

Higham Lane, Barnsley

Transport Assessment

Barnsley Metropolitan Borough Council

June 2020

Quality information

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1. Introduction

AECOM has been commissioned by Barnsley Metropolitan Borough Council (BMBC) to produce a Transport Assessment (TA) to support a planning application for the M1 Junction 37 Phase 2 Higham Lane development, just outside of Higham, Barnsley.

Sheffield City Region funding has been secured as part of the M1 Junction 37 Phase 2 Economic Growth Corridor business case. This funding will facilitate the delivery of a number of highway improvements that are proposed in the vicinity of M1 Junction 37:

i. Upgrade of Capitol roundabout / Capitol Close / Higham Lane, of which this is the traffic assessment that forms part of the planning application;

ii. Southern access into local plan site reference MU1 (which is subject to a separate planning application being prepared and submitted by Strata Sterling Barnsley West Consortium);

iii. Northern access into the MU1 site access into local plan site reference MU1 (which is subject to a separate planning application being prepared and submitted by Strata Sterling Barnsley West Consortium);

iv. Improvements to Chestnut Tree roundabout which do not require planning permission;

v. Improvements to the M1 J37 Signal timings which do not require planning permission; and

vi. Contribute towards developing the first stretch of the proposed Claycliffe link road through the local plan site ref MU1 (which is subject to a separate planning application being prepared and submitted by Strata Sterling Barnsley West Consortium).

The works to upgrade Capitol roundabout / Capitol Close / Higham Lane are to be delivered through the Sheffield City Region Investment Fund (SCRIF). The works are not considered to directly form part of the nearby Barnsley West development on local plan site ref MU1, however they have been designed to ensure that they have the capacity to accommodate anticipated traffic generated from the future development site.

As such, this Transport Assessment focuses solely on the M1 J37 Phase 2 Higham Lane highway works, and no development is proposed at this time. The development proposals concern the addition of a four-arm priority-controlled roundabout between Higham Lane and Capitol Close, and modifications to an existing three-arm priority-controlled roundabout between Capitol Close and the A628 Whinby Road.

Figure 1 outlines the location of the road network to which improvements are proposed.

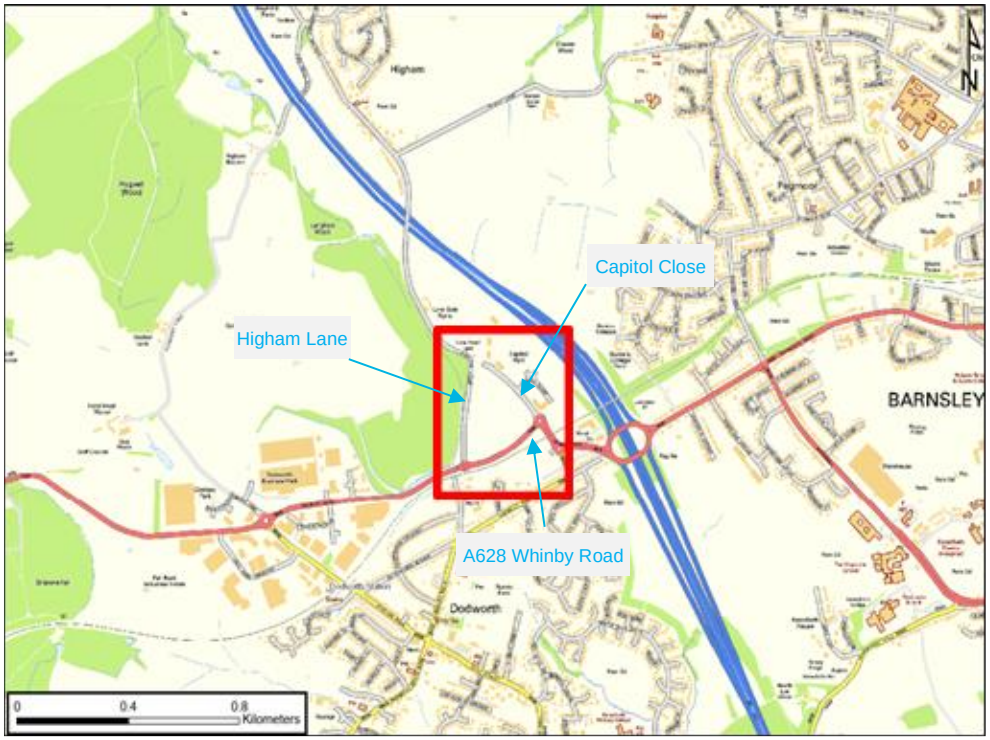

Figure 1. Site Location

It should be noted that three planning applications are being submitted in relation to the proposed package of highway works, with two other separate applications being submitted to cover the following works:

- Proposed roundabout on Barugh Green Road, and
- Proposed roundabout on Higham Common Lane just to the north of the M1.

Whilst each application is standalone, this Transport Assessment should be read in in conjunction with the supporting reports prepared by Fore Consulting for the other applications listed above.

Report Structure

The remainder of the report takes the following structure:

- **Section 2** – Provides context for the scheme in relation to relevant local and national policies and guidelines;
- **Section 3** – Examines the existing highway conditions surrounding the area of the proposed highway works
- **Section 4** – Considers accessibility around the proposed highway works;
- **Section 5** – Provides details of the scheme;
- **Section 6** – Outlines the Trip Generation that has been utilised in the Impact Assessment;
- **Section 7** – Assesses the impact on the surrounding highway network as a result of the proposed scheme;
- **Section 8** – Examines recent accident data in relation to the local highway network; and
- **Section 9** – Provides a concise summary and conclusion.

2. Policy Context

This section of the Transport Assessment sets out the policy context within which the proposal has been developed.

National Policy

National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) sets out national policy and principles relating to specific aspects of the town planning framework. The NPPF provides a framework for local communities and Authorities to develop relevant local development plans and strategies.

The NPPF has two key themes:

- Providing a greater level of integration and simplification of the planning policies governing new development nationally; and
- Contributing to the achievement of sustainable development from an economic, social and environmental perspective.

Chapter 9 'Promoting Sustainable Transport', states that all developments which generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major public transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development.

Developments should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

National Planning Practice Guidance

The National Planning Practice Guidance (NPPG) is used to support the National Planning Policy Framework (NPPF) and is a web-based application produced by the Department of Communities and Local Government. The section relating to Transport Assessments, Transport Statements and Travel Plans was launched in 2014, and coincided with the cancelling of a number of Government guidance documents, with the intention of providing an accessible web-based resource, which brings together planning guidance on various topics into one place.

The framework acts as guidance for applicants, local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.

In relation to Transport Assessments, Paragraph: 013 (Reference ID: 42-013-20140306) of the NPPG states that:

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

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

- The Transport Assessment and Statement policies (if any) of the Local Plan;
- The scale of the proposed development and its potential for additional trip generation (smaller applications with limited impacts may not need a Transport Assessment or Statement);
- Existing intensity of transport use and the availability of public transport;
- Proximity to nearby environmental designations or sensitive areas;

- Impact on other priorities/strategies (such as promoting walking and cycling);
- The cumulative impacts of multiple developments within a particular area; and
- Whether there are particular types of impacts around which to focus the Transport Assessment or Statement (e.g. assessing traffic generated at peak times).'

In reference to determining an agreed scope in relation to Transport Assessments, Paragraph: 014 (Reference ID: 42-014-20140306) states:

'The need for, scale, scope and level of detail required of a Transport Assessment or Statement should be established as early in the development management process as possible as this may therefore positively influence the overall nature or the detailed design of the development.'

In regard to cumulative impacts, the guidance states

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

Based on the above, it is considered that the following Transport Assessment accords with relevant government guidance; whilst scoping discussions with BMBC have also confirmed the approach to the assessment is agreed from a local highways perspective.

Local / Regional Policy

Local Plan 2019

The Local Plan for Barnsley is the first of the planning documents of the Barnsley Local Plan (BLP) The purpose of the BLP is to support the next phases of the city's ongoing regeneration by providing the statutory framework for guiding the spatial pattern of change, and the quality of the environment and forms of design. The following policies within the Local Plan are of relevance to the overall development of Barnsley West from a transportation perspective:

Policy GD1 General Development

Policy GD1 states that proposals for development will be approved if, amongst other things, adequate access and internal road layouts are provided to allow the complete development of the entire site for residential purposes and to provide appropriate vehicular and pedestrian link throughout the site and into adjacent areas.

Policy T3 New Development and Sustainable Travel

Policy T3 states that new development is expected to:

- Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists.
- Provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people set out in the relevant Supplementary Planning Document.
- Provide a Transport Statement or Assessment in line with guidance set out in the National Planning Policy Framework and guidance including where appropriate regard for cross boundary local authority impacts; and
- Provide a Travel Plan Statement or a Travel Plan in accordance with guidance set out in National Planning Policy Framework including where appropriate regard for cross boundary local authority impacts. Travel plans will be secured through a planning obligation or a planning condition.

Policy T4 New Development and Highway Improvement

Policy T4 states that new development is expected to be designed and built to provide safe, secure and convenient access for all road users. The policy goes on to explain that if a development is not suitably served by the existing highway or would create or add to highway safety problems or the efficiency of the highway for all

road users, developers will be expected to take mitigating action or to make a financial contribution to make sure the necessary improvements are implemented.

3. Existing Conditions

Introduction

This section describes the application site in its current form and the surrounding highway network. The road network is located approximately 3km from Barnsley town centre, adjacent to Junction 37 of the M1 motorway.

Road Network

Higham Lane

Higham Lane is a single-carriageway road that runs in a north / south alignment between Dodworth and Higham Common Road. Higham Lane has a pedestrian footway of approximately 1m in width that runs along its western edge for its entirety until it becomes Higham Common Road at the flyover of the M1. Higham Lane is subject to the national speed limit until the transition to Higham Common Road. There is no dedicated cycle infrastructure along the extent of the road.

Capitol Close

Capitol Close is a cul-de-sac that extends south for approximately 350m onto the A628 Whinby Road with an existing pedestrian footpath of approximately 2m in width linking Capitol Close and Higham Lane to the north, complete with dropped kerbs. A footway is also provided along the southern extent of Capitol Close, again of an approximate 2m in width. There is no dedicated cycle infrastructure along the extent of the road.

Capitol Close itself is a single-carriageway road of approximate 7.3m width with waiting restrictions in the form of double yellow lines along both sides of the carriageway along the length of the road. Capitol Close is the main access point to Capitol Park Business Park, which includes office space and several hybrid units. Note that in its current arrangement, there is no direct vehicular link between Higham Lane and Capitol Close.

A628 Whinby Road

The A628 Whinby Road links M1 Junction 37 with settlements to the west of Barnsley and eventually Greater Manchester. The road is a single lane carriageway with good quality road surfacing and lighting provision in place with an approximate 2m wide off-road footway connecting the Capitol Close / Whinby Road Roundabout to the Higham Lane / Whinby Road Roundabout. The speed limit is 40mph throughout and the road is approximately 7.3m in width, aside from short sections of dual carriageway immediately west of Junction 37 of the M1.

The A628 Whinby Rd extends further south for approximately 70m to another roundabout which forms a junction with the B6449 into a nearby housing development onto Barnsley Road. This section has a relatively new road surface with adequate pedestrian footway with full height kerbs spanning the length of the road and the adjacent roundabout. The pedestrian crossing facilities are good, including dropped kerbs and tactile paving to allow pedestrians to safely cross the road. It should be noted that there is no dedicated cycle infrastructure present along the extent of the road however.

4. Accessibility

This section outlines the current use of the road network for pedestrian, cycle and public transport activity, and will ascertain whether these operations will be affected by the improvement works to the network.

Pedestrians

Figure 2 outlines the proximity of the road network in relation to Public Rights of Way (PRoWs).



Figure 2. Local PROWs

Pedestrian footways along Capitol Close, the A628 Whinby Road, through Dodworth Roundabout and then beyond are in very good condition. As can be seen, a public footpath runs along the northern boundary of the A628 Whinby Road. East of the Higham Lane / A628 Whinby Road Roundabout, which is set back from the carriageway by a verge and is complete with street lighting. Pedestrians must cross the road at the island when continuing along the A628 Whinby Road in a westerly direction.

Furthermore, the public footpath along the A628 Whinby Road continues northbound along the western edge of Higham Lane. There is a continuous pedestrian footway here from the roundabout along Higham Lane up to and beyond the M1 flyover where the road becomes Higham Common Road.

Further down Capitol Close at the roundabout with the A628 Whinby Rd, there is tactile paving and dropped kerbs in place to allow pedestrians to safely traverse the crossings. All the crossings at this roundabout are unsignalised however there is clear visibility both north and south.

The Whinby Road / B6449 roundabout also has excellent footway provision, dropped kerbs, tactile paving and street lighting provision to allow for safe access for pedestrians crossing through the site. This roundabout also allows for safe crossings for pedestrians wishing to enter the nearby Dodworth housing development along Barnsley Road.

Cyclists

Figure 3 outlines the cycle networks that run within proximity of the site. Information profiling national cycling networks around Barnsley has been obtained from Sustrans.org.uk.

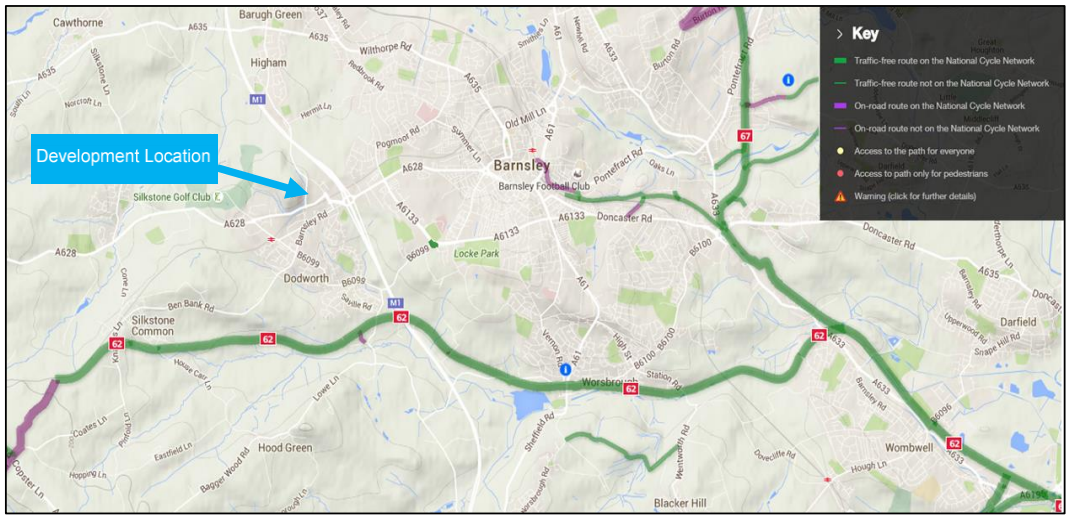

Figure 3. Local Cycle Network

As can be seen, none of the local cycle networks interact with the development site. The nearest cycle route runs parallel to the south of the site with clear access available along Ben Bank Road onto Barnsley Road then up onto Whinby Road to the site.

Bus Routes

The nearest bus stop located to the development site is approximately 350m to the south of the Capitol Park Business Park site access along Capitol Close. This bus stop serves the number 20, 21, 21a and 22 services. **Figure 4** outlines the routes of the services that come within proximity of the road network in question, whilst **Table 1** highlights the operational information for these services.

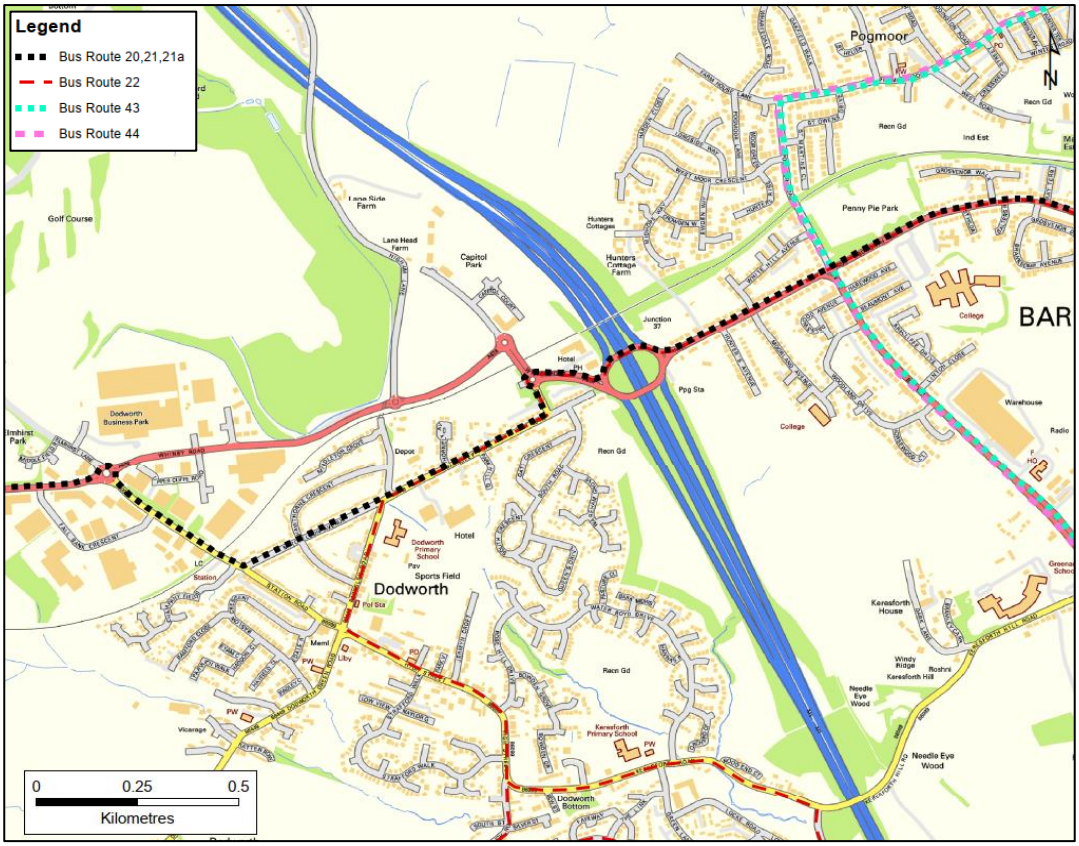

Figure 4. Local Bus Services

Table 1. Local Bus Services

		Peak Frequency (mins)		
Service Number	Route	Mon- Fri	Sat	Sun
20	Barnsley – Penistone – Cubley	60	60	No Service
21	Barnsley – Penistone – Millhouse Green (Crow Edge)	60	60	No Service
21a	Barnsley – Gilroyd – Cubley – Penistone – Millhouse Green (Crow Edge)	No Service	No Service	120
22	Barnsley – Gilroyd	30	30	No Service

Source: Barnsley Metropolitan Borough Council (BMBC)

As can be seen, none of the services utilise the road Capitol Close, the A628 Whinby Road or Higham Lane, meaning that any works to these roads will not impact upon the operation of these bus services.

Summary

The development site network currently has excellent pedestrian facility provision, with extensive footways and street lighting. Public transport routes do not interact with the road network around Higham Lane, Capitol Close and the A628 Whinby Road, and so any works to the highway during the construction phase of the development would not result in significant impact to existing services.

It is important that the pedestrian and cycle infrastructure is maintained and developed as part of the new highway development. Furthermore, improvements to the network layout may facilitate the extension of public transport services and routes as part of the wider Barnsley West development in future years.

5. Development Proposals

The M1 J37 Phase 2 Higham Lane scheme is considered a standalone development and does not directly form part of the wider Barnsley West development that lies within close proximity to the site.

The proposed road comprises of two main alignments totalling 1.2km separated by a normal roundabout which links Whinby Road to the M1 motorway bridge on Higham Common Road. The roundabout is approximately 500m along alignment and serves as a primary access to an extension to the Capitol Park Development site. The proposed alignment will move through traffic further away from two residential properties requiring the inclusion of a simple junction to maintain access.

The existing Capitol Close is to be adopted as a public highway following widening to incorporate a number of ghost island junctions to serve the existing business park development and to improve overall capacity.

Junction Development

The development proposals, as designed by Barnsley MBC, outline the installation of a new four-arm priority roundabout between Higham Lane and Capitol Close, and modification to the existing four-arm priority A628 Whinby Road / Capitol Close roundabout. The general arrangement of these junctions is outlined in **Figure 5** below, with full copies of the proposed layout provided in **Appendix A** for reference.



Figure 5. Proposed Highway Works

It should be noted that the proposed scheme has received a positive response from Highways England with no objections presented.

All highway improvements will be in compliance with guidance provided in the Design Manual for Roads and Bridges. Highway improvements will include widening the carriageway to a minimum of 7.3m with improved visibility as a result of changes to the horizontal and vertical alignment. Capitol Close will be widened to incorporate right turn pockets to provide improved access at the same time as providing the required improvements in capacity.

All directional and regulatory signing will be designed in accordance with the Traffic Sign Regulations and General Directions 2019. Furthermore, a street lighting design will provide highway lighting along the entire length of the scheme.

Design Criteria

The following is a list of the design criteria that have informed the preferred general arrangement.

- Road alignment proposals are in line with the Design Manual for Roads and Bridges (DMRB)
- Design Speed to be 30mph, 60kph (DMRB TD 9/93)
- Major / minor priority junction geometry to be in accordance with DMRB TD 42/95
- Normal roundabout geometry to be in accordance with DMRB TD 16/07
- Maximum cross-fall 3.5%
- Width of Carriageway width to be 7.3m
- A shared 3.0m footway / cycleway with a minimum 1.5m verge and associated signage will be designed in accordance with Local Transport Note 1/12.
- A street lighting design is to be provided along the entire length of highway improvement.
- Pedestrian & cycle connectivity to the development and wider community is ensured through the use of uncontrolled crossings at appropriate locations. Tactile paving is proposed to be installed at each crossing point in accordance with the DETR Guidance.
- A 3.5m verge is proposed for the opposite side of the road. Adequate access to residential properties will be provided via the shared footway and the provision of an uncontrolled crossing.

Alignment

The horizontal and vertical alignment of the proposed link road is constrained by the road's proximity to the existing highway and access requirements to adjacent business park and residential properties.

Horizontal Geometry

The resulting road is just over 1.2km long over two alignments connected by a normal roundabout of 60m ICD to facilitate HGV access to the new Capitol Park development. First alignment is approximately 550m in length comprising of a short straight of 60m then a 390m radius curve with no transitions which exceeds minimum R for a cross-fall of 3.5%. Second alignment is fixed by the existing alignment of Capitol Close which runs between the proposed normal roundabout and the existing normal roundabout at Whinby road. This section is balanced with a radius of approximately 420m.

Vertical Geometry

All elements provide K values in excess of desirable minimum Crest (17) and absolute minimum Sag (10).

Also, Desirable minimum SSD of 90m is provided throughout.

Roundabout Geometry

The new roundabout and changes to the existing roundabout are in accordance with DMRB TD 16/07 Geometric Design of Roundabouts.

Pavement Design

The new pavement design is in accordance with DMRB TD 24/06.

Proposed Junction

As a result of the realignment of Higham Common Lane a proposed simple junction is required to link the new alignment to the existing in order to maintain access to two residential properties. This new junction will be in accordance with DMRB TD 42/95.

The works to Higham Lane and Capitol Close are outlined in more detail below.

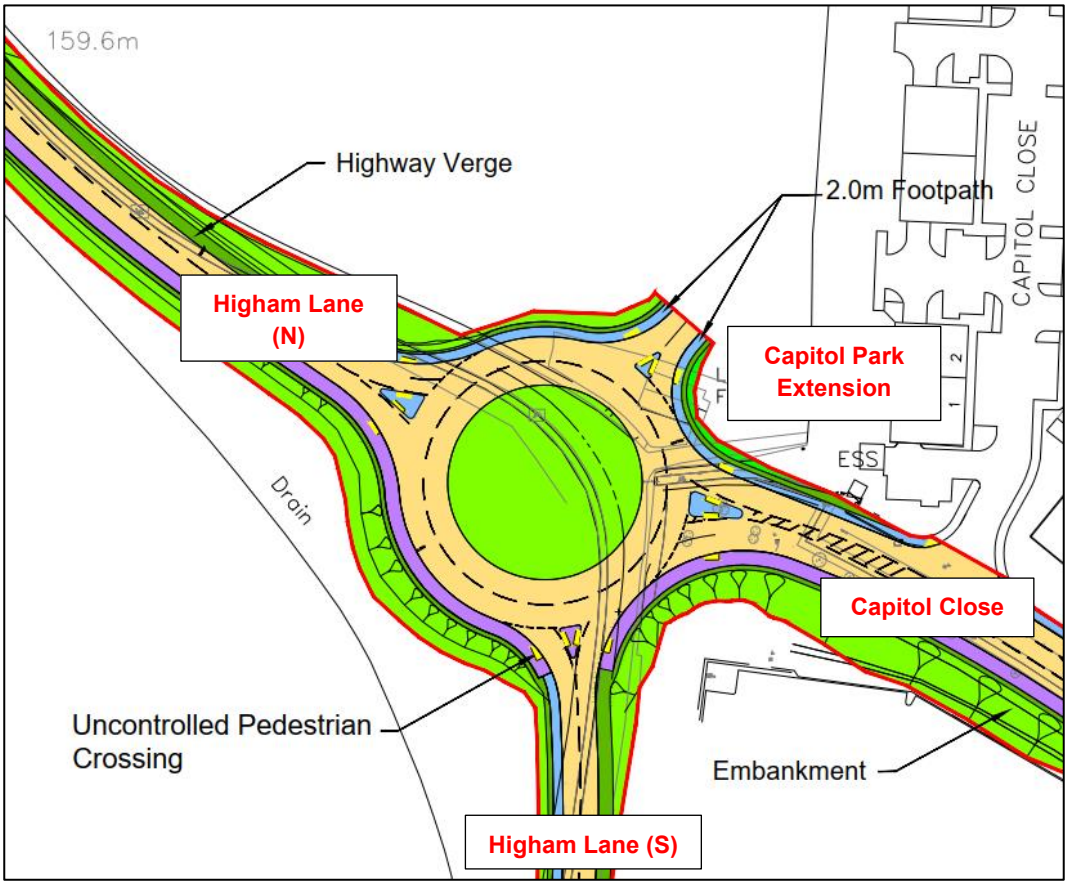

Figure 6. Proposed Capitol Close / Higham Lane roundabout

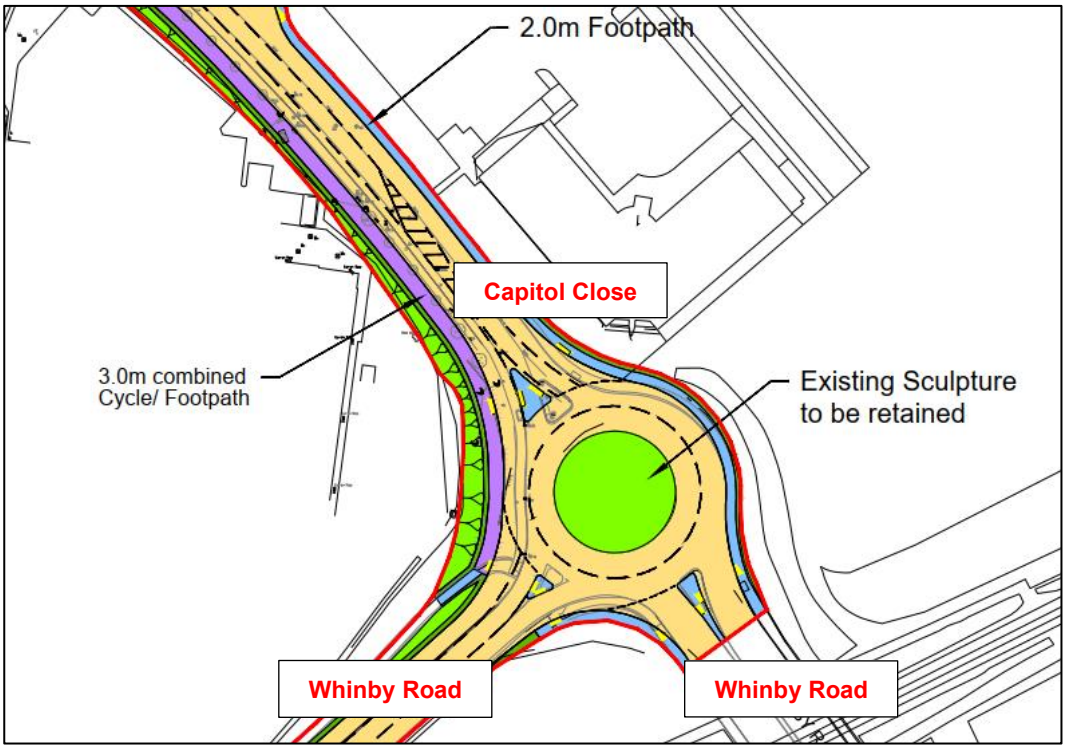

Figure 7. Proposed works to Capitol Close / Whinby Road roundabout

6. Trip Generation

Introduction

This section outlines the trip generation that has been used to inform the forthcoming Impact Assessment upon the new layout of the road network. The trip generation utilised has been previously agreed with BMBC and Fore Consulting, which included future year scenarios accounting for traffic associated with the wider Barnsley West development.

2019 Base Traffic

Traffic data to form a base for the Impact Assessment has been agreed and verified with both Fore Consulting and BMBC. The 2019 Base scenario has been derived from surveyed traffic flow data, with the peak hours for the highway network adopted for assessment.

Future Scenarios & Growth Factors

The traffic impacts of the Barnsley West development once completed have been considered for the purposes of capacity analysis of the highway network. This has been included to ensure that the highway works being proposed will have sufficient capacity in the future should the proposed development come forward in the future, and it must be noted that any development would be subject to a separate planning application where necessary.

Future baseline years of 2021, 2026 and 2033 have been utilised within the Impact Assessment, as follows:

- **2021 Opening Year** – robustly represents a future-year situation on the local highway network without the Barnsley West development. The scenario includes the surveyed peak hour traffic flows at each junction derived from base traffic surveys, plus all relevant local traffic growth and committed developments implemented, all of which has been distributed based upon the new junction layouts.
- **2026 Phase 1** – considered to represent a future year situation where some residential and employment development at the MU1 site is built out and occupied. The scenario includes all relevant local traffic growth, committed developments and the Phase 1 development traffic, all of which has been distributed based upon the new junction layouts.
- **2033 Assessment Year with Development** – represents a future year situation on the local highway network with the MU1 development taking place. The scenario includes all relevant local traffic growth, committed developments and the full MU1 development traffic, all of which has been distributed based upon the new junction layouts. The proposed link road from Higham Common Lane to Barugh Green Road is also taken into account. It should be noted that this year coincides with the end of the Local Plan period.

Traffic growth factors have been agreed with Fore Consulting and BMBC and were obtained from TEMPro software. The use of TEMPro software is generally recognised as the industry standard tool for determining traffic growth factors to apply to base flows in order to estimate future year traffic flows. The local growth factors utilised are outlined in **Table 2**, concerning the Barnsley 019 Middle Super Output Area (MSOA), in which the proposed scheme is to be located.

Table 2: TEMPro Growth Factors

Time Period	AM Peak	PM Peak
2019 - 2021	1.0325	1.0311
2019 - 2026	1.1078	1.1065
2019 - 2033	1.1789	1.1778

Committed Development Trip Generation

As part of the Impact Assessment, committed developments have been considered from a trip generation and distribution perspective. Dialogue has been undertaken with all parties to identify relevant committed developments that would give rise to a material traffic impact within the study area. Traffic flows and relevant transport improvements associated with this and other identified committed developments, as presented in their

associated Transport Assessments/Statements, have been included within the 'Do Minimum' assessment scenarios for the purposes of this Transport Assessment.

The committed developments that have been accounted for are summarised in **Table 3**:

Table 3. Committed Developments

Planning Reference	Application Summary
2017/1002	Capitol Park – development of approximately 7,000 sqm of industrial land use
2016/0713	Capitol Park Industrial Estate – outline application for 16,499 sqm GFA of industrial development
2017/0987	Capitol Park – NHS blood storage facility on Unit C
B/04/1998/DO	Capitol Park – Industrial development with a site area of 0.95 hectares
2019/0286	Capitol Park – Employment development of approximately 16,723 sqm

No allowance has been made to adjust the TEMPro traffic growth factors to take account of committed developments that are likely to be reflected in the TEMPro household and employment projections. Consequently, the future year assessment is likely to include some double counting of traffic growth and can therefore be considered extremely robust. All trip distribution diagrams outlining the committed development flows are provided in **Appendix B**. It should be noted that all figures outlined in the trip distribution reflect PCU values and so account for HGV movements.

Phase 1 Residential & Employment Trip Generation

The trip generation utilised within the Impact Assessment associated with the proposed residential and employment element of the Barnsley West development have previously been agreed as part of a Transport Scoping Note produced by Fore Consulting in March 2019. 'Phase 1' of the Barnsley West development is proposed to comprise of the following elements that have been used to formulate traffic demand:

- 342 residential dwellings (Use Class C3); and
- 50,000 sqm of employment land use (65% Use Class B2 and 35% Use Class B8).

It should be noted that supporting community facilities, including a new primary school and local shopping and leisure provision, have not been included in the estimate of the traffic demand at this preliminary stage.

Furthermore, without the full development of the MU1 site and no link road, Phase 1 would take access from the two roundabouts now being taken forward by Fore as part the current planning applications. Although, it must again be restated that no development is proposed at this stage. In this scenario, the employment would take access from the southern roundabout from Higham Common lane and the residential element would take access from Barugh Green road in the north, with no link between.

The peak highway operation hours associated with the development have been agreed as follows:

- **Weekday AM Peak** – 08:00-09:00
- **Weekday PM Peak** – 17:00-18:00

Table 4 summarises the total trip generation for the residential and employment elements of the Phase 1 stage of the Barnsley West development.

Table 4. Weekday Peak Period Total Vehicle Trip Generation

Time Period	Trip Generation		
RESIDENTIAL	**Arr.**	**Dep.**	**Total**
AM Peak (08:00-09:00)	28	103	131
PM Peak (17:00-18:00)	107	62	168
EMPLOYMENT			
AM Peak (08:00-09:00)	147	68	215
PM Peak (17:00-18:00)	64	138	202

However, it must be restated that the above development is only included to ensure that the proposed highway works would have sufficient capacity, and do not form part of this planning application, with a separate application being submitted in the future.

Barnsley SATURN Model

In order to accurately test the full infrastructure amendments proposed for the full Barnsley West development (as utilised in the 2033 future year scenario), the BMBC SATURN model has been utilised. The model was originally developed with a 2008 base year using Roadside Interview and other survey data collected at the time and has been periodically updated since, most recently in 2018 revalidating the model to a set of traffic counts undertaken in 2016. The model update was undertaken using WebTAG guidance and is designed to be suitable for the modelling and economic appraisal of the SCRIF Business Case for the infrastructure improvements in question.

As noted above, the model is validated against a comprehensive set of counts undertaken in 2016 covering the forecast area of impact of the scheme. The model is used to forecast traffic flows and turning movements on the area of network impacted by the Barnsley West scheme and, given the proximity, is considered to be equally suitable for the assessment of the Higham Lane scheme. The use of an assignment model, such as SATURN, in forecasting traffic flows is attractive as, as well as forecasting the most likely distribution and routing of development traffic, it also allows the reassignment of existing traffic in the vicinity of schemes in response to trip cost change thus providing a more realistic forecast of trip levels. A number of SATURN scenarios were run, as required, including the various combinations of development and infrastructure in and around the Barnsley West site, consistent with the requirements of the TA.

Trip Distribution

The original trip distribution presented by Fore, which is in accordance with the previously agreed scoping documents, has been taken into account when re-distributing the base and development trips onto the local highway network.

In order to provide a robust assessment, base traffic has been re-distributed to reflect the proposed changes to the highway layout with the addition of the new roundabout giving a route choice to and from the A5628 Whinby Road, which does not currently exist.

This redistribution is required as the data from Fore in relation to the Phase 1 traffic and the SATURN model in relation to the full development traffic only provided a flow along Higham Lane to and from the MU1 site.

As such, the baseline traffic travelling from point A to B in **Figure 8** below (to / from Higham Common Road towards / from the M1) has been re-distributed for the purpose of assessment. Note that traffic travelling to / from the A628 Whinby Road to the west of the junction network is unaffected

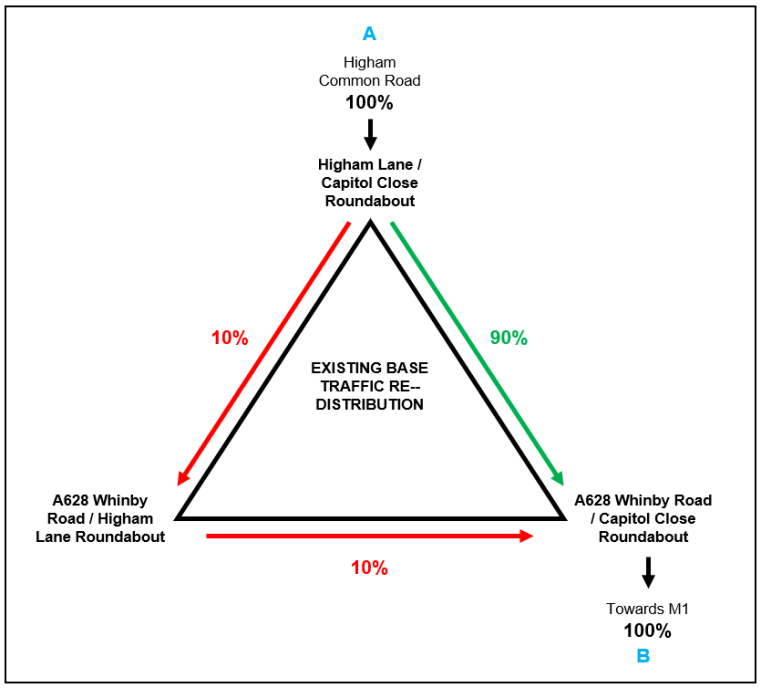

Figure 8. Base Traffic Re-Distribution

The re-distribution of the majority of traffic (90%) through the new junction and along Capitol Close is considered to reflect the time-saving nature and directness of this route. This will provide a robust assessment of the junctions under scrutiny, where in reality there may be a more equal split of traffic between the two routes.

In order to further aid the robustness of the assessment, all trips arising from the developments accounted for (Phase 1 and the full MU1 development) have been assigned to the most direct route, as outlined below. All trips between point A and B will utilise Capitol Close.

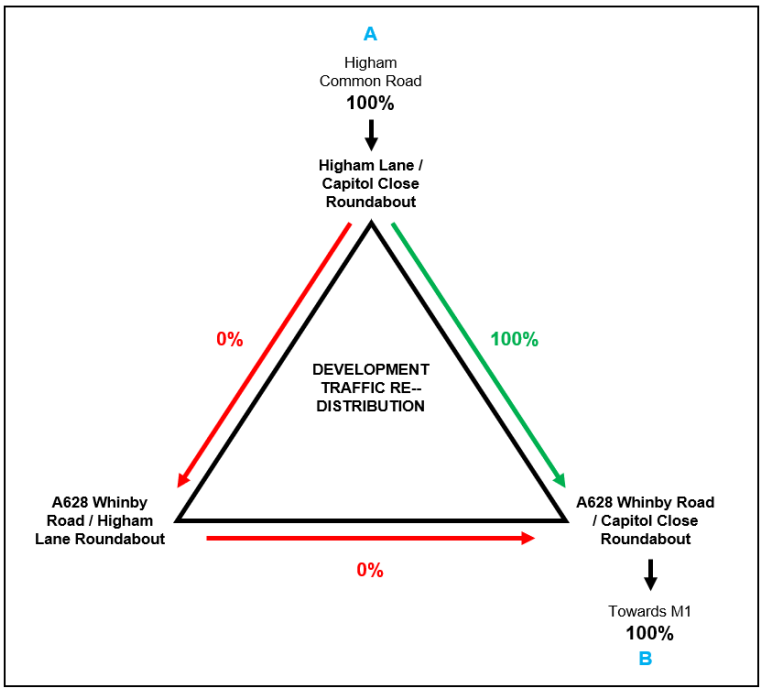

Figure 9. Development Traffic Re-Distribution

This distribution of traffic is considered robust, offering a worst-case scenario for the junctions under assessment. In practice, it may be that traffic is shared between the routes more evenly than has been accounted for in this assessment.

In order to provide an indicative representation of the changes in total base traffic travelling through the existing junctions as a result of this re-distribution, total flows have been outlined in **Table 5**. Total traffic for all scenarios at all junctions is available as part of **Appendix B**.

Table 5. Traffic Distribution – 2019

	2019 Base Flows (Original)	2019 Base Flows (Re-Distributed)	Percentage Change
A628 Whinby Road / Capitol Close Roundabout			
AM Peak Hour	1731	1716	**-1%**
PM Peak Hour	1838	1752	**-5%**
A628 Whinby Road / Higham Lane Roundabout			
AM Peak Hour	1846	1414	**-23%**
PM Peak Hour	1956	1365	**-30%**

The re-distribution of traffic results in a reduction in total traffic through both of the existing junctions. The impact of the re-distribution of traffic is more significant at the A628 Whinby Road / Higham Lane Roundabout over both the AM and PM peak periods.

It should additionally be noted that the chosen design parameters along with swept path analysis will ensure this route is more accessible and therefore the preferred route for HGV's travelling south to the M1 rather than routing north via local roads.

7. Impact Assessment

Introduction

For the purpose of this assessment, taking into account the proposed improvements to the highway network, the following junctions have been assessed:

- Junction 1 – A628 Whinby Road / Capitol Close Roundabout;
- Junction 2 – A628 Whinby Road / Higham Lane Roundabout; and
- Junction 3 – Higham Lane Roundabout / Capitol Close.

The predicted traffic to be generated through future years has been added to the baseline network data to assess impact. ARCADY from the TRL software Junctions 9 package has been used to model the operation of the junctions for each of the predetermined years.

Within the software, time periods assessed are divided into a number of 15-minute time segments in order to simulate the likely arrival pattern of traffic more effectively. The results returned in the models are the Ratio of Flows to Capacity (RFC) and queue (PCU). The maximum RFC value for each movement is likely to be observed over the central 15-30-minute period of the hour under consideration.

RFC values between 0.00 and 0.85 are generally accepted as representing stable operating conditions, values between 0.85 and 1.00 represent variable operation (i.e. possible queues building up at the junction during the period under consideration and increases in vehicle delay moving through the junction). RFC values in excess of 1.00 represent overloaded conditions (i.e. congested conditions).

Future Year Scenarios

To determine the impact upon the junctions as a result of the proposed highway improvements, a number of development scenarios have been tested. The purpose of scenario testing is to determine the level of impact that the overall development is likely to have taking into account external factors such as background growth on the highway network and other committed developments in the surrounding area. This encompasses the operational element of the improved highway layout that is being proposed in this TA.

The following scenarios have been assessed for each junction:

- **2019 Baseline Scenario**, existing junction layout (where relevant);
- **2019 Baseline Scenario**, new junction layout (re-distributed traffic);
- **2021 Do Minimum Scenario** (Base + Growth + Committed Developments), new junction layout;
- **2026 Do Minimum Scenario** (Base + Growth + Committed Developments), new junction layout;
- **2026 Do Something Scenario** (Base + Growth + Committed Developments + Phase 1 of the Barnsley West Development), new junction layout;
- **2033 Do Minimum Scenario** (Base + Growth inc. SATURN + Committed Developments + Phase 1), new junction layout; and
- **2033 Do Something Scenario** (Base + Growth inc. SATURN + Committed Developments + Full Barnsley West Development), new junction layout.

All trip distribution diagrams are provided in **Appendix B** for reference.

Junction 1 – A628 Whinby Road / Capitol Close

This section outlines the modelling results for the proposed improvements to the existing roundabout between the A628 Whinby Road and Capitol Close. The full modelling output for all scenarios is available in **Appendix C** for reference.

2019 Base

This scenario examines the operation of the junction based upon the surveyed flows from 2019.

Table 6. A628 Whinby Road and Capitol Close Roundabout - 2019 Baseline Scenario

	2019 Base			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.44	0.8	0.46	0.8
A628 Whinby Road Eastbound	0.70	2.3	0.50	1.0
Capitol Close Southbound	0.03	0.0	0.46	0.8

Assessment of the junction in its current layout highlights that it is currently operating within capacity and with minimal queuing at all approaches.

2019 Base Re-Distributed

Table 7. A628 Whinby Road and Capitol Close Roundabout - 2019 Baseline Scenario – Re-Distributed

	2019 Base Re-Distributed			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.37	0.6	0.37	0.6
A628 Whinby Road Eastbound	0.32	0.5	0.22	0.3
Capitol Close Southbound	0.17	0.2	0.35	0.5

The re-distribution and proposed layout of the roundabout have reduced operating pressure on the roundabout, and it is forecast to again operate within capacity and with minimal queuing at all approaches.

2021 Do Minimum

Table 8. A628 Whinby Road and Capitol Close Roundabout - 2021 Do Minimum Scenario

	2021 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.43	0.7	0.40	0.7
A628 Whinby Road Eastbound	0.35	0.5	0.24	0.3
Capitol Close Southbound	0.21	0.3	0.43	0.8

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2021 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2026 Do Minimum

Table 9. A628 Whinby Road and Capitol Close Roundabout - 2026 Do Minimum Scenario

	2026 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.46	0.8	0.42	0.7
A628 Whinby Road Eastbound	0.38	0.6	0.26	0.3
Capitol Close Southbound	0.23	0.3	0.47	0.9

The results indicate that the junction would again operate within capacity both the AM and PM peaks during the 2026 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2026 Do Something

Table 10. A628 Whinby Road and Capitol Close Roundabout - 2026 Do Something Scenario

	2026 Do Something			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.49	1.0	0.44	0.8
A628 Whinby Road Eastbound	0.43	0.7	0.27	0.4
Capitol Close Southbound	0.30	0.4	0.53	1.1

The results indicate that the junction would continue to operate within capacity in both the AM and PM peaks when accounting for the Phase 1 traffic, with minimal queuing in both of these instances at all approaches.

2033 Do Minimum

Table 11. A628 Whinby Road and Capitol Close Roundabout - 2033 Do Minimum Scenario

	2033 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.61	1.6	0.68	12.1
A628 Whinby Road Eastbound	0.30	0.4	0.12	0.1
Capitol Close Southbound	0.51	1.0	0.55	1.2

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2033 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2033 Do Something

Table 12. A628 Whinby Road and Capitol Close Roundabout - 2033 Do Something Scenario

	2033 Do Something			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Northbound	0.66	1.9	0.77	3.4
A628 Whinby Road Eastbound	0.28	0.4	0.11	0.1
Capitol Close Southbound	0.65	1.9	0.67	2.0

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2033 Do Something scenario when accounting for all development traffic, with minimal queuing in both of these instances at all approaches.

Junction 2 – A628 Whinby Road / Higham Lane

This section outlines the modelling results for the roundabout between the A628 Whinby Road and Higham Lane, with no modifications proposed to the junction from its current layout. The full modelling output for all scenarios is available in **Appendix C** for reference.

2019 Base

This scenario examines the operation of the junction based upon the surveyed flows from 2019.

Table 13. A628 Whinby Road / Higham Lane Roundabout - 2019 Baseline Scenario

	2019 Base			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.70	2.2	0.77	3.2

A628 Whinby Road Eastbound	0.87	6.1	0.61	1.6
Higham Lane Southbound	0.42	0.7	0.67	2.0

The results indicate that the junction is operating within capacity when accounting for the 2019 base flows during both the AM and PM peaks. The A628 Whinby Road Eastbound arm exerts an RFC of 0.87, which indicates approaching capacity.

2019 Base Re-Distributed

Table 14. A628 Whinby Road / Higham Lane Roundabout - 2019 Baseline Scenario – Re-Distributed

	2019 Base Re-Distributed			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.46	0.9	0.59	1.4
A628 Whinby Road Eastbound	0.75	3.0	0.55	1.2
Higham Lane Southbound	0.15	0.2	0.17	0.2

Re-distributing the traffic at the junction has reduced operating pressure on the roundabout, and it is forecast to operate within capacity and with minimal queuing at all approaches, with notable improvement to the A628 Whinby Road Eastbound approach.

2021 Do Minimum

Table 15. A628 Whinby Road / Higham Lane Roundabout - 2021 Do Minimum Scenario

	2021 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.47	0.9	0.60	1.5
A628 Whinby Road Eastbound	0.79	3.6	0.57	1.3
Higham Lane Southbound	0.17	0.2	0.18	0.2

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2021 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2026 Do Minimum

Table 16. A628 Whinby Road / Higham Lane Roundabout - 2026 Do Minimum Scenario

	2026 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.52	1.1	0.66	1.9
A628 Whinby Road Eastbound	0.84	5.1	0.61	1.6
Higham Lane Southbound	0.19	0.2	0.20	0.3

The results indicate that the junction would again operate within capacity both the AM and PM peaks during the 2026 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2026 Do Something

Table 17. A628 Whinby Road / Higham Lane Roundabout - 2026 Do Something Scenario

	2026 Do Something			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.53	1.1	0.67	2.0

A628 Whinby Road Eastbound	0.86	5.7	0.62	1.6
Higham Lane Southbound	0.21	0.3	0.23	0.3

The results indicate that the junction would continue to operate within capacity in both the AM and PM peaks when accounting for the Phase 1 traffic, with minimal queuing in both of these instances at all approaches. The RFC for the A628 Whinby Road Eastbound approach has risen to 0.86, however this is not considered severe and is only slightly above the value of 0.85 above which some operational issue may arise.

2033 Do Minimum

Table 18. A628 Whinby Road / Higham Lane Roundabout - 2033 Do Minimum Scenario

	2033 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.60	1.5	0.91	8.4
A628 Whinby Road Eastbound	0.86	5.5	0.64	1.8
Higham Lane Southbound	0.29	0.4	0.30	0.4

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2033 Do Minimum scenario. The RFC for the A628 Whinby Road Westbound approach is inflated at 0.91, however this is still within theoretical capacity and not considered severe, given the predicted level of queuing is not considered to be significant in this instance...

2033 Do Something

Table 19. A628 Whinby Road / Higham Lane Roundabout - 2033 Do Something Scenario

	2033 Do Something			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
A628 Whinby Road Westbound	0.62	1.6	0.92	9.3
A628 Whinby Road Eastbound	0.88	6.4	0.69	2.2
Higham Lane Southbound	0.36	0.5	0.34	0.5

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2033 Do Something scenario when accounting for all development traffic. The RFC for the A628 Whinby Road Westbound approach is inflated at 0.92, however again this is still within theoretical capacity and not considered severe as the predicted queue length is not predicted to increase materially above the do minimum scenario.

Junction 3 – Higham Lane / Capitol Close

This section outlines the modelling results for the proposed new roundabout between Higham Lane and Capitol Close. The full modelling output for all scenarios is available in **Appendix C** for reference.

2019 Base Re-Distributed

This scenario examines the operation of the junction based upon the re-distributed surveyed flows from 2019, as it doesn't currently exist and therefore cannot be modelled using any existing 2019 count data.

Table 20. Higham Lane / Capitol Close Roundabout - 2019 Baseline Re-Distributed

	2019 Base Re-Distributed			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
Capitol Close Westbound	0.25	0.3	0.15	0.2
Higham Lane Northbound	0.13	0.1	0.11	0.1
Higham Lane Southbound	0.26	0.4	0.49	1.0
Capitol Park Access Southbound	0.00	0.0	0.00	0.0

Applying the re-distributed flows to the new roundabout forecast operating within capacity with minimal queueing.

2021 Do Minimum

Table 21. Higham Lane / Capitol Close Roundabout - 2021 Do Minimum Scenario

	2021 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
Capitol Close Westbound	0.31	0.4	0.18	0.2
Higham Lane Northbound	0.14	0.2	0.12	0.1
Higham Lane Southbound	0.28	0.4	0.51	1.0
Capitol Park Access Southbound	0.02	0.0	0.06	0.1

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2021 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2026 Do Minimum

Table 22. Higham Lane / Capitol Close Roundabout - 2026 Do Minimum Scenario

	2026 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
Capitol Close Westbound	0.33	0.5	0.19	0.2
Higham Lane Northbound	0.16	0.2	0.13	0.1
Higham Lane Southbound	0.30	0.4	0.55	1.2
Capitol Park Access Southbound	0.02	0.0	0.06	0.1

The results indicate that the junction would again operate within capacity both the AM and PM peaks during the 2026 Do Minimum scenario, with minimal queuing in both of these instances at all approaches.

2026 Do Something

Table 23. Higham Lane / Capitol Close Roundabout - 2026 Do Something Scenario

	2026 Do Something			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
Capitol Close Westbound	0.39	0.6	0.22	0.3
Higham Lane Northbound	0.18	0.2	0.14	0.2
Higham Lane Southbound	0.38	0.6	0.63	1.7
Capitol Park Access Southbound	0.02	0.0	0.07	0.1

The results indicate that the junction would continue to operate within capacity in both the AM and PM peaks when accounting for the Phase 1 traffic, with minimal queuing in both of these instances at all approaches. .

2033 Do Minimum

Table 24. Higham Lane / Capitol Close Roundabout - 2033 Do Minimum Scenario

	2033 Do Minimum			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
Capitol Close Westbound	0.55	1.2	0.57	1.3
Higham Lane Northbound	0.25	0.3	0.25	0.3
Higham Lane Southbound	0.69	2.2	0.78	3.3

Capitol Park Access Southbound	0.03	0.0	0.07	0.1

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2033 Do Minimum scenario.

2033 Do Something

Table 25. Higham Lane / Capitol Close Roundabout - 2033 Do Something Scenario

	2033 Do Something			
Arm	**AM**		**PM**	
	RFC	**Queue**	**RFC**	**Queue**
Capitol Close Westbound	0.57	1.3	0.74	2.7
Higham Lane Northbound	0.27	0.4	0.34	0.5
Higham Lane Southbound	0.92	9.2	0.96	15.5
Capitol Park Access Southbound	0.03	0.0	0.08	0.1

The results indicate that the junction would operate within capacity in both the AM and PM peaks during the 2033 Do Something scenario when accounting for all development traffic.

It must be noted that the RFC in both the AM and PM peak is significantly inflated for the Higham Lane Southbound approach. It must again be stressed however that the methodology undertaken in trip distribution is extremely robust, where the true distribution of traffic may be split more evenly between the two potential routes.

Summary

On this basis, the likely traffic associated with any future growth and development on the network can be satisfactorily accommodated by the proposed layout of the two new roundabouts.

It must be stated that no development is being proposed at this time, although in order to ensure that the new junctions will continue to operate satisfactorily in the future, an assessment of the potential future demand has been undertaken, and the conclusions being that they will still operate within capacity.

8. Road Safety Assessment

The Department for Transport (DfT) guidance on Transport Assessments outlines that accident data for the latest 5-year period is considered acceptable for road safety analysis. The most recent five-year data available profiles all accidents between 2015 and 2019 and has been obtained from crashmap.co.uk.

The particular locations of interest include Higham Lane, the A628 Whinby Road and Capitol Close. A map showing the location of accidents is shown in **Figure 10**.



Figure 10. Road Accident Map

As can be seen, there have been three accidents on the local road network to the proposed scheme. Of these, two were deemed serious (one occurring on 15th September 2018 along the A628 Whinby Road, and the other on 3rd June 2019 at the A628 Whinby Road / Higham Lane roundabout). The incident in 2019 involved an elderly driver colliding with a vehicle in the act of turning right. The incident may have been due to the age of the driver and / or the temporal conditions (darkness).

The incident occurring in 2018 involved three vehicles and six casualties. This incident was deemed serious, with the collision arising as a result of impact between two of the vehicles proceeding along the carriageway and the other turning right into the layby located along this section of the A628 Whinby Road. Conditions were good and the collision occurred during daylight hours, which suggests that driver error may have been a principle cause.

The third incident was classed as slight (occurring on 12th November 2018), in which two casualties were reported from one vehicle along Whinby Road south of the A628 Whinby Road / Capitol Close roundabout.

Overall, whilst any accident is clearly undesirable, it is considered there are no discernible patterns of accidents indicating a specific issue that would need to be addressed to safely accommodate the changes in traffic flows

associated with the proposed highway works. With reference to the incident at the A628 Whinby Road / Higham Lane Roundabout, the re-distribution of traffic that has been outlined throughout this TA may decrease the chance of a similar occurrence in the future.

9. Summary and Conclusions

AECOM has been commissioned by Barnsley Metropolitan Borough Council (BMBC) to produce a Transport Assessment (TA) to support a planning application for the M1 Junction 37 Phase 2 Higham Lane development, just outside of Higham, Barnsley.

The prevailing theme of national policy is that development must be accessible by sustainable means of transport as well as to all members of the local community. Regional policy specifies regional growth direction, improvement priorities and opportunities available. This TA has demonstrated that the proposed development is compliant with local, regional and national policies.

The development, as designed by Barnsley MBC, proposals the installation of a new four-arm priority-controlled roundabout between Higham Lane and Capitol Close, and modification to the existing four-arm priority-controlled A628 Whinby Road / Capitol Close roundabout.

It should be stated that the application only relates to the construction of the highway works and no development is being promoted at this time and will be the subject of a separate application in the future.

The road network being improved currently has excellent pedestrian facility provision, with extensive footways and street lighting. Public transport routes do not interact with the road network around Higham Lane, Capitol Close and the A628 Whinby Road, and so any works to the highway during the construction phase of the development would not result in significant impact in this sense. It is important that the pedestrian and cycle infrastructure is maintained and developed as part of the new highway development. Furthermore, improvements to the network layout may facilitate the extension of public transport services and routes as part of the wider Barnsley West development in future years.

Detailed junction capacity analysis has been carried out at the three junctions within the study area to determine the impact of the proposed development, accounting for numerous committed developments, future traffic growth and the completion of the wider Barnsley West development. On this basis, the likely traffic associated with any future growth on the network can be accommodated by the proposed layout of the three junctions, with spare capacity across all in each of the scenarios assessed.

Collision data analysis for most recent five-year period the road network in question raises no discernible patterns of accidents indicating a specific issue that would need to be addressed to safely accommodate the changes in traffic flows associated with the proposed highway development.

Taking into account all of the above, it is concluded that the proposals are acceptable from a transport and highways perspective and there is no reason on this basis as to why the application should be refused.

Appendix A – General Layout Plans



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Rev.	By	Amendments	Date

BARNSLEY
Metropolitan Borough Council

Project

J37 PHASE 2
PLANNING APPLICATION

Drawing title

SITE
BOUNDARY

Scale	Drawn	Checked	Date
1:1000 @ A0	AJ		MAY 19

Drawing No.	Revision	File
HD/C563.69.1/PA/001		C563.69.1

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COMPUTER FILE



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Rev.	By	Amendments	Date

BARNSLEY
Metropolitan Borough Council

Project
J37 PHASE 2
PLANNING APPLICATION

Drawing title
GENERAL
LAYOUT

Scale	Drawn	Checked	Date
1:1000 @ A0	AJ		MAY 19

Drawing No.	Revision	File
HD/C563.69.1/PA/002		C563.69.1

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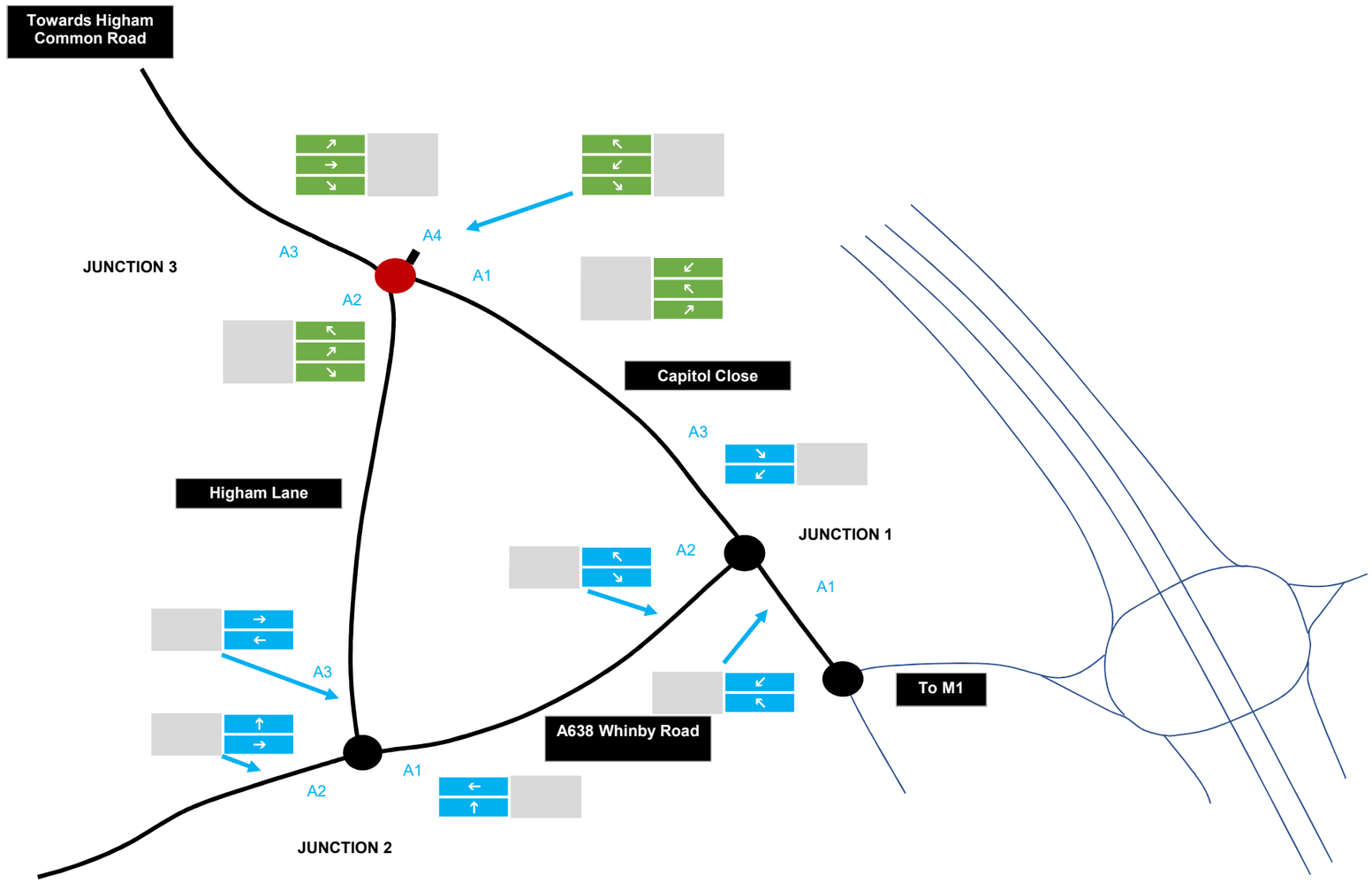
COMPUTER FILE

Appendix B – Trip Distribution Diagrams



A1 Arm 1
A2 Arm 2
A3 Arm 3
A4 Arm 4

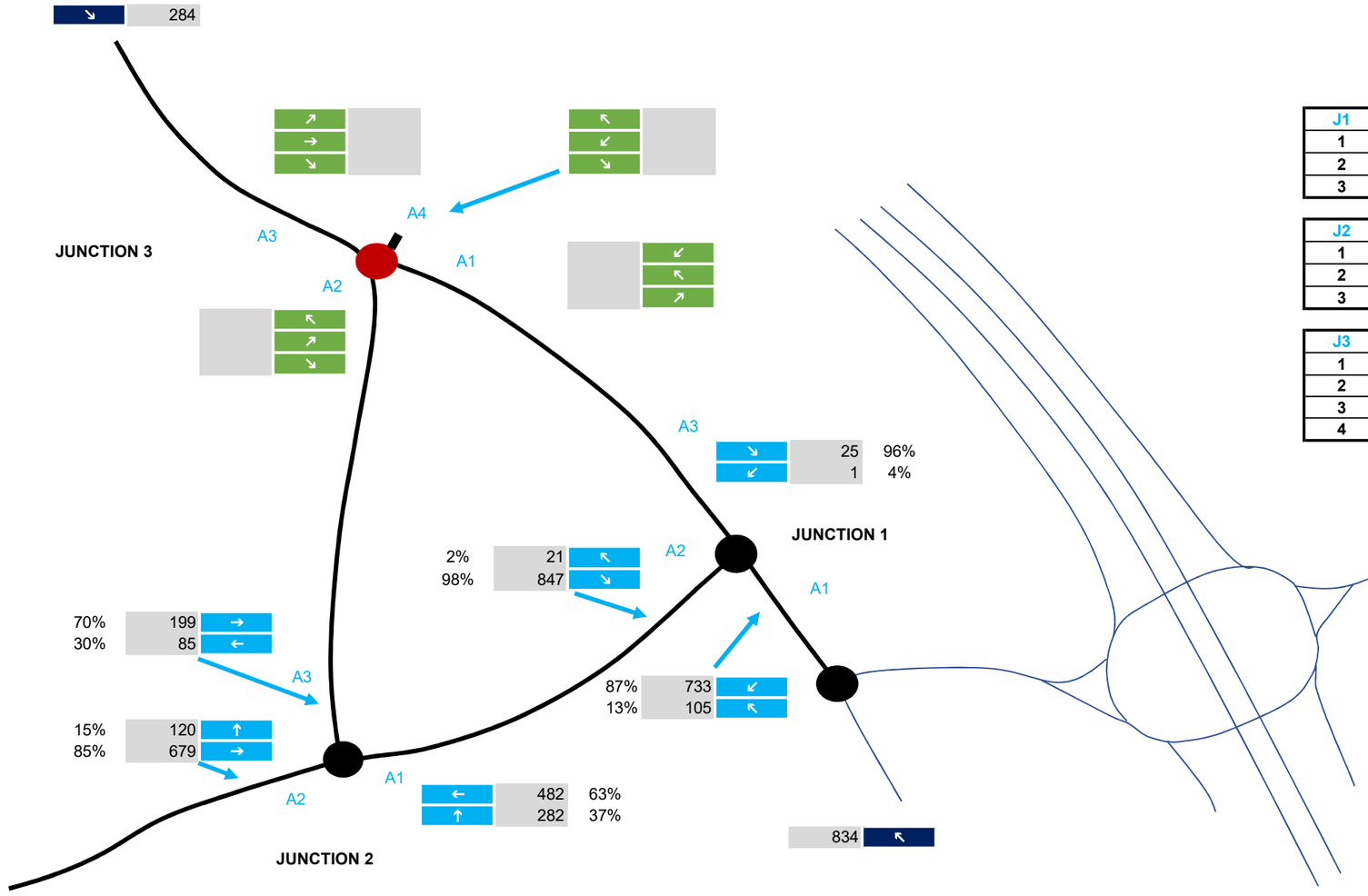
*All values in PCU unless otherwise stated

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	Junction Diagram	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		733	105
2	847		21
3	25	1	

J2	1	2	3
1		482	282
2	679		120
3	199	85	

J3	1	2	3	4
1		0	0	0
2	0		0	0
3	0	0		0
4	0	0	0	

J1 Total	1731
J2 Total	1846
J3 Total	0
TOTAL	**3577**

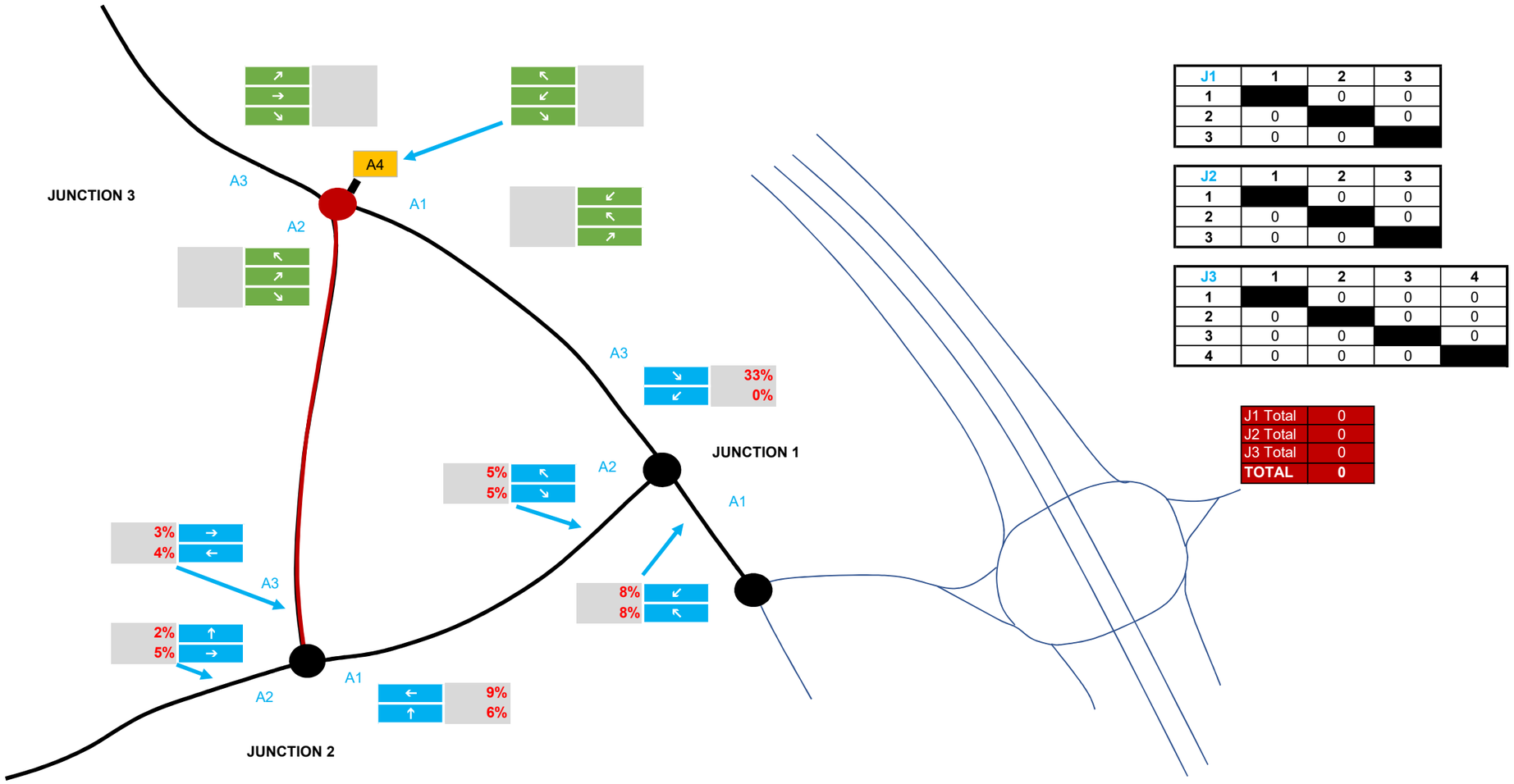
Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:
BMBC	Higham Lane	2019 Base - Original Layout AM Peak

AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		0	0
2	0		0
3	0	0	

J2	1	2	3
1		0	0
2	0		0
3	0	0	

J3	1	2	3	4
1		0	0	0
2	0		0	0
3	0	0		0
4	0	0	0	

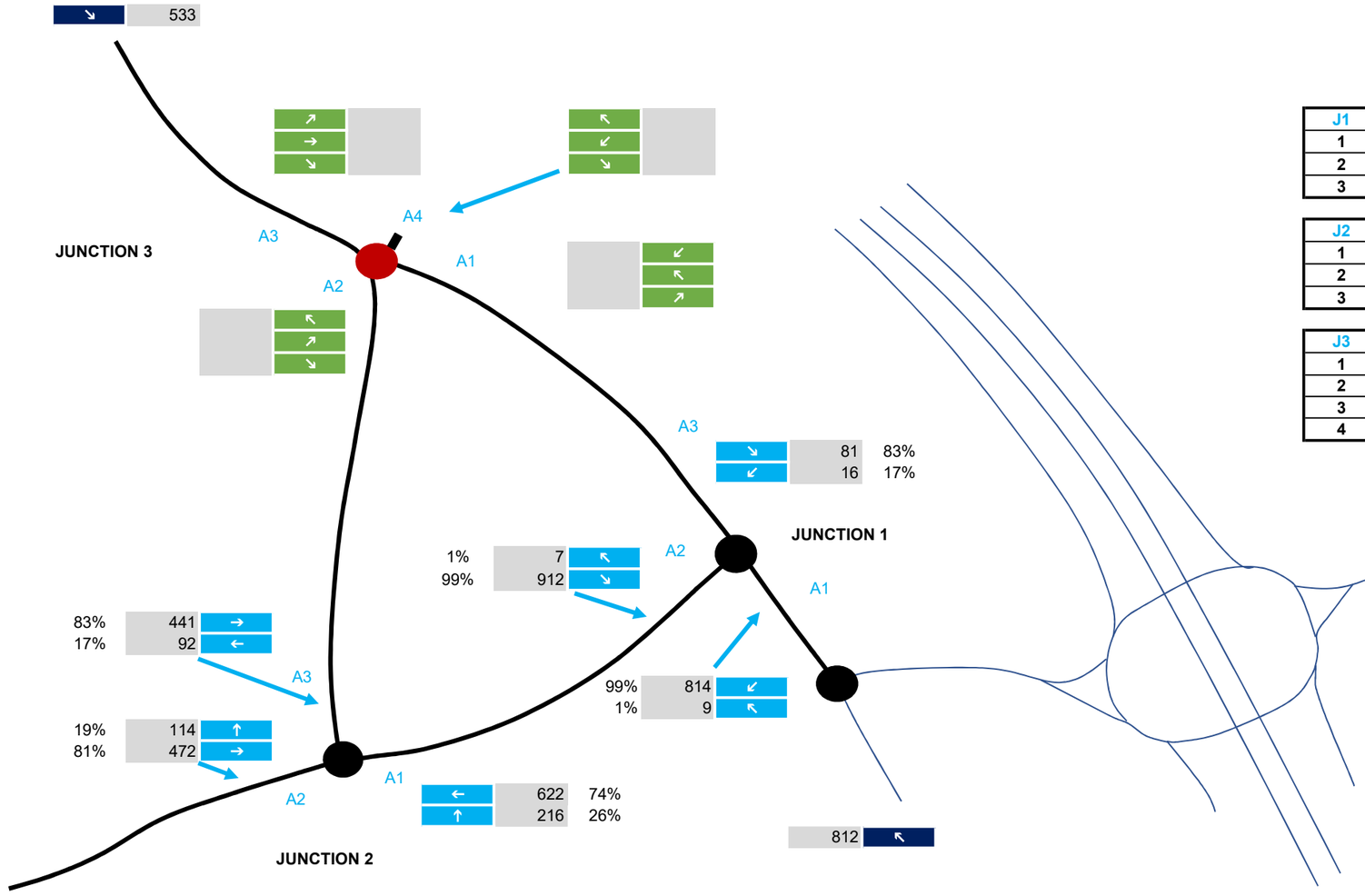
J1 Total	0
J2 Total	0
J3 Total	0
TOTAL	**0**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2019 Base Original AM Peak - HGV %	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		814	9
2	912		7
3	81	16	

J2	1	2	3
1		622	216
2	472		114
3	441	92	

J3	1	2	3	4
1		0	0	0
2	0		0	0
3	0	0		0
4	0	0	0	

J1 Total	1838
J2 Total	1956
J3 Total	0
TOTAL	**3794**

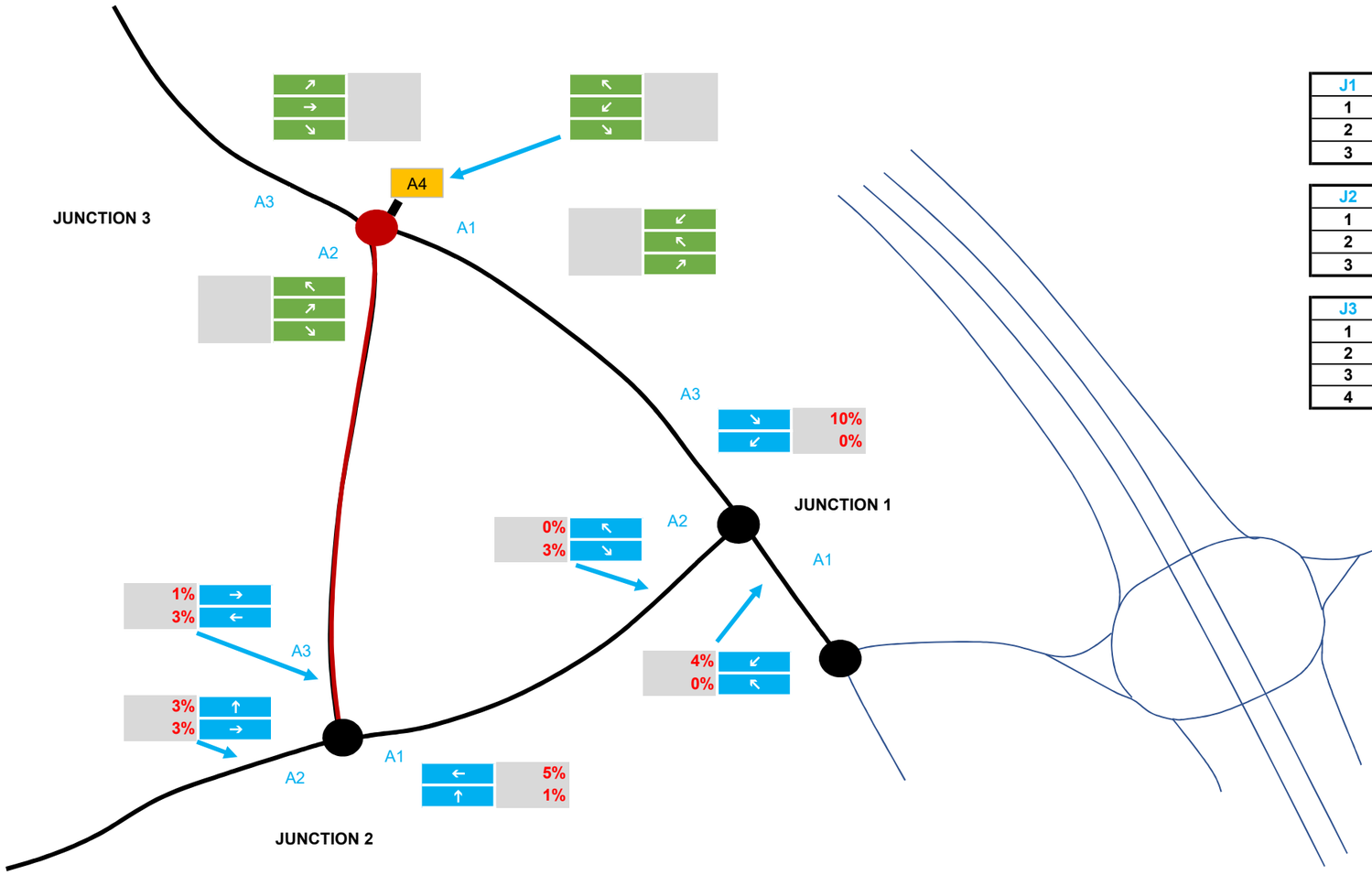
Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:
BMBC	Higham Lane	2019 Base - Original Layout PM Peak

AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		0	0
2	0		0
3	0	0	

J2	1	2	3
1		0	0
2	0		0
3	0	0	

J3	1	2	3	4
1		0	0	0
2	0		0	0
3	0	0		0
4	0	0	0	

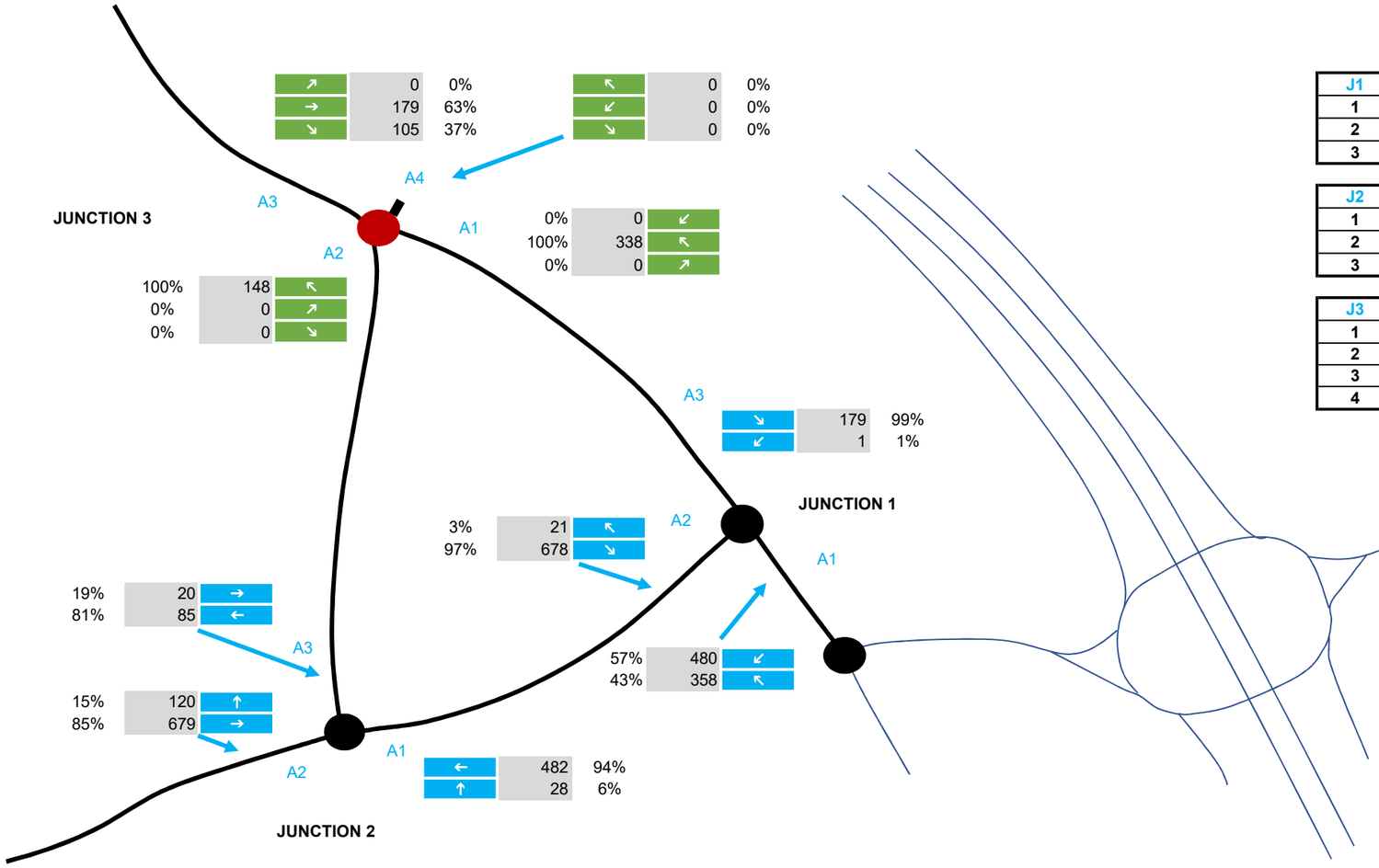
J1 Total	0
J2 Total	0
J3 Total	0
TOTAL	**0**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2019 Base Original PM Peak - HGV %	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		480	358
2	678		21
3	179	1	

J2	1	2	3
1		482	28
2	679		120
3	20	85	

J3	1	2	3	4
1		0	338	0
2	0		148	0
3	179	105		0
4	0	0	0	

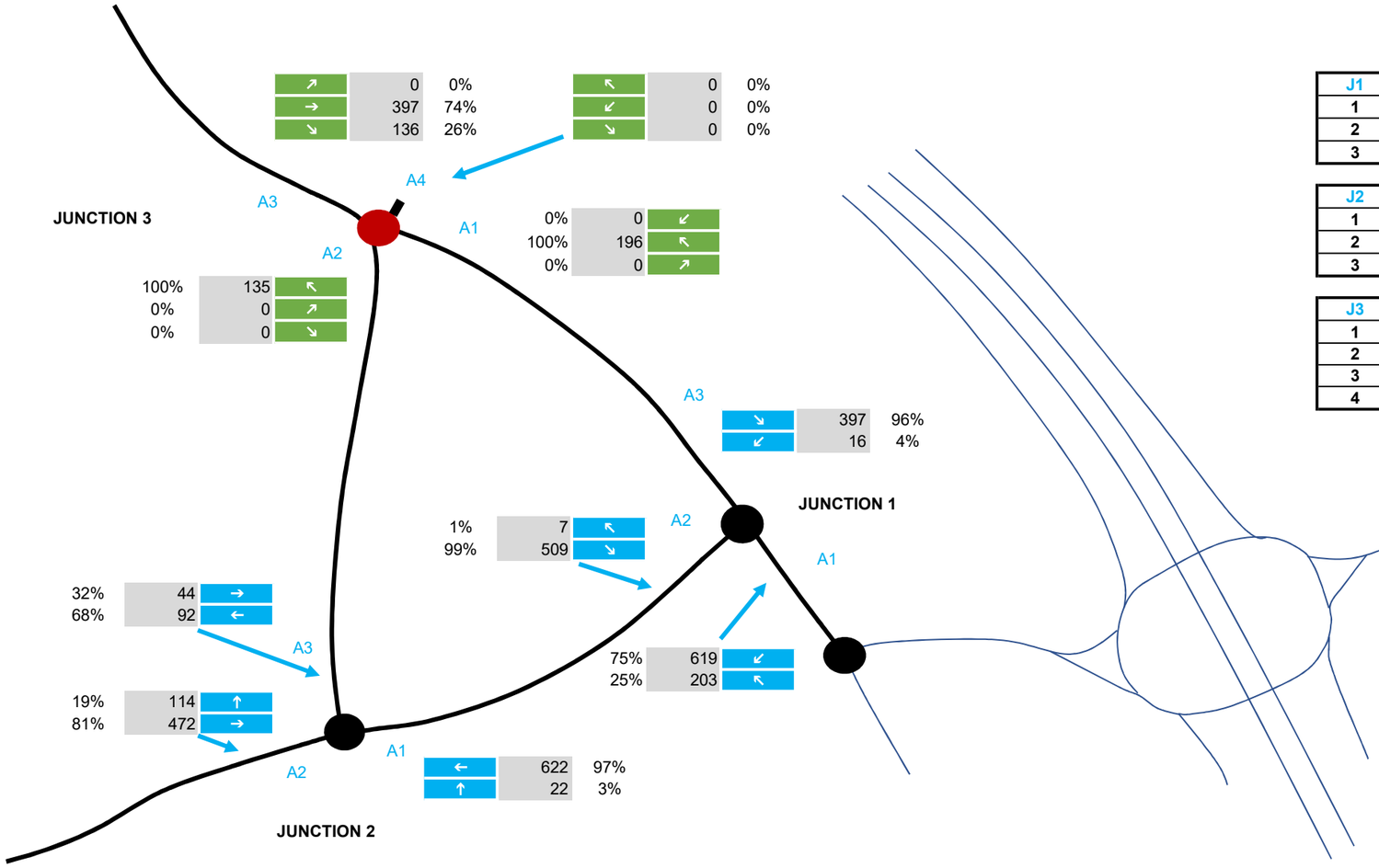
J1 Total	1716
J2 Total	1414
J3 Total	770
TOTAL	**3899**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2019 Base - Redistributed AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		619	203
2	509		7
3	397	16	

J2	1	2	3
1		622	22
2	472		114
3	44	92	

J3	1	2	3	4
1		0	196	0
2	0		135	0
3	397	136		0
4	0	0	0	

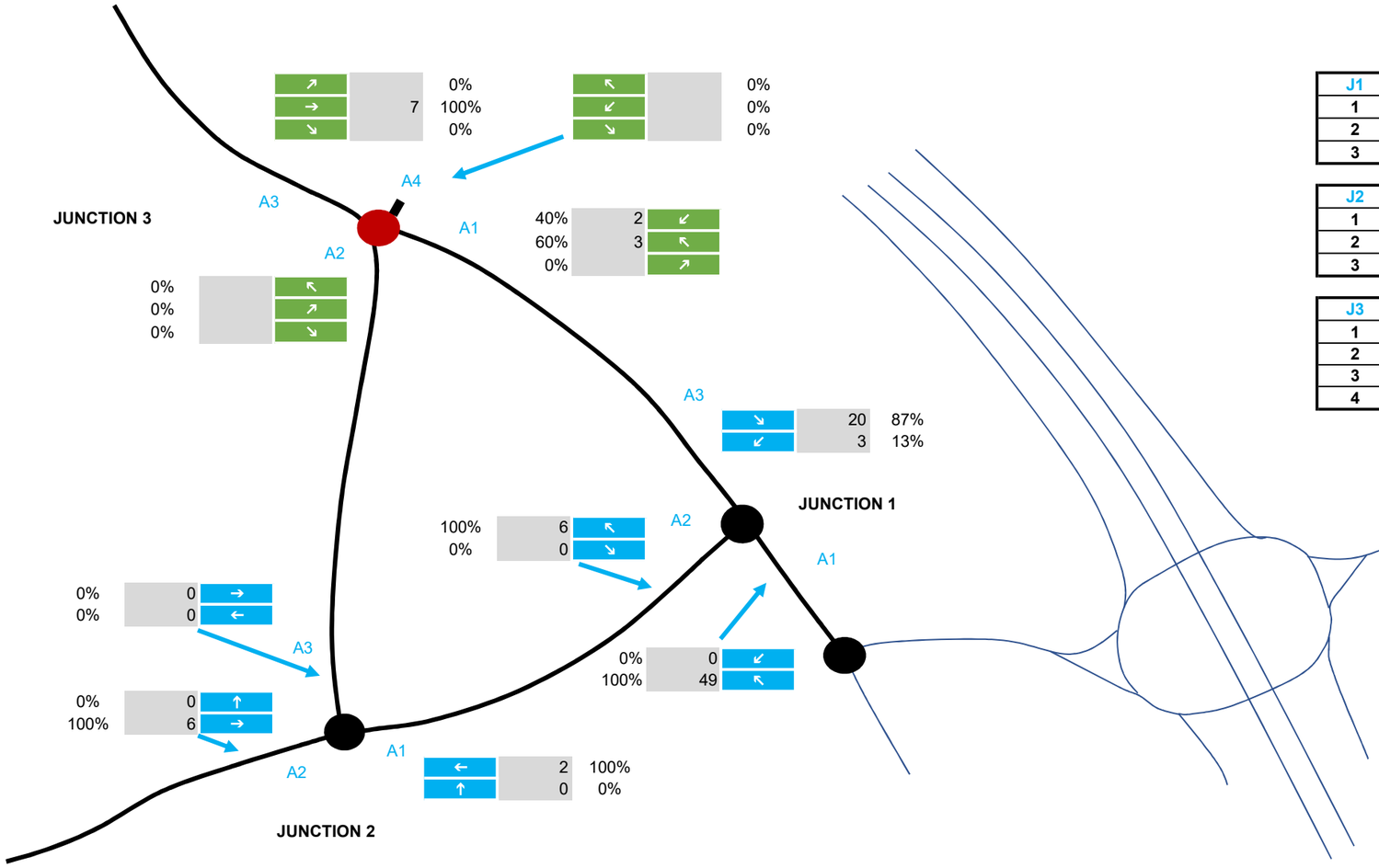
J1 Total	1752
J2 Total	1365
J3 Total	864
TOTAL	**3981**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2019 Base - Redistributed PM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		0	49
2	0		6
3	20	3	

J2	1	2	3
1		2	0
2	6		0
3	0	0	

J3	1	2	3	4
1		2	3	0
2	0		0	0
3	7	0		0
4	0	0	0	

J1 Total	78
J2 Total	8
J3 Total	12
TOTAL	**98**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:
BMBC	Higham Lane	Capitol Park AM Peak

AECOM

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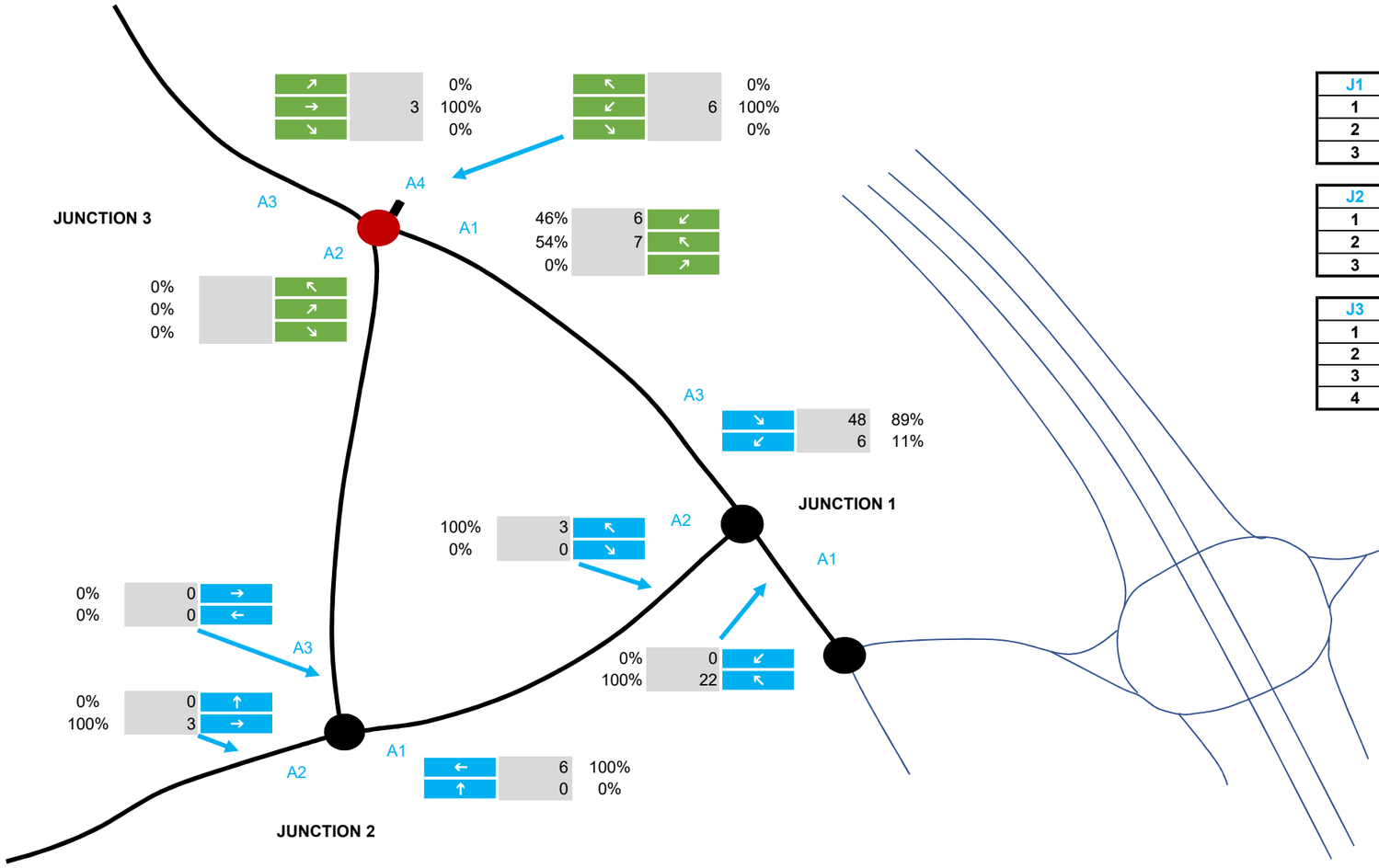


J1	1	2	3
1		0	22
2	0		3
3	48	6	

J2	1	2	3
1		6	0
2	3		0
3	0	0	

J3	1	2	3	4
1		6	7	0
2	0		0	0
3	3	0		0
4	0	6	0	

J1 Total	79
J2 Total	9
J3 Total	22
TOTAL	**110**

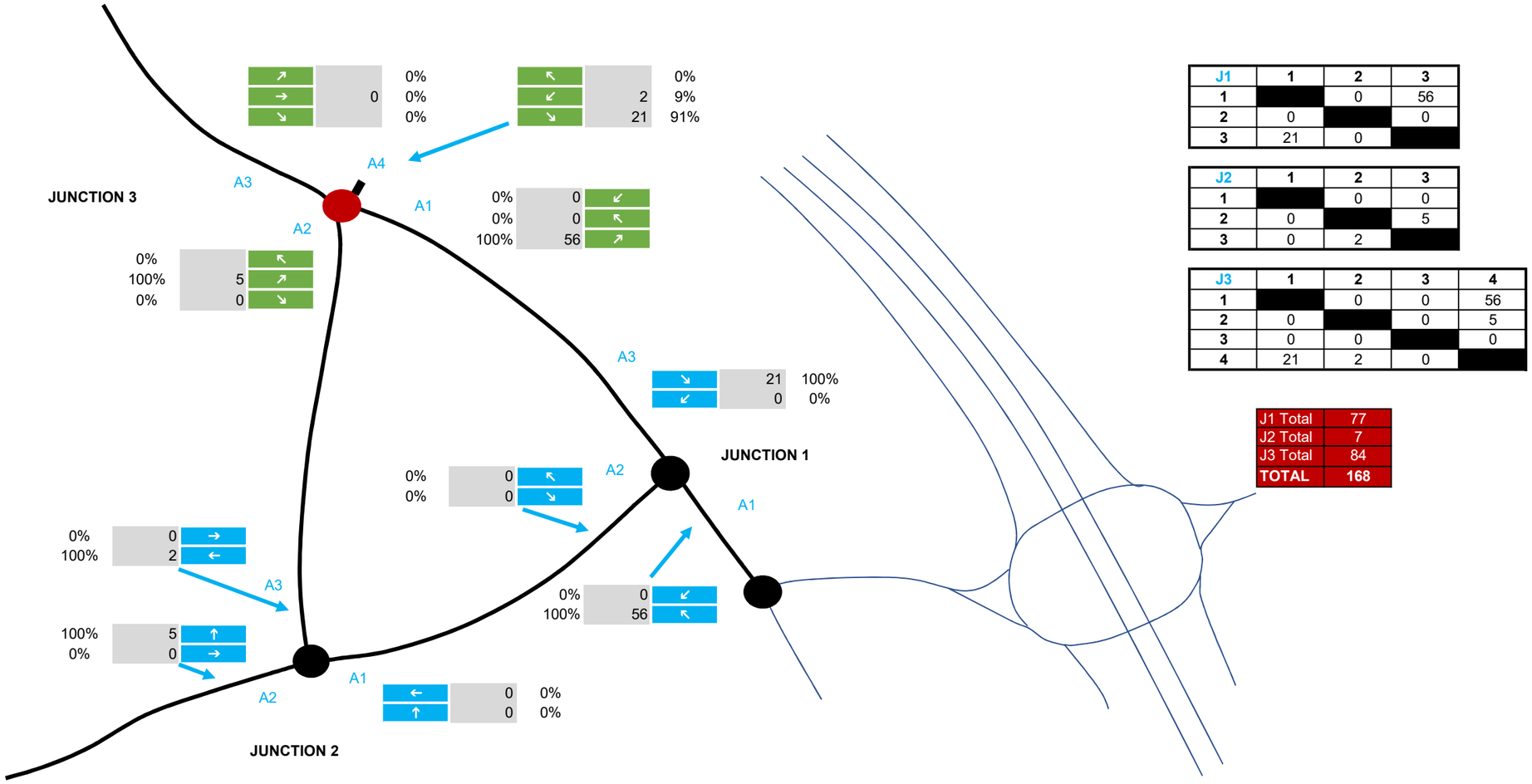
Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:
BMBC	Higham Lane	Capitol Park PM Peak

AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		0	56
2	0		0
3	21	0	

J2	1	2	3
1		0	0
2	0		5
3	0	2	

J3	1	2	3	4
1		0	0	56
2	0		0	5
3	0	0		0
4	21	2	0	

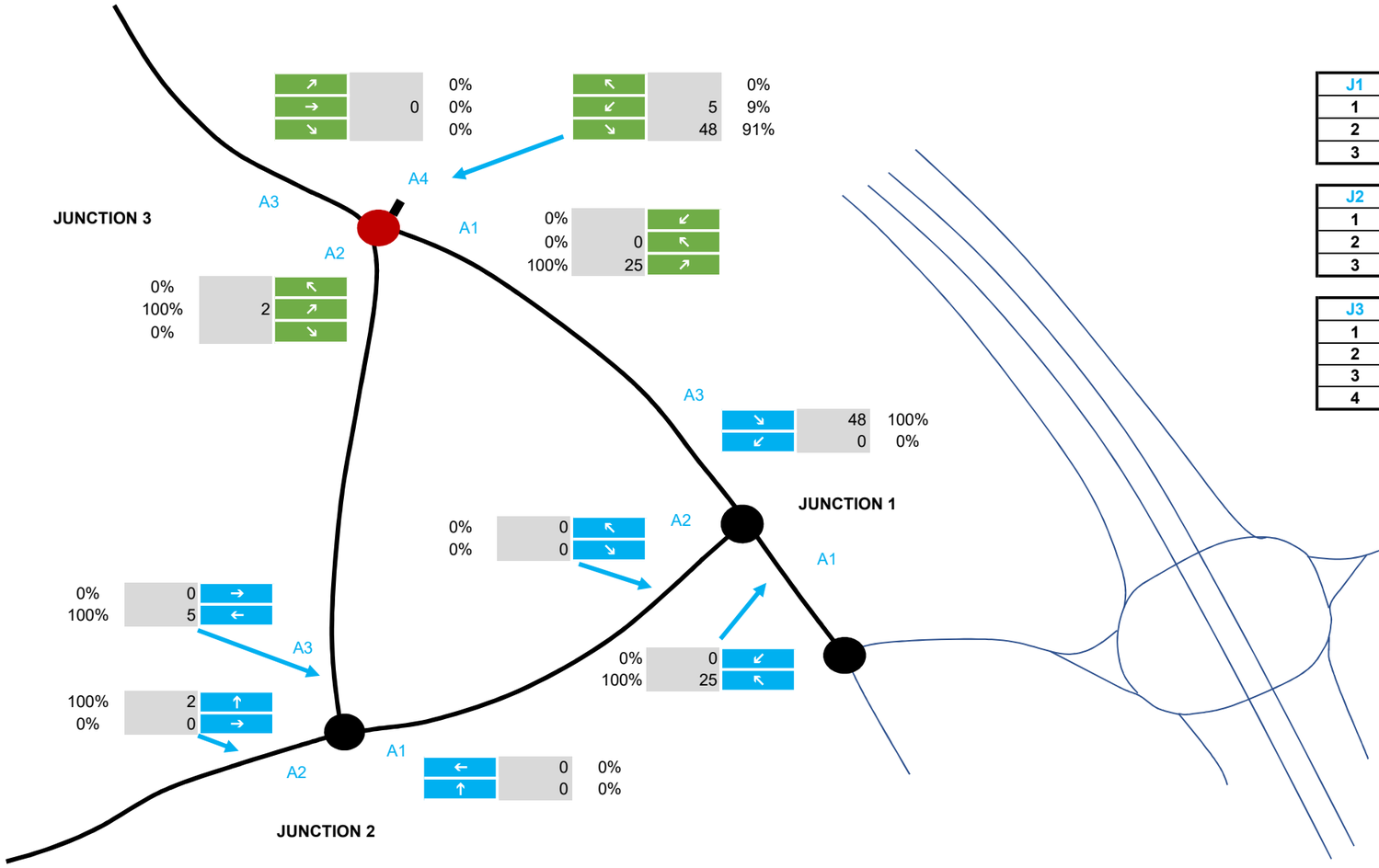
J1 Total	77
J2 Total	7
J3 Total	84
TOTAL	**168**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	Capitol Park 2019 AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		0	25
2	0		0
3	48	0	

J2	1	2	3
1		0	0
2	0		2
3	0	5	

J3	1	2	3	4
1		0	0	25
2	0		0	2
3	0	0		0
4	48	5	0	

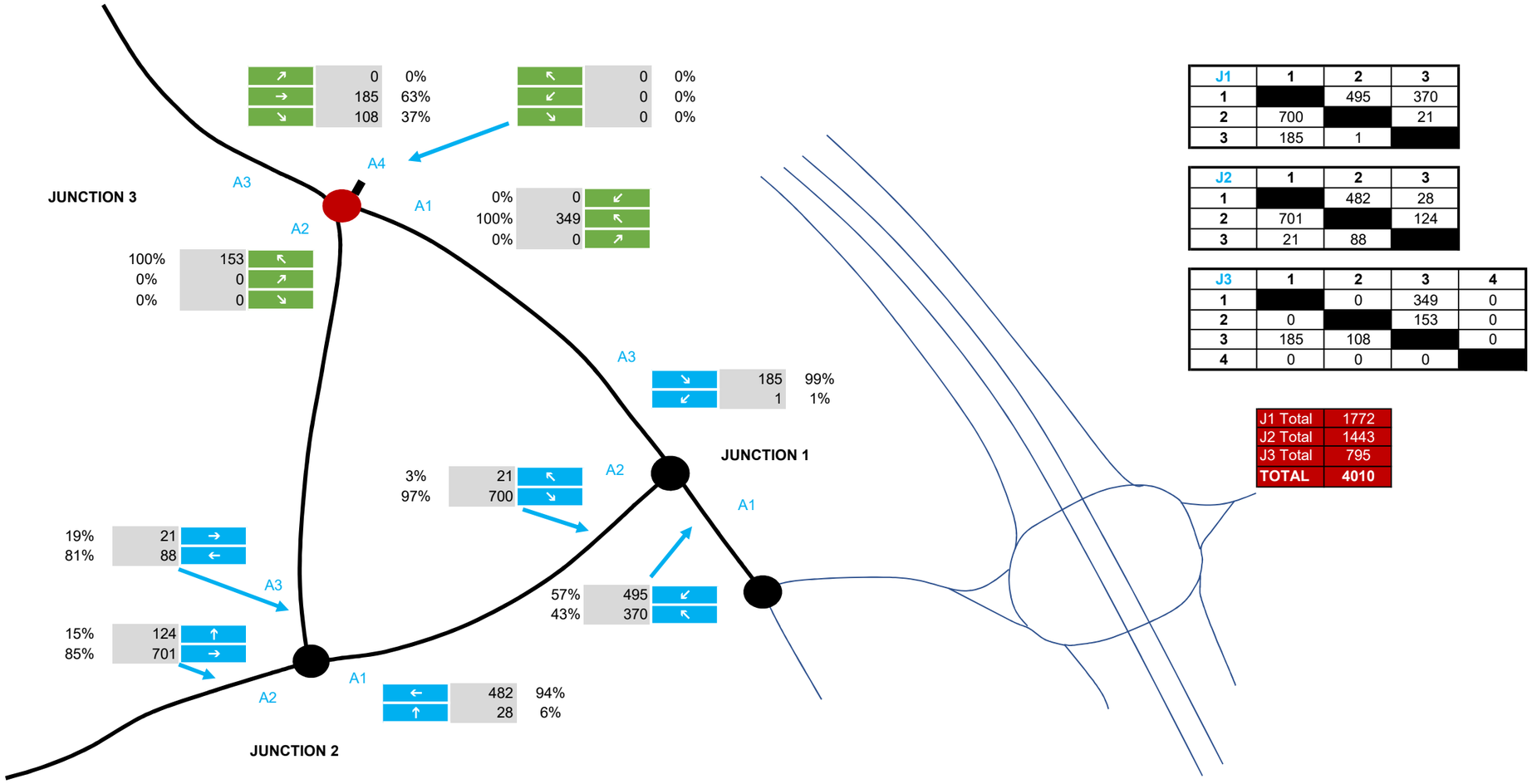
J1 Total	73
J2 Total	7
J3 Total	80
TOTAL	**160**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	Capitol Park 2019 PM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		495	370
2	700		21
3	185	1	

J2	1	2	3
1		482	28
2	701		124
3	21	88	

J3	1	2	3	4
1		0	349	0
2	0		153	0
3	185	108		0
4	0	0	0	

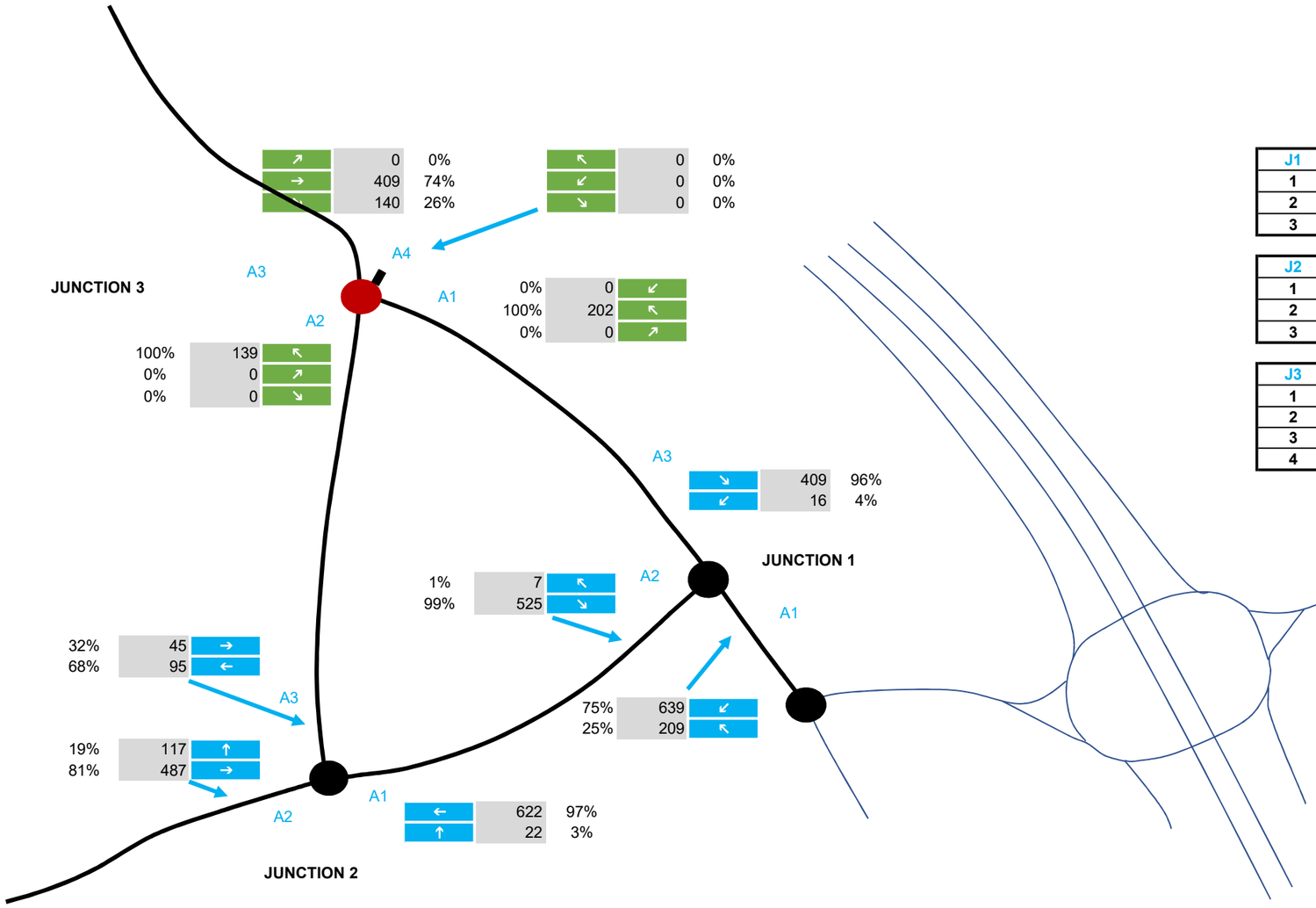
J1 Total	1772
J2 Total	1443
J3 Total	795
TOTAL	**4010**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2021 Base AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		639	209
2	525		7
3	409	16	

J2	1	2	3
1		622	22
2	487		117
3	45	95	

J3	1	2	3	4
1		0	202	0
2	0		139	0
3	409	140		0
4	0	0	0	

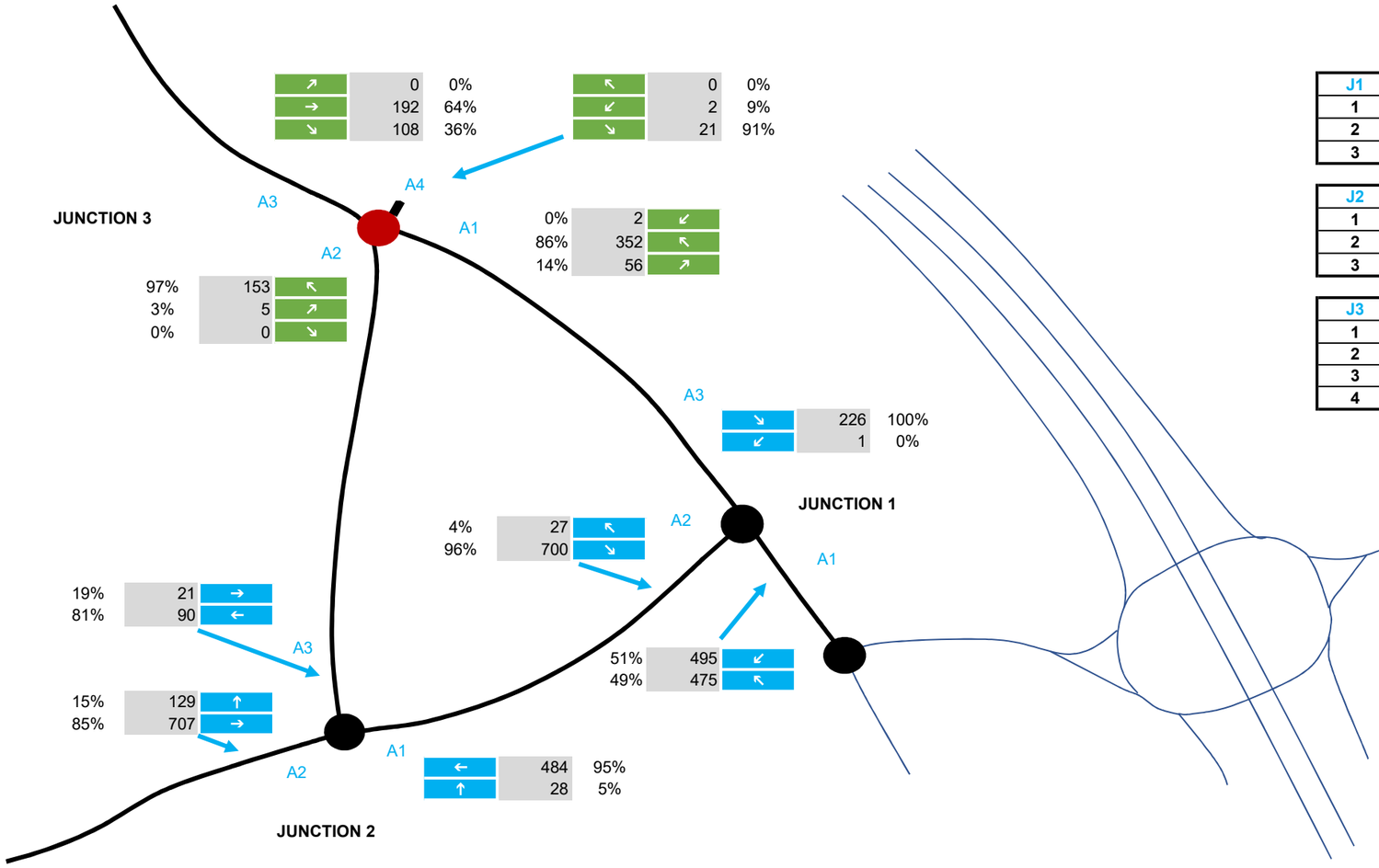
J1 Total	1806
J2 Total	1387
J3 Total	891
TOTAL	**4085**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2021 Base PM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		495	475
2	700		27
3	226	1	

J2	1	2	3
1		484	28
2	707		129
3	21	90	

J3	1	2	3	4
1		2	352	56
2	0		153	5
3	192	108		0
4	21	2	0	

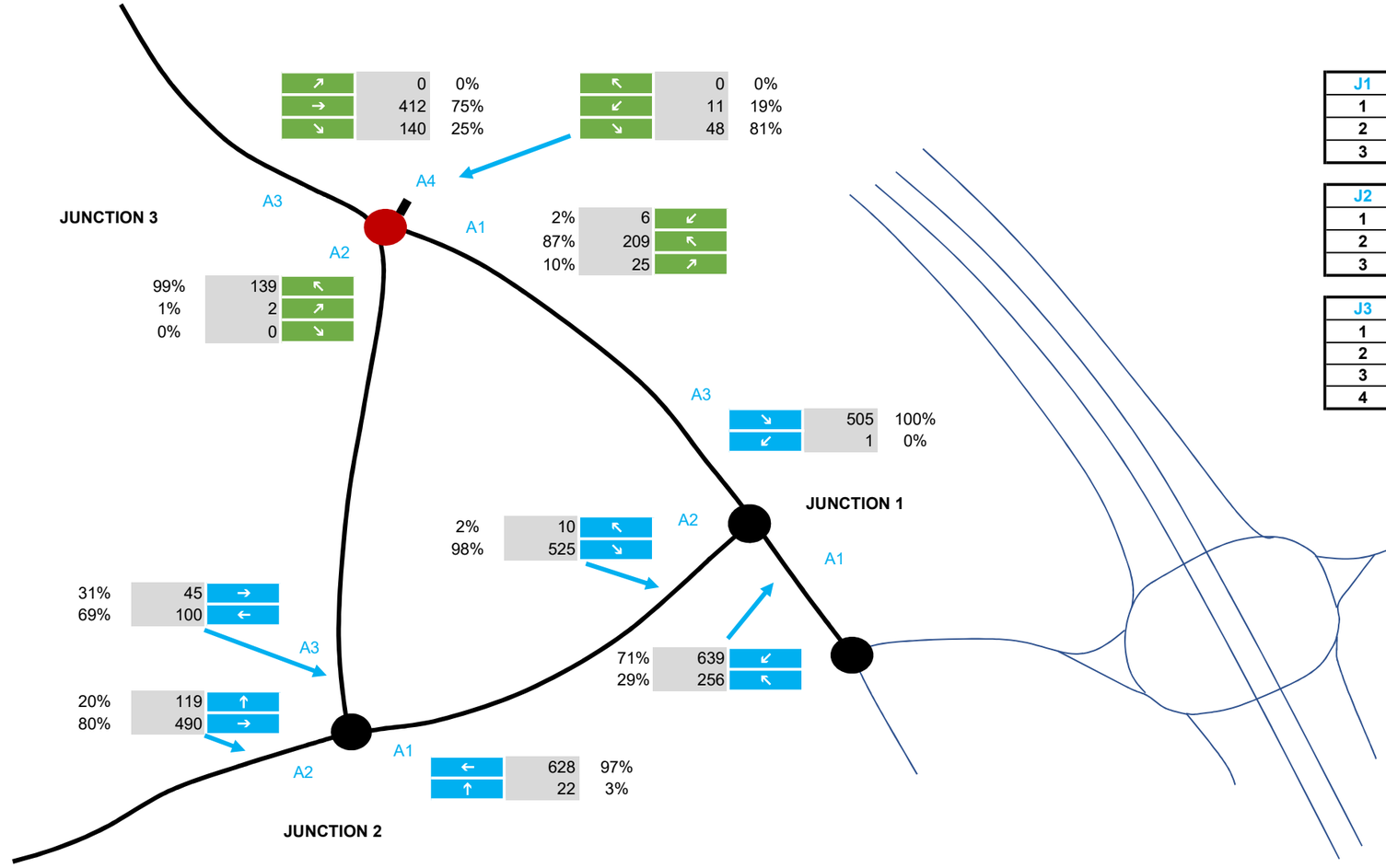
J1 Total	1924
J2 Total	1458
J3 Total	891
TOTAL	**4273**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2021 Do Minimum AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		639	256
2	525		10
3	505	1	

J2	1	2	3
1		628	22
2	490		119
3	45	100	

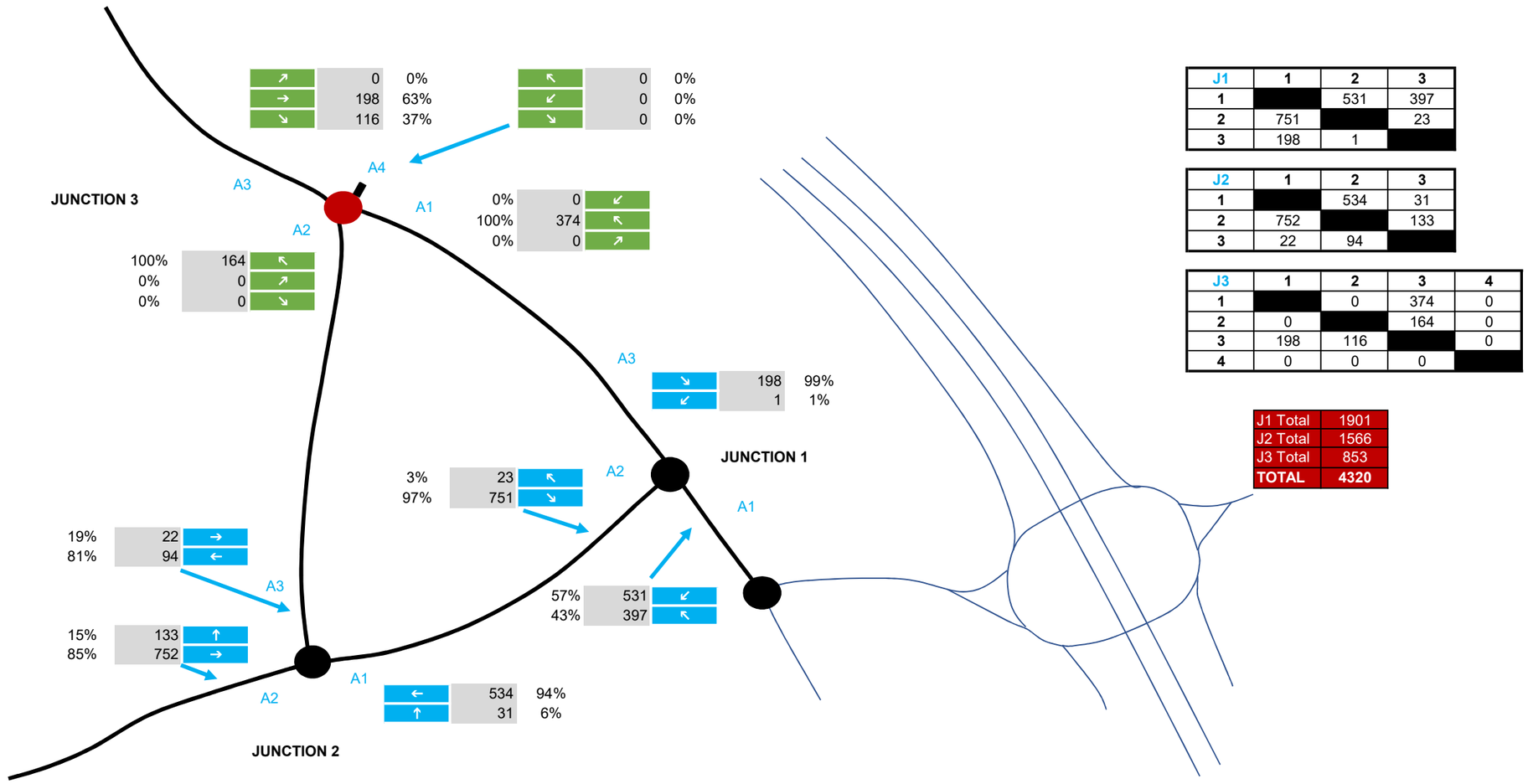
J3	1	2	3	4
1		6	209	25
2	0		139	2
3	412	140		0
4	48	11	0	

J1 Total	1937
J2 Total	1403
J3 Total	993
TOTAL	**4333**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2021 Do Minimum PM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		531	397
2	751		23
3	198	1	

J2	1	2	3
1		534	31
2	752		133
3	22	94	

J3	1	2	3	4
1		0	374	0
2	0		164	0
3	198	116		0
4	0	0	0	

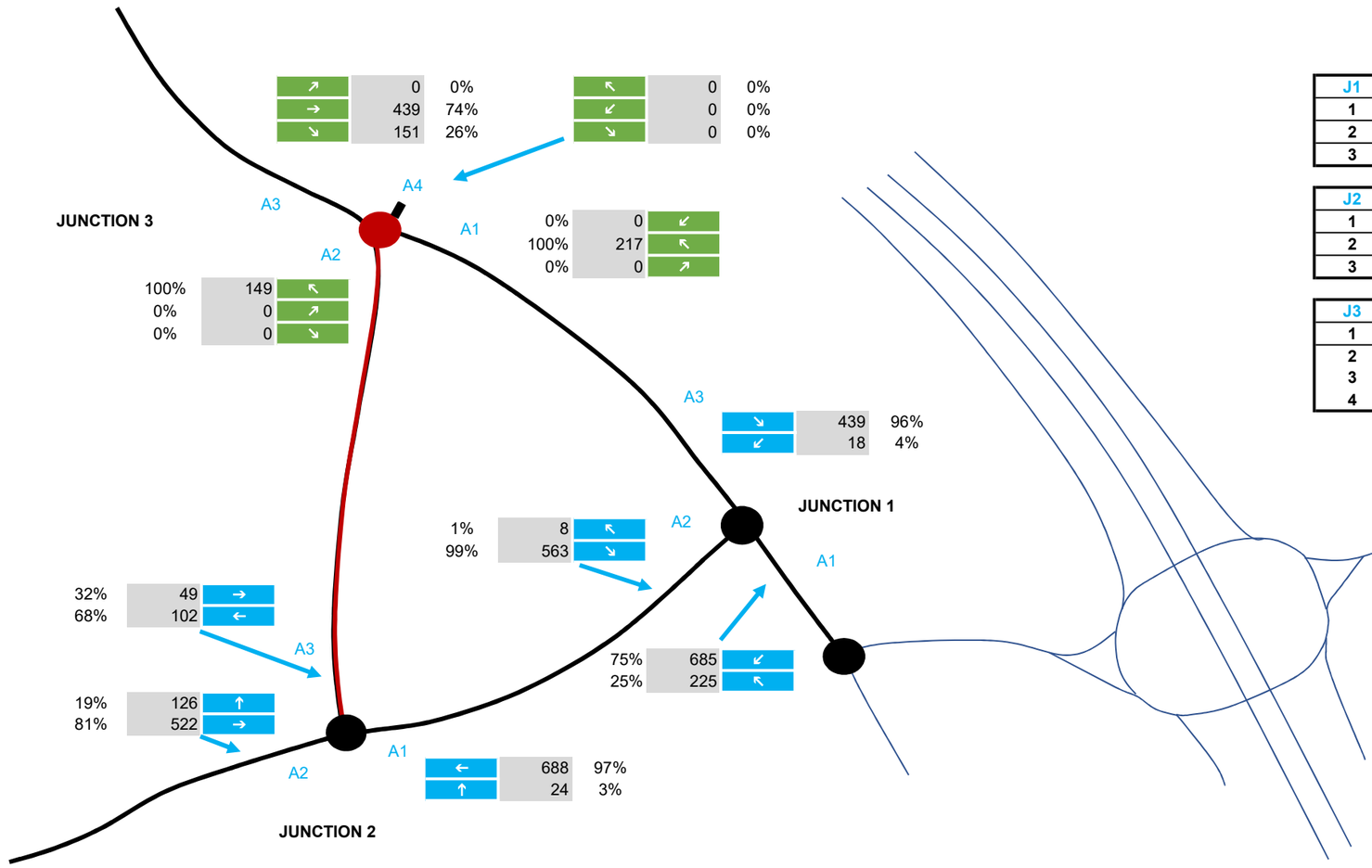
J1 Total	1901
J2 Total	1566
J3 Total	853
TOTAL	**4320**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2026 Base AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		685	225
2	563		8
3	439	18	

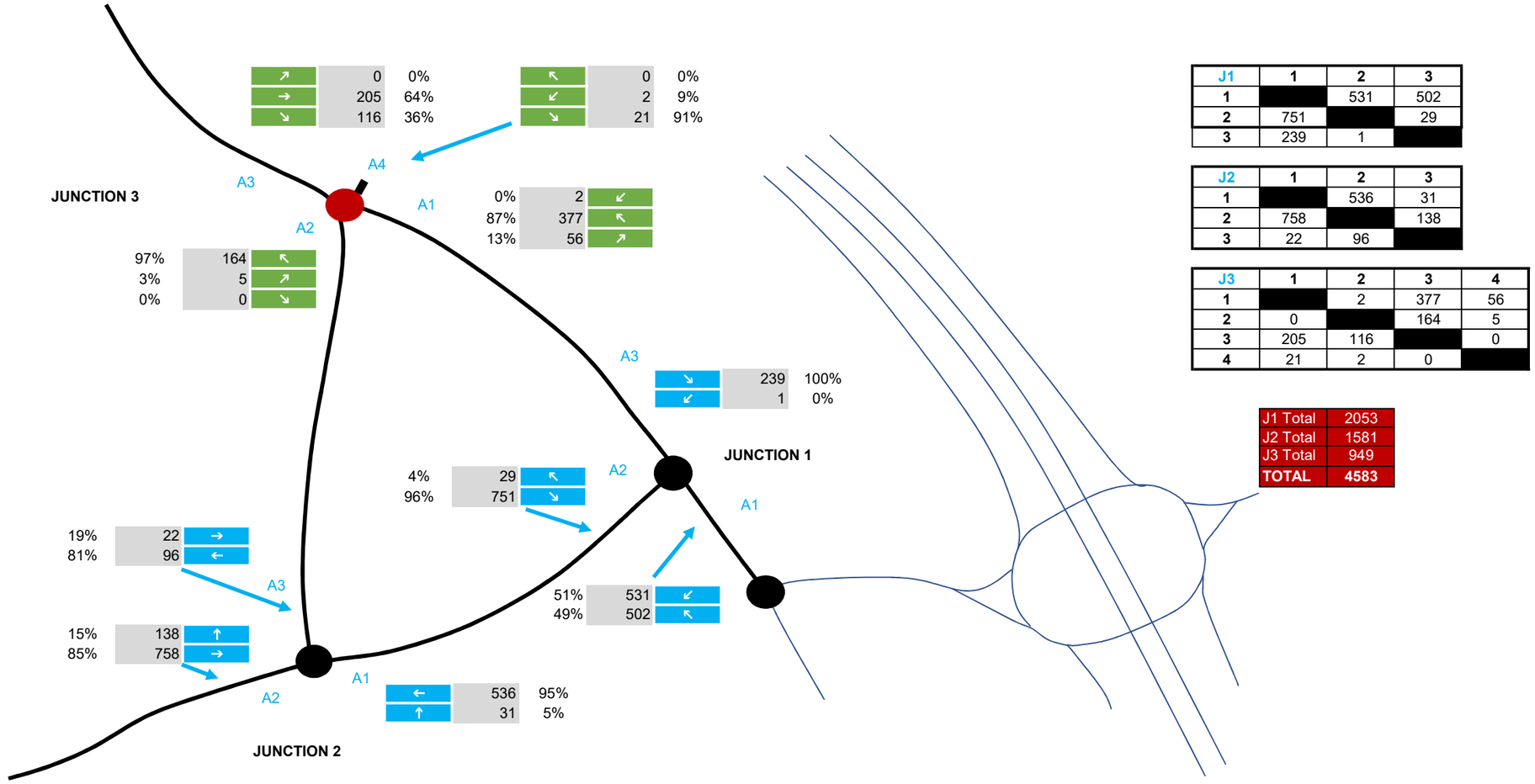
J2	1	2	3
1		688	24
2	522		126
3	49	102	

J3	1	2	3	4
1		0	217	0
2	0		149	0
3	439	151		0
4	0	0	0	

J1 Total	1938
J2 Total	1510
J3 Total	956
TOTAL	**4405**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2026 Base PM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:
			File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA	



J1	1	2	3
1		531	502
2	751		29
3	239	1	

J2	1	2	3
1		536	31
2	758		138
3	22	96	

J3	1	2	3	4
1		2	377	56
2	0		164	5
3	205	116		0
4	21	2	0	

J1 Total	2053
J2 Total	1581
J3 Total	949
TOTAL	**4583**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2026 Do Minimum AM Peak	AECOM	Date: 01/05/2020
				Design: JC
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				Approved:
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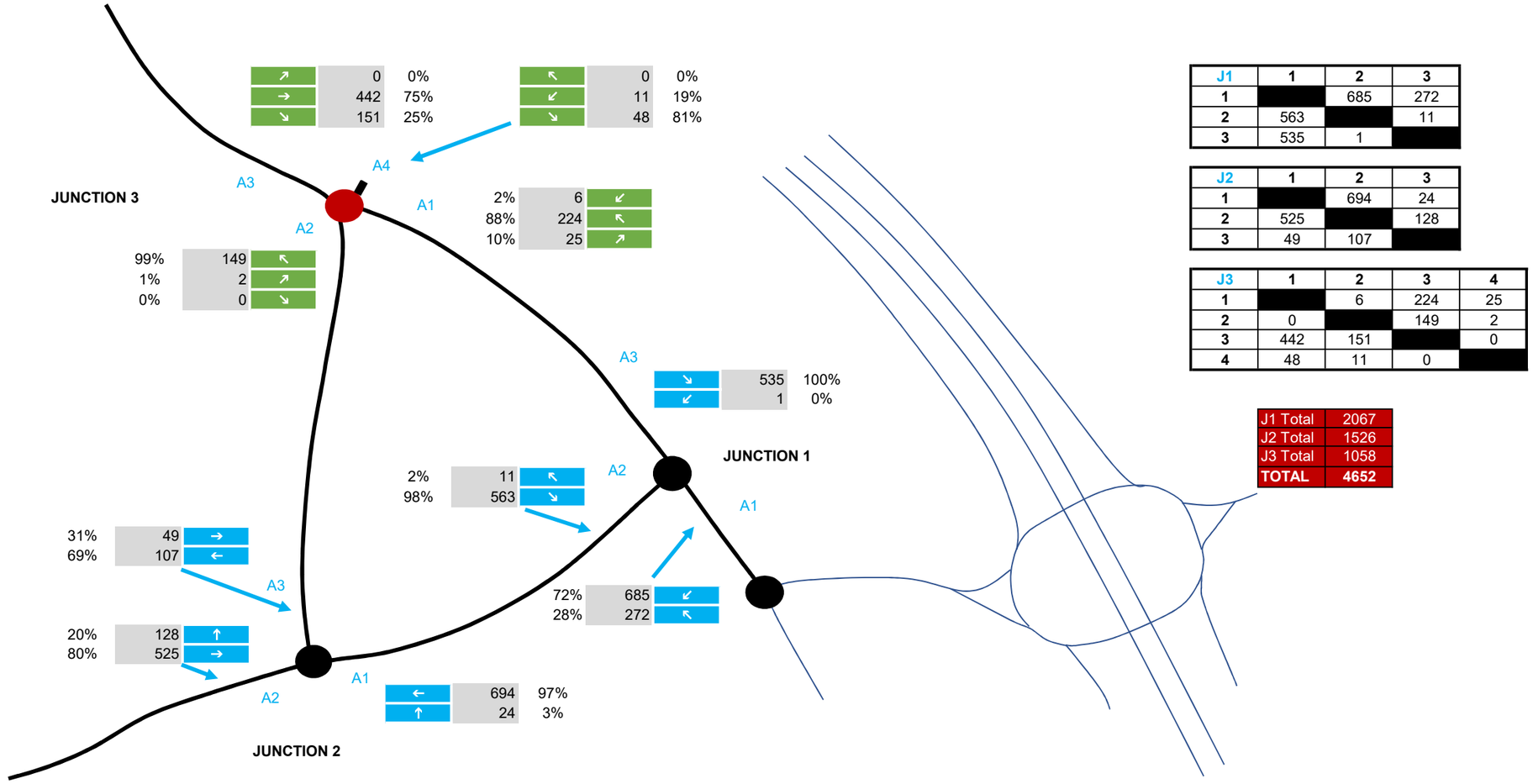

J1	1	2	3
1		685	272
2	563		11
3	535	1	

J2	1	2	3
1		694	24
2	525		128
3	49	107	

J3	1	2	3	4
1		6	224	25
2	0		149	2
3	442	151		0
4	48	11	0	

J1 Total	2067
J2 Total	1526
J3 Total	1058
TOTAL	**4652**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2026 Do Minimum PM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:
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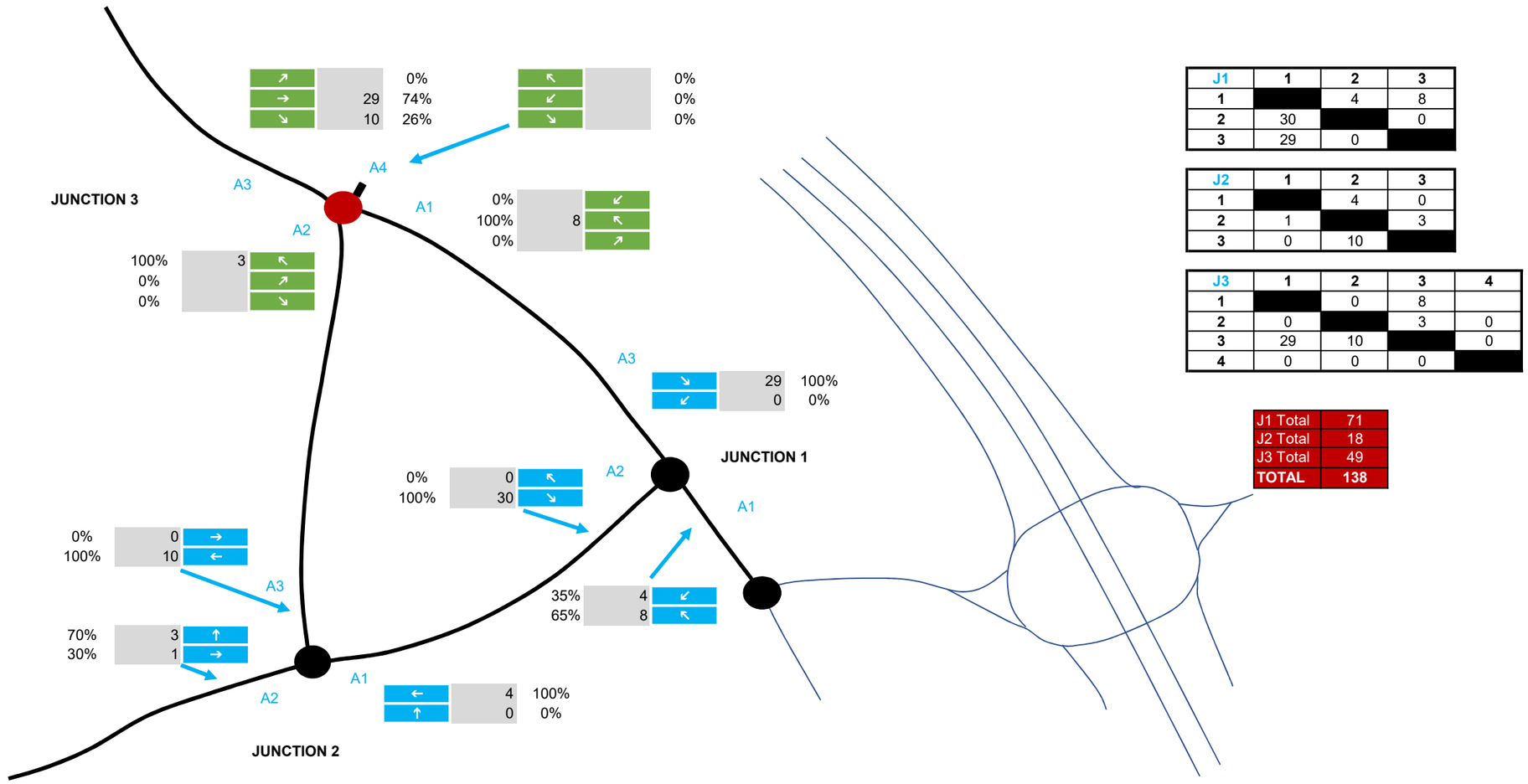


J1	1	2	3
1		4	8
2	30		0
3	29	0	

J2	1	2	3
1		4	0
2	1		3
3	0	10	

J3	1	2	3	4
1		0	8	
2	0		3	0
3	29	10		0
4	0	0	0	

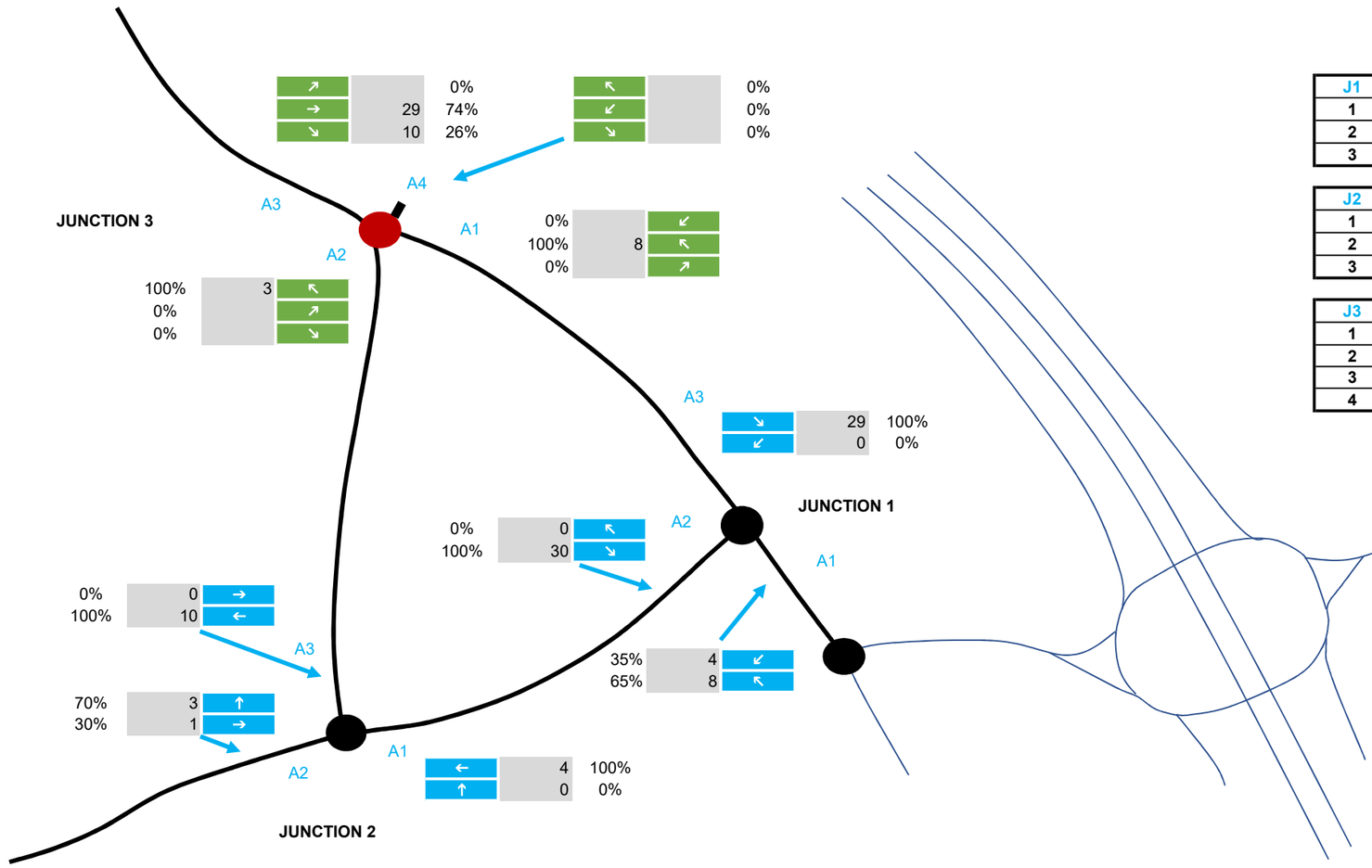
J1 Total	71
J2 Total	18
J3 Total	49
TOTAL	**138**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	Phase 1 Resi. AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		4	8
2	30		0
3	29	0	

J2	1	2	3
1		4	0
2	1		3
3	0	10	

J3	1	2	3	4
1		0	8	
2	0		3	0
3	29	10		0
4	0	0	0	

J1 Total	71
J2 Total	18
J3 Total	49
TOTAL	**138**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Phase 1 Resi. AM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:
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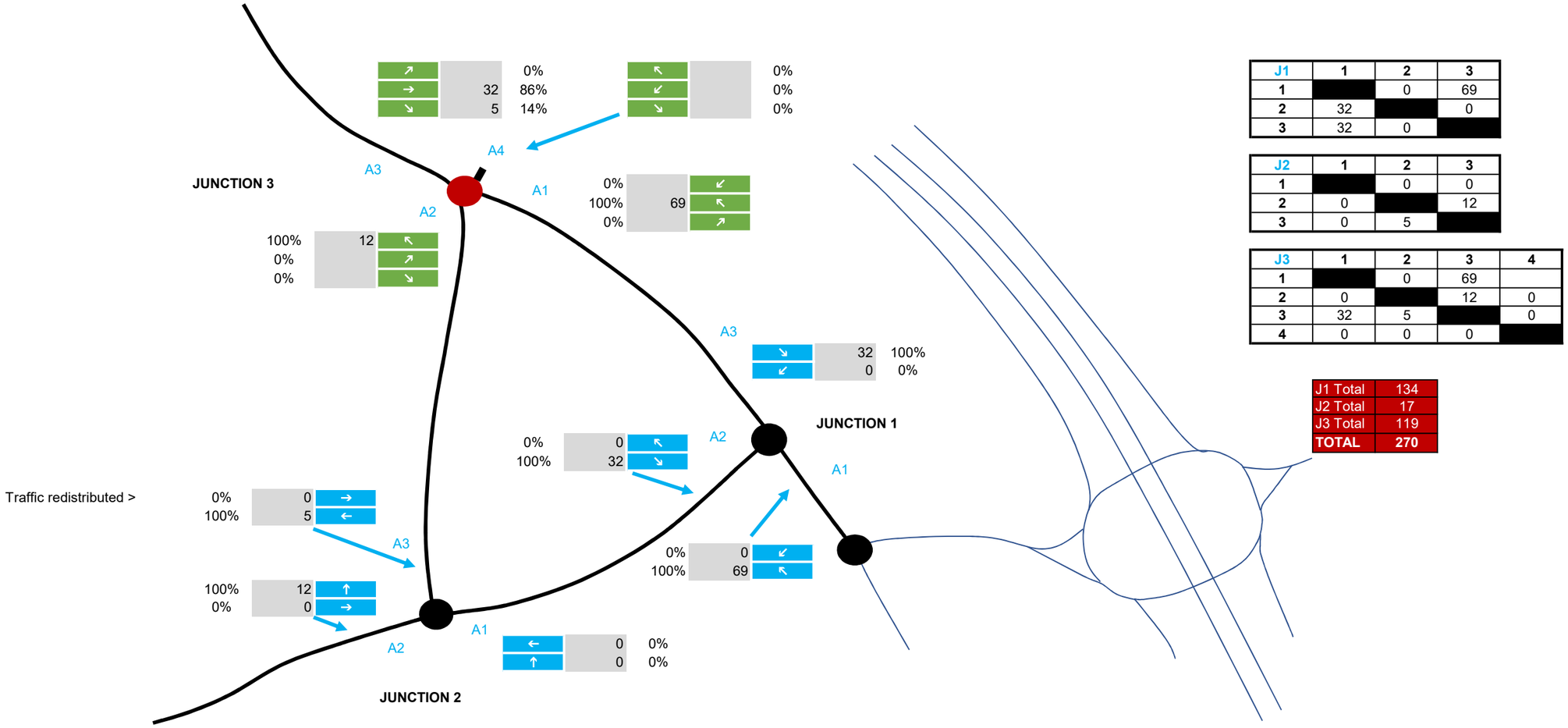

J1	1	2	3
1		0	69
2	32		0
3	32	0	

J2	1	2	3
1		0	0
2	0		12
3	0	5	

J3	1	2	3	4
1		0	69	
2	0		12	0
3	32	5		0
4	0	0	0	

J1 Total	134
J2 Total	17
J3 Total	119
TOTAL	**270**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Phase 1 Emp. AM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:
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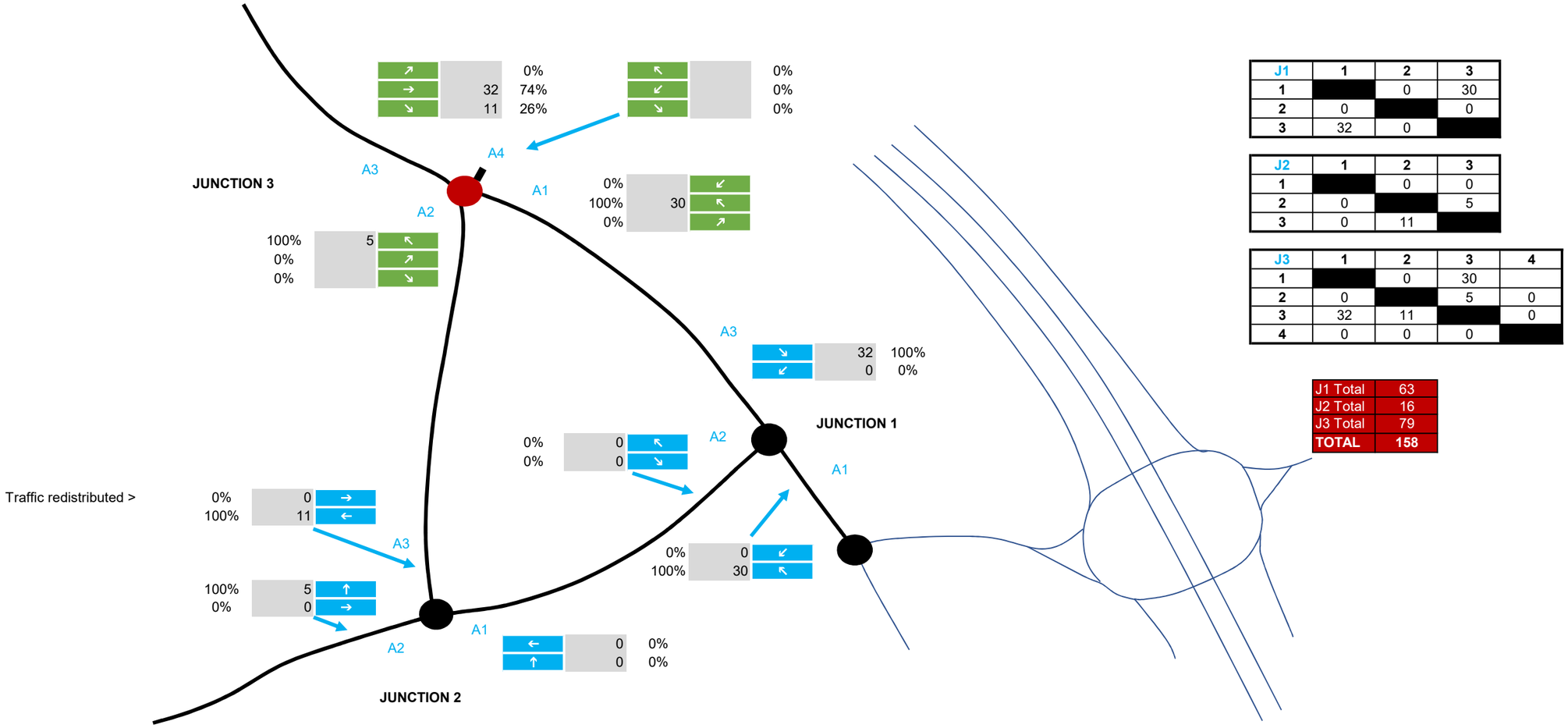

J1	1	2	3
1		0	30
2	0		0
3	32	0	

J2	1	2	3
1		0	0
2	0		5
3	0	11	

J3	1	2	3	4
1		0	30	
2	0		5	0
3	32	11		0
4	0	0	0	

J1 Total	63
J2 Total	16
J3 Total	79
TOTAL	**158**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Phase 1 Emp. PM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:

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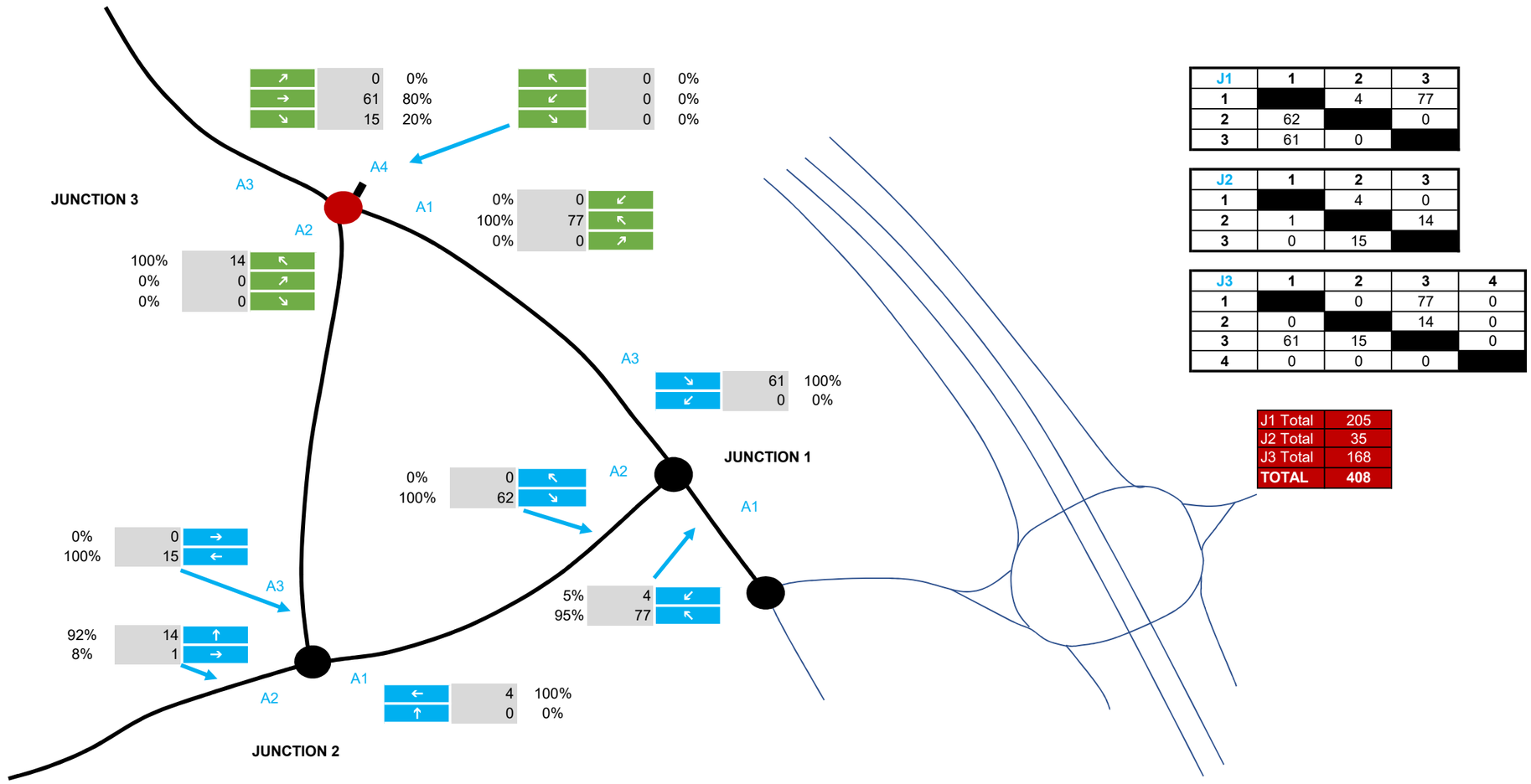

J1	1	2	3
1		4	77
2	62		0
3	61	0	

J2	1	2	3
1		4	0
2	1		14
3	0	15	

J3	1	2	3	4
1		0	77	0
2	0		14	0
3	61	15		0
4	0	0	0	

J1 Total	205
J2 Total	35
J3 Total	168
TOTAL	**408**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Phase 1 Total AM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

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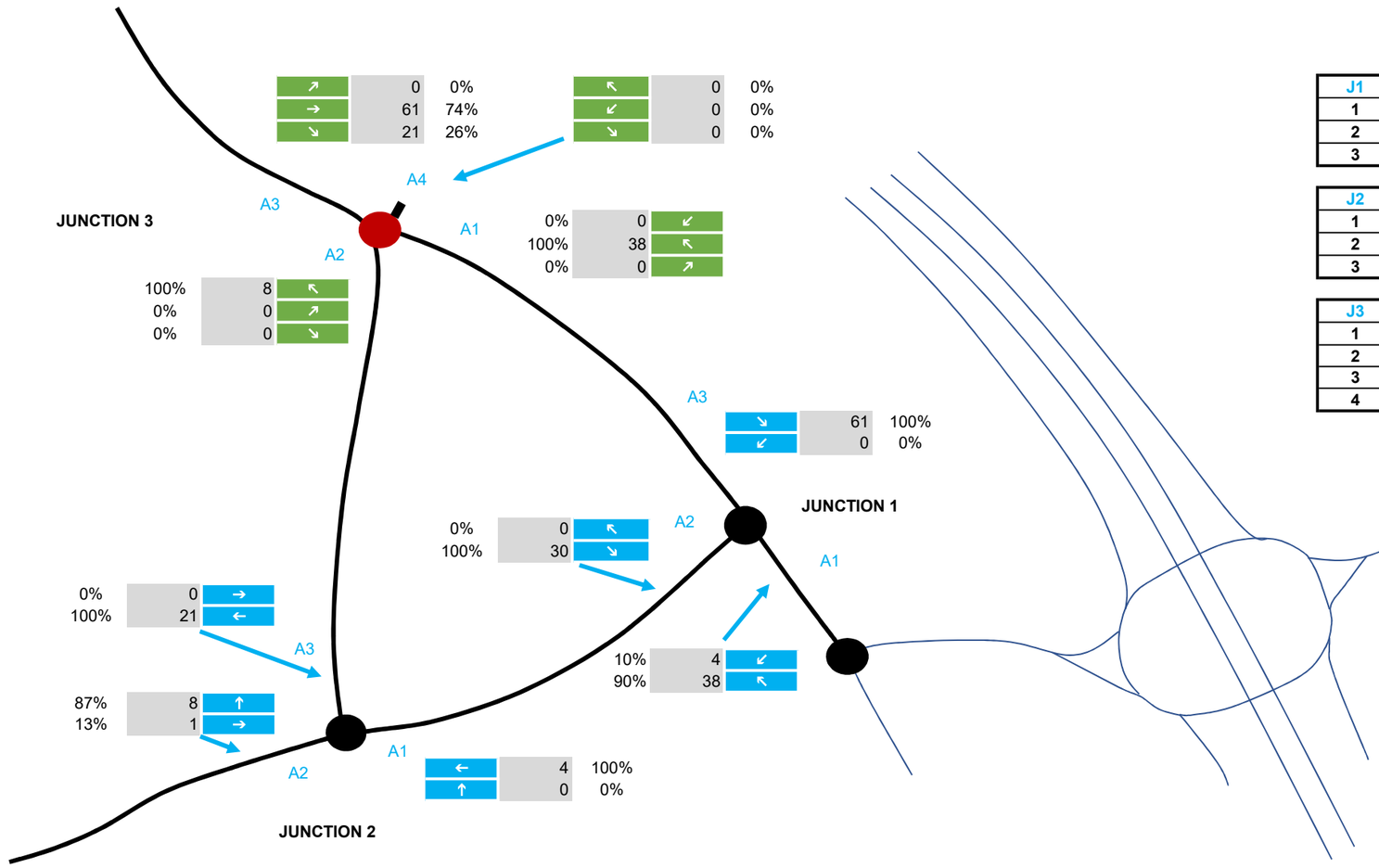


J1	1	2	3
1		4	38
2	30		0
3	61	0	

J2	1	2	3
1		4	0
2	1		8
3	0	21	

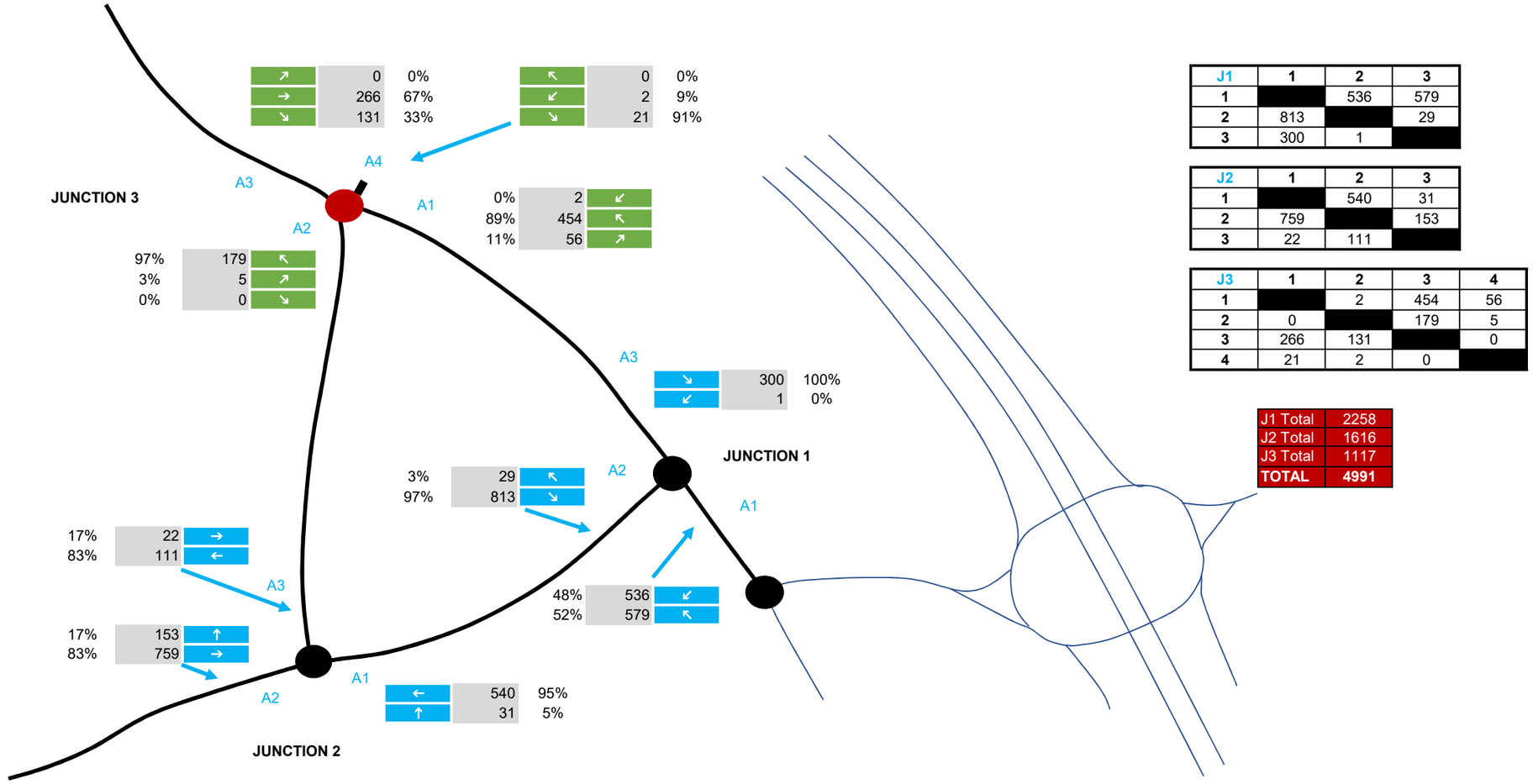
J3	1	2	3	4
1		0	38	0
2	0		8	0
3	61	21		0
4	0	0	0	

J1 Total	134
J2 Total	34
J3 Total	128
TOTAL	**296**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Phase 1 Total PM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		536	579
2	813		29
3	300	1	

J2	1	2	3
1		540	31
2	759		153
3	22	111	

J3	1	2	3	4
1		2	454	56
2	0		179	5
3	266	131		0
4	21	2	0	

J1 Total	2258
J2 Total	1616
J3 Total	1117
TOTAL	**4991**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2026 Do Something AM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

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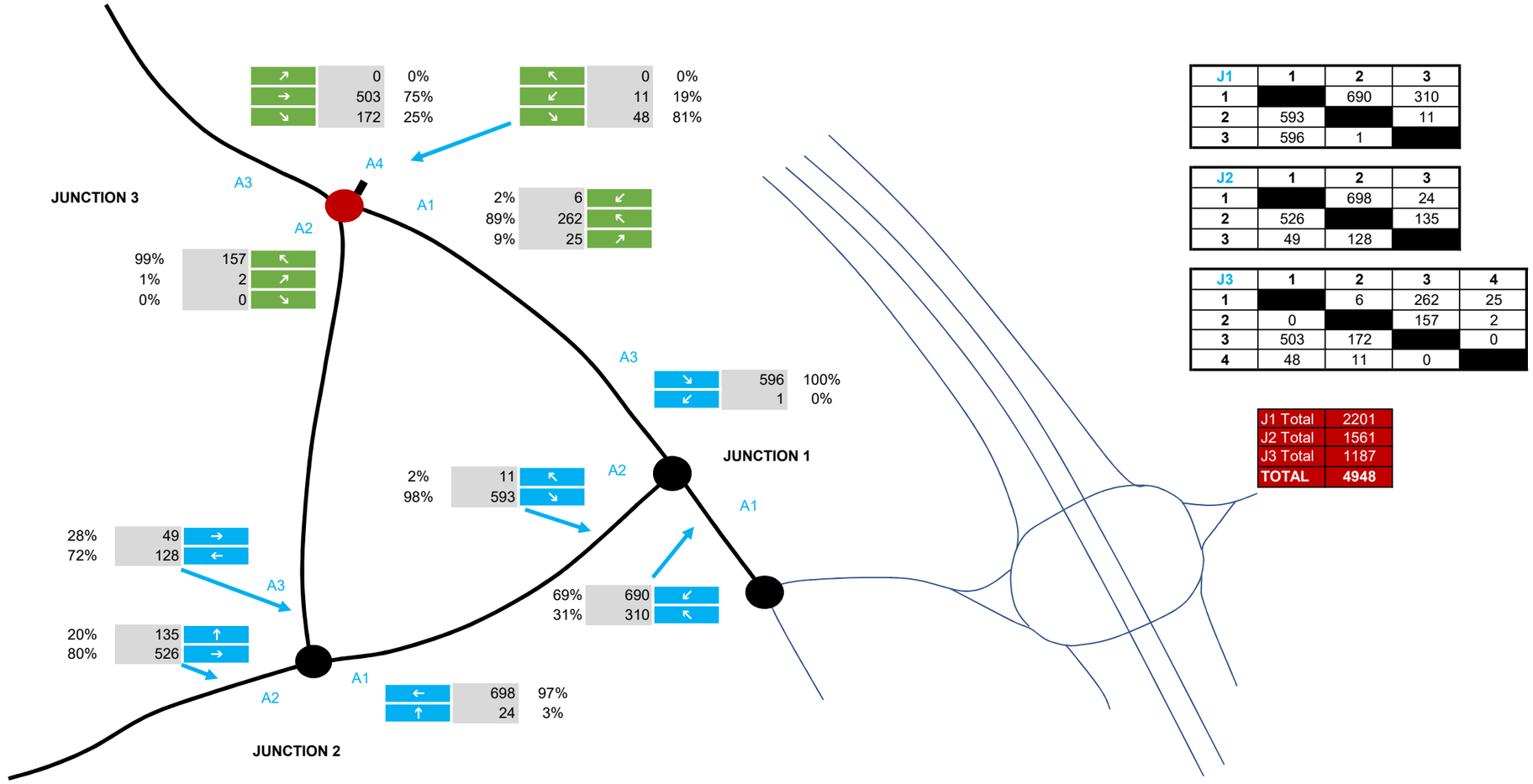


J1	1	2	3
1		690	310
2	593		11
3	596	1	

J2	1	2	3
1		698	24
2	526		135
3	49	128	

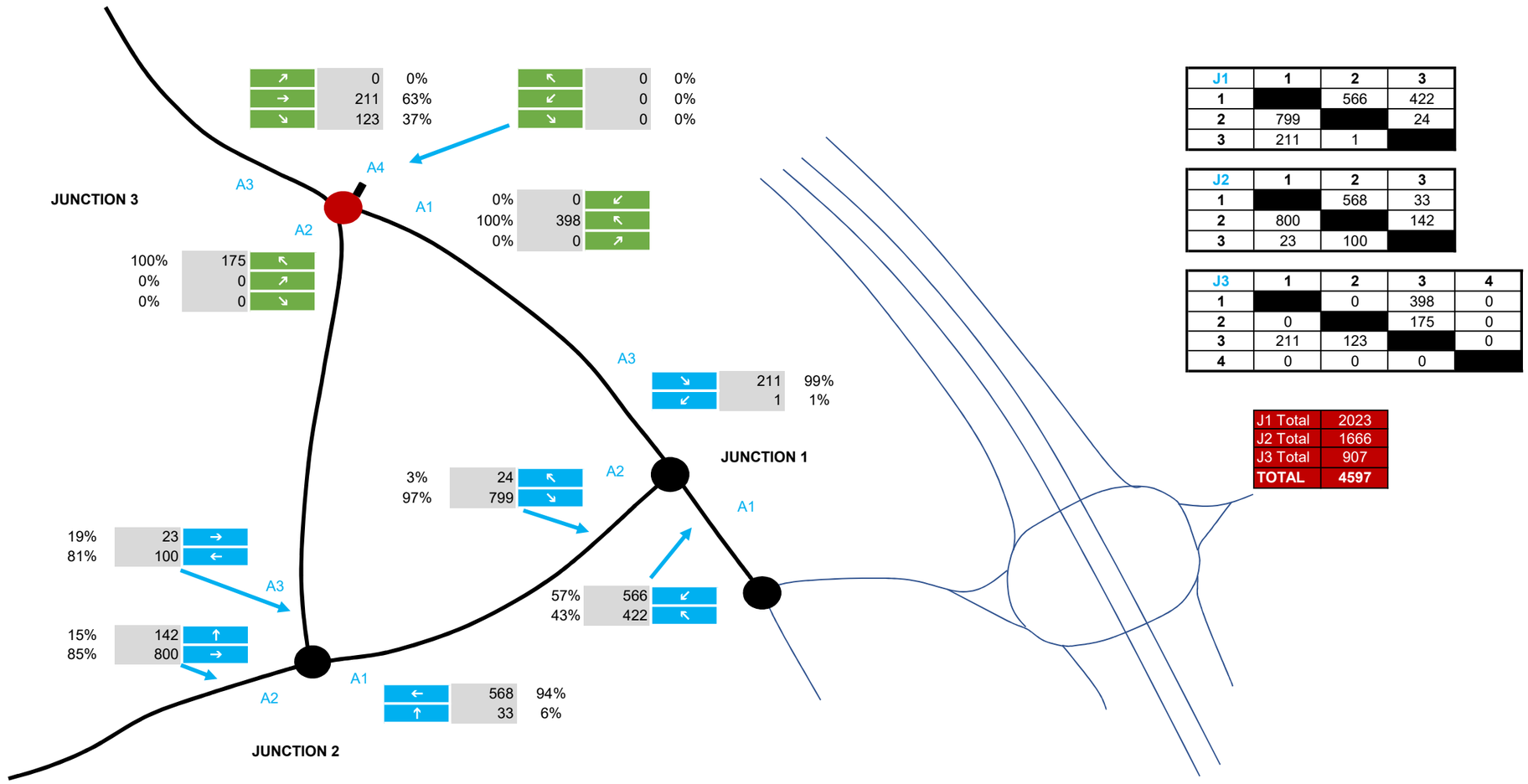
J3	1	2	3	4
1		6	262	25
2	0		157	2
3	503	172		0
4	48	11	0	

J1 Total	2201
J2 Total	1561
J3 Total	1187
TOTAL	**4948**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2026 Do Something PM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		566	422
2	799		24
3	211	1	

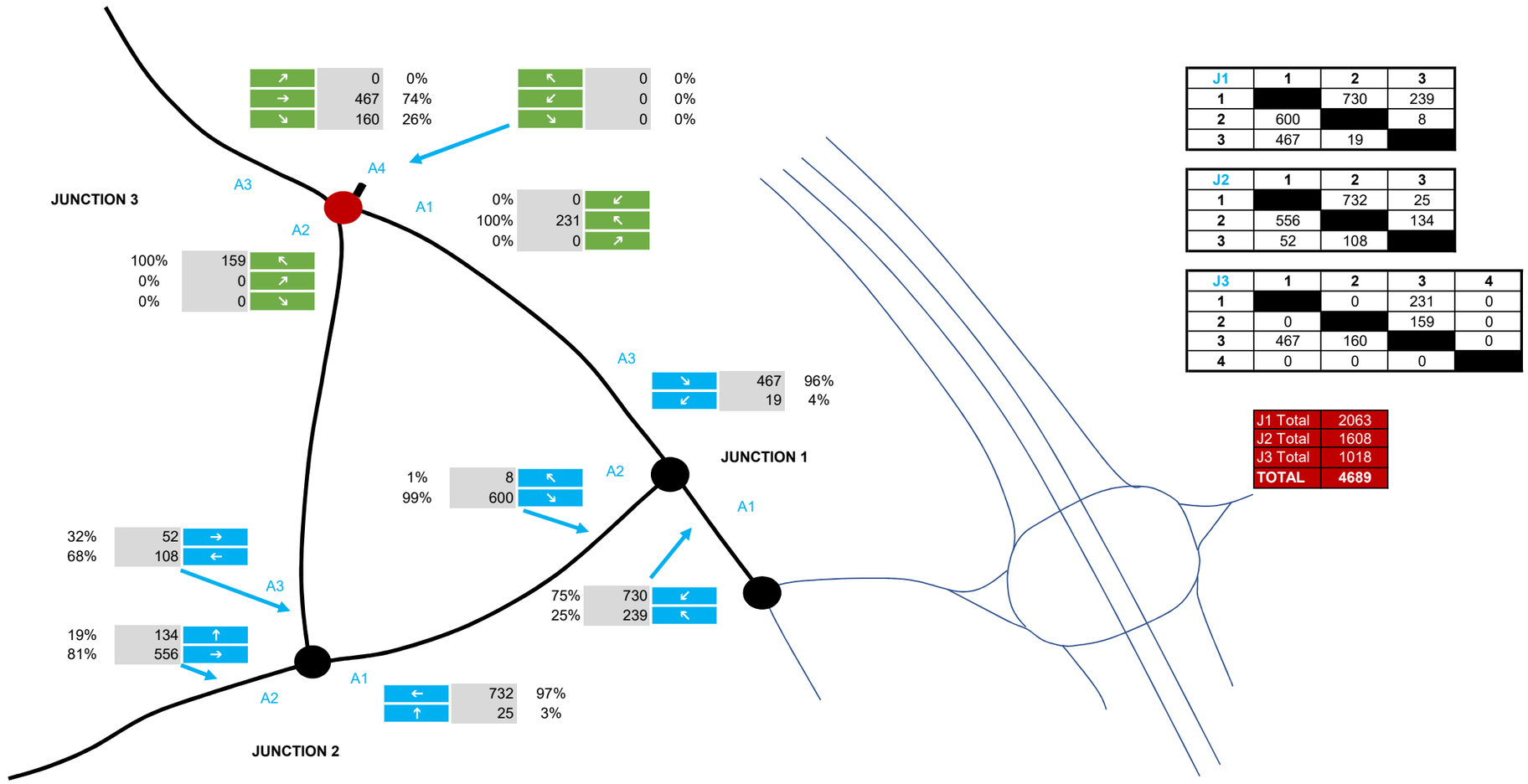
J2	1	2	3
1		568	33
2	800		142
3	23	100	

J3	1	2	3	4
1		0	398	0
2	0		175	0
3	211	123		0
4	0	0	0	

J1 Total	2023
J2 Total	1666
J3 Total	907
TOTAL	**4597**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2033 Base AM Peak	AECOM	Date: 01/05/2020
				Design: JC
				Checked:
				Approved:
			File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA	



J1	1	2	3
1		730	239
2	600		8
3	467	19	

J2	1	2	3
1		732	25
2	556		134
3	52	108	

J3	1	2	3	4
1		0	231	0
2	0		159	0
3	467	160		0
4	0	0	0	

J1 Total	2063
J2 Total	1608
J3 Total	1018
TOTAL	**4689**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:
BMBC	Higham Lane	2033 Base PM Peak

AECOM

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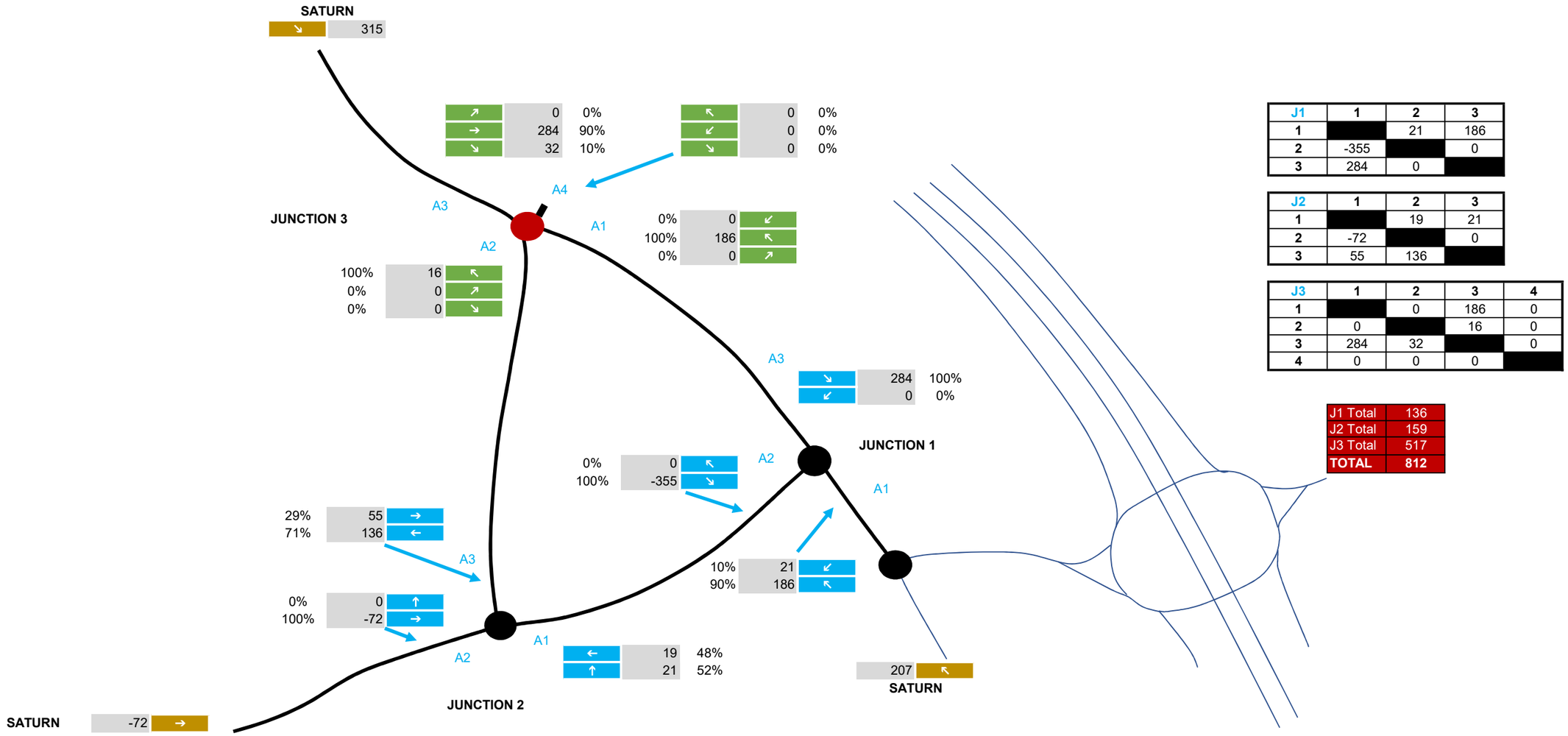

J1	1	2	3
1		21	186
2	-355		0
3	284	0	

J2	1	2	3
1		19	21
2	-72		0
3	55	136	

J3	1	2	3	4
1		0	186	0
2	0		16	0
3	284	32		0
4	0	0	0	

J1 Total	136
J2 Total	159
J3 Total	517
TOTAL	**812**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2033 SATURN AM Peak	AECOM

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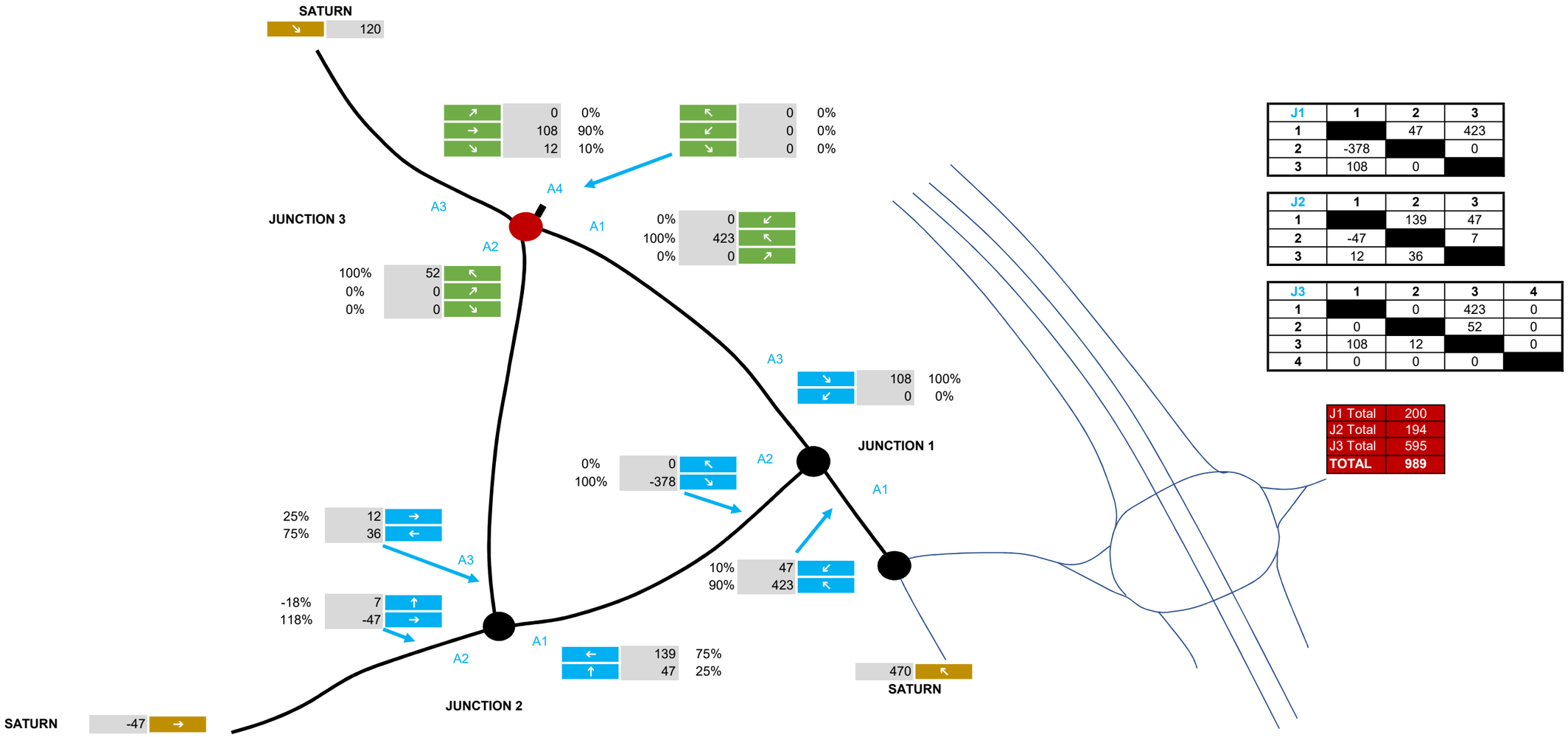


J1	1	2	3
1		47	423
2	-378		0
3	108	0	

J2	1	2	3
1		139	47
2	-47		7
3	12	36	

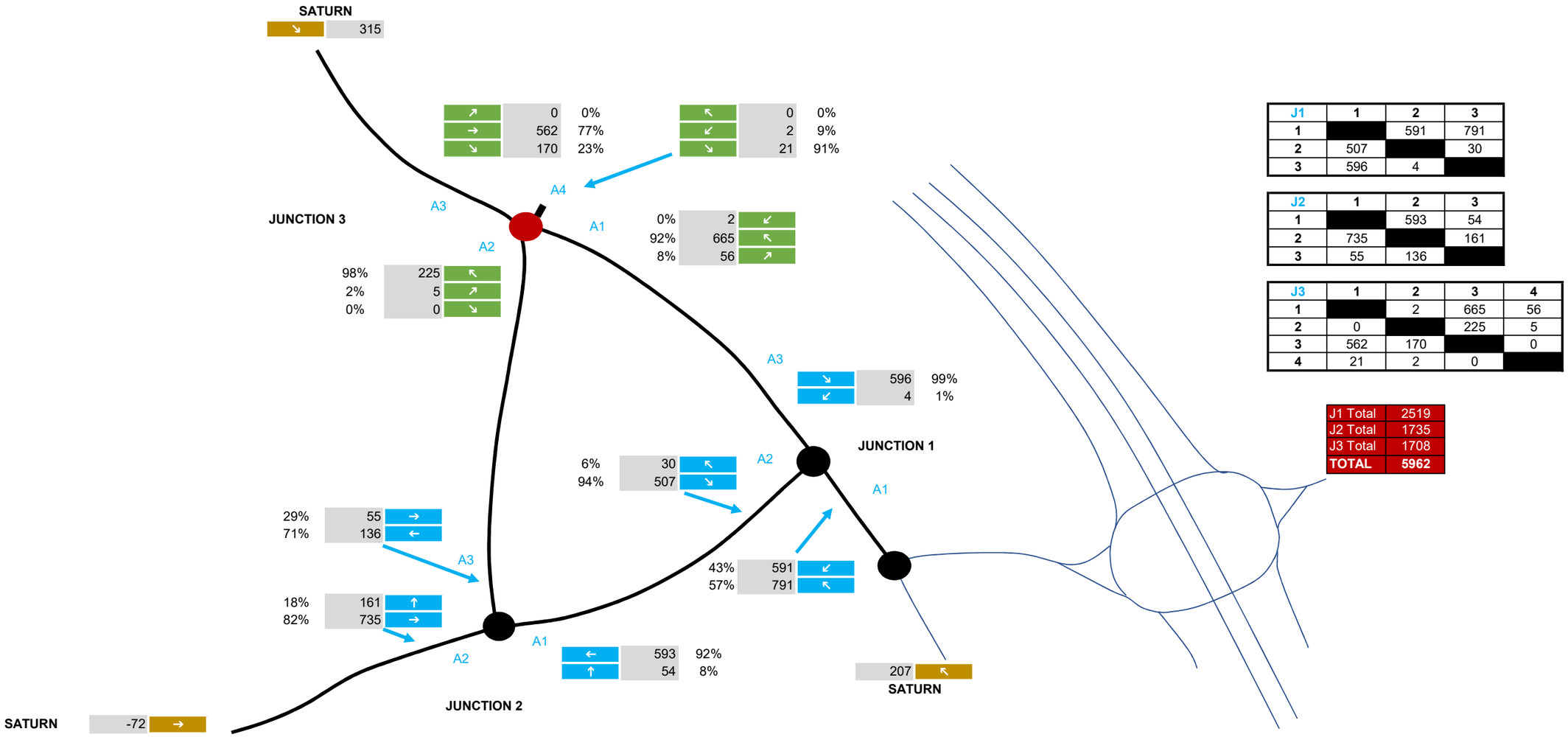
J3	1	2	3	4
1		0	423	0
2	0		52	0
3	108	12		0
4	0	0	0	

J1 Total	200
J2 Total	194
J3 Total	595
TOTAL	**989**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

		Date	01/05/2020
		Design	JC
Client: BMBC	Project: Higham Lane	Title: 2033 SATURN PM Peak	Checked
			Approved

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		591	791
2	507		30
3	596	4	

J2	1	2	3
1		593	54
2	735		161
3	55	136	

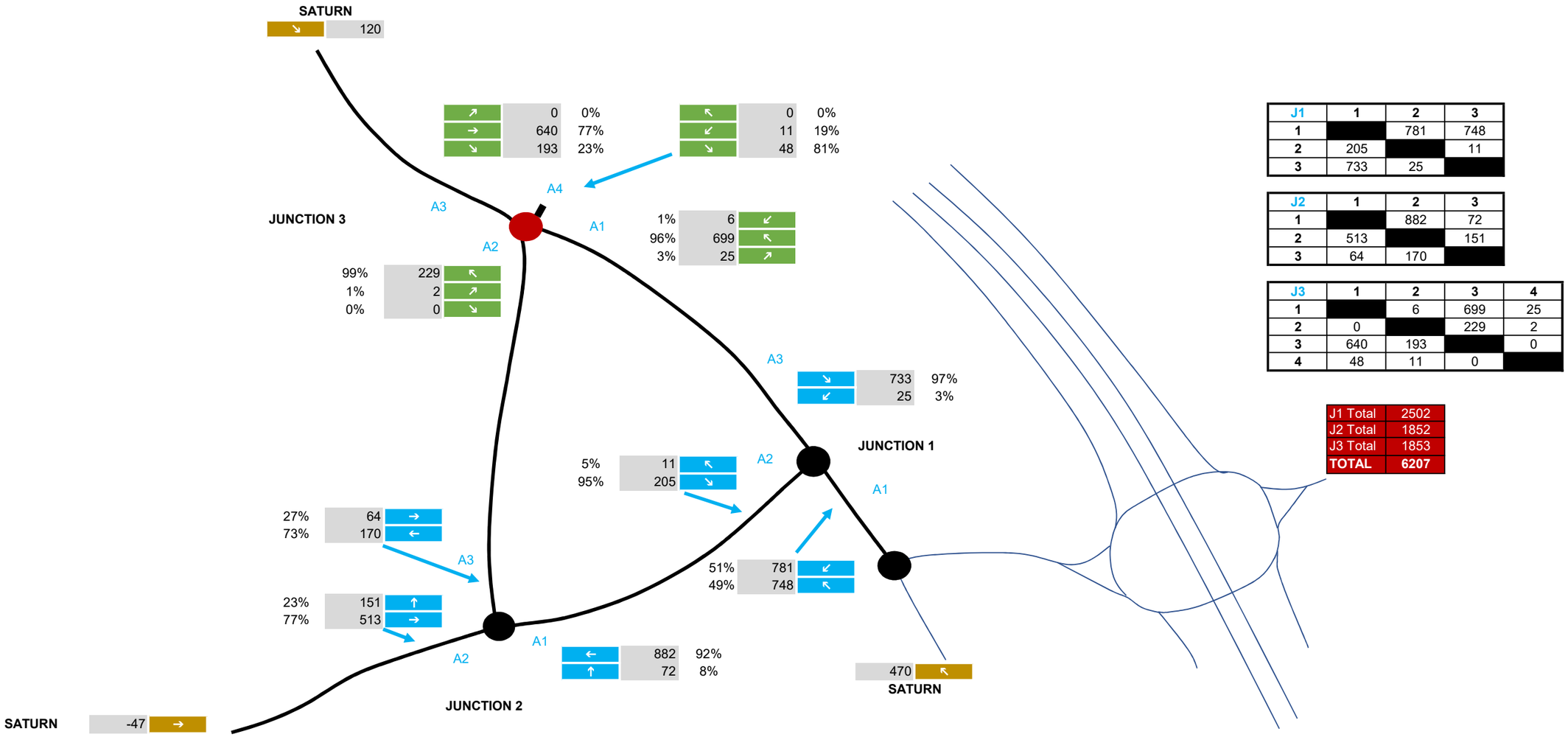
J3	1	2	3	4
1		2	665	56
2	0		225	5
3	562	170		0
4	21	2	0	

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Date	01/05/2020
Design	JC
Checked	
Approved	

Client:	Project:	Title:	
BMBC	Higham Lane	2033 Do Minimum AM Peak	AECOM

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		781	748
2	205		11
3	733	25	

J2	1	2	3
1		882	72
2	513		151
3	64	170	

J3	1	2	3	4
1		6	699	25
2	0		229	2
3	640	193		0
4	48	11	0	

J1 Total	2502
J2 Total	1852
J3 Total	1853
TOTAL	**6207**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2033 Do Minimum PM Peak	AECOM	Date: 01/05/2020
				Design: JC
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				Approved:
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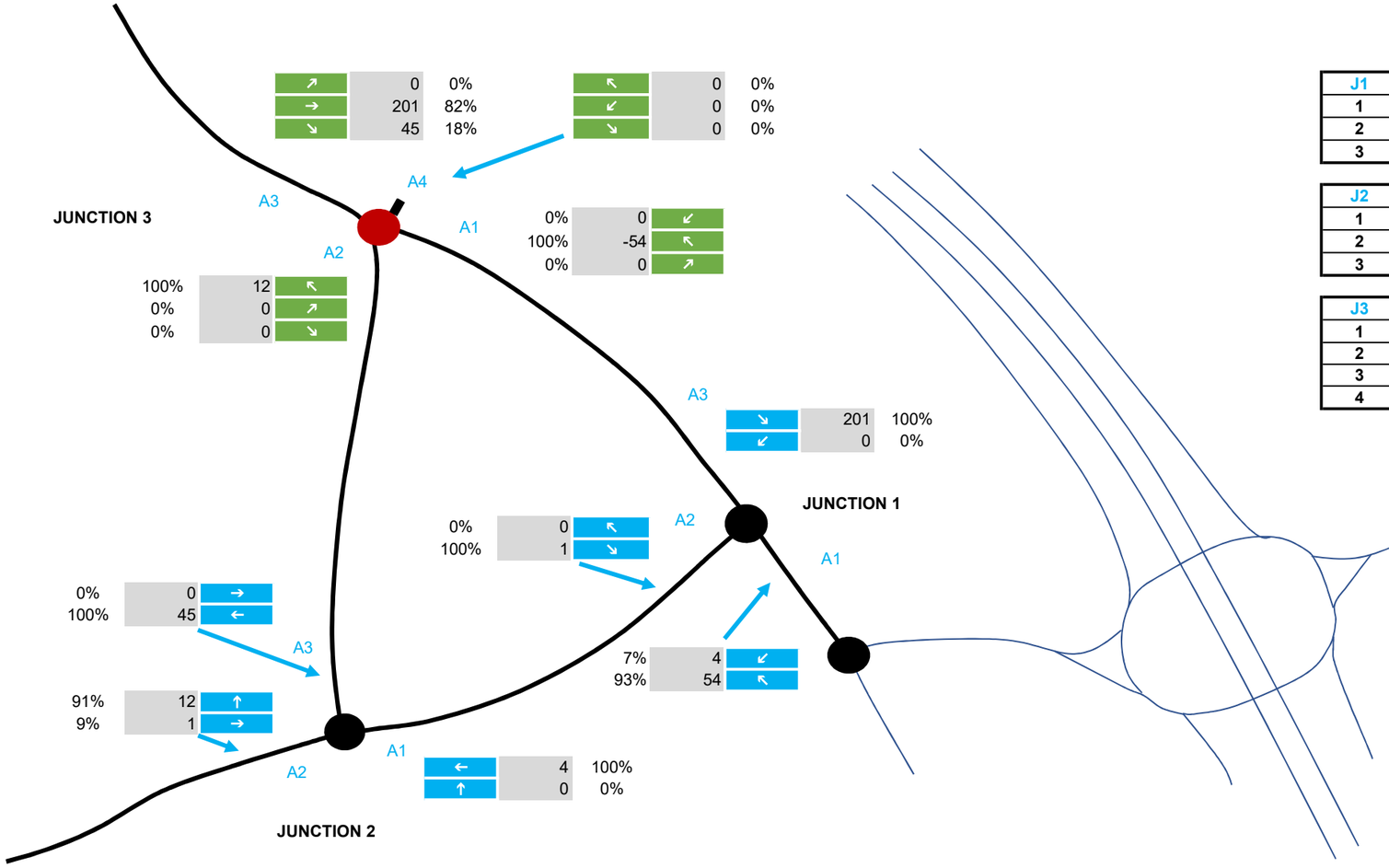

J1	1	2	3
1		4	54
2	1		0
3	201	0	

J2	1	2	3
1		4	0
2	1		12
3	0	45	

J3	1	2	3	4
1		0	-54	0
2	0		12	0
3	201	45		0
4	0	0	0	

J1 Total	261
J2 Total	63
J3 Total	204
TOTAL	**528**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

			Date	01/05/2020
			Design	JC
Client: BMBC	Project: Higham Lane	Title: Total Resi Dev AM Peak	AECOM	Checked
				Approved

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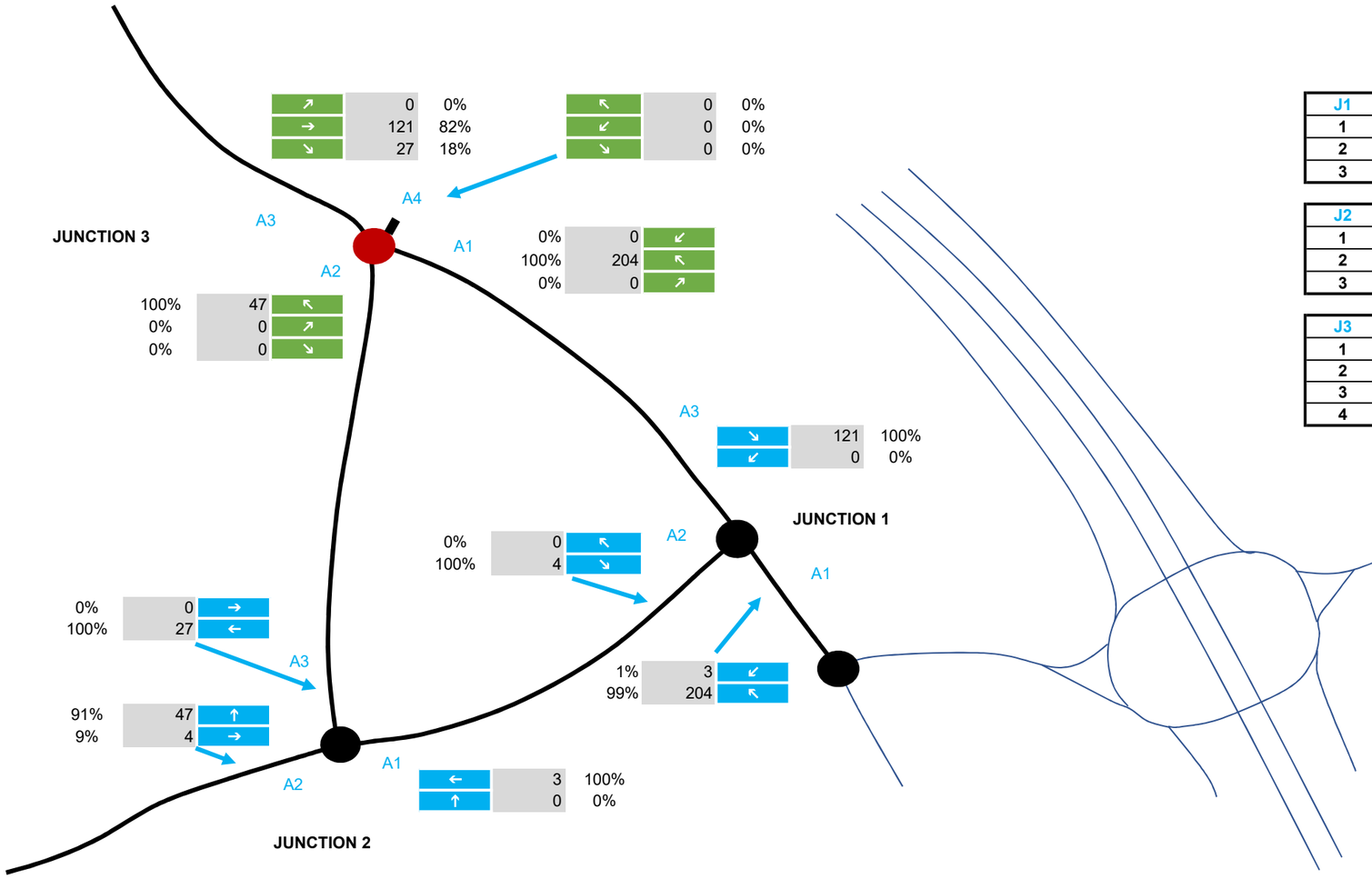


J1	1	2	3
1		3	204
2	4		0
3	121	0	

J2	1	2	3
1		3	0
2	4		47
3	0	27	

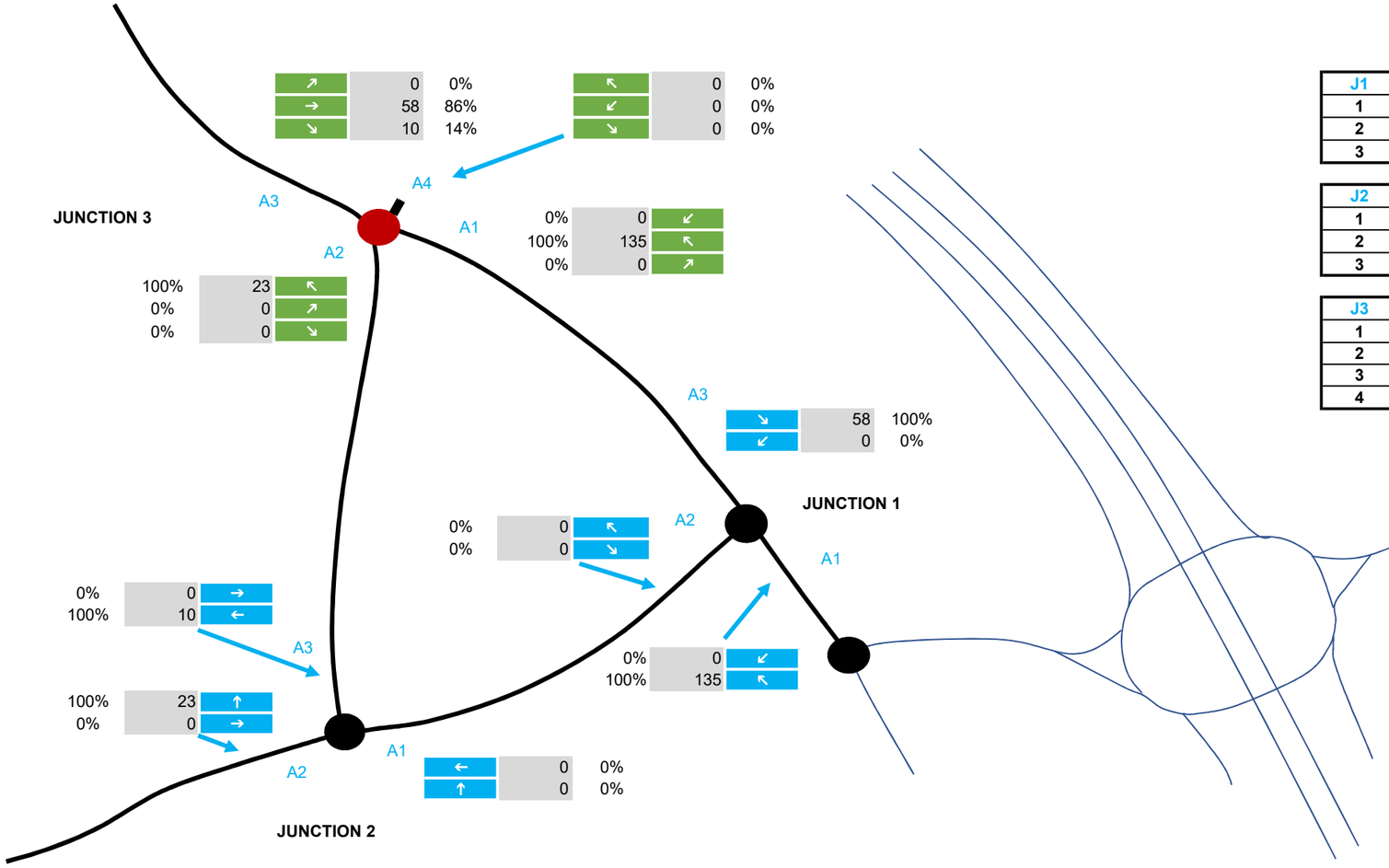
J3	1	2	3	4
1		0	204	0
2	0		47	0
3	121	27		0
4	0	0	0	

J1 Total	331
J2 Total	81
J3 Total	398
TOTAL	**810**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Total Resi Dev PM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		0	135
2	0		0
3	58	0	

J2	1	2	3
1		0	0
2	0		23
3	0	10	

J3	1	2	3	4
1		0	135	0
2	0		23	0
3	58	10		0
4	0	0	0	

J1 Total	193
J2 TotAL	33
J3 Total	226
TOTAL	**452**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

			Date	01/05/2020
			Design	JC
Client: BMBC	Project: Higham Lane	Title: Total Emp Dev AM Peak	AECOM	Checked / Approved

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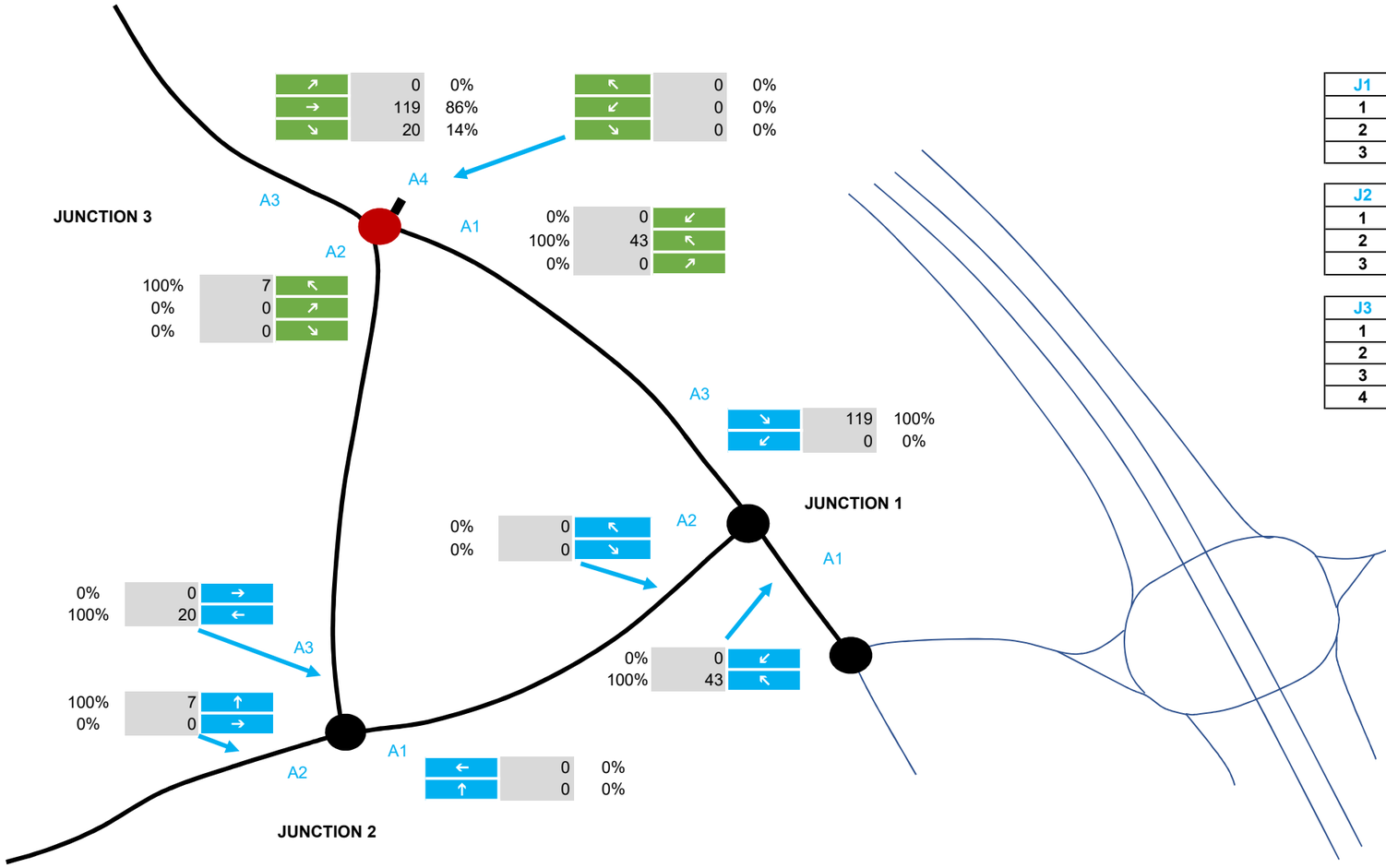


J1	1	2	3
1		0	43
2	0		0
3	119	0	

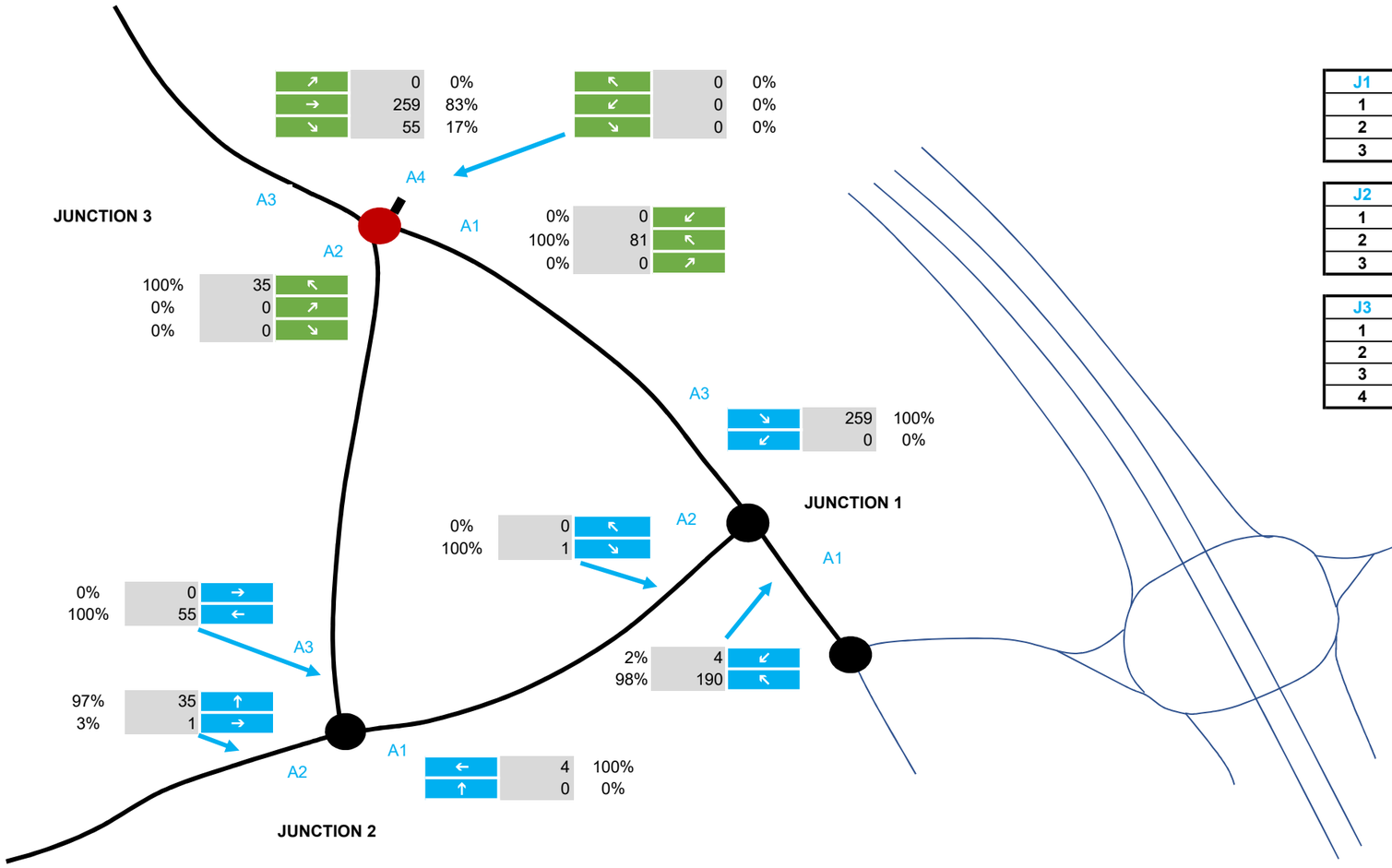
J2	1	2	3
1		0	0
2	0		7
3	0	20	

J3	1	2	3	4
1		0	43	0
2	0		7	0
3	119	20		0
4	0	0	0	

J1 Total	162
J2 Total	27
J3 Total	189
TOTAL	**378**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

			Date	01/05/2020
			Design	JC
Client: BMBC	Project: Higham Lane	Title: Total Emp Dev PM Peak	AECOM	Checked / Approved
			File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA	



J1	1	2	3
1		4	190
2	1		0
3	259	0	

J2	1	2	3
1		4	0
2	1		35
3	0	55	

J3	1	2	3	4
1		0	81	0
2	0		35	0
3	259	55		0
4	0	0	0	

J1 Total	454
J2 Total	95
J3 Total	430
TOTAL	**980**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: Total Dev AM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

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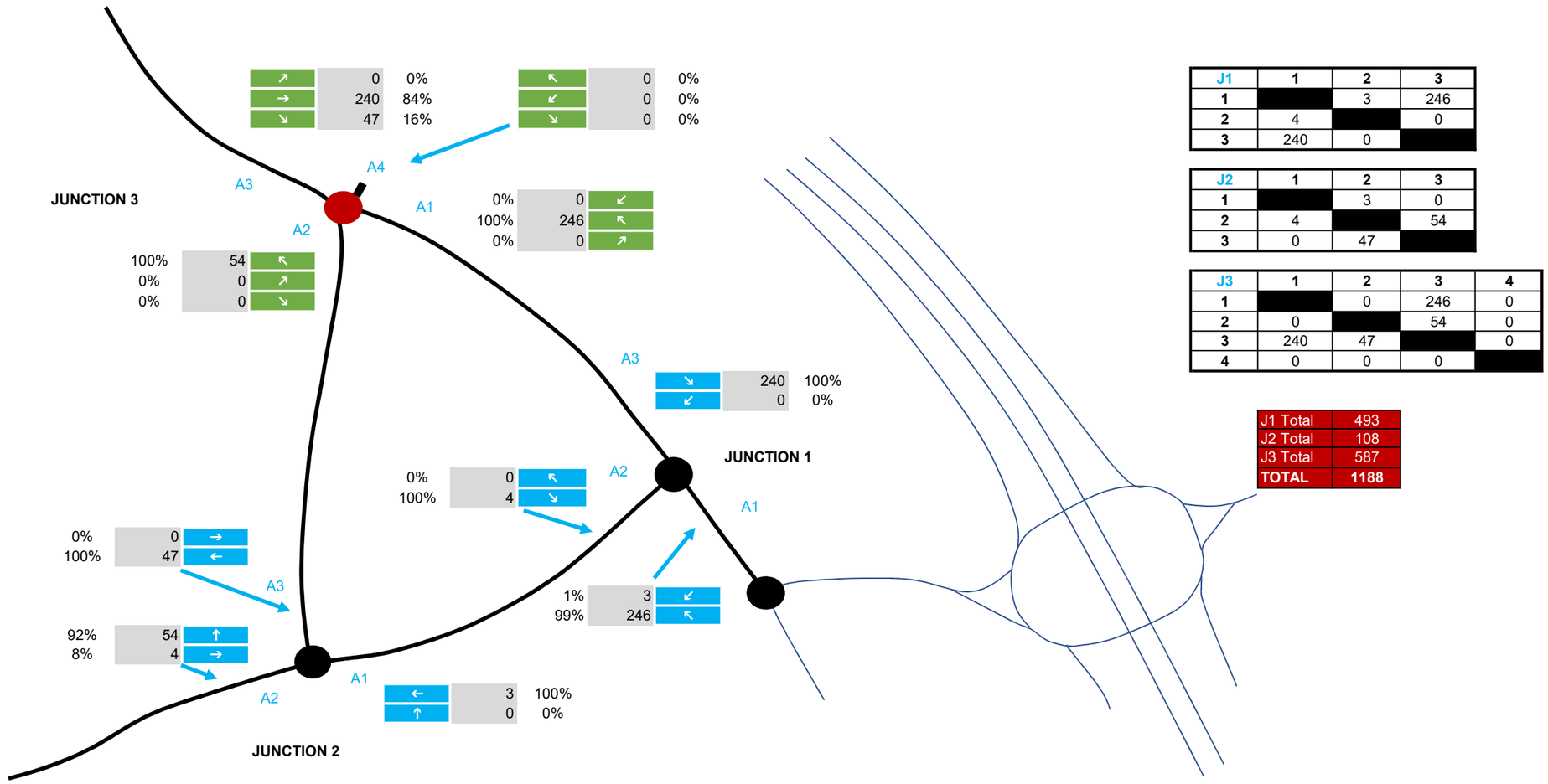


J1	1	2	3
1		3	246
2	4		0
3	240	0	

J2	1	2	3
1		3	0
2	4		54
3	0	47	

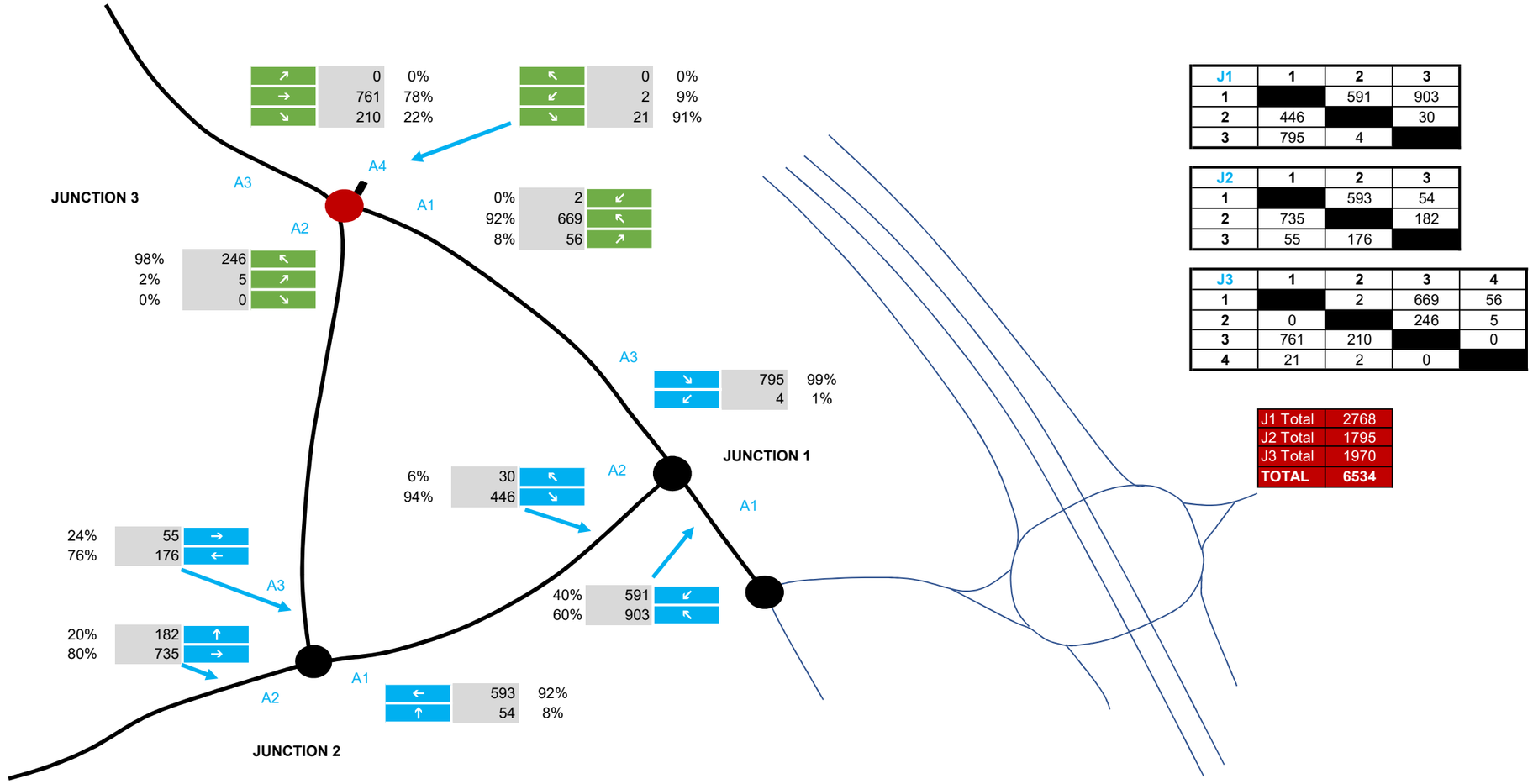
J3	1	2	3	4
1		0	246	0
2	0		54	0
3	240	47		0
4	0	0	0	

J1 Total	493
J2 Total	108
J3 Total	587
TOTAL	**1188**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

			Date	01/05/2020
			Design	JC
Client: BMBC	Project: Higham Lane	Title: Total Dev PM Peak		Checked
				Approved

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA



J1	1	2	3
1		591	903
2	446		30
3	795	4	

J2	1	2	3
1		593	54
2	735		182
3	55	176	

J3	1	2	3	4
1		2	669	56
2	0		246	5
3	761	210		0
4	21	2	0	

J1 Total	2768
J2 Total	1795
J3 Total	1970
TOTAL	**6534**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2033 Do Something AM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

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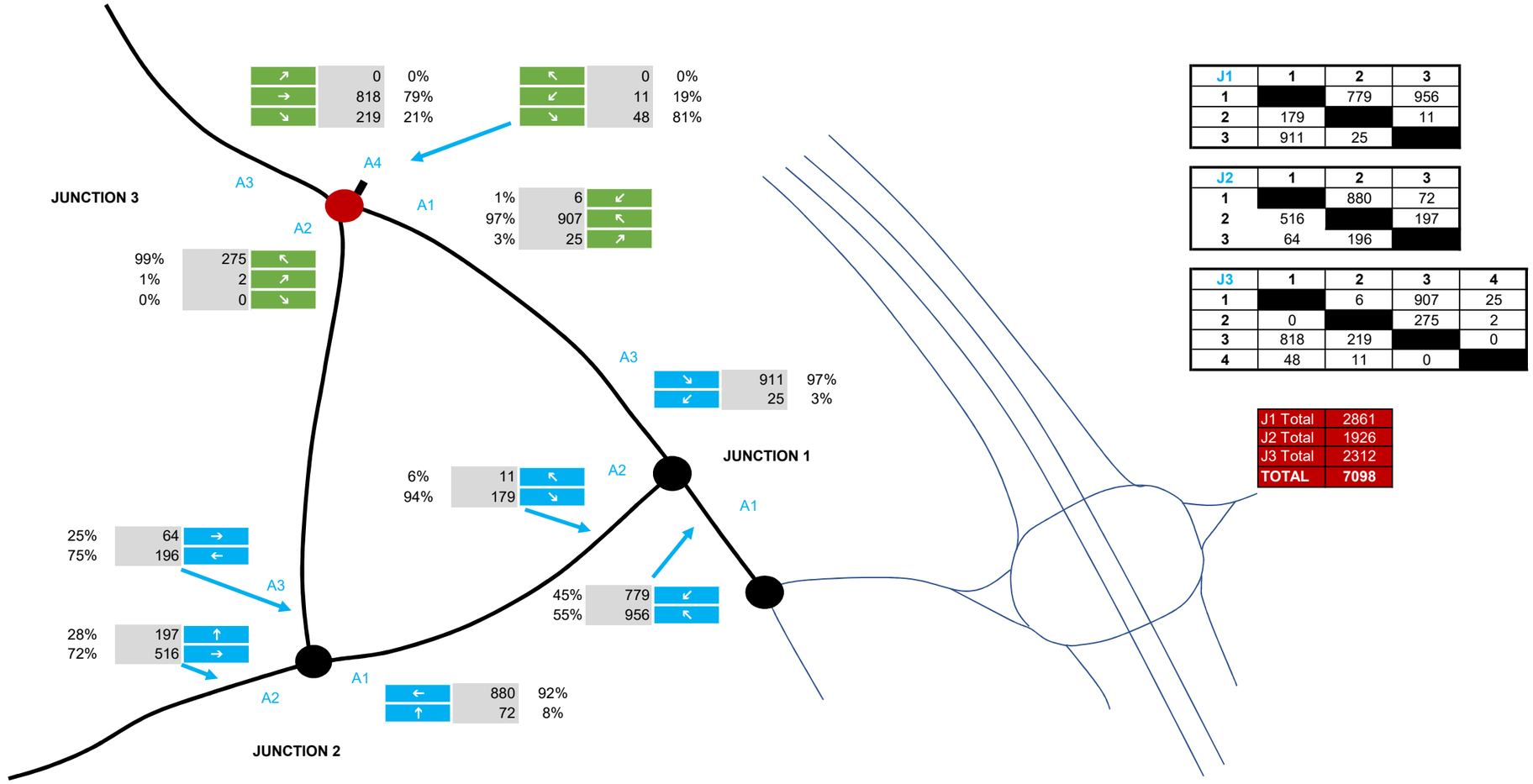

J1	1	2	3
1		779	956
2	179		11
3	911	25	

J2	1	2	3
1		880	72
2	516		197
3	64	196	

J3	1	2	3	4
1		6	907	25
2	0		275	2
3	818	219		0
4	48	11	0	

J1 Total	2861
J2 Total	1926
J3 Total	2312
TOTAL	**7098**

Junction 1 - A628 Whinby Road / Capitol Close
Junction 2 - A628 Whinby Road / Higham Lane
Junction 3 - Higham Lane / Capitol Close

Client: BMBC	Project: Higham Lane	Title: 2033 Do Something PM Peak	AECOM	Date: 01/05/2020 Design: JC Checked: Approved:

File Path: F:\PROJECTS\99999Speculative\DEVELOPMENT\MHA PSP3 BAr Higham Lane TA\TA

Appendix C – Modelling Outputs

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Junction 1 Original Layout.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\Higham Lane Barnsley\J1 - A628_Whinby Rd_Capitol Cl\May 2020 Update
Report generation date: 08/05/2020 11:05:32

»2019 Base, AM
»2019 Base, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2019 Base							
Arm 1	0.8	3.08	0.44	A	0.8	3.29	0.46	A
Arm 2	2.3	8.94	0.70	A	1.0	5.66	0.50	A
Arm 3	0.0	3.70	0.03	A	0.8	5.21	0.46	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	J1 Existing
Location	A628 Whinby Road / Capitol Close
Site number	
Date	20/02/2019
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	EU\henry.eyre
Description	

Units

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

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.44	3.08	0.8	A
2	0.70	8.94	2.3	A
3	0.03	3.70	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	0.75	2091	0.302	629	0.4	2.460	A
2	653	79	1381	0.473	650	0.9	4.900	A
3	20	634	1201	0.016	20	0.0	3.046	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	0.90	2090	0.360	753	0.6	2.689	A
2	780	94	1371	0.569	779	1.3	6.056	A
3	23	760	1117	0.021	23	0.0	3.291	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	1	2090	0.441	922	0.8	3.080	A
2	956	115	1358	0.704	952	2.3	8.772	A
3	29	929	1003	0.029	29	0.0	3.691	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	1	2090	0.441	923	0.8	3.082	A
2	956	116	1358	0.704	956	2.3	8.936	A
3	29	932	1001	0.029	29	0.0	3.701	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	0.90	2090	0.360	754	0.6	2.695	A
2	780	95	1371	0.569	784	1.3	6.173	A
3	23	765	1113	0.021	23	0.0	3.305	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	0.75	2091	0.302	631	0.4	2.469	A
2	653	79	1381	0.473	655	0.9	4.971	A
3	20	639	1198	0.016	20	0.0	3.055	A

2019 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.46	3.29	0.8	A
2	0.50	5.66	1.0	A
3	0.46	5.21	0.8	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	69	2041	0.309	629	0.4	2.545	A
2	441	162	1329	0.332	439	0.5	4.038	A
3	401	354	1389	0.289	400	0.4	3.631	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	83	2032	0.371	753	0.6	2.813	A
2	527	194	1309	0.403	526	0.7	4.597	A
3	479	424	1342	0.357	479	0.6	4.165	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	101	2018	0.457	922	0.8	3.279	A
2	645	238	1281	0.504	644	1.0	5.638	A
3	587	519	1279	0.459	586	0.8	5.186	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	101	2018	0.457	923	0.8	3.285	A
2	645	238	1281	0.504	645	1.0	5.661	A
3	587	520	1278	0.459	587	0.8	5.208	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	83	2031	0.371	754	0.6	2.822	A
2	527	194	1308	0.403	528	0.7	4.623	A
3	479	425	1341	0.357	480	0.6	4.186	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	69	2041	0.309	631	0.4	2.554	A
2	441	163	1328	0.332	442	0.5	4.066	A
3	401	356	1388	0.289	402	0.4	3.655	A

Junctions 9

ARCADY 9 - Roundabout Module

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Filename: Junction 1.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\Higham Lane Barnsley\J1 - A628_Whinby Rd_Capitol Cl\May 2020 Update
Report generation date: 08/05/2020 10:04:29

»2019 Base Re-Distributed, AM
»2019 Base Re-Distributed, PM
»2021 Do Minimum , AM
»2021 Do Minimum, PM
»2026 Do Minimum , AM
»2026 Do Minimum, PM
»2026 Do Something, AM
»2026 Do Something, PM
»2033 Do Minimum, AM
»2033 Do Minimum, PM
»2033 with Dev, AM
»2033 with Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2019 Base Re-Distributed							
Arm 1	0.6	2.30	0.37	A	0.6	2.29	0.37	A
Arm 2	0.5	2.23	0.32	A	0.3	1.83	0.22	A
Arm 3	0.2	3.65	0.17	A	0.5	4.24	0.35	A
	2021 Do Minimum							
Arm 1	0.7	2.53	0.43	A	0.7	2.39	0.40	A
Arm 2	0.5	2.44	0.35	A	0.3	1.90	0.24	A
Arm 3	0.3	3.92	0.21	A	0.8	4.89	0.43	A
	2026 Do Minimum							
Arm 1	0.8	2.66	0.46	A	0.7	2.51	0.42	A
Arm 2	0.6	2.59	0.38	A	0.3	1.96	0.26	A
Arm 3	0.3	4.15	0.23	A	0.9	5.33	0.47	A
	2026 Do Something							
Arm 1	1.0	2.85	0.49	A	0.8	2.59	0.44	A
Arm 2	0.7	2.88	0.43	A	0.4	2.04	0.27	A
Arm 3	0.4	4.76	0.30	A	1.1	6.14	0.53	A
	2033 Do Minimum							
Arm 1	1.6	3.73	0.61	A	2.1	4.58	0.68	A
Arm 2	0.4	2.59	0.30	A	0.1	2.02	0.12	A
Arm 3	1.0	5.58	0.51	A	1.2	5.24	0.55	A
	2033 with Dev							
Arm 1	1.9	4.27	0.66	A	3.4	6.43	0.77	A
Arm 2	0.4	2.67	0.28	A	0.1	2.23	0.11	A
Arm 3	1.9	7.67	0.65	A	2.0	7.07	0.67	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

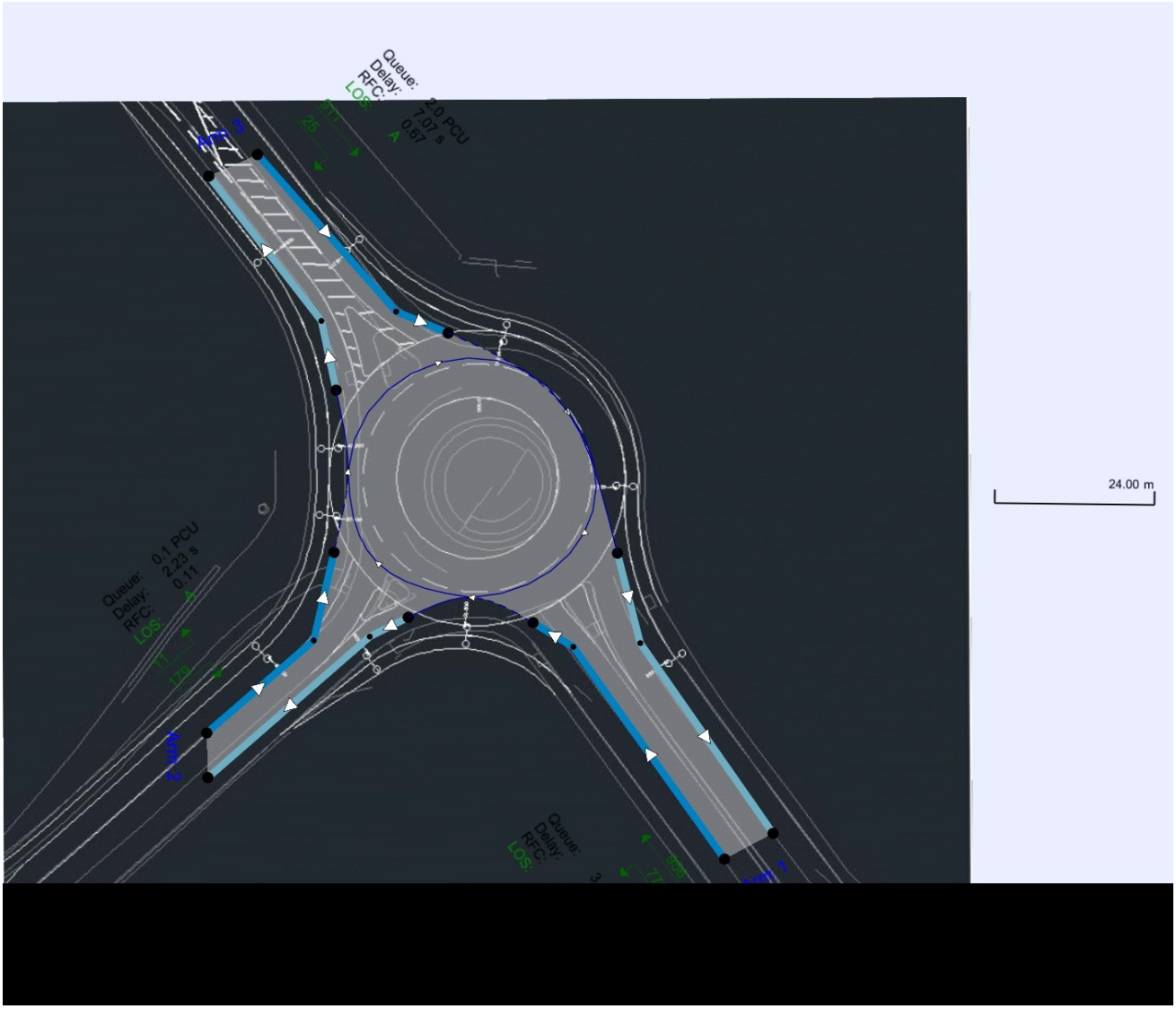
File summary

File Description

Title	J1 Proposed
Location	A628 Whinby Road / Capitol Close
Site number	
Date	20/02/2019
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	EU\henry.eyre
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base Re-Distributed	AM	ONE HOUR	07:45	09:15	15
D2	2019 Base Re-Distributed	PM	ONE HOUR	16:45	18:15	15
D3	2021 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D4	2021 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D5	2026 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D6	2026 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D7	2026 Do Something	AM	ONE HOUR	07:45	09:15	15
D8	2026 Do Something	PM	ONE HOUR	16:45	18:15	15
D9	2033 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D10	2033 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D11	2033 with Dev	AM	ONE HOUR	07:45	09:15	15
D12	2033 with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019 Base Re-Distributed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	2.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Whinby Road (SE)	
2	A628 Whinby Road (SW)	
3	Capitol Close (N)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	7.54	9.36	1.7	22.8	44.0	22.2	
2	7.20	9.27	8.3	30.0	44.0	12.7	
3	3.77	5.71	13.3	40.0	44.0	13.7	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.796	2491
2	0.855	2722
3	0.649	1668

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base Re-Distributed	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	838	100.000
2		✓	699	100.000
3		✓	180	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	480	358
	2	678	0	21
	3	179	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.37	2.30	0.6	A
2	0.32	2.23	0.5	A
3	0.17	3.65	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	0.75	2490	0.253	630	0.3	1.934	A
2	526	269	2492	0.211	525	0.3	1.830	A
3	136	509	1337	0.101	135	0.1	2.995	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	0.90	2490	0.303	753	0.4	2.072	A
2	628	322	2447	0.257	628	0.3	1.978	A
3	162	609	1272	0.127	162	0.1	3.241	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	1	2490	0.371	922	0.6	2.294	A
2	770	394	2386	0.323	769	0.5	2.227	A
3	198	746	1184	0.167	198	0.2	3.652	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	1	2490	0.371	923	0.6	2.296	A
2	770	394	2385	0.323	770	0.5	2.227	A
3	198	746	1183	0.168	198	0.2	3.653	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	0.90	2490	0.303	754	0.4	2.073	A
2	628	322	2447	0.257	629	0.3	1.981	A
3	162	610	1272	0.127	162	0.1	3.243	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	0.75	2490	0.253	631	0.3	1.936	A
2	526	270	2492	0.211	527	0.3	1.834	A
3	136	511	1336	0.101	136	0.1	2.998	A

2019 Base Re-Distributed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	2.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2019 Base Re-Distributed	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	822	100.000
2		✓	516	100.000
3		✓	413	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	619	203
	2	509	0	7
	3	397	16	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.37	2.29	0.6	A
2	0.22	1.83	0.3	A
3	0.35	4.24	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	619	12	2481	0.249	618	0.3	1.931	A
2	388	153	2592	0.150	388	0.2	1.633	A
3	311	383	1419	0.219	310	0.3	3.241	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	739	14	2479	0.298	739	0.4	2.068	A
2	464	182	2566	0.181	464	0.2	1.711	A
3	371	457	1371	0.271	371	0.4	3.600	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	905	18	2477	0.365	904	0.6	2.289	A
2	568	223	2531	0.224	568	0.3	1.832	A
3	455	560	1304	0.349	454	0.5	4.233	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	905	18	2477	0.365	905	0.6	2.289	A
2	568	224	2531	0.224	568	0.3	1.832	A
3	455	560	1304	0.349	455	0.5	4.238	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	739	14	2479	0.298	740	0.4	2.069	A
2	464	183	2566	0.181	464	0.2	1.714	A
3	371	458	1370	0.271	372	0.4	3.606	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	619	12	2481	0.249	619	0.3	1.934	A
2	388	153	2592	0.150	389	0.2	1.633	A
3	311	383	1419	0.219	311	0.3	3.250	A

2021 Do Minimum , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	2.66	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2021 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	970	100.000
2		✓	727	100.000
3		✓	227	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	495	475
	2	700	0	27
	3	226	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.43	2.53	0.7	A
2	0.35	2.44	0.5	A
3	0.21	3.92	0.3	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	730	0.75	2490	0.293	729	0.4	2.041	A
2	547	357	2417	0.226	546	0.3	1.923	A
3	171	526	1326	0.129	170	0.1	3.112	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	872	0.90	2490	0.350	872	0.5	2.224	A
2	654	427	2358	0.277	653	0.4	2.112	A
3	204	629	1259	0.162	204	0.2	3.410	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1068	1	2490	0.429	1067	0.7	2.529	A
2	800	523	2276	0.352	800	0.5	2.437	A
3	250	770	1168	0.214	250	0.3	3.919	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1068	1	2490	0.429	1068	0.7	2.531	A
2	800	523	2275	0.352	800	0.5	2.440	A
3	250	771	1168	0.214	250	0.3	3.923	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	872	0.90	2490	0.350	873	0.5	2.228	A
2	654	427	2357	0.277	654	0.4	2.116	A
3	204	630	1259	0.162	204	0.2	3.414	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	730	0.75	2490	0.293	731	0.4	2.046	A
2	547	358	2416	0.227	548	0.3	1.928	A
3	171	527	1325	0.129	171	0.1	3.118	A

2021 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	2.91	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2021 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	895	100.000
2		✓	535	100.000
3		✓	506	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	639	256
	2	525	0	10
	3	505	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.40	2.39	0.7	A
2	0.24	1.90	0.3	A
3	0.43	4.89	0.8	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	674	0.75	2490	0.271	672	0.4	1.978	A
2	403	192	2558	0.157	402	0.2	1.669	A
3	381	395	1412	0.270	379	0.4	3.483	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	805	0.90	2490	0.323	804	0.5	2.135	A
2	481	230	2526	0.190	481	0.2	1.759	A
3	455	472	1361	0.334	454	0.5	3.967	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	985	1	2490	0.396	985	0.7	2.390	A
2	589	282	2482	0.237	589	0.3	1.901	A
3	557	578	1293	0.431	556	0.8	4.880	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	985	1	2490	0.396	985	0.7	2.392	A
2	589	282	2481	0.237	589	0.3	1.901	A
3	557	578	1293	0.431	557	0.8	4.894	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	805	0.90	2490	0.323	805	0.5	2.138	A
2	481	230	2525	0.190	481	0.2	1.763	A
3	455	472	1361	0.334	456	0.5	3.982	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	674	0.75	2490	0.271	674	0.4	1.984	A
2	403	193	2557	0.157	403	0.2	1.670	A
3	381	395	1411	0.270	381	0.4	3.497	A

2026 Do Minimum , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	2.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2026 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1033	100.000
2		✓	780	100.000
3		✓	240	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	531	502
	2	751	0	29
	3	239	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.46	2.66	0.8	A
2	0.38	2.59	0.6	A
3	0.23	4.15	0.3	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	778	0.75	2490	0.312	776	0.5	2.098	A
2	587	377	2400	0.245	586	0.3	1.984	A
3	181	564	1302	0.139	180	0.2	3.208	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	929	0.90	2490	0.373	928	0.6	2.304	A
2	701	451	2337	0.300	701	0.4	2.200	A
3	216	675	1230	0.175	216	0.2	3.549	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1137	1	2490	0.457	1136	0.8	2.658	A
2	859	552	2250	0.382	858	0.6	2.584	A
3	264	826	1132	0.234	264	0.3	4.147	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1137	1	2490	0.457	1137	0.8	2.660	A
2	859	553	2250	0.382	859	0.6	2.587	A
3	264	827	1131	0.234	264	0.3	4.152	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	929	0.90	2490	0.373	930	0.6	2.309	A
2	701	452	2336	0.300	702	0.4	2.205	A
3	216	676	1229	0.176	216	0.2	3.557	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	778	0.75	2490	0.312	778	0.5	2.104	A
2	587	378	2399	0.245	588	0.3	1.989	A
3	181	566	1300	0.139	181	0.2	3.215	A

2026 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	3.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2026 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	957	100.000
2		✓	574	100.000
3		✓	536	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	685	272
	2	563	0	11
	3	535	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.42	2.51	0.7	A
2	0.26	1.96	0.3	A
3	0.47	5.33	0.9	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	720	0.75	2490	0.289	719	0.4	2.030	A
2	432	204	2548	0.170	431	0.2	1.700	A
3	404	423	1393	0.290	402	0.4	3.625	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	860	0.90	2490	0.345	860	0.5	2.208	A
2	516	244	2513	0.205	516	0.3	1.801	A
3	482	506	1339	0.360	481	0.6	4.193	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1054	1	2490	0.423	1053	0.7	2.503	A
2	632	299	2467	0.256	632	0.3	1.962	A
3	590	620	1266	0.466	589	0.9	5.310	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1054	1	2490	0.423	1054	0.7	2.505	A
2	632	299	2466	0.256	632	0.3	1.962	A
3	590	620	1265	0.466	590	0.9	5.331	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	860	0.90	2490	0.345	861	0.5	2.210	A
2	516	245	2513	0.205	516	0.3	1.805	A
3	482	506	1339	0.360	483	0.6	4.213	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	720	0.75	2490	0.289	721	0.4	2.034	A
2	432	205	2547	0.170	432	0.2	1.704	A
3	404	424	1392	0.290	404	0.4	3.644	A

2026 Do Something, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	3.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2026 Do Something	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1115	100.000
2		✓	842	100.000
3		✓	301	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	536	579
	2	813	0	29
	3	300	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.49	2.85	1.0	A
2	0.43	2.88	0.7	A
3	0.30	4.76	0.4	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	839	0.75	2490	0.337	837	0.5	2.175	A
2	634	435	2351	0.270	632	0.4	2.093	A
3	227	611	1271	0.178	226	0.2	3.439	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1002	0.90	2490	0.403	1002	0.7	2.417	A
2	757	520	2278	0.332	756	0.5	2.366	A
3	271	730	1194	0.227	270	0.3	3.898	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1228	1	2490	0.493	1226	1.0	2.846	A
2	927	637	2178	0.426	926	0.7	2.874	A
3	331	894	1087	0.305	331	0.4	4.756	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1228	1	2490	0.493	1228	1.0	2.851	A
2	927	637	2177	0.426	927	0.7	2.878	A
3	331	895	1087	0.305	331	0.4	4.765	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1002	0.90	2490	0.403	1004	0.7	2.422	A
2	757	521	2277	0.332	758	0.5	2.371	A
3	271	732	1193	0.227	271	0.3	3.908	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	839	0.75	2490	0.337	840	0.5	2.183	A
2	634	436	2349	0.270	634	0.4	2.099	A
3	227	613	1270	0.178	227	0.2	3.451	A

2026 Do Something, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	3.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2026 Do Something	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1000	100.000
2		✓	604	100.000
3		✓	597	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	690	310
	2	593	0	11
	3	596	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.44	2.59	0.8	A
2	0.27	2.04	0.4	A
3	0.53	6.14	1.1	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	0.75	2490	0.302	751	0.4	2.068	A
2	455	233	2523	0.180	454	0.2	1.739	A
3	449	446	1378	0.326	448	0.5	3.859	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	899	0.90	2490	0.361	898	0.6	2.262	A
2	543	279	2484	0.219	543	0.3	1.853	A
3	537	533	1322	0.406	536	0.7	4.575	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1101	1	2490	0.442	1100	0.8	2.589	A
2	665	341	2431	0.274	665	0.4	2.038	A
3	657	653	1244	0.528	656	1.1	6.099	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1101	1	2490	0.442	1101	0.8	2.591	A
2	665	341	2431	0.274	665	0.4	2.038	A
3	657	653	1244	0.528	657	1.1	6.136	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	899	0.90	2490	0.361	900	0.6	2.264	A
2	543	279	2484	0.219	543	0.3	1.854	A
3	537	533	1321	0.406	538	0.7	4.606	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	0.75	2490	0.302	753	0.4	2.072	A
2	455	234	2523	0.180	455	0.2	1.740	A
3	449	447	1378	0.326	450	0.5	3.884	A

2033 Do Minimum, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	3.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2033 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1382	100.000
2		✓	537	100.000
3		✓	600	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	591	791
	2	507	0	30
	3	596	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.61	3.73	1.6	A
2	0.30	2.59	0.4	A
3	0.51	5.58	1.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1040	3	2489	0.418	1038	0.7	2.475	A
2	404	594	2215	0.183	403	0.2	1.986	A
3	452	381	1420	0.318	450	0.5	3.703	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1242	4	2488	0.499	1241	1.0	2.884	A
2	483	710	2115	0.228	482	0.3	2.205	A
3	539	456	1372	0.393	539	0.6	4.316	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1522	4	2487	0.612	1519	1.6	3.708	A
2	591	870	1979	0.299	591	0.4	2.593	A
3	661	558	1306	0.506	659	1.0	5.556	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1522	4	2487	0.612	1522	1.6	3.726	A
2	591	871	1978	0.299	591	0.4	2.595	A
3	661	558	1305	0.506	661	1.0	5.582	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1242	4	2488	0.499	1245	1.0	2.899	A
2	483	712	2113	0.228	483	0.3	2.208	A
3	539	456	1372	0.393	541	0.7	4.341	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1040	3	2489	0.418	1042	0.7	2.491	A
2	404	596	2213	0.183	405	0.2	1.992	A
3	452	382	1420	0.318	452	0.5	3.723	A

2033 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	4.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2033 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1529	100.000
2		✓	216	100.000
3		✓	758	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	781	748
	2	205	0	11
	3	733	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.68	4.58	2.1	A
2	0.12	2.02	0.1	A
3	0.55	5.24	1.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1151	19	2476	0.465	1148	0.9	2.703	A
2	163	561	2242	0.073	162	0.1	1.730	A
3	571	154	1568	0.364	568	0.6	3.596	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1375	22	2473	0.556	1373	1.2	3.268	A
2	194	672	2148	0.090	194	0.1	1.841	A
3	681	184	1548	0.440	681	0.8	4.145	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1683	27	2469	0.682	1680	2.1	4.542	A
2	238	822	2020	0.118	238	0.1	2.019	A
3	835	226	1521	0.549	833	1.2	5.218	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1683	28	2469	0.682	1683	2.1	4.582	A
2	238	824	2018	0.118	238	0.1	2.021	A
3	835	226	1521	0.549	835	1.2	5.243	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1375	23	2473	0.556	1378	1.3	3.299	A
2	194	674	2146	0.090	194	0.1	1.846	A
3	681	184	1548	0.440	683	0.8	4.170	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1151	19	2476	0.465	1153	0.9	2.725	A
2	163	564	2240	0.073	163	0.1	1.734	A
3	571	154	1567	0.364	572	0.6	3.620	A

2033 with Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	4.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D11	2033 with Dev	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1494	100.000
2		✓	476	100.000
3		✓	799	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	591	903
	2	446	0	30
	3	795	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.66	4.27	1.9	A
2	0.28	2.67	0.4	A
3	0.65	7.67	1.9	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1125	3	2489	0.452	1121	0.8	2.626	A
2	358	678	2143	0.167	358	0.2	2.015	A
3	602	335	1450	0.415	599	0.7	4.215	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1343	4	2488	0.540	1342	1.2	3.136	A
2	428	811	2029	0.211	428	0.3	2.247	A
3	718	401	1408	0.510	717	1.0	5.203	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1645	4	2487	0.661	1642	1.9	4.242	A
2	524	992	1874	0.280	524	0.4	2.665	A
3	880	491	1349	0.652	877	1.8	7.564	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1645	4	2487	0.661	1645	1.9	4.272	A
2	524	994	1873	0.280	524	0.4	2.668	A
3	880	491	1349	0.652	880	1.9	7.668	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1343	4	2488	0.540	1346	1.2	3.162	A
2	428	814	2027	0.211	428	0.3	2.252	A
3	718	401	1407	0.510	721	1.1	5.274	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1125	3	2489	0.452	1126	0.8	2.644	A
2	358	681	2141	0.167	359	0.2	2.020	A
3	602	336	1450	0.415	603	0.7	4.260	A

2033 with Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	A628 Whinby Road / Capitol Close Roundabout	Standard Roundabout	6.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2033 with Dev	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1735	100.000
2		✓	190	100.000
3		✓	936	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	779	956
	2	179	0	11
	3	911	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.77	6.43	3.4	A
2	0.11	2.23	0.1	A
3	0.67	7.07	2.0	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1306	19	2476	0.528	1302	1.1	3.055	A
2	143	717	2109	0.068	143	0.1	1.829	A
3	705	134	1580	0.446	701	0.8	4.082	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1560	22	2473	0.631	1557	1.7	3.921	A
2	171	858	1989	0.086	171	0.1	1.979	A
3	841	161	1563	0.538	840	1.2	4.968	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1910	27	2469	0.774	1904	3.3	6.295	A
2	209	1049	1826	0.115	209	0.1	2.226	A
3	1031	197	1540	0.669	1027	2.0	6.977	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1910	28	2469	0.774	1910	3.4	6.434	A
2	209	1052	1823	0.115	209	0.1	2.230	A
3	1031	197	1540	0.669	1030	2.0	7.067	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1560	23	2473	0.631	1566	1.7	3.998	A
2	171	863	1985	0.086	171	0.1	1.984	A
3	841	161	1563	0.538	845	1.2	5.033	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1306	19	2476	0.528	1309	1.1	3.089	A
2	143	721	2106	0.068	143	0.1	1.836	A
3	705	135	1580	0.446	706	0.8	4.127	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Junction 2.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\Higham Lane Barnsley\J2 - A628_Whinby Rd_Higham Ln\May 2020 Update
Report generation date: 08/05/2020 10:23:55

»2019 Base, AM
»2019 Base, PM
»2019 Base Re-Distributed, AM
»2019 Base Re-Distributed, PM
»2021 Do Minimum, AM
»2021 Do Minimum, PM
»2026 Do Minimum, AM
»2026 Do Minimum, PM
»2026 Do Something, AM
»2026 Do Something, PM
»2033 Do Minimum, AM
»2033 Do Minimum, PM
»2033 with Dev, AM
»2033 with Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2019 Base								
Arm 1	2.2	9.74	0.70	A	3.2	12.66	0.77	B
Arm 2	6.1	26.42	0.87	D	1.6	8.86	0.61	A
Arm 3	0.7	8.22	0.42	A	2.0	12.33	0.67	B
2019 Base Re-Distributed								
Arm 1	0.9	5.55	0.46	A	1.4	7.24	0.59	A
Arm 2	3.0	12.36	0.75	B	1.2	6.81	0.55	A
Arm 3	0.2	5.68	0.15	A	0.2	4.94	0.17	A
2021 Do Minimum								
Arm 1	0.9	5.60	0.47	A	1.5	7.42	0.60	A
Arm 2	3.6	14.34	0.79	B	1.3	7.15	0.57	A
Arm 3	0.2	5.90	0.17	A	0.2	5.09	0.18	A
2026 Do Minimum								
Arm 1	1.1	6.22	0.52	A	1.9	8.86	0.66	A
Arm 2	5.1	19.44	0.84	C	1.6	7.94	0.61	A
Arm 3	0.2	6.30	0.19	A	0.3	5.34	0.20	A
2026 Do Something								
Arm 1	1.1	6.37	0.53	A	2.0	9.27	0.67	A
Arm 2	5.7	21.36	0.86	C	1.6	8.09	0.62	A
Arm 3	0.3	6.49	0.21	A	0.3	5.54	0.23	A
2033 Do Minimum								
Arm 1	1.5	7.73	0.60	A	8.4	30.83	0.91	D
Arm 2	5.5	21.01	0.86	C	1.8	8.75	0.64	A
Arm 3	0.4	7.12	0.29	A	0.4	6.05	0.30	A
2033 with Dev								
Arm 1	1.6	8.17	0.62	A	9.3	34.32	0.92	D
Arm 2	6.4	24.01	0.88	C	2.2	10.12	0.69	B
Arm 3	0.5	7.80	0.36	A	0.5	6.39	0.34	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

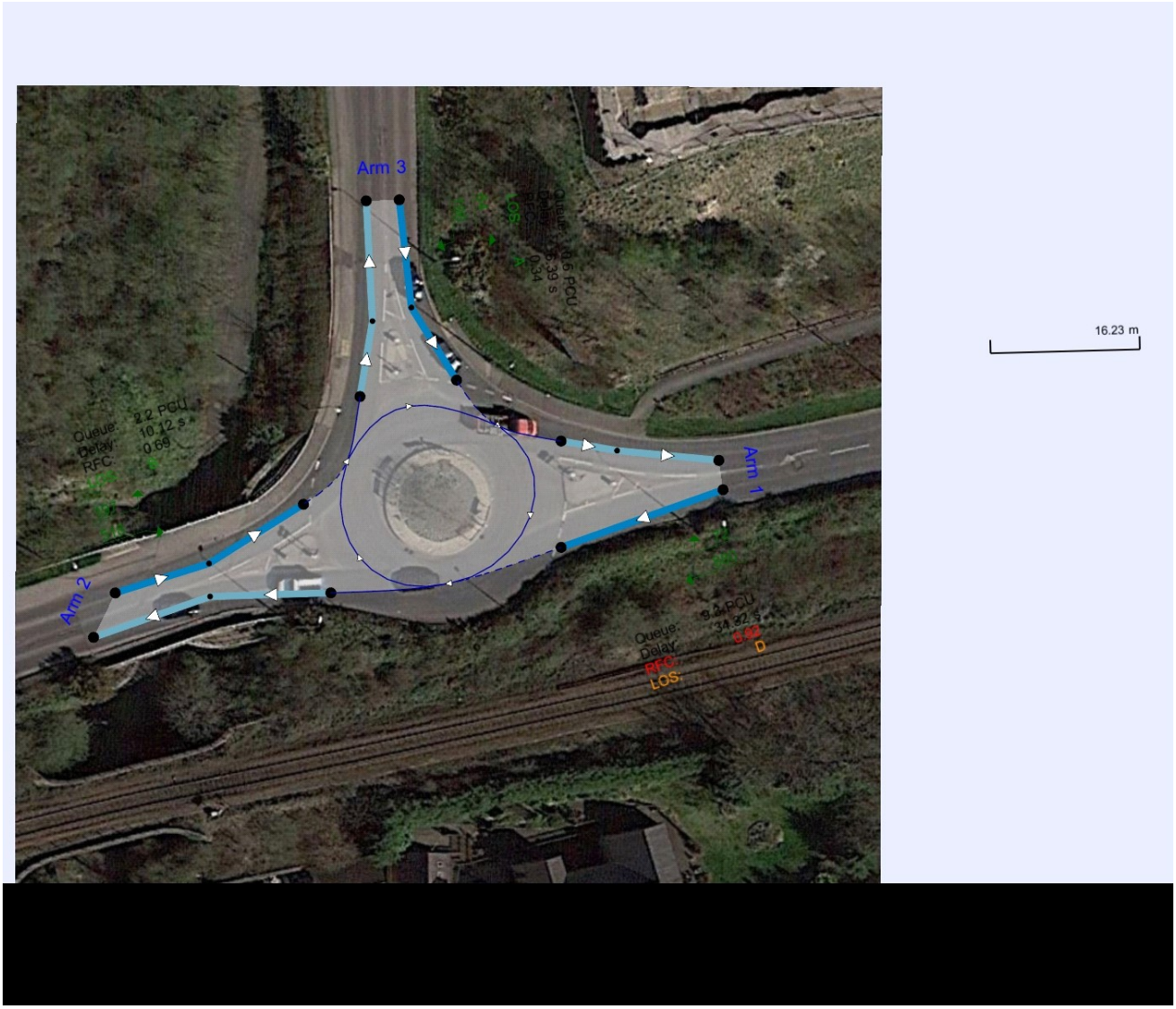
File summary

File Description

Title	J2 Existing
Location	A628 Whinby Road / Higham Lane
Site number	
Date	20/02/2019
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	EU\henry.eyre
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15
D3	2019 Base Re-Distributed	AM	ONE HOUR	07:45	09:15	15
D4	2019 Base Re-Distributed	PM	ONE HOUR	16:45	18:15	15
D5	2021 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D6	2021 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D7	2026 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D8	2026 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D9	2026 Do Something	AM	ONE HOUR	07:45	09:15	15
D10	2026 Do Something	PM	ONE HOUR	16:45	18:15	15
D11	2033 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D12	2033 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D13	2033 with Dev	AM	ONE HOUR	07:45	09:15	15
D14	2033 with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	16.72	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A628 Whinby Road (E)	
2	A628 Whinby Road (W)	
3	Higham Lane (N)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.68	4.29	5.5	31.7	27.3	32.6	
2	3.50	4.02	1.2	23.8	27.3	16.0	
3	3.53	4.18	0.9	22.4	27.3	20.6	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.574	1264
2	0.573	1187
3	0.563	1171

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	764	100.000
2		✓	799	100.000
3		✓	284	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	482	282
	2	679	0	120
	3	199	85	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.70	9.74	2.2	A
2	0.87	26.42	6.1	D
3	0.42	8.22	0.7	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	575	64	1227	0.469	572	0.9	5.463	A
2	602	211	1067	0.564	596	1.3	7.577	A
3	214	507	885	0.242	213	0.3	5.341	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	687	76	1220	0.563	685	1.3	6.711	A
2	718	253	1043	0.689	715	2.1	10.863	B
3	255	607	829	0.308	255	0.4	6.268	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	841	93	1210	0.695	837	2.2	9.559	A
2	880	309	1010	0.871	866	5.6	22.909	C
3	313	736	756	0.413	312	0.7	8.076	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	841	94	1210	0.695	841	2.2	9.744	A
2	880	310	1010	0.871	878	6.1	26.423	D
3	313	746	751	0.417	313	0.7	8.218	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	687	77	1220	0.563	691	1.3	6.851	A
2	718	255	1042	0.690	733	2.3	12.215	B
3	255	623	820	0.311	256	0.5	6.402	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	575	64	1227	0.469	577	0.9	5.553	A
2	602	213	1066	0.565	605	1.3	7.891	A
3	214	515	881	0.243	214	0.3	5.403	A

2019 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	11.43	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2019 Base	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	838	100.000
2		✓	586	100.000
3		✓	533	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	622	216
	2	472	0	114
	3	441	92	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.77	12.66	3.2	B
2	0.61	8.86	1.6	A
3	0.67	12.33	2.0	B

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	69	1224	0.515	627	1.0	5.982	A
2	441	162	1095	0.403	438	0.7	5.462	A
3	401	353	972	0.413	398	0.7	6.249	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	82	1216	0.619	751	1.6	7.700	A
2	527	194	1077	0.489	526	0.9	6.521	A
3	479	423	932	0.514	478	1.0	7.895	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	101	1206	0.765	917	3.1	12.192	B
2	645	236	1052	0.613	643	1.5	8.741	A
3	587	518	879	0.667	583	1.9	12.019	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	923	101	1206	0.765	922	3.2	12.664	B
2	645	238	1051	0.614	645	1.6	8.857	A
3	587	520	878	0.668	587	2.0	12.333	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	753	83	1216	0.620	759	1.7	7.985	A
2	527	196	1075	0.490	529	1.0	6.620	A
3	479	426	931	0.515	483	1.1	8.099	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	631	70	1224	0.515	633	1.1	6.120	A
2	441	163	1094	0.403	442	0.7	5.535	A
3	401	356	970	0.414	403	0.7	6.360	A

2019 Base Re-Distributed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	9.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2019 Base Re-Distributed	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	510	100.000
2		✓	799	100.000
3		✓	105	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	482	28
	2	679	0	120
	3	20	85	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.46	5.55	0.9	A
2	0.75	12.36	3.0	B
3	0.15	5.68	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	384	64	1227	0.313	382	0.5	4.252	A
2	602	21	1175	0.512	597	1.0	6.185	A
3	79	508	885	0.089	79	0.1	4.463	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	458	76	1220	0.376	458	0.6	4.721	A
2	718	25	1173	0.612	716	1.5	7.843	A
3	94	609	828	0.114	94	0.1	4.906	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	562	93	1210	0.464	560	0.9	5.531	A
2	880	31	1170	0.752	874	2.9	11.965	B
3	116	743	752	0.154	115	0.2	5.651	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	562	94	1210	0.464	562	0.9	5.550	A
2	880	31	1170	0.752	879	3.0	12.364	B
3	116	747	750	0.154	116	0.2	5.675	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	458	77	1220	0.376	459	0.6	4.740	A
2	718	25	1173	0.612	724	1.6	8.104	A
3	94	615	824	0.114	95	0.1	4.935	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	384	64	1227	0.313	385	0.5	4.277	A
2	602	21	1175	0.512	604	1.1	6.323	A
3	79	513	882	0.090	79	0.1	4.485	A

2019 Base Re-Distributed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	6.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2019 Base Re-Distributed	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	644	100.000
2		✓	586	100.000
3		✓	136	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	622	22
	2	472	0	114
	3	44	92	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.59	7.24	1.4	A
2	0.55	6.81	1.2	A
3	0.17	4.94	0.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	485	69	1224	0.396	482	0.6	4.836	A
2	441	16	1178	0.374	439	0.6	4.854	A
3	102	353	972	0.105	102	0.1	4.137	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	579	83	1216	0.476	578	0.9	5.629	A
2	527	20	1176	0.448	526	0.8	5.530	A
3	122	424	932	0.131	122	0.2	4.444	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	709	101	1206	0.588	707	1.4	7.190	A
2	645	24	1174	0.550	644	1.2	6.771	A
3	150	518	879	0.170	150	0.2	4.935	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	709	101	1206	0.588	709	1.4	7.245	A
2	645	24	1174	0.550	645	1.2	6.811	A
3	150	520	878	0.171	150	0.2	4.942	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	579	83	1216	0.476	581	0.9	5.685	A
2	527	20	1176	0.448	528	0.8	5.572	A
3	122	426	931	0.131	122	0.2	4.452	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	485	69	1224	0.396	486	0.7	4.885	A
2	441	17	1178	0.375	442	0.6	4.896	A
3	102	356	970	0.106	103	0.1	4.148	A

2021 Do Minimum, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	10.63	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2021 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	512	100.000
2		✓	836	100.000
3		✓	111	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	484	28
	2	707	0	129
	3	21	90	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.47	5.60	0.9	A
2	0.79	14.34	3.6	B
3	0.17	5.90	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	385	67	1225	0.315	384	0.5	4.270	A
2	629	21	1175	0.535	625	1.1	6.485	A
3	84	528	873	0.096	83	0.1	4.555	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	460	81	1217	0.378	460	0.6	4.746	A
2	752	25	1173	0.641	749	1.7	8.441	A
3	100	634	814	0.123	100	0.1	5.040	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	564	99	1207	0.467	563	0.9	5.577	A
2	920	31	1170	0.787	914	3.5	13.685	B
3	122	773	736	0.166	122	0.2	5.867	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	564	99	1207	0.467	564	0.9	5.596	A
2	920	31	1170	0.787	920	3.6	14.341	B
3	122	778	733	0.167	122	0.2	5.897	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	460	81	1217	0.378	461	0.6	4.768	A
2	752	25	1173	0.641	758	1.8	8.824	A
3	100	641	810	0.123	100	0.1	5.075	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	385	68	1225	0.315	386	0.5	4.296	A
2	629	21	1175	0.535	632	1.2	6.658	A
3	84	534	870	0.096	84	0.1	4.580	A

2021 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	7.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2021 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	650	100.000
2		✓	609	100.000
3		✓	145	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	628	22
	2	490	0	119
	3	45	100	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.60	7.42	1.5	A
2	0.57	7.15	1.3	A
3	0.18	5.09	0.2	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	489	75	1221	0.401	487	0.7	4.886	A
2	458	16	1178	0.389	456	0.6	4.969	A
3	109	367	964	0.113	109	0.1	4.205	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	584	90	1212	0.482	583	0.9	5.714	A
2	547	20	1176	0.465	547	0.9	5.709	A
3	130	440	923	0.141	130	0.2	4.540	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	716	110	1201	0.596	714	1.4	7.357	A
2	671	24	1174	0.571	669	1.3	7.103	A
3	160	538	868	0.184	159	0.2	5.081	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	716	110	1201	0.596	716	1.5	7.419	A
2	671	24	1174	0.571	670	1.3	7.154	A
3	160	539	867	0.184	160	0.2	5.089	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	584	90	1212	0.482	586	0.9	5.772	A
2	547	20	1176	0.465	549	0.9	5.760	A
3	130	442	922	0.141	131	0.2	4.550	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	489	75	1221	0.401	490	0.7	4.937	A
2	458	17	1178	0.389	459	0.6	5.018	A
3	109	370	963	0.113	109	0.1	4.220	A

2026 Do Minimum, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	13.72	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2026 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	567	100.000
2		✓	896	100.000
3		✓	118	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	536	31
	2	758	0	138
	3	22	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.52	6.22	1.1	A
2	0.84	19.44	5.1	C
3	0.19	6.30	0.2	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	427	72	1223	0.349	425	0.5	4.501	A
2	675	23	1174	0.574	669	1.3	7.057	A
3	89	566	852	0.104	88	0.1	4.711	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	510	86	1214	0.420	509	0.7	5.098	A
2	805	28	1172	0.688	802	2.1	9.663	A
3	106	679	789	0.135	106	0.2	5.272	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	624	105	1203	0.519	623	1.1	6.187	A
2	987	34	1168	0.845	976	4.8	17.773	C
3	130	825	706	0.184	130	0.2	6.244	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	624	106	1203	0.519	624	1.1	6.218	A
2	987	34	1168	0.845	985	5.1	19.442	C
3	130	834	701	0.185	130	0.2	6.300	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	510	87	1214	0.420	511	0.7	5.131	A
2	805	28	1171	0.688	817	2.3	10.454	B
3	106	691	782	0.136	106	0.2	5.333	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	427	72	1222	0.349	428	0.5	4.536	A
2	675	23	1174	0.575	678	1.4	7.309	A
3	89	574	848	0.105	89	0.1	4.747	A

2026 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	8.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2026 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	718	100.000
2		✓	653	100.000
3		✓	156	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	694	24
	2	525	0	128
	3	49	107	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.66	8.86	1.9	A
2	0.61	7.94	1.6	A
3	0.20	5.34	0.3	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	541	80	1218	0.444	537	0.8	5.267	A
2	492	18	1177	0.418	489	0.7	5.209	A
3	117	393	949	0.124	117	0.1	4.321	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	645	96	1209	0.534	644	1.1	6.361	A
2	587	22	1175	0.500	586	1.0	6.098	A
3	140	471	905	0.155	140	0.2	4.702	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	791	118	1196	0.661	787	1.9	8.739	A
2	719	26	1172	0.613	717	1.6	7.859	A
3	172	576	846	0.203	171	0.3	5.332	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	791	118	1196	0.661	790	1.9	8.865	A
2	719	26	1172	0.613	719	1.6	7.936	A
3	172	578	845	0.203	172	0.3	5.344	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	645	96	1208	0.534	648	1.2	6.464	A
2	587	22	1175	0.500	589	1.0	6.170	A
3	140	474	904	0.155	141	0.2	4.716	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	541	81	1217	0.444	542	0.8	5.340	A
2	492	18	1177	0.418	493	0.7	5.268	A
3	117	396	948	0.124	118	0.1	4.337	A

2026 Do Something, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	14.84	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2026 Do Something	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	571	100.000
2		✓	912	100.000
3		✓	133	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	540	31
	2	759	0	153
	3	22	111	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.53	6.37	1.1	A
2	0.86	21.36	5.7	C
3	0.21	6.49	0.3	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	430	83	1216	0.353	428	0.5	4.555	A
2	687	23	1174	0.585	681	1.4	7.223	A
3	100	567	852	0.118	100	0.1	4.784	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	513	100	1207	0.425	513	0.7	5.181	A
2	820	28	1172	0.700	816	2.3	10.035	B
3	120	679	788	0.152	119	0.2	5.382	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	629	122	1194	0.527	627	1.1	6.337	A
2	1004	34	1168	0.860	992	5.3	19.187	C
3	146	825	706	0.207	146	0.3	6.426	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	629	122	1194	0.527	629	1.1	6.371	A
2	1004	34	1168	0.860	1003	5.7	21.358	C
3	146	835	701	0.209	146	0.3	6.494	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	513	100	1206	0.426	515	0.7	5.215	A
2	820	28	1171	0.700	833	2.4	11.014	B
3	120	693	780	0.153	120	0.2	5.452	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	430	84	1216	0.354	431	0.6	4.591	A
2	687	23	1174	0.585	691	1.4	7.505	A
3	100	575	847	0.118	100	0.1	4.821	A

2026 Do Something, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	8.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2026 Do Something	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	722	100.000
2		✓	661	100.000
3		✓	177	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	698	24
	2	526	0	135
	3	49	128	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.67	9.27	2.0	A
2	0.62	8.09	1.6	A
3	0.23	5.54	0.3	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	544	96	1209	0.450	540	0.8	5.360	A
2	498	18	1177	0.423	495	0.7	5.253	A
3	133	394	949	0.140	133	0.2	4.402	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	649	115	1198	0.542	648	1.2	6.525	A
2	594	22	1175	0.506	593	1.0	6.171	A
3	159	472	905	0.176	159	0.2	4.824	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	795	141	1183	0.672	792	2.0	9.118	A
2	728	26	1172	0.621	725	1.6	8.010	A
3	195	577	846	0.230	195	0.3	5.526	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	795	141	1183	0.672	795	2.0	9.269	A
2	728	26	1172	0.621	728	1.6	8.092	A
3	195	579	845	0.231	195	0.3	5.539	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	649	115	1198	0.542	652	1.2	6.640	A
2	594	22	1175	0.506	597	1.0	6.249	A
3	159	475	903	0.176	159	0.2	4.842	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	544	97	1208	0.450	545	0.8	5.438	A
2	498	18	1177	0.423	499	0.7	5.316	A
3	133	397	947	0.141	133	0.2	4.424	A

2033 Do Minimum, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	14.52	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D11	2033 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	647	100.000
2		✓	896	100.000
3		✓	191	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	593	54
	2	735	0	161
	3	55	136	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.60	7.73	1.5	A
2	0.86	21.01	5.5	C
3	0.29	7.12	0.4	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	487	102	1205	0.404	484	0.7	4.976	A
2	675	40	1164	0.579	669	1.4	7.194	A
3	144	549	862	0.167	143	0.2	5.004	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	582	122	1194	0.487	581	0.9	5.859	A
2	805	48	1160	0.695	802	2.2	9.968	A
3	172	658	800	0.215	171	0.3	5.722	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	712	149	1178	0.605	710	1.5	7.655	A
2	987	59	1154	0.855	975	5.2	18.945	C
3	210	799	720	0.292	210	0.4	7.041	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	712	150	1178	0.605	712	1.5	7.729	A
2	987	59	1153	0.855	985	5.5	21.006	C
3	210	808	716	0.294	210	0.4	7.124	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	582	123	1193	0.487	584	1.0	5.926	A
2	805	49	1160	0.695	818	2.4	10.901	B
3	172	671	793	0.217	172	0.3	5.805	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	487	103	1205	0.404	488	0.7	5.032	A
2	675	41	1164	0.579	678	1.4	7.466	A
3	144	556	857	0.168	144	0.2	5.050	A

2033 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	19.78	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2033 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	954	100.000
2		✓	664	100.000
3		✓	234	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	882	72
	2	513	0	151
	3	64	170	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.91	30.83	8.4	D
2	0.64	8.75	1.8	A
3	0.30	6.05	0.4	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	718	127	1191	0.603	712	1.5	7.436	A
2	500	54	1157	0.432	497	0.8	5.431	A
3	176	384	955	0.185	175	0.2	4.615	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	858	153	1176	0.729	853	2.6	10.994	B
2	597	64	1151	0.519	596	1.1	6.473	A
3	210	460	912	0.231	210	0.3	5.129	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1050	187	1157	0.908	1030	7.6	25.258	D
2	731	78	1143	0.640	728	1.7	8.627	A
3	258	563	854	0.302	257	0.4	6.028	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1050	187	1156	0.908	1047	8.4	30.829	D
2	731	79	1142	0.640	731	1.8	8.748	A
3	258	565	853	0.302	258	0.4	6.048	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	858	153	1176	0.729	880	2.8	13.008	B
2	597	66	1149	0.519	600	1.1	6.579	A
3	210	463	910	0.231	211	0.3	5.155	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	718	128	1190	0.603	723	1.6	7.792	A
2	500	55	1156	0.432	501	0.8	5.508	A
3	176	387	953	0.185	176	0.2	4.639	A

2033 with Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	16.21	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D13	2033 with Dev	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	647	100.000
2		✓	917	100.000
3		✓	231	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	593	54
	2	735	0	182
	3	55	176	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.62	8.17	1.6	A
2	0.88	24.01	6.4	C
3	0.36	7.80	0.5	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	487	132	1188	0.410	484	0.7	5.096	A
2	690	40	1164	0.593	685	1.4	7.419	A
3	174	549	862	0.202	173	0.3	5.219	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	582	158	1173	0.496	581	1.0	6.063	A
2	824	48	1160	0.711	821	2.4	10.496	B
3	208	658	800	0.259	207	0.3	6.066	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	712	193	1153	0.618	710	1.6	8.081	A
2	1010	59	1154	0.875	995	5.9	21.057	C
3	254	798	721	0.353	254	0.5	7.683	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	712	194	1153	0.618	712	1.6	8.171	A
2	1010	59	1153	0.875	1008	6.4	24.009	C
3	254	808	716	0.355	254	0.5	7.799	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	582	159	1173	0.496	584	1.0	6.139	A
2	824	49	1160	0.711	840	2.6	11.749	B
3	208	673	792	0.262	208	0.4	6.178	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	487	133	1188	0.410	488	0.7	5.158	A
2	690	41	1164	0.593	695	1.5	7.735	A
3	174	557	857	0.203	174	0.3	5.274	A

2033 with Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
2	A628 Whinby Road / Higham Lane	Standard Roundabout	21.57	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D14	2033 with Dev	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	952	100.000
2		✓	715	100.000
3		✓	260	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	880	72
	2	518	0	197
	3	64	196	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.92	34.32	9.3	D
2	0.69	10.12	2.2	B
3	0.34	6.39	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	717	147	1180	0.608	711	1.5	7.583	A
2	538	54	1157	0.465	535	0.9	5.759	A
3	196	387	953	0.205	195	0.3	4.745	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	856	176	1163	0.736	851	2.7	11.381	B
2	643	64	1151	0.559	641	1.2	7.046	A
3	234	465	909	0.257	233	0.3	5.325	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1048	215	1140	0.919	1026	8.2	27.290	D
2	787	78	1143	0.689	784	2.1	9.918	A
3	286	568	851	0.336	286	0.5	6.361	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1048	216	1140	0.919	1044	9.3	34.319	D
2	787	79	1142	0.689	787	2.2	10.122	B
3	286	570	850	0.337	286	0.5	6.389	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	856	177	1162	0.736	882	2.9	13.868	B
2	643	67	1149	0.559	646	1.3	7.208	A
3	234	468	907	0.258	234	0.3	5.355	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	717	148	1179	0.608	722	1.6	7.971	A
2	538	55	1156	0.466	540	0.9	5.856	A
3	196	391	951	0.206	196	0.3	4.775	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.1.4646 []
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Filename: Junction 3.j9
Path: \\UKLDS2PFPSW001.na.aecomnet.com\LE_PROJECTS\Transport Projects\Higham Lane Barnsley\J3 - Higham Lane_Capitol Cl\May 2020 Update
Report generation date: 08/05/2020 10:37:18

»2019 Base Re-Distributed, AM
»2019 Base Re-Distributed, PM
»2021 Do Minimum , AM
»2021 Do Minimum , PM
»2026 Do Minimum, AM
»2026 Do Minimum , PM
»2026 Do Something, AM
»2026 Do Something, PM
»2033 Do Minimum, AM
»2033 Do Minimum, PM
»2033 with Dev, AM
»2033 with Dev, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2019 Base Re-Distributed								
Arm 1	0.3	3.25	0.25	A	0.2	2.89	0.15	A
Arm 2	0.1	3.29	0.13	A	0.1	3.02	0.11	A
Arm 3	0.4	4.07	0.26	A	1.0	5.89	0.49	A
Arm 4	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2021 Do Minimum								
Arm 1	0.4	3.52	0.31	A	0.2	3.03	0.18	A
Arm 2	0.2	3.46	0.14	A	0.1	3.09	0.12	A
Arm 3	0.4	4.31	0.28	A	1.0	6.25	0.51	A
Arm 4	0.0	3.12	0.02	A	0.1	3.71	0.06	A
2026 Do Minimum								
Arm 1	0.5	3.63	0.33	A	0.2	3.09	0.19	A
Arm 2	0.2	3.55	0.16	A	0.1	3.15	0.13	A
Arm 3	0.4	4.44	0.30	A	1.2	6.79	0.55	A
Arm 4	0.0	3.16	0.02	A	0.1	3.80	0.06	A
2026 Do Something								
Arm 1	0.6	4.01	0.39	A	0.3	3.23	0.22	A
Arm 2	0.2	3.78	0.18	A	0.2	3.24	0.14	A
Arm 3	0.6	4.95	0.38	A	1.7	8.17	0.63	A
Arm 4	0.0	3.28	0.02	A	0.1	3.99	0.07	A
2033 Do Minimum								
Arm 1	1.2	5.61	0.55	A	1.3	5.85	0.57	A
Arm 2	0.3	4.63	0.25	A	0.3	4.65	0.25	A
Arm 3	2.2	10.01	0.69	B	3.3	13.45	0.78	B
Arm 4	0.0	3.96	0.03	A	0.1	4.42	0.07	A
2033 with Dev								
Arm 1	1.3	5.86	0.57	A	2.7	9.65	0.74	A
Arm 2	0.4	4.79	0.27	A	0.5	6.00	0.34	A
Arm 3	9.2	33.21	0.92	D	15.5	51.53	0.96	F
Arm 4	0.0	4.62	0.03	A	0.1	5.10	0.08	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	J3 Proposed
Location	Higham Lane / Capitol Close
Site number	
Date	20/02/2019
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	EU\henry.eyre
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base Re-Distributed	AM	ONE HOUR	07:45	09:15	15
D2	2019 Base Re-Distributed	PM	ONE HOUR	16:45	18:15	15
D3	2021 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D4	2021 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D5	2026 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D6	2026 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D7	2026 Do Something	AM	ONE HOUR	07:45	09:15	15
D8	2026 Do Something	PM	ONE HOUR	16:45	18:15	15
D9	2033 Do Minimum	AM	ONE HOUR	07:45	09:15	15
D10	2033 Do Minimum	PM	ONE HOUR	16:45	18:15	15
D11	2033 with Dev	AM	ONE HOUR	07:45	09:15	15
D12	2033 with Dev	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019 Base Re-Distributed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	3.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Capitol Close (E)	
2	Higham Lane (S)	
3	Higham Lane (W)	
4	Proposed Access (N)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	4.32	4.90	26.7	21.5	60.0	17.8	
2	4.11	4.70	2.0	30.7	60.1	9.3	
3	3.32	4.04	2.2	40.0	60.0	14.8	
4	3.89	4.45	2.8	21.3	60.0	16.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.542	1541
2	0.537	1456
3	0.490	1198
4	0.508	1345

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019 Base Re-Distributed	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	338	100.000
2		✓	148	100.000
3		✓	284	100.000
4		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	338	0
	2	0	0	148	0
	3	179	105	0	0
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.25	3.25	0.3	A
2	0.13	3.29	0.1	A
3	0.26	4.07	0.4	A
4	0.00	0.00	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	254	79	1498	0.170	254	0.2	2.892	A
2	111	254	1320	0.084	111	0.1	2.977	A
3	214	0	1198	0.178	213	0.2	3.651	A
4	0	213	1237	0.000	0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	304	94	1489	0.204	304	0.3	3.035	A
2	133	304	1293	0.103	133	0.1	3.102	A
3	255	0	1198	0.213	255	0.3	3.818	A
4	0	255	1215	0.000	0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	372	115	1478	0.252	372	0.3	3.254	A
2	163	372	1257	0.130	163	0.1	3.290	A
3	313	0	1198	0.261	312	0.4	4.065	A
4	0	312	1186	0.000	0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	372	116	1478	0.252	372	0.3	3.254	A
2	163	372	1256	0.130	163	0.1	3.291	A
3	313	0	1198	0.261	313	0.4	4.066	A
4	0	313	1186	0.000	0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	304	95	1489	0.204	304	0.3	3.040	A
2	133	304	1293	0.103	133	0.1	3.103	A
3	255	0	1198	0.213	256	0.3	3.824	A
4	0	256	1215	0.000	0	0.0	0.000	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	254	79	1498	0.170	255	0.2	2.896	A
2	111	255	1320	0.084	112	0.1	2.981	A
3	214	0	1198	0.178	214	0.2	3.659	A
4	0	214	1236	0.000	0	0.0	0.000	A

2019 Base Re-Distributed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	4.76	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2019 Base Re-Distributed	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	196	100.000
2		✓	135	100.000
3		✓	533	100.000
4		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	196	0
	2	0	0	135	0
	3	397	136	0	0
	4	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.15	2.89	0.2	A
2	0.11	3.02	0.1	A
3	0.49	5.89	1.0	A
4	0.00	0.00	0.0	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	148	102	1485	0.099	147	0.1	2.690	A
2	102	147	1377	0.074	101	0.1	2.821	A
3	401	0	1198	0.335	399	0.5	4.497	A
4	0	399	1142	0.000	0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	176	122	1474	0.120	176	0.1	2.772	A
2	121	176	1362	0.089	121	0.1	2.901	A
3	479	0	1198	0.400	479	0.7	5.000	A
4	0	479	1102	0.000	0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	216	149	1460	0.148	216	0.2	2.893	A
2	149	216	1341	0.111	149	0.1	3.019	A
3	587	0	1198	0.490	586	0.9	5.870	A
4	0	586	1047	0.000	0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	216	150	1459	0.148	216	0.2	2.894	A
2	149	216	1340	0.111	149	0.1	3.019	A
3	587	0	1198	0.490	587	1.0	5.891	A
4	0	587	1047	0.000	0	0.0	0.000	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	176	123	1474	0.120	176	0.1	2.775	A
2	121	176	1362	0.089	121	0.1	2.904	A
3	479	0	1198	0.400	480	0.7	5.024	A
4	0	480	1101	0.000	0	0.0	0.000	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	148	103	1485	0.099	148	0.1	2.691	A
2	102	148	1377	0.074	102	0.1	2.822	A
3	401	0	1198	0.335	402	0.5	4.526	A
4	0	402	1141	0.000	0	0.0	0.000	A

2021 Do Minimum , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	3.76	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2021 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	410	100.000
2		✓	158	100.000
3		✓	300	100.000
4		✓	23	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	352	56
	2	0	0	153	5
	3	192	108	0	0
	4	21	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.31	3.52	0.4	A
2	0.14	3.46	0.2	A
3	0.28	4.31	0.4	A
4	0.02	3.12	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	309	82	1496	0.206	308	0.3	3.026	A
2	119	306	1292	0.092	119	0.1	3.068	A
3	226	46	1175	0.192	225	0.2	3.784	A
4	17	225	1230	0.014	17	0.0	2.966	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	369	99	1487	0.248	368	0.3	3.218	A
2	142	367	1259	0.113	142	0.1	3.220	A
3	270	55	1171	0.230	269	0.3	3.992	A
4	21	269	1208	0.017	21	0.0	3.031	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	451	121	1475	0.306	451	0.4	3.513	A
2	174	449	1215	0.143	174	0.2	3.456	A
3	330	67	1165	0.284	330	0.4	4.309	A
4	25	330	1177	0.022	25	0.0	3.124	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	451	121	1475	0.306	451	0.4	3.516	A
2	174	449	1215	0.143	174	0.2	3.457	A
3	330	67	1165	0.284	330	0.4	4.312	A
4	25	330	1177	0.022	25	0.0	3.125	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	369	99	1487	0.248	369	0.3	3.223	A
2	142	367	1259	0.113	142	0.1	3.222	A
3	270	55	1171	0.230	270	0.3	3.997	A
4	21	270	1208	0.017	21	0.0	3.032	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	309	83	1496	0.206	309	0.3	3.033	A
2	119	307	1291	0.092	119	0.1	3.070	A
3	226	46	1175	0.192	226	0.2	3.792	A
4	17	226	1230	0.014	17	0.0	2.968	A

2021 Do Minimum , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	4.87	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2021 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	240	100.000
2		✓	141	100.000
3		✓	552	100.000
4		✓	59	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	6	209	25
	2	0	0	139	2
	3	412	140	0	0
	4	48	11	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.18	3.03	0.2	A
2	0.12	3.09	0.1	A
3	0.51	6.25	1.0	A
4	0.06	3.71	0.1	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	181	113	1479	0.122	180	0.1	2.769	A
2	106	176	1362	0.078	106	0.1	2.865	A
3	416	20	1188	0.350	413	0.5	4.637	A
4	44	413	1135	0.039	44	0.0	3.301	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	216	136	1467	0.147	216	0.2	2.876	A
2	127	210	1343	0.094	127	0.1	2.958	A
3	496	24	1186	0.418	496	0.7	5.208	A
4	53	496	1093	0.049	53	0.1	3.460	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	264	166	1451	0.182	264	0.2	3.033	A
2	155	257	1318	0.118	155	0.1	3.095	A
3	608	30	1183	0.514	606	1.0	6.227	A
4	65	606	1037	0.063	65	0.1	3.704	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	264	166	1450	0.182	264	0.2	3.034	A
2	155	258	1318	0.118	155	0.1	3.095	A
3	608	30	1183	0.514	608	1.0	6.254	A
4	65	608	1036	0.063	65	0.1	3.706	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	216	136	1467	0.147	216	0.2	2.877	A
2	127	211	1343	0.094	127	0.1	2.959	A
3	496	24	1186	0.418	498	0.7	5.240	A
4	53	498	1092	0.049	53	0.1	3.464	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	181	114	1479	0.122	181	0.1	2.773	A
2	106	176	1362	0.078	106	0.1	2.866	A
3	416	20	1188	0.350	416	0.5	4.669	A
4	44	416	1133	0.039	44	0.0	3.308	A

2026 Do Minimum, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	3.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2026 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	435	100.000
2		✓	169	100.000
3		✓	321	100.000
4		✓	23	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	377	56
	2	0	0	164	5
	3	205	116	0	0
	4	21	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.33	3.63	0.5	A
2	0.16	3.55	0.2	A
3	0.30	4.44	0.4	A
4	0.02	3.16	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	327	88	1493	0.219	326	0.3	3.084	A
2	127	325	1282	0.099	127	0.1	3.117	A
3	242	46	1175	0.206	241	0.3	3.847	A
4	17	241	1222	0.014	17	0.0	2.986	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	391	106	1483	0.264	391	0.4	3.295	A
2	152	389	1247	0.122	152	0.1	3.285	A
3	289	55	1171	0.246	288	0.3	4.077	A
4	21	288	1198	0.017	21	0.0	3.056	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	479	130	1470	0.326	478	0.5	3.627	A
2	186	476	1201	0.155	186	0.2	3.547	A
3	353	67	1165	0.303	353	0.4	4.432	A
4	25	353	1165	0.022	25	0.0	3.157	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	479	130	1470	0.326	479	0.5	3.631	A
2	186	477	1200	0.155	186	0.2	3.548	A
3	353	67	1165	0.303	353	0.4	4.435	A
4	25	353	1165	0.022	25	0.0	3.157	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	391	106	1483	0.264	392	0.4	3.299	A
2	152	390	1247	0.122	152	0.1	3.290	A
3	289	55	1171	0.246	289	0.3	4.083	A
4	21	289	1198	0.017	21	0.0	3.057	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	327	89	1492	0.219	328	0.3	3.091	A
2	127	326	1281	0.099	127	0.1	3.119	A
3	242	46	1175	0.206	242	0.3	3.859	A
4	17	242	1222	0.014	17	0.0	2.988	A

2026 Do Minimum , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	5.21	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2026 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	255	100.000
2		✓	151	100.000
3		✓	593	100.000
4		✓	59	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	6	224	25
	2	0	0	149	2
	3	442	151	0	0
	4	48	11	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.19	3.09	0.2	A
2	0.13	3.15	0.1	A
3	0.55	6.79	1.2	A
4	0.06	3.80	0.1	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	192	121	1475	0.130	191	0.1	2.803	A
2	114	187	1356	0.084	113	0.1	2.897	A
3	446	20	1188	0.376	444	0.6	4.824	A
4	44	444	1119	0.040	44	0.0	3.348	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	229	145	1462	0.157	229	0.2	2.920	A
2	136	224	1336	0.102	136	0.1	2.998	A
3	533	24	1186	0.450	532	0.8	5.500	A
4	53	532	1074	0.049	53	0.1	3.524	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	281	178	1444	0.194	281	0.2	3.093	A
2	166	274	1309	0.127	166	0.1	3.148	A
3	653	30	1183	0.552	651	1.2	6.746	A
4	65	651	1014	0.064	65	0.1	3.793	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	281	178	1444	0.194	281	0.2	3.094	A
2	166	274	1309	0.127	166	0.1	3.149	A
3	653	30	1183	0.552	653	1.2	6.786	A
4	65	653	1013	0.064	65	0.1	3.796	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	229	146	1461	0.157	229	0.2	2.924	A
2	136	224	1336	0.102	136	0.1	3.001	A
3	533	24	1186	0.450	535	0.8	5.542	A
4	53	535	1073	0.049	53	0.1	3.528	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	192	122	1474	0.130	192	0.2	2.809	A
2	114	188	1356	0.084	114	0.1	2.898	A
3	446	20	1188	0.376	447	0.6	4.868	A
4	44	447	1117	0.040	44	0.0	3.354	A

2026 Do Something, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	4.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2026 Do Something	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	512	100.000
2		✓	184	100.000
3		✓	397	100.000
4		✓	23	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	454	56
	2	0	0	179	5
	3	266	131	0	0
	4	21	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.39	4.01	0.6	A
2	0.18	3.78	0.2	A
3	0.38	4.95	0.6	A
4	0.02	3.28	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	385	100	1487	0.259	384	0.3	3.261	A
2	139	383	1251	0.111	138	0.1	3.233	A
3	299	46	1175	0.254	298	0.3	4.095	A
4	17	298	1194	0.015	17	0.0	3.059	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	460	119	1476	0.312	460	0.5	3.541	A
2	165	458	1210	0.137	165	0.2	3.444	A
3	357	55	1171	0.305	357	0.4	4.418	A
4	21	357	1164	0.018	21	0.0	3.149	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	564	146	1461	0.386	563	0.6	4.008	A
2	203	561	1155	0.175	202	0.2	3.778	A
3	437	67	1165	0.375	436	0.6	4.937	A
4	25	436	1123	0.023	25	0.0	3.278	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	564	146	1461	0.386	564	0.6	4.010	A
2	203	562	1155	0.175	203	0.2	3.780	A
3	437	67	1165	0.375	437	0.6	4.945	A
4	25	437	1123	0.023	25	0.0	3.279	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	460	120	1476	0.312	461	0.5	3.552	A
2	165	459	1210	0.137	166	0.2	3.450	A
3	357	55	1171	0.305	358	0.4	4.430	A
4	21	358	1163	0.018	21	0.0	3.150	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	385	100	1486	0.259	386	0.4	3.272	A
2	139	384	1250	0.111	139	0.1	3.241	A
3	299	46	1175	0.254	299	0.3	4.110	A
4	17	299	1193	0.015	17	0.0	3.062	A

2026 Do Something, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	6.10	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2026 Do Something	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	287	100.000
2		✓	159	100.000
3		✓	675	100.000
4		✓	59	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	0	262	25
	2	0	0	157	2
	3	503	172	0	0
	4	48	11	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.22	3.23	0.3	A
2	0.14	3.24	0.2	A
3	0.63	8.17	1.7	A
4	0.07	3.99	0.1	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	216	137	1466	0.147	215	0.2	2.876	A
2	120	215	1341	0.089	119	0.1	2.947	A
3	508	20	1188	0.428	505	0.7	5.252	A
4	44	505	1088	0.041	44	0.0	3.448	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	258	164	1452	0.178	258	0.2	3.015	A
2	143	258	1318	0.108	143	0.1	3.063	A
3	607	24	1186	0.512	606	1.0	6.190	A
4	53	606	1037	0.051	53	0.1	3.657	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	316	201	1432	0.221	316	0.3	3.225	A
2	175	316	1287	0.136	175	0.2	3.237	A
3	743	30	1183	0.628	741	1.7	8.088	A
4	65	741	968	0.067	65	0.1	3.984	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	316	201	1431	0.221	316	0.3	3.226	A
2	175	316	1287	0.136	175	0.2	3.237	A
3	743	30	1183	0.628	743	1.7	8.174	A
4	65	743	967	0.067	65	0.1	3.989	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	258	165	1451	0.178	258	0.2	3.020	A
2	143	258	1318	0.108	143	0.1	3.066	A
3	607	24	1186	0.512	609	1.1	6.270	A
4	53	609	1035	0.051	53	0.1	3.665	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	216	138	1466	0.147	216	0.2	2.881	A
2	120	216	1340	0.089	120	0.1	2.949	A
3	508	20	1188	0.428	509	0.8	5.315	A
4	44	509	1086	0.041	44	0.0	3.458	A

2033 Do Minimum, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	7.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2033 Do Minimum	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	723	100.000
2		✓	230	100.000
3		✓	732	100.000
4		✓	23	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	665	56
	2	0	0	225	5
	3	562	170	0	0
	4	21	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.55	5.61	1.2	A
2	0.25	4.63	0.3	A
3	0.69	10.01	2.2	B
4	0.03	3.96	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	544	129	1471	0.370	542	0.6	3.867	A
2	173	540	1166	0.149	172	0.2	3.622	A
3	551	46	1175	0.469	548	0.9	5.704	A
4	17	548	1067	0.016	17	0.0	3.430	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	650	154	1457	0.446	649	0.8	4.451	A
2	207	647	1109	0.187	207	0.2	3.990	A
3	658	55	1171	0.562	656	1.3	6.976	A
4	21	656	1011	0.020	21	0.0	3.633	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	796	189	1438	0.553	794	1.2	5.575	A
2	253	792	1031	0.246	253	0.3	4.626	A
3	806	67	1165	0.692	802	2.2	9.826	A
4	25	802	937	0.027	25	0.0	3.948	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	796	189	1438	0.554	796	1.2	5.607	A
2	253	794	1030	0.246	253	0.3	4.635	A
3	806	67	1165	0.692	806	2.2	10.014	B
4	25	806	935	0.027	25	0.0	3.955	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	650	155	1456	0.446	652	0.8	4.484	A
2	207	650	1107	0.187	207	0.2	4.001	A
3	658	55	1171	0.562	662	1.3	7.120	A
4	21	662	1009	0.021	21	0.0	3.646	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	544	130	1470	0.370	545	0.6	3.895	A
2	173	544	1164	0.149	173	0.2	3.633	A
3	551	46	1175	0.469	553	0.9	5.799	A
4	17	553	1064	0.016	17	0.0	3.439	A

2033 Do Minimum, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	9.07	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2033 Do Minimum	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	730	100.000
2		✓	231	100.000
3		✓	833	100.000
4		✓	59	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	6	699	25
	2	0	0	229	2
	3	640	193	0	0
	4	48	11	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.57	5.85	1.3	A
2	0.25	4.65	0.3	A
3	0.78	13.45	3.3	B
4	0.07	4.42	0.1	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	550	153	1458	0.377	547	0.6	3.943	A
2	174	543	1165	0.149	173	0.2	3.629	A
3	627	20	1188	0.528	623	1.1	6.320	A
4	44	623	1028	0.043	44	0.0	3.657	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	656	183	1441	0.455	655	0.8	4.572	A
2	208	650	1107	0.188	207	0.2	4.000	A
3	749	24	1186	0.631	747	1.7	8.147	A
4	53	747	965	0.055	53	0.1	3.945	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	804	223	1420	0.566	802	1.3	5.810	A
2	254	795	1029	0.247	254	0.3	4.642	A
3	917	30	1183	0.775	911	3.2	12.916	B
4	65	911	882	0.074	65	0.1	4.406	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	804	225	1419	0.566	804	1.3	5.851	A
2	254	797	1028	0.247	254	0.3	4.652	A
3	917	30	1183	0.775	917	3.3	13.454	B
4	65	917	879	0.074	65	0.1	4.422	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	656	185	1440	0.456	658	0.8	4.613	A
2	208	653	1106	0.188	208	0.2	4.011	A
3	749	24	1186	0.631	755	1.8	8.476	A
4	53	755	961	0.055	53	0.1	3.965	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	550	154	1457	0.377	551	0.6	3.976	A
2	174	546	1163	0.150	174	0.2	3.643	A
3	627	20	1188	0.528	630	1.1	6.476	A
4	44	630	1025	0.043	44	0.0	3.671	A

2033 with Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	19.18	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D11	2033 with Dev	AM	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	727	100.000
2		✓	251	100.000
3		✓	971	100.000
4		✓	23	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	2	669	56
	2	0	0	246	5
	3	761	210	0	0
	4	21	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.57	5.86	1.3	A
2	0.27	4.79	0.4	A
3	0.92	33.21	9.2	D
4	0.03	4.62	0.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	547	158	1455	0.376	545	0.6	3.946	A
2	189	543	1164	0.162	188	0.2	3.682	A
3	731	46	1175	0.622	725	1.6	7.878	A
4	17	725	977	0.018	17	0.0	3.751	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	654	190	1438	0.455	653	0.8	4.581	A
2	226	651	1107	0.204	225	0.3	4.084	A
3	873	55	1171	0.745	868	2.8	11.700	B
4	21	868	904	0.023	21	0.0	4.076	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	800	229	1417	0.565	799	1.3	5.807	A
2	276	796	1028	0.269	276	0.4	4.780	A
3	1069	67	1165	0.918	1048	8.2	26.716	D
4	25	1048	812	0.031	25	0.0	4.572	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	800	233	1415	0.566	800	1.3	5.861	A
2	276	798	1027	0.269	276	0.4	4.792	A
3	1069	67	1165	0.918	1065	9.2	33.208	D
4	25	1065	804	0.032	25	0.0	4.624	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	654	196	1434	0.456	655	0.8	4.631	A
2	226	654	1105	0.204	226	0.3	4.098	A
3	873	55	1171	0.746	898	3.1	14.223	B
4	21	898	889	0.023	21	0.0	4.147	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	547	161	1453	0.377	548	0.6	3.981	A
2	189	547	1163	0.163	189	0.2	3.701	A
3	731	46	1175	0.622	737	1.7	8.307	A
4	17	737	970	0.018	17	0.0	3.776	A

2033 with Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Junction Delay (s)	Junction LOS
1	Higham Lane / Capitol Close	Standard Roundabout	27.89	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D12	2033 with Dev	PM	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	938	100.000
2		✓	277	100.000
3		✓	1037	100.000
4		✓	59	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	6	907	25
	2	0	0	275	2
	3	818	219	0	0
	4	48	11	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
1	0.74	9.65	2.7	A
2	0.34	6.00	0.5	A
3	0.96	51.53	15.5	F
4	0.08	5.10	0.1	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	706	172	1448	0.488	702	0.9	4.807	A
2	209	698	1081	0.193	208	0.2	4.116	A
3	781	20	1188	0.657	773	1.9	8.535	A
4	44	773	952	0.047	44	0.0	3.965	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	843	205	1429	0.590	841	1.4	6.104	A
2	249	836	1007	0.247	249	0.3	4.744	A
3	932	24	1186	0.786	926	3.4	13.513	B
4	53	926	874	0.061	53	0.1	4.383	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1033	246	1407	0.734	1028	2.7	9.359	A
2	305	1021	908	0.336	304	0.5	5.962	A
3	1142	30	1183	0.965	1106	12.4	35.868	E
4	65	1106	783	0.083	65	0.1	5.014	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	1033	251	1405	0.735	1033	2.7	9.653	A
2	305	1026	905	0.337	305	0.5	5.998	A
3	1142	30	1183	0.965	1129	15.5	51.531	F
4	65	1129	771	0.084	65	0.1	5.098	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	843	217	1423	0.592	848	1.5	6.315	A
2	249	843	1004	0.248	250	0.3	4.781	A
3	932	24	1186	0.786	978	4.0	20.505	C
4	53	978	848	0.063	53	0.1	4.531	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
1	706	175	1446	0.488	708	1.0	4.893	A
2	209	704	1078	0.193	209	0.2	4.144	A
3	781	20	1188	0.657	789	2.0	9.189	A
4	44	789	944	0.047	44	0.0	4.002	A