51%	12629	221	1.75%	13323	232	1.74%
20	CW&C	A540 Parkgate Road (between Coalpit Lane and M56 J16)	47.0	2021	1459	18	1.20%	1434	7	0.50%	15247	222	1.46%	16037	234	1.46%
21	CW&C	Long Lane (between A540 Parkgate Road and Fiddlers Lane)	42.4	2021	366	4	0.96%	379	1	0.34%	4145	30	0.72%	4286	35	0.81%
22	CW&C	Lodge Lane (between Park Way and A494 Bypass Road Overbridge)	35.7	2021	9	1	5.62%	18	1	3.93%	165	8	4.64%	166	8	4.57%
23	FCC	Seahill Road (between Elm Tree Road and Old Sealand Road)	45.1	2021	274	1	0.51%	300	1	0.23%	2880	16	0.57%	3016	18	0.58%
24	CW&C	A56 Warrington Road (between Old Bank Lane and Station Lane)	49.2	2021	843	13	1.48%	909	3	0.34%	8772	80	0.91%	9281	100	1.08%
25	FCC	Sealand Road (between Deeside Lane and Burgess Drive)	46.6	2021	1409	30	2.14%	1534	11	0.68%	16233	250	1.54%	16796	302	1.80%
26	FCC	Deeside Lane (between A548 Sealand Road and The Overy)	35.5	2021	40	3	8.46%	30	3	9.06%	388	25	6.31%	453	33	7.18%
27	FCC	Manor Road (between A548 Sealand Road and Meadow View)	28.9	2021	33	0	0.30%	43	0	0.70%	477	7	1.39%	468	6	1.22%

Link No.	Authority	Link Name	85th %ile Speed (mph)	Year	2021/ 2022 Base											
					AM Veh	AM HGV	AM %HGV	PM Veh	PM HGV	PM %HGV	24hr AADT	24hr HGV AADT	%HGV (24hr AADT)	18hr AAWT	18hr HGV AAWT	%HGV (18hr AAWT)
28	FCC	Fox's Drive (between Manor Road and A494 Underbridge)	36.7	2021	53	0	0.56%	56	0	0.36%	650	3	0.48%	650	3	0.46%
29	FCC	B5129 (between Aviation Park entrance and North Street)	49.3	2021	298	4	1.21%	304	1	0.36%	3292	24	0.72%	3550	28	0.79%
30	FCC	B5129 Chester Road (between Rake Lane and Manor Lane)	53.0	2021	655	21	3.27%	649	9	1.36%	7220	186	2.58%	7914	222	2.81%
31	FCC	A550 Gladstone Way (between Colliery Lane and Cottage Lane)	36.9	2021	587	10	1.72%	669	5	0.73%	7357	80	1.09%	7680	92	1.19%
32	FCC	Colliery Lane (between A550 Gladstone Way and Mancot Lane)	29.4	2021	164	1	0.31%	151	0	0.07%	1469	4	0.28%	1534	4	0.29%
33	FCC	Moor Lane (between Rosalyn Close and Duckers Lane)	42.9	2021	130	0	0.23%	120	1	0.67%	1013	7	0.68%	1144	8	0.66%
34	FCC	Lower Aston Hall Lane (between Railway Overbridge and The Barnyard)	32.3	2021	187	1	0.64%	136	1	0.51%	1441	7	0.47%	1555	7	0.44%
35	FCC	Church Lane (east of junction with Old Aston Hill)	15.0	2021	8	0	0.00%	6	0	0.00%	88	0	0.08%	95	0	0.11%
36	FCC	Old Aston Hill (between Church Lane and St David's Close)	30.0	2021	66	0	0.46%	61	0	0.16%	633	4	0.64%	698	5	0.66%
37	FCC	B5125 Holywell Road (between Shotton Lane and Castle Hill Farm access)	45.9	2021	561	2	0.29%	606	2	0.40%	5989	23	0.39%	6310	27	0.43%
38	FCC	B5127 Old Mold Road (between B5125 Holywell Road and St David's Park Int.)	23.0	2021	1415	55	3.87%	1160	101	8.70%	11851	837	7.06%	12859	928	7.22%
39	FCC	B5129 High Street (between Cestrian Street and Wesley Street)	29.2	2021	872	6	0.72%	749	5	0.63%	10290	60	0.59%	10459	73	0.69%
40	FCC	A548 Chester Road (between Leadbrook Drive and Paper Mill Lane)	37.4	2021	1162	34	2.93%	1077	13	1.18%	13682	363	2.65%	13390	410	3.06%
41	FCC	Leadbrook Drive (south of A548 Chester Road junction)	19.9	2021	28	0	0.36%	27	0	0.37%	281	0	0.05%	287	0	0.07%
42	FCC	A5119 Northop Road (between Maes Hyfryd and Lon Y Plas)	40.7	2021	1119	20	1.82%	1048	13	1.19%	10687	193	1.81%	11446	228	1.99%
43	FCC	A5119 Aber Road (between Earl Street and Aber Park Industrial Estate entrance)	32.0	2021	532	15	2.80%	488	11	2.19%	5424	160	2.94%	5874	192	3.27%
44	FCC	Starkey Lane (between Allt-Goch Lane and A5119 Northop Road)	31.6	2021	25	1	4.02%	26	0	0.00%	306	6	1.84%	323	7	2.04%
45	FCC	Allt-Goch Lane (between Llwn Onn Lane and Lywn Onn)	38.9	2021	14	0	1.41%	15	0	0.00%	139	1	0.82%	146	1	0.96%
46	FCC	B5126 Connahs Quay Road (between A55 Off-slip and A5119 Northop Road)	40.9	2021	925	12	1.24%	857	6	0.74%	7524	84	1.12%	8222	98	1.20%
47	FCC	A5119 Northop Road (between St Peter's Park and A55 Interchange)	33.6	2021	1268	21	1.66%	1118	9	0.79%	10999	127	1.16%	11760	153	1.30%
48	FCC	Green Lane (between B5127 Mold Road and Magazine Lane)	25.1	2021	15	0	0.00%	18	0	0.56%	212	5	2.29%	203	1	0.54%
49	FCC	Magazine Lane (between Green Lane and Pinfold Lane)	30.4	2021	4	0	0.00%	2	0	0.00%	28	0	1.26%	30	0	1.01%
50	FCC	B5125 (between Smithy Lane and B5126 Connah's Quay Road)	36.1	2021	173	1	0.69%	152	1	0.33%	1617	8	0.50%	1657	10	0.59%
51	FCC	Cornist Lane (west of Windsor Drive)	25.4	2021	6	0	1.56%	9	0	1.06%	113	1	0.95%	116	1	1.12%
52	FCC	B5121 Brynford	49.7	2022	147	3	1.76%	146	1	0.96%	1503	30	1.98%	1590	38	2.38%
53	FCC	Ffordd Groes	47.5	2022	160	21	13.03 %	125	1	1.12%	1403	127	9.03%	1563	168	10.72%

Link No.	Authority	Link Name	85th %ile Speed (mph)	Year	2021/ 2022 Base											
					AM Veh	AM HGV	AM %HGV	PM Veh	PM HGV	PM %HGV	24hr AADT	24hr HGV AADT	%HGV (24hr AADT)	18hr AAWT	18hr HGV AAWT	%HGV (18hr AAWT)
54	FCC	Bryn Emlyn	26.7	2022	464	32	6.93%	383	30	7.93%	4564	354	7.77%	4979	432	8.68%
55	FCC	B5123 Pentre Halkyn	36.8	2022	491	42	8.59%	435	8	1.84%	4874	266	5.47%	5320	345	6.49%
56	FCC	B5122	53.0	2022	437	15	3.39%	458	6	1.22%	4546	94	2.06%	4719	111	2.35%
57	FCC	Unnamed Road 1	39.8	2022	13	0	2.99%	19	0	1.08%	213	6	2.82%	209	6	2.78%
58	FCC	Unnamed Road 2	24.3	2022	2	0	0.00%	4	0	4.76%	35	1	2.89%	33	1	2.42%
59	FCC	Ffordd Babell	37.5	2022	44	1	1.80%	54	0	0.74%	522	10	1.97%	537	10	1.79%
60	FCC	A5151 South of Lloc	60.3	2022	537	12	2.16%	610	7	1.15%	6505	99	1.53%	6468	115	1.78%
61	FCC	A5151 West of Lloc	54.7	2022	502	8	1.55%	543	3	0.48%	6281	67	1.07%	6236	76	1.22%
62	FCC	Unnamed Road 3	35.8	2022	23	0	1.74%	21	0	0.00%	245	2	0.93%	237	3	1.18%
63	FCC	Unnamed Road 4	46.0	2022	28	1	3.57%	29	0	0.00%	254	3	1.29%	268	3	1.27%
64	FCC	Unnamed Road 5	34.8	2022	82	3	3.16%	100	2	1.99%	1026	17	1.66%	1028	18	1.71%
65	FCC	A548 Gwespyr	36.9	2022	579	15	2.52%	742	5	0.67%	9015	114	1.27%	8430	127	1.51%
66	FCC	Station Road	35.7	2022	156	3	1.79%	222	2	0.99%	2998	28	0.95%	2620	33	1.27%
67	FCC	PoA Terminal Access Road	45.6	2022	11	3	26.79 %	21	1	2.83%	202	19	9.50%	221	26	11.67%
68	FCC	Gamfa Wen	23.5	2022	46	0	0.00%	63	1	1.59%	990	7	0.68%	842	7	0.86%
69	FCC	Racecourse Lane	44.1	2022	39	1	3.06%	57	2	3.17%	494	13	2.60%	505	13	2.49%
70	FCC	Ash Road, Elton	40.2	2022	300	31	10.28 %	309	17	5.63%	3556	338	9.50%	3842	391	10.18%
71	FCC	Old Cryers Lane	33.8	2022	3	0	0.00%	7	0	0.00%	75	0	0.57%	83	1	0.72%
72	FCC	Hallsgreen Lane	27.3	2022	5	0	0.00%	2	0	0.00%	47	0	0.00%	48	0	0.00%
73	FCC	Caughall Road	29.1	2022	494	7	1.38%	400	1	0.15%	3878	31	0.80%	4137	38	0.92%
74	FCC	Chorlton Lane	35.2	2022	27	0	0.00%	31	0	0.00%	331	6	1.86%	347	6	1.61%
75	FCC	Grove Road, Mollington	32.8	2022	59	1	2.05%	25	0	0.00%	302	3	1.04%	346	4	1.15%
76	FCC	Townfield Lane, Mollington	33.6	2022	18	0	1.10%	20	0	0.00%	203	3	1.62%	224	5	2.05%
77	FCC	Hermitage Road	39.0	2022	402	2	0.60%	403	0	0.10%	4081	13	0.31%	4280	14	0.34%
78	FCC	Mancot Lane, Queensferry	24.1	2022	77	1	1.31%	57	0	0.71%	706	5	0.65%	759	5	0.66%
79	FCC	Willow Lane, Queensferry	18.5	2022	60	0	0.00%	64	0	0.31%	679	2	0.36%	711	2	0.34%
80	FCC	Chester Rd, Near Junction 33A A55	28.1	2022	100	0	0.40%	149	1	0.94%	1075	9	0.80%	1122	11	0.96%
81	FCC	Brookside, Near Junction 33A A55	33.1	2022	273	1	0.22%	253	0	0.08%	2459	7	0.30%	2629	9	0.36%
82	FCC	Lleprog Lane	32.2	2022	4	0	4.76%	5	0	3.70%	79	3	3.96%	85	4	4.93%

Link No.	Authority	Link Name	85th %ile Speed (mph)	Year	2021/ 2022 Base											
					AM Veh	AM HGV	AM %HGV	PM Veh	PM HGV	PM %HGV	24hr AADT	24hr HGV AADT	%HGV (24hr AADT)	18hr AAWT	18hr HGV AAWT	%HGV (18hr AAWT)
83	FCC	B5125	29.4	2022	691	4	0.61%	788	3	0.36%	7995	36	0.45%	8377	40	0.48%
84	FCC	Upper Aston Hall Lane	32.3	2022	158	1	0.38%	170	0	0.23%	1712	4	0.23%	1766	5	0.28%
85	FCC	Shotton Lane	24.4	2022	7	0	0.00%	12	0	0.00%	96	1	0.74%	91	1	0.88%
86	FCC	Bryntyrion Road	34.2	2022	164	1	0.85%	177	1	0.68%	1901	11	0.60%	2001	14	0.68%
87	FCC	A5117 Dunkirk	50.7	2022	1481	33	2.22%	1587	11	0.71%	19024	307	1.61%	19602	334	1.70%
88	FCC	A5117 W of Dunkirk	44.6	2022	1588	31	1.95%	1995	10	0.52%	22728	266	1.17%	23441	311	1.33%
90	FCC	Smithy Lane	28.5	2022	199	1	0.60%	199	1	0.30%	2070	9	0.44%	2158	10	0.48%
92	FCC	Cottage Lane	17.1	2022	57	1	1.06%	54	0	0.37%	639	4	0.56%	669	4	0.60%
93	FCC	Plough Lane Overbridge	30.9	2022	317	2	0.50%	375	1	0.32%	4056	10	0.25%	4240	12	0.28%
94	FCC	Plough Lane	16.8	2022	9	0	0.00%	6	0	3.33%	90	1	0.80%	91	1	0.66%
95	FCC	Clwyd Lane	22.4	2022	213	1	0.66%	214	2	0.84%	2412	21	0.89%	2567	22	0.86%
96	FCC	Central Drive	24.7	2022	216	2	0.74%	234	2	1.03%	2469	27	1.09%	2629	27	1.04%
97	FCC	Coalpit Lane	43.3	2022	59	0	0.68%	37	1	1.61%	423	10	2.43%	457	10	2.14%
98	FCC	Demage Lane	28.7	2022	37	1	2.69%	27	0	0.00%	276	6	2.02%	294	7	2.24%
99	CW&C	Pool Lane North	37.9	2022	273	45	16.63 %	252	26	10.33%	2830	512	18.10%	3222	537	16.67%

# Annex F

## PROJECT CONSTRUCTION TRAFFIC BY MONTH

	HYPNET NW DCO: Projected Average Daily Project Construction Vehicles (One-Way) by Month															
	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25
<b>LGV</b>	244	352	512	552	572	504	448	408	496	396	332	324	440	420	272	272
<b>HGV</b>	61	88	128	138	143	126	112	102	124	99	83	81	110	105	68	68
<b>Total</b>	305	440	640	690	715	630	560	510	620	495	415	405	550	525	340	340
			<b>Peak Year June 2024 to May 2025</b>													



# Annex G

## PROJECT PEAK MONTH CONSTRUCTION TRAFFIC FORECASTS

**Project Peak Month (August 2024) Two-Way AADT**

Ref	Link	LGV	HGV	Total
1	A5117 1	119	30	149
2	A5117 2	176	44	219
3	B5132 Cryers Lane	81	20	102
4	Little Stanney Lane	50	13	63
5	Picton Lane	50	13	63
6	Rake Lane	125	31	157
7	A548 Sealand Road	132	33	165
8	B5129	<u>2074</u> 32	<u>5233</u>	<u>259165</u>
9	B5125 1	<u>038</u>	<u>09</u>	<u>047</u>
10	B5125 2	<u>7538</u>	<u>199</u>	<u>9447</u>
11	B5126	<u>7538</u>	<u>199</u>	<u>9447</u>
12	A5119 1	<u>1137</u> 5	<u>2819</u>	<u>14194</u>
13	Ince Lane	38	9	47
14	Ash Road	38	9	47
15	Pool Lane	113	28	141
16	Starkey Lane	38	9	47
17	Alt Goch Lane	38	9	47
18	Chorlton Lane	125	31	157
19	A540	75	19	94
20	Upper Aston Hall Lane	75	19	94
21	Lower Aston Hall Lane	75	19	94
22	B5123	75	19	94
23	Bryntyrion Road	75	19	94
24	Lleprog Lane	75	19	94
25	Bryn Emlyn	75	19	94
26	Ffordd Groes	75	19	94
27	B5121	75	19	94
28	B5122	75	19	94
29	A5104	<u>2074</u> 32	<u>5233</u>	<u>259165</u>

**Project Peak Month (August 2024) Two-Way AADT**

Ref	Link	LGV	HGV	Total
30	Manor Lane	<del>2074</del> 32	<del>5233</del>	<del>259465</del>
31	Little Rake Lane	125	31	157
32	Brookside	<del>7538</del>	<del>199</del>	<del>9447</del>
33	A5117 4	75	19	94
34	Overwood Lane	75	19	94
35	Racecourse Lane	75	19	94
36	B5125 4	75	19	94
37	A5119 2	38	9	47
38	Pool Lane North	38	9	47

# Annex H

## MONDAY TO FRIDAY~~DAILY~~ ARRIVAL AND DEPARTURE PROFILE

**Construction Traffic Monday to Friday Daily Arrival and Departure Profile**

	<b>LGV</b>			<b>HGV</b>	
	<b>Arrive</b>	<b>Depart</b>		<b>Arrive</b>	<b>Depart</b>
<b>0700-0800</b>	45%	5%	<b>0700-0800</b>	8%	8%
<b>0800-0900</b>	5%	5%	<b>0800-0900</b>	8%	8%
<b>0900-1000</b>	5%	5%	<b>0900-1000</b>	8%	8%
<b>1000-1100</b>	5%	5%	<b>1000-1100</b>	8%	8%
<b>1100-1200</b>	5%	5%	<b>1100-1200</b>	8%	8%
<b>1200-1300</b>	5%	5%	<b>1200-1300</b>	8%	8%
<b>1300-1400</b>	5%	5%	<b>1300-1400</b>	8%	8%
<b>1400-1500</b>	5%	5%	<b>1400-1500</b>	8%	8%
<b>1500-1600</b>	5%	5%	<b>1500-1600</b>	8%	8%
<b>1600-1700</b>	5%	5%	<b>1600-1700</b>	8%	8%
<b>1700-1800</b>	5%	5%	<b>1700-1800</b>	8%	8%
<b>1800-1900</b>	5%	45%	<b>1800-1900</b>	8%	8%
	100%	100%		100%	100%

# Annex I

## VEHICULAR MOVEMENTS BY CTR

	CC CTR 1			CC CTR 2			CC CTR 3			CC CTR 4			CC CTR 5			CC CTR 6			CC CTR 8a			CC CTR 8b		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
<b>Hour</b>																								
<b>0700-0800</b>	23	3	26	14	2	16	14	2	16	0	0	0	38	4	42	<u>3859</u>	<u>47</u>	<u>4266</u>	<u>4322</u>	0	<u>4322</u>	0	<u>52</u>	<u>52</u>
<b>0800-0900</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>0900-1000</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1000-1100</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1100-1200</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1200-1300</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1300-1400</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1400-1500</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1500-1600</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1600-1700</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1700-1800</b>	3	3	5	2	2	3	2	2	3	0	0	0	4	4	8	<u>74</u>	<u>74</u>	<u>138</u>	<u>52</u>	0	<u>52</u>	0	<u>52</u>	<u>52</u>
<b>1800-1900</b>	3	23	26	2	14	16	2	14	16	0	0	0	4	38	42	<u>74</u>	<u>5938</u>	<u>6642</u>	<u>52</u>	0	<u>52</u>	0	<u>4322</u>	<u>4322</u>

	AGI CTR 1			AGI CTR 2			AGI CTR 3a			AGI CTR 3b			AGI CTR 4			BVS CTR 1			BVS CTR 2			BVS CTR 3			BVS CTR 4			BVS CTR 5			BVS CTR 6					
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total			
<b>Hour</b>																																				
<b>0700-0800</b>	11	1	12	22	2	24	22	0	22	0	2	2	11	1	12	22	2	24	22	2	24	22	2	24	22	2	24	22	2	24	22	2	24	22	2	24
<b>0800-0900</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>0900-1000</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1000-1100</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1100-1200</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1200-1300</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1300-1400</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1400-1500</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1500-1600</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1600-1700</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1700-1800</b>	1	1	2	2	2	5	2	0	2	0	2	2	1	1	2	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5	2	2	5
<b>1800-1900</b>	1	11	12	2	22	24	2	0	2	0	22	22	1	11	12	2	22	24	2	22	24	2	22	24	2	22	24	2	22	24	2	22	24	2	22	24



# Annex J

## VEHICULAR MOVEMENTS BY LINK (PROJECT PEAK MONTH (AUG 24))

Project Peak Month Vehicles (Aug 24)		Vehicle Movements by Link														AM	PM	
		AM Peak Hour								PM Peak Hour							Greater than 30	Greater than 30
		0800-0900								1700-1800								
		Link	LGV			HGV			Total	LGV			HGV			Total		
Arrive	Depart		Total	Arrive	Depart	Total	Arrive	Depart		Total	Arrive	Depart	Total					
1	A5117 1	6	6	12	2	2	3	16		6	6	12	2	2	3	16	N	N
2	A5117 2	6	6	11	1	1	3	14		6	6	11	1	1	3	14	N	N
3	B5132 Cryers Lane	3	3	5	1	1	1	7		3	3	5	1	1	1	7	N	N
4	Little Stanney Lane	2	2	3	0	0	1	4		2	2	3	0	0	1	4	N	N
5	Picton Lane	2	2	3	0	0	1	4		2	2	3	0	0	1	4	N	N
6	Rake Lane	4	4	8	1	1	2	10		4	4	8	1	1	2	10	N	N
7	A548 Sealand Road	4	4	8	1	1	2	11		4	4	8	1	1	2	11	N	N
8	B5129	74	74	138	24	24	32	1744		74	74	138	24	24	32	1744	N	N
9	B5125 1	05	50	400	40	40	20	420		05	05	040	04	04	02	042	N	N
10	B5125 2	75	57	1014	42	42	24	1218		75	75	1440	24	24	42	1842	N	N
11	B5126	75	75	1440	24	24	42	1842		75	75	1440	24	24	42	1842	N	N
12	A5119 1	75	75	1440	24	24	42	1842		75	75	1440	24	24	42	1842	N	N
13	Ince Lane	1	1	2	0	0	1	3		1	1	2	0	0	1	3	N	N
14	Ash Road	1	1	2	0	0	1	3		1	1	2	0	0	1	3	N	N
15	Pool Lane	4	4	7	1	1	2	9		4	4	7	1	1	2	9	N	N
16	Starkey Lane	1	1	2	0	0	1	3		1	1	2	0	0	1	3	N	N
17	Alt Goch Lane	1	1	2	0	0	1	3		1	1	2	0	0	1	3	N	N
18	Chorlton Lane	4	4	8	1	1	2	10		4	4	8	1	1	2	10	N	N
19	A540	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
20	Upper Aston Hall Lane	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
21	Lower Aston Hall Lane	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
22	B5123	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
23	Bryntyrion Road	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
24	Lleprog Lane	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
25	Bryn Emlyn	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
26	Ffordd Groes	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
27	B5121	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
28	B5122	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N

Project Peak Month Vehicles (Aug 24)		Vehicle Movements by Link														AM	PM	
		AM Peak Hour								PM Peak Hour							Greater than 30	Greater than 30
		0800-0900								1700-1800								
		Link		LGV			HGV			Total	LGV			HGV			Total	
Arrive	Depart	Total	Arrive	Depart	Total	Total	Arrive	Depart	Total	Arrive	Depart	Total	Total					
29	A5104	74	47	813	42	42	23	4417		74	74	138	24	24	32	1744	N	N
30	Manor Lane	74	74	138	24	24	32	1744		74	74	138	24	24	32	1744	N	N
31	Little Rake Lane	4	4	8	1	1	2	10		4	4	8	1	1	2	10	N	N
32	Brookside	75	57	1014	42	42	24	1218		75	75	1440	24	24	42	1842	N	N
33	A5117 4	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
34	Overwood Lane	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
35	Racecourse Lane	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
36	B5125 4	2	2	5	1	1	1	6		2	2	5	1	1	1	6	N	N
37	A5119 2	1	1	2	0	0	1	3		1	1	2	0	0	1	3	N	N
38	Pool Lane North	1	1	2	0	0	1	3		1	1	2	0	0	1	3	N	N