MOTT MACDONALD

Midland Metro Phase 2 Birmingham Eastside Extension

Update to the Transport Assessment
MMD-300207-HS42-DOC-0000-0002 Rev C

22 September 2017

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Transport for West Midlands

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1 Introduction

1.1 Introduction

This Transport Assessment Addendum (TAA) has been prepared to support to support the application under the Transport and Works Act 1992 for the Midland Metro (Birmingham Eastside Extension) Order". The document updates the Transport Assessment (TA) to take account of changes which have occurred since the submission of the application and to present the results of some additional transport modelling which has been undertaken by the applicant.

Since the submission of the TA in 2016, Birmingham City Council (BCC) completed an update of the Birmingham City Centre Model (BCCM) using the latest version of the SATURN software suite. In addition, new traffic surveys have been carried out. This now provides AM and PM peak traffic flow data which has been used to re-evaluate the impact of BEE during the following scenarios:

- 2016 Base Year
- 2026 Future Year without BEE
- 2026 Future Year with BEE
- 2031 Future Year without BEE
- 2031 Future Year with BEE

This data has been used to update the following assessments:

- Junction capacity assessments.
- EIA traffic and transport chapter, including; Air quality, Noise and Greenhouse Gas assessments.

Each chapter of the TA has been reviewed in detail to ensure all aspects of the assessment are up to date in respect of any changes to the transportation situation since the document was submitted. This document uses the same structure as the TA and where aspects of the document have changed updates to these sections are provided. Table 1 below provides a summary of the Chapters of this update to the TA including details of the aspects which have been revised or amended.

Table 1: Summary of Updates to TA Included in this Document

Chapter / Section	Details of Update
Chapter 1	Setting the scene and overview of changes to TA included in this document
Chapter 2	No change from the TA
Chapter 3	No change from the TA
Chapter 4	No change from the TA
Chapter 5	Updated modelling methodology including derivation of forecast year flows from SATURN model and updates to modelling parameters
Chapter 6	Updates to junction operational assessment results and relative impacts
Chapter 7	Includes information on VISSIM modelling carried out to help understand BEE impacts on bus services
Chapter 8	No change from the TA
Chapter 9	No change from the TA
Chapter 10	No change from the TA

Chapter / Section	Details of Update
Chapter 11	No change from the TA
Chapter 12	No change from the TA
Chapter 13	No change from the TA
Chapter 14	Updates to access and servicing following recent audit / walk through of site issues
Chapter 15	Updates to injury collision data and analysis on account of most recently available 5 year period of data
Chapter 16	No change from TA
Chapter 17	No change from TA
Chapter 18	Revised summary and conclusions from the update to the TA
Appendix A	Updated base year model junction assessments and calibration results
Appendix B	Includes new LMVR and forecasting report produced by Atkins (dated March 2017)
Appendix C	Updated traffic flow diagrams
Appendix D	Updated access and servicing impacts following recent audit
Appendix E	Full injury accident collision data for most recently available 5 year period

It can be seen that the format of this TA update document has changed from the TA resulting in changes to the layout of the document, page, table and figure numbering.

The remainder of this chapter remains unchanged from the TA.

2 The Transport Assessment

This chapter remains unchanged from the TA.

3 Scheme Proposals and Description

This chapter remains unchanged from the TA.

4 Policy Review

This chapter remains unchanged from the TA.

5 Modelling Methodology

5.1 Introduction

Chapter describes the methodology for assessment of the scheme proposals to identify what impact the proposed BEE will have on the highway and its users. This chapter details the updated methodology for carrying out this work and its findings.

This work now utilises the following information:

- Traffic data that was collected in December 2016
- The updated Birmingham City Centre Model (BCCM) using the latest version of the SATURN software suite

An updated version of Chapter 5 of the TA is therefore presented here which explains how the updated traffic flow data has been used.

5.2 Modelling Methodology Overview

To establish the current operation of the identified junctions and calibrate the junction capacity assessment models, traffic turning counts and queue surveys were undertaken utilising traffic counts collected in December 2016 at the on-line and off-line junctions assessed in the TA.

As per the TA the on-line junctions are those directly located on the proposed track alignment, or those affected by associated highway works, and off-line junctions are those not directly impacted by the scheme but identified by BCC for assessment.

2016 Base Year junction capacity assessments were undertaken using the surveyed flows, and the results of these assessments are shown in Appendix A.

The effect of the BEE scheme on the highway network has been determined using the Birmingham City Centre Model (BCCM) which was built using the industry standard modelling software, SATURN (Simulation and Assignment of Traffic in Urban Road Networks).

The SATURN model has been used to derive the following future scenarios in regard to traffic flows along the affected network:

- Do Minimum (DM) – without tram scenario:
  - This has been modelled for the forecast years of 2026 and 2031.
  - The DM scenario includes all committed developments (known schemes with planning consent), committed transport schemes and background traffic growth. These are further detailed in the TA, in Chapter 5.5.
  - The DM represents the future base situation against which the ‘Do Something – with tram’ scenario is compared.
- Do Something (DS) – with tram scenario:
  - This is the DM scenario with the addition of the proposed BEE scheme.
  - The DS scenario has also been modelled for the forecast years of 2026 and 2031.
  - The difference in traffic flows and the changes in traffic routing between the DM and DS models therefore form the basis of assessing the scheme’s impact on traffic for this update to the TA.

Details of all committed developments, future highway schemes and changes to public transport and car park offerings included in the Do Minimum scenario are confirmed in the Birmingham City Centre Model Traffic Forecasting Report produced by Atkins in May 2017. Sections of relevance include the following:

- Section 2.5 Specific Development Sites
- Section 3.1 Future Highway Schemes
- Section 3.2 Bus Routes and Metro Extensions
- Section 3.3 Car Park Closures

The same on-line and off-line junctions have been assessed, in terms of capacity, for the DM and DS scenarios for this TAA. This is discussed in greater detail in Chapter 6.1 of this report. The operation of these junctions has been assessed using detailed traffic models for signal and priority controlled junctions.

5.3 Strategic Level Traffic Modelling

The SATURN model was updated by Atkins, with inputs provided by BCC and TfWM to agree the assumptions behind the update.

Full details of the update process can be found in the 'BCCM Local Model Validation Report', by Atkins (May 2017), which is attached in Appendix B.

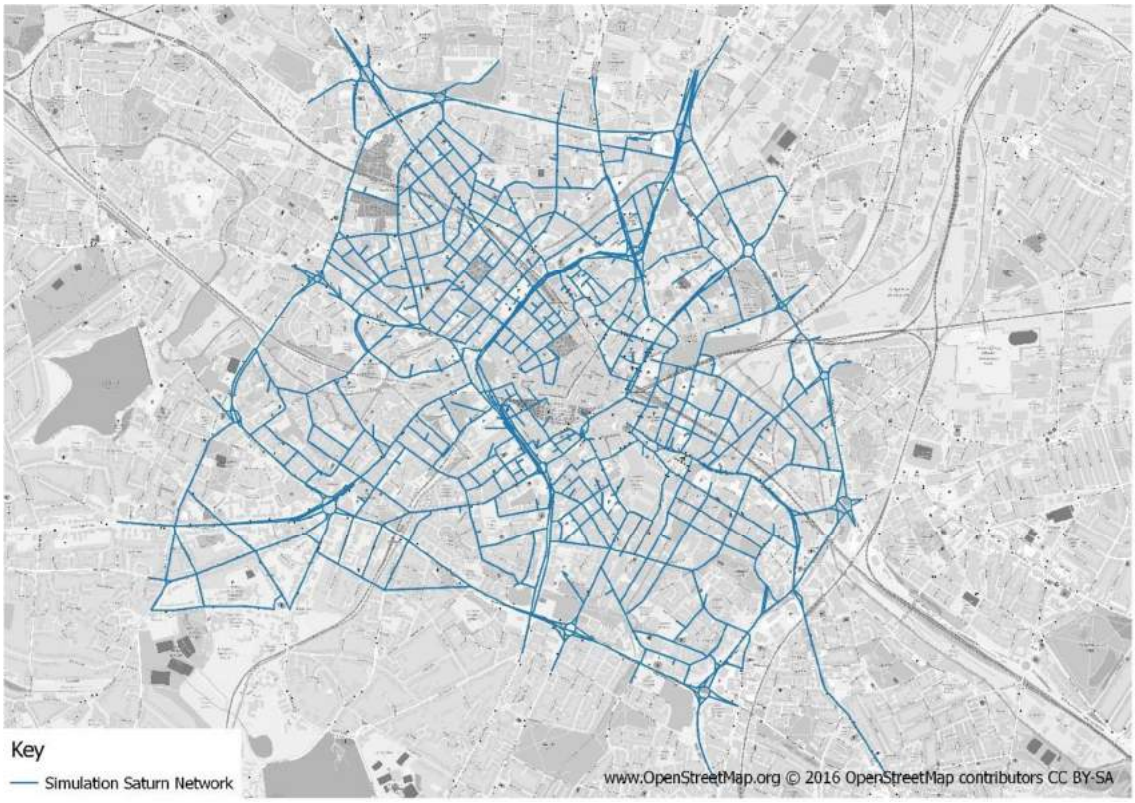
The updated SATURN model has been created from two existing source models:

- PRISM Model (Policy Responsive Integrated Strategy Model) – providing the initial traffic demand
- Birmingham City Centre SATURN model – providing the network.

The SATURN model has a detailed representation of the roads and junctions within and including the Birmingham Ring Road (the modelled network covers central Birmingham Ring Road and is extended by 1km west in the Edgbaston area). The area of which the SATURN model covers is shown in **Figure 1**.

The internal simulation area of the new model is similar to the extents of the previous model and now includes the A4540 Ring Road and part of Hagley Road. Detailed elements of junctions within this area are now reflective of a September 2016 base in order to be consistent with surveys undertaken to inform the calibration/validation of the SATURN model.

Figure 1: SATURN Simulation Network Extent



Source: Atkins (2017)

The SATURN model represents the highway network as a series of links and nodes, with links representing the carriageway and nodes representing the junctions. The modelled area is divided into zones that contain the locations where journeys start (origins) and end (destinations).

The demand is taken from the PRISM model; a four-stage demand model with a public transport, highway assignment and mode choice model. The base demand was taken directly from the PRISM model and adjusted to calculate the peak hours. The model now covers average hours from the following peak periods:

- AM Peak Period (07:30 – 09:30);
- Inter-peak Period (09:30 – 15:30); and
- PM Peak Period (15:30 – 19:00)

For the purposes of this addendum consideration has been given to the average peak hour data for the AM and PM periods.

Buses are coded in SATURN as fixed flows. Matrix estimation was applied to the model to improve the local calibration. In order to calibrate / validate the model, a variety of observed data was used (e.g. traffic counts, journey time data and signal data).

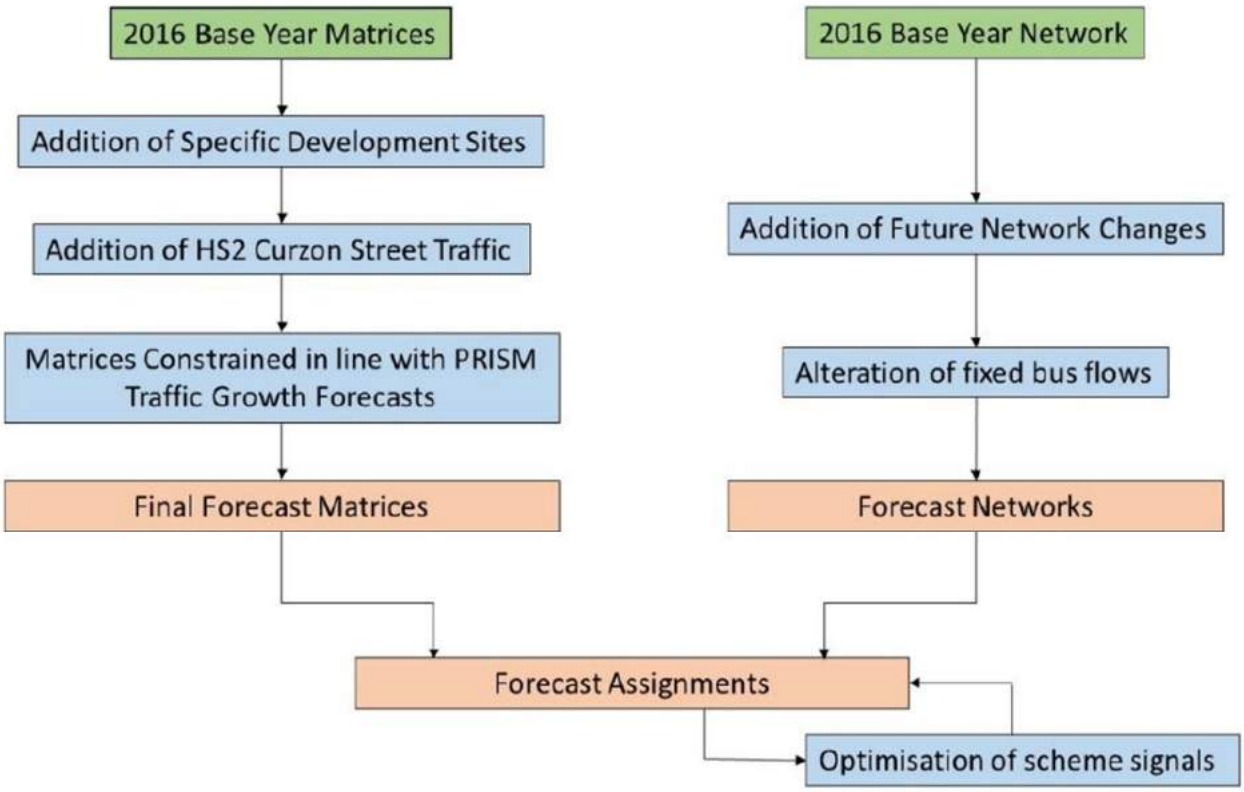
The base year model performance was verified against WebTAG and Design Manual for Road and Bridges (DMRB) guidelines. These guidelines are based on TAG Unit M3.1 – Highway Assignment Modelling (DfT, 2014).

5.4 Forecasting Approach

Full details of the forecast approach adopted by Atkins in contained in Section 2.2 of the Birmingham City Centre Model Traffic Forecasting Report produced in May 2017.

A summary of the process undertaken to produce future year forecasts is represented in Figure 2 below.

Figure 2: Birmingham City Centre Model Forecast Methodology



Source: BCCM Traffic Forecasting Report, May 2017, Atkins – Figure 2-3

5.5 Do Minimum Forecast

As detailed above the Do Minimum scenario includes committed developments, highway improvements and changes to public transport as detailed within Birmingham City Centre Model Traffic Forecasting Report produced by Atkins in May 2017.

5.6 Do Something Forecast

This section remains unchanged from the TA.

5.7 Conclusion

In order to establish the effect of the BEE upon the local highway network, the Birmingham City Centre strategic highway model (based on SATURN software) was used. The SATURN model incorporates the demand outputs from PRISM and was used to derive AM and PM averagehour peak period hour traffic flows for the following future scenarios:

- 2026 Do Minimum – without BEE
- 2026 Do Something – with BEE
- 2031 Do Minimum – without BEE
- 2031 Do Something – with BEE.

The Do Minimum scenario includes committed transport schemes and committed developments for each future year, while comparison with the corresponding Do Something scenario allows the impacts of the BEE scheme to be identified.

The following chapter presents the results of the junction capacity assessments for all future-year scenarios for identified on-line and off-line junctions.

6 Impact on General Traffic

6.1 Introduction

This chapter of the TA update has been updated to make use of more recent traffic survey data and the new SATURN data discussed in Chapter 5. Updates to the junction modelling assessment results is provided in light of the new data available and analysis of the impact of the proposed BEE scheme is updated to reflect the findings of the traffic modelling.

6.2 Traffic Data

6.2.1 Introduction

The changes to this section relate to the new traffic survey data acquired for the 2016 base year junction models. Surveys were carried out by Tracsis during December 2016 on behalf of TfWM. The observed traffic flows are shown in Appendix C.

6.2.2 Surveys Undertaken

The traffic surveys were undertaken at 21 junctions in Birmingham City Centre and Birmingham Eastside. At each site, junction turning counts and queue surveys were undertaken. All surveys were undertaken using video footage. The junction turning counts (JTC) were reported in 15-minute time intervals, classified by mode.

Data collection was conducted on Wednesday 7 December 2016 (07:00-10:00 and 15:00-19:00).

The weekday data collection was conducted on a Wednesday to avoid any interference from weekend related traffic. The surveys were also undertaken during school term time. The methodology behind undertaking the traffic surveys for the purpose of the TA was agreed with BCC during the scoping exercise.

The surveyed sites are as follows:

- Bull Street / Dale End (on-line)
- Albert Street / New Meeting Street (on-line)
- Moor Street Queensway / Albert Street (on-line)
- New Canal Street / Fazeley Street (on-line)
- New Canal Street / Bordesley Street (on-line)
- Meriden Street / Coventry Street (on-line)
- Digbeth B4100 / Meriden Street (on-line)
- Digbeth B4100 / Mill Lane (on-line)
- Digbeth B4100 / Oxford Street (on-line)
- Digbeth B4100 / Rea Street (on-line)
- High Street Deritend / Milk Street (on-line)
- High Street Deritend / Floodgate Street (on-line)
- High Street Deritend / Stone Yard (on-line)
- High Street Deritend / Chapel House Street (on-line)

- High Street Deritend / Heath Mill Lane (on-line)
- High Street Deritend / Alcester Street (on-line)
- High Street Deritend / Adderley Street (on-line)
- Moor Street Queensway / Masshouse Lane (off-line)
- Moor Street Queensway / James Watt Queensway B4114 (off-line)
- Moat Lane Gyratory (off-line)
- Heath Mill Lane / Liverpool Street (off-line).

As stated, for the purpose of assessment, the route has been divided into three sections as follows (also see Error! Reference source not found.):

- Section 1: Corporation Street to Eastside Park
- Section 2: Eastside Park to Meriden Street
- Section 3: Meriden Street to Adderley Street.

The same defined sections have been used in order to analyse the traffic data. The total junction turning counts for the three individual areas were then calculated to find the peak hour for the areas.

6.2.3 Derivation of Peak Period

Peak periods were derived from the 2016 observed traffic data by Pell Frischman. In order to determine the relevant peak hour periods the flows at each site were summed for each 15 minute time period and added together to get hourly flows. The highest of these hourly flows is taken as the peak hour.

The new peaks hours used for operational assessment are

- AM peak - 08:45 – 09:45
- PM peak - 16:15 – 17:15

6.2.4 Traffic Flows for Forecast Junction Capacity Assessments

6.2.4.1 Introduction

SATURN model data has been provided by BCC in order to assess the impact of the Birmingham Eastside Extension upon the local highway network. SATURN data was provided for the following future year scenarios:

- 2026 DM
- 2026 DS
- 2031 DM
- 2031 DS.

The following PCU factors we used for the junction operational analysis:

- Pedal Cycle – 0.2 PCUs
- Motorcycle – 0.4 PCUs
- Passenger Car – 1 PCU
- Taxi – 1 PCU
- LGV – 1 PCU

- OGV1 – 1.5 PCUs
- OGV2 – 2.3 PCUs
- Bus – 2.0 PCUs

The PCU factors outlined above have been applied to the 2016 observed turning counts. From this point forward, flows have been dealt with in PCUs.

6.2.4.2 Modelling Approach

To ensure that the SATURN data was representative of actual traffic flows, it was agreed with BCC that a method which sought to incorporate the SATURN future year scenarios with observed traffic flows should be used where possible. The approach used to derive forecast year demand falls in line with *TAG Unit M4: Forecasting and Uncertainty*.

There are two methodologies which were considered when incorporating the observed traffic flows in the SATURN model flows:

- Proportional – for a particular turning movement, calculating the percentage change between the 2016 SATURN data and future year SATURN data, and applying this to the corresponding turning movement in the 2016 surveyed data.
- Absolute – for a particular turning movement, calculating the difference (in PCUs) between the 2016 SATURN data and future year SATURN data, and adding this to the corresponding turning movement in the 2016 surveyed data.

After applying both methodologies to the given data, limitations were addressed for both methods. For the proportional method, the following was noted:

- An increase from, say, 1 PCUs to 10 PCUs in the SATURN data applied to an observed value of 10 PCUs would result in a forecast of 100 PCUs, whereas using the absolute method this would result in a forecast of 19 PCUs.
- This was observed frequently throughout the data, and the method also resulted in large differences in traffic exiting a junction and entering the next junction.
- For the absolute method, the following was noted:
  - Unlike the proportional method, the absolute method maintains balancing between junctions (traffic flows exiting a junction and entering the next junction are the same).
  - For some turning movements, the method resulted in a negative flow. Specifically, this occurred on 4.1% of the turning movements across all peaks and scenarios. Because of the above point and the relatively low occurrence, it was possible to use judgement and traffic flows at the surrounding junctions to decide on an appropriate flow.

The calculated flows using the combined absolute/proportionate method are referred to in the following Chapter as ‘hybrid’ flows.

In line with the TA and this subsequent update to the TA, the route corridor has been divided into three sections in order to clearly explain the approach taken to generate the future year traffic flows for use in the junction capacity assessments.

6.2.4.3 Section 2 and 3 – New Canal Street / Meriden Street / Digbeth (B4100) / High Street Deritend

The hybrid method has been applied in Sections 2 and 3 of the scheme corridor.

As a result of the hybrid approach, turning movements which are to be banned in the future year scenarios have initially been calculated as non-zero flows. These have been rectified individually once the method has been applied, and balancing has then been undertaken between these junctions. These turning movements include:

- New Canal Street (north of the junction with Fazeley Street) to be one-way southbound in the DM scenarios.
- New Canal Street (north of the junction with Fazeley Street) to be tram-only in the DS scenarios.
- No eastbound movements from Fazeley Street (west of the New Canal Street / Fazeley Street junction) in both the DM and DS scenarios.
- Right-turn from High Street Deritend to Milk Street included in the DM, banned in the DS.
- Right-turn from Rea Street to High Street Deritend included in the DS, banned in the DM.

6.3 Junction Modelling Methodology

Junction capacity assessments have been undertaken for a Base Year (2016) as well as the forecast years 2026 and 2031. LinSig Version 3 and PICADY (within Junctions 9) have been used to model the Base Year and future scenarios. These software programmes are approved by the Department for Transport.

LinSig is a modelling software package for assessing the capacity of signalised junctions. LinSig results refer to the Degree of Saturation (DoS) and Mean Maximum Queue (MMQ) in each lane of the approaches to the junctions. A DoS of 100% indicates that the lane in question is operating at its absolute capacity (point of saturation), whilst a DoS of 90% or less indicates that the lane is operating within its practical capacity. The Practical Reserve Capacity (PRC) is the spare overall junction capacity. It is a function of the DoS of the worst performing lane. A positive PRC indicates that a junction has spare capacity and may be able to accept more traffic. A negative PRC indicates that the junction is over capacity and is suffering from traffic congestion. A junction where the worst performing lane has a DoS of 90% has a PRC of 0%.

There are two priority junctions that need to be modelled on the BEE alignment, and these have been modelled using the industry standard software Junctions 9. Within the Junctions 9 software, the PICADY (Priority Intersection Capacity and Delay) module was used for the following junctions:

- Bull Street / Dale End (2016 Base Year and Do Minimum scenario)
- New Canal Street / Bordesley Street (2016 Base Year and Do Minimum scenario).

Junctions 9 uses a Ratio of Flow to Capacity (RFC) value to indicate the capacity of a junction. Arms with an RFC value of 0.85 or more are generally considered to be operating with a degree of constraint, while values over 1.00 are indicative of a link which is operating above its design standard. A maximum queue length is also recorded for each junction approach, which is recorded in units of PCUs.

Each measure is used to illustrate the existing operation of the junctions and the potential effects of increased traffic flows. Whilst in reality a junction will continue to operate when congestion is predicted, a congested junction would not be expected to clear demand as efficiently as an uncongested junction.

All 2016 Base Year junction models have been validated alongside the 2016 queue surveys, and the validation of the junction models can be found in Appendix A.

In order to effectively model the tram, where the tram runs on shared track at a signal junction, a flow of 58 PCUs was added to the traffic movement. This is based upon the following assumptions:

- 1 PCU length = 5.75m
- Tram length = 33m
- A typical tram will be equal to 5.74 PCUs in length
- The flows were input assuming 10 trams per hour (tph) on the BEE track alignment in each direction.

Where a tram runs on segregated track, no flows were input based upon the assumption that the tram will clear within the minimum green time. Furthermore, where trams run on segregated track, cycle times were adjusted based upon the following principles:

- One tram in each direction every six minutes (360 second cycle where trams run in separate phases, 180 second cycle time where they run in the same phase)
- Average cycle time = 90 seconds
- Therefore, a tram in each direction once every four cycles (6 minutes).

In order to calculate the phase intergreens at the proposed junctions the software package quickGreen was used. quickGreen is a software tool to help signal engineers measure and calculate phase intergreens for traffic signal junctions.

Phase intergreens ensure sufficient clearance times between a stream of traffic stopping and a conflicting stream of traffic starting at a traffic signal junction. quickGreen uses the Department for Transport's Traffic Advisory Leaflet TAL 1/06 which describes the methodology for calculating intergreens. This involves determining conflict points between traffic movements and measuring relative distances traffic movements must travel to reach each conflict point from a scale drawing. TAL 1/06 can then be used to convert this information into intergreen values.

In order to calculate the intergreen for a tram phase, a methodology was adopted which sought to manually increase the conflict distance (by 20 metres) which resultantly increased the intergreen. This ensures a sufficient clearance time for the tram (which is significantly longer than general traffic).

The results of the future year junction models are presented in following sub-chapter (DM and DS results for the forecast years of 2026 and 2031). The full outputs of all the junction capacity assessments are available on request.

6.4 On-line Junctions

6.4.1 Introduction

The following chapter summarises the Do Minimum and Do Something junction modelling results for the on-line junctions. The signal timings (cycle times) have been taken from the 2016 Base Year assessments which are summarised in Appendix A. Where applicable, the LinSig assessments have been updated where geometric changes have occurred in the Do Minimum and Do Something scenarios.

6.4.2 Corporation Street / Bull Street

Bull Street is a one-way single carriageway road that provides access from High Street and Dale End in the south to Corporation Street in a north westerly direction. Bull Street is a bus and

cycle only carriageway. The current BCCE runs from Bull Street to Corporation Street, operating across a newly signalised junction.

6.4.2.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 2**. Based on site observations, stages typically run for their minimum green time of seven seconds due to low demand, which has been reflected in the modelling. The key exception is when a tram approaches and in this case the stage green time will extend for longer until the tram has cleared the junction. For robustness, the minimum possible cycle time has been modelled, which represents a worst case scenario as it results in more inter-stage periods in the hour.

Table 2: Corporation Street / Bull Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Bull Street (north)	Tram Only							
Bull Street (south)	47.7	2.5	47.7	2.5	44.2	2.3	44.2	2.3
Corporation Street	Tram Only							
Cycle Time (s)	**51**		**51**		**51**		**51**	
PRC (%)	**88.8**		**88.8**		**103.8**		**103.8**	

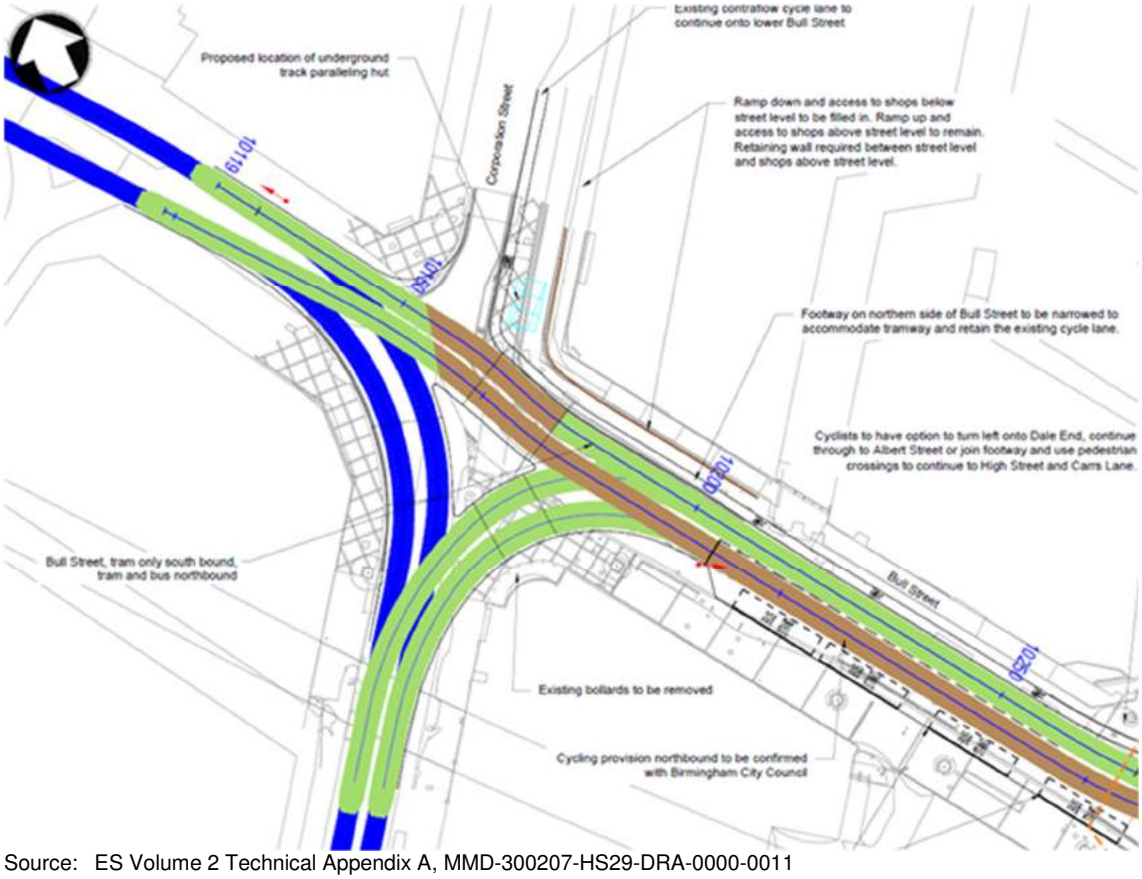
Source: LinSig V3

Table 2 shows that there are no capacity issues in all Do Minimum future year scenarios at the Corporation Street / Bull Street junction.

6.4.2.2 Do Something Assessment

The junction has recently been realigned as part of the BCCE, and the BEE will further the realignment. The BEE begins at the Corporation Street / Bull Street junction, diverging from the existing tram system. The junction is currently signalised, and will remain signalised upon the introduction of the BEE. The junction configuration is shown in **Figure 3**.

Figure 3: Do Something Corporation Street / Bull Street Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0011

The junction will consist of shared and segregated use, with the outbound section of the BEE being segregated. The inbound side of the track will be a shared use track up to and beyond the Corporation Street junction.

Three pedestrian crossings are to be provided at the Corporation Street / Bull Street junction, with a central pedestrian refuge. The 2026 and 2031 DS results are shown in **Table 3**, which shows that there are no capacity issues in all Do Something future year scenarios.

Table 3: Corporation Street / Bull Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Bull Street (north)	Tram Only							
Bull Street (south)	31.7	1.7	31.7	1.7	29.9	1.8	29.9	1.8
Corporation Street	Tram Only							
Cycle Time (s)	**360 (90)**[1]		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**183.8**		**183.8**		**200.8**		**200.8**	

Source: LinSig V3

[1] The cycle time represents a tram phase in each direction every 6 minutes (4 x 90 second cycles; 360 seconds).

The results of the DS scenario assessments indicate the operation of the junction is improved from the DM scenario with the BEE scheme in place. This is partly due to the change in demand at the junction as a result of the traffic rerouting as a result of the new alignment.

6.4.3 Bull Street / Dale End

The Bull Street / Dale End junction is a three-arm priority junction, with Bull Street and High Street comprising the major arm (one-way movement from High Street to Bull Street).

6.4.3.1 Do Minimum Assessment

The DM assessment for Bull Street / Dale End has been undertaken using PICADY in the Junctions 9 software package. The 2026 and 2031 AM DM results are shown in **Table 4**, which shows no capacity issues in all Do Minimum future year scenarios.

Table 4: Bull Street / Dale End DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**
High Street Arm C	0.28	0.5	0.28	0.5	0.36	0.8	0.28	0.5
Dale End Arm B	0.04	0.0	0.04	0.0	0.05	0.0	0.04	0.0
Bull Street Arm A	Exit Only							

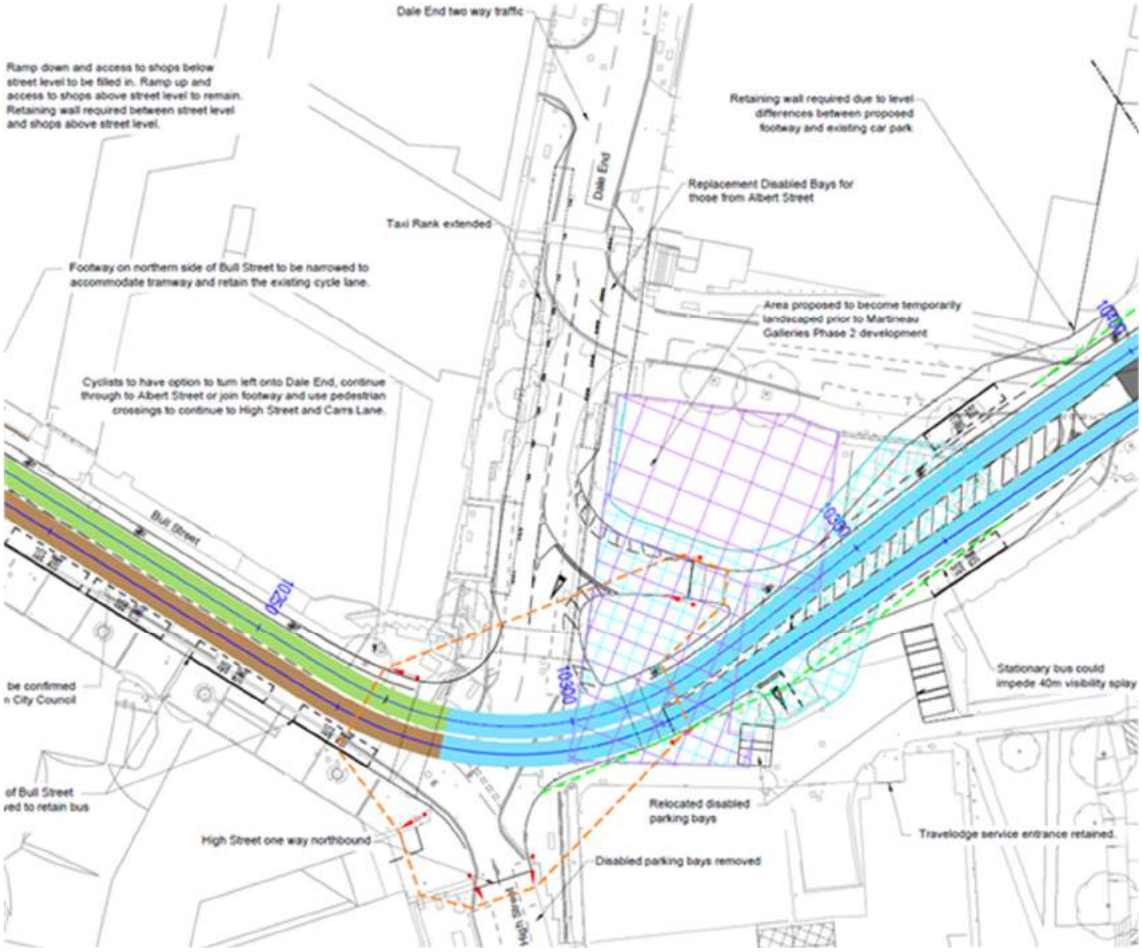
Source: Junctions 9 (PICADY)

6.4.3.2 Do Something Assessment

The tram proposal results in a complete redesign of this junction, turning it into a five-arm signalised junction with pedestrian crossing facilities. The redesigned junction will allow for effective and efficient control of the tram and traffic interface whilst also providing safe crossing facilities for pedestrians across the busiest pedestrian crossing site along the route (see Chapter 11.4.1).

The tram will run to / from Bull Street and Moor Street Queensway via the New Alignment. There is also provision for a signalised service access which is currently a priority junction. The Do Something junction configuration is shown in **Figure 4**.

Figure 4: Do Something Bull Street / Dale End Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0011

As a result of the junction redesign and signalisation, LinSig has been used to model the 2026 and 2031 DS scenarios. The results are shown in **Table 5**.

Table 5: Bull Street / Dale End DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Bull Street	Tram/Cycle Only							
Dale End	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Alignment	39.0	2.6	39.0	2.6	39.5	2.6	39.5	2.6
High Street	50.7	9.1	50.7	9.1	55.3	10.0	55.3	10.0
Service Access	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Time (s)	**360 (90)**		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**75.8**		**75.8**		**62.7**		**62.7**	

Source: LinSig V3

Queuing and delay at the junction will increase in comparison to the Do Minimum scenario due to the signalisation of the junction. However, the analysis shows that the Bull Street / Dale End

junction operates within capacity in all Do Something future year scenarios. For example, from the DM model scenarios there is a maximum queue of 0.8 PCUs (2026 PM peak), whereas there is a maximum modelled queue of 10.0 PCUs in the DS scenarios (2026 and 2031 PM peak).

6.4.4 Moor Street Queensway / Albert Street

Moor Street Queensway is a dual carriageway, with a discontinuous bus lane. It connects Birmingham Moor Street Rail Station in the south to Moor Street Queensway / James Watt Queensway (B4114) in the north. A central reservation separates traffic, whilst also providing a safe crossing point for pedestrians at the Albert Street junction.

The northbound approach to the junction has three lanes, with the nearside lane dedicated for vehicles turning left into Albert Street. North of the junction on both sides of the road there are segregated bus lanes. Approaching the Albert Street / Moor Street Queensway junction in a southbound direction there are two vehicular lanes and one bus lane. The offside lane is dedicated for vehicles turning right onto Albert Street.

BCC has identified Moor Street Queensway for future restrictions to general traffic (making it bus and taxi only) between the Carrs Lane and Albert Street junctions. It is proposed the closure will take effect in 2026 and therefore the closure is applied in each of the 2026 and 2031 forecast years, for both DM and DS scenarios.

As identified in a technical note produced by Atkins (2014), the restriction on Moor Street Queensway is expected to significantly reduce the number of vehicle trips in the city centre. Particularly on High Street Deritend, New Canal Street and Bradford Street.

6.4.4.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 6**.

Table 6 Moor Street Queensway / Albert Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Albert Street	56.8	3.9	54.5	3.7	61.0	5.5	62.3	5.8
Moor Street Queensway (north) Ahead – Lane 1	25.2	3.0	24.5	3.0	31.9	3.6	32.0	3.6
Moor Street Queensway (north) Right/Ahead – Lanes 2/3	27.8	3.8	27.1	3.6	34.9	4.4	34.8	4.4
Moor Street Queensway (south) Left/Ahead – Lane 1	4.5	0.5	6.4	0.7	6.3	0.7	5.9	0.7
Moor Street Queensway (south) Ahead – Lanes 2/3	11.9	1.0	10.3	0.8	11.6	1.0	11.9	1.0
Cycle Time (s)	**78**		**78**		**78**		**78**	
PRC (%)	**58.4**		**65.1**		**47.4**		**44.5**	

Source: LinSig V3

Table 6 shows that there are no capacity issues in all Do Minimum future year scenarios at the Moor Street Queensway / Albert Street junction. The worst case modelled DM scenario for the

Moor Street Queensway / Albert Street junction is the 2031 PM, with a PRC of 44.5%. There is a MMQ of 5.8 PCUs on Albert Street in this scenario.

6.4.4.2 Do Something Assessment

The Moor Street Queensway / Albert Street junction is currently a signalised three-arm junction. The proposed plans result in the closure of Albert Street, although this arm is replaced in the same location by the New Alignment towards the High Street / Bull Street junction (see ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0011).

There is a proposed Bus Interchange outside Hotel La Tour to the east of the junction. Buses and trams are segregated at the Bus Interchange.

Currently a three-arm signalised junction, Moor Street Queensway / Albert Street will become a four-arm signalised junction with the following arms:

- Moor Street Queensway (north)
- Bus Interchange
- Moor Street Queensway (south)
- New Alignment (replacing Albert Street which will be closed as part of the proposals).

The phasing and staging of the junction has been reconfigured in accordance with the BEE proposal. The 2026 and 2031 DS results are shown in **Table 7** which shows that there are no capacity issues in all Do Something future year scenarios.

Table 7: Moor Street Queensway / New Alignment DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
New Alignment	59.7	9.5	59.2	9.1	75.3	18.0	76.1	18.4
Moor Street Queensway (north) Ahead (Lane 1)	42.3	5.6	40.5	5.2	57.8	6.3	60.1	6.4
Moor Street Queensway (north) Ahead/Right (Lane 2)	41.9	5.5	40.2	5.1	57.9	6.3	60.2	6.4
Moor Street Queensway (south) Ahead / Left (Lane 1)	29.3	2.6	31.3	2.5	43.2	2.7	43.2	2.7
Moor Street Queensway (south) Ahead (Lane 2)	29.3	20.6	31.3	2.5	43.2	2.7	43.2	2.7
Moor Street Queensway (south) Ahead (Lane 3)	29.3	2.6	31.3	2.5	43.2	2.7	43.2	2.7
Bus Interchange (bus lane)	54.1	4.2	52.6	4.2	65.3	4.5	65.3	4.5
Bus Interchange (tram lane)	Tram Only							
Cycle Time (s)	**360 (90)**		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**50.7**		**52.0**		**19.5**		**18.2**	

Source: Linsig V3

In comparing the DM and DS model results, the PM results show a deterioration in operation with the introduction of BEE in both 2026 and 2031 forecast year scenarios (for example the PM 2031 DM results show a PRC of 44.5% whilst the PM 2031 DS has a PRC of 18.2%). In contrast, the AM results show less significant operational effects from the introduction of BEE with minor differences to the PRC statistics when compared to the DM results (AM 2026 DM results show a PRC of 58.4% whilst the AM 2026 DS has a PRC of 50.7%). The operational differences during the AM peak is due to the change in traffic flows as a result of the closure of Moor Street Queensway (between Carrs Lane and Albert Street) to general traffic in 2026.

6.4.5 New Canal Street / Fazeley Street

This four-armed signalised junction provides access north to south along New Canal Street and east to west along Fazeley Street. There are no signalised pedestrian crossing facilities. Bartholomew Street is also accessible at this junction, with a junction 15m west of the junction along Fazeley Street.

6.4.5.1 Do Minimum Assessment

As part of the DM proposals and as a result of the development of the HS2 station, Fazeley Street (west) will become one-way in a westbound direction. Fazeley Street will provide access to the HS2 station only. The 2026 and 2031 DM results are shown in **Table 8**, which shows that there are no capacity issues in all Do Minimum future year scenarios.

Table 8: New Canal Street / Fazeley Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
New Canal Street (north)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fazeley Street (east)	22.0	2.2	22.1	2.2	31.4	3.9	31.4	4.0
New Canal Street (south)	21.9	1.3	21.6	1.3	30.2	2.6	30.4	2.6
Fazeley Street (west)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Time (s)	**68**		**68**		**73**		**73**	
PRC (%)	**308.6**		**307.2**		**187.0**		**186.2**	

Source: LinSig V3

The junction operates under most constraint in the 2031 PM scenario, with a PRC of 186.2%. A MMQ of 4.0 PCUs is modelled on the Fazeley Street (east) arm.

6.4.5.2 Do Something Assessment

The existing junction format will remain, although the northern arm (New Canal Street) will be tram-only. The staging of the junction has been reconfigured accordingly, with tram phases running every 6 minutes in each direction. The 2026 and 2031 DS results are shown in **Table 9**, which shows that there are no capacity issues in all Do Minimum future year scenarios.

Table 9: New Canal Street / Fazeley Street 2026 DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
New Canal Street (north)	Tram Only							
Fazeley Street (east)	33.4	4.4	34.3	4.3	36.1	4.4	36.6	4.6
New Canal Street (south)	33.4	3.8	34.1	4.1	36.3	3.7	36.2	3.6
Fazeley Street (west)	Exit Only							
Cycle Time (s)	**360 (90)**		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**169.2**		**162.2**		**148.3**		**145.9**	

Source: LinSig V3

Due to the reconfiguration of the junction and banning of traffic movements (from New Canal Street north which is proposed to be tram only) the junction operates with significant spare capacity during each of the modelled scenarios with the introduction of BEE. Whilst there are marginal increases to predicted queueing with the BEE scheme in place the modelled MMQ lengths are considered minimal and are not considered to represent a severe impact (MMQ increases from 4.0 PCUs to 4.6 PCUs from the in the DM 2031 PM DS 2031 PM).

6.4.6 New Canal Street / Bordesley Street

The existing junction is a priority crossroads with New Canal Street at the northern arm, Bordesley Street running east to west and Meriden Street to the south.

All movements are allowed at all arms, with Bordesley Street traffic giving way to New Canal Street / Meriden Street.

6.4.6.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 10**.

Table 10: New Canal Street / Bordesley Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**
New Canal Street (north)	0.04	0.1	0.04	0.1	0.06	0.1	0.06	0.1
Bordesley Street (east)	0.15	0.2	0.13	0.2	0.14	0.2	0.14	0.2
New Canal Street (south)	0.08	0.1	0.08	0.1	0.08	0.1	0.08	0.1
Bordesley Street (west)	0.15	0.2	0.15	0.2	0.26	0.4	0.26	0.4

Source: Junctions 9 (PICADY)

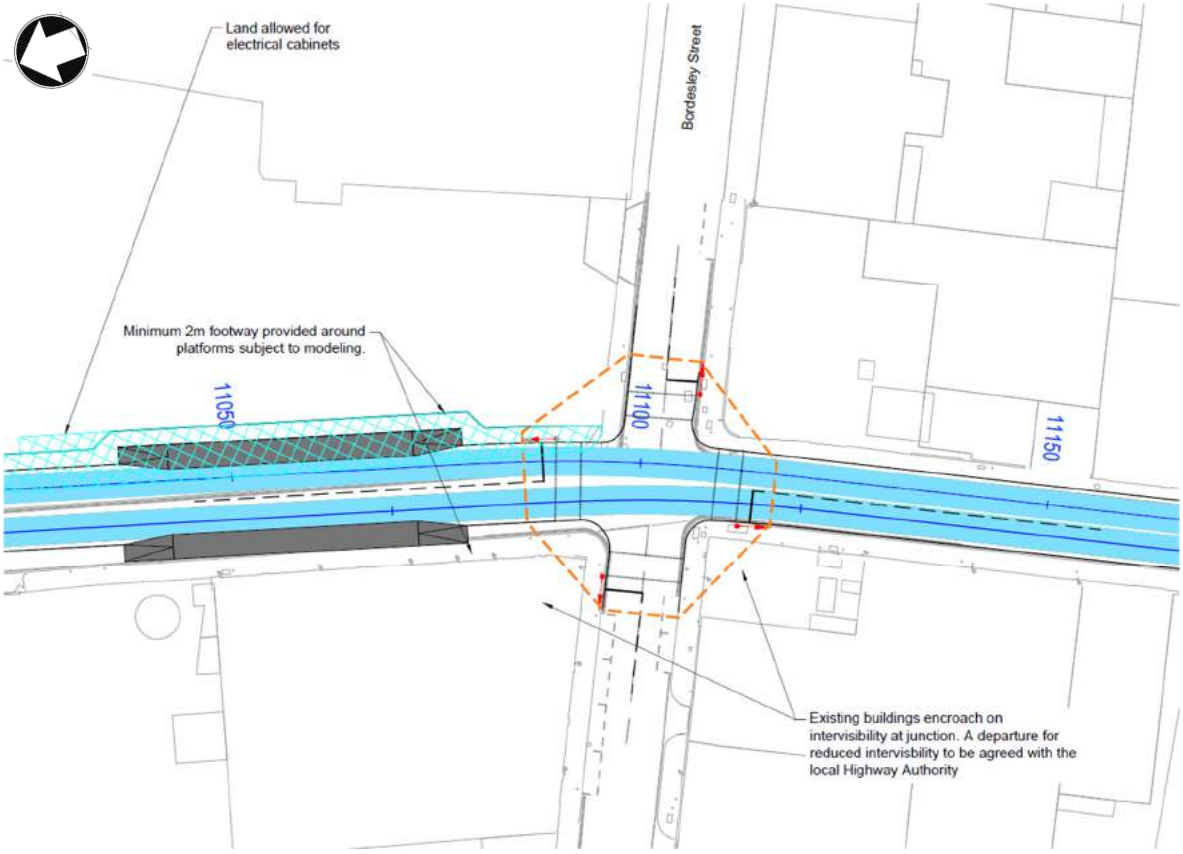
Table 10 shows the 2026 and 2031 DM results are in, indicating there are no capacity issues in all Do Minimum future year scenarios.

6.4.6.2 Do Something Assessment

The New Canal Street / Bordesley Street junction is to be reconfigured as a signalised junction in the DS scenario. This is due to safety concerns with locating the tram stops within proximity

to a priority junction. **Figure 5** shows the proposed junction configuration and location of the tram stops.

Figure 5: Do Something New Canal Street / Bordesley Street Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0014

The 2026 and 2031 DS results are shown in **Table 11**, which shows the New Canal Street / Bordesley Street junction to operate within capacity in all Do Something future year scenarios.

Table 11: New Canal Street / Bordesley Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
New Canal Street	63.9	8.6	64.5	8.6	65.6	9.8	66.7	10.2
Bordesley Street (east)	63.1	5.8	64.4	5.8	53.0	4.0	49.5	3.6
Meriden Street	63.2	5.7	65.0	6.2	66.0	5.7	67.3	6.1
Bordesley Street (west)	33.4	2.9	34.6	2.9	65.1	5.6	66.0	5.7
Cycle Time (s)	**360 (90)**		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**40.9**		**38.4**		**36.5**		**33.8**	

Source: Linsig V3

The junction operates under most constraint in the 2031 PM scenario, with a PRC of 33.8%. There is a MMQ of 10.2 PCUs in this scenario (on New Canal Street), which would not be

expected to block back to another junction. Increases in queueing is evident at the junction with the BEE scheme in place which would be expected with the use of traffic signal control in place of the existing priority junction operation.

6.4.7 Digbeth B4100 / Meriden Street

Digbeth (B4100) / Meriden Street is a three-arm priority junction, with Meriden Street being a left-in, left-out arrangement. The junction is signalised.

6.4.7.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 12**, which shows the Digbeth (B4100) / Meriden Street junction to operate within capacity in all Do Minimum future year scenarios.

Table 12: Digbeth B4100 / Meriden Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Digbeth B4100 (west) Ahead/Left (Lane 1)	47.7	5.6	47.4	5.5	70.4	9.1	71.1	8.4
Digbeth B4100 (west) Ahead (Lane 2/3)	33.9	2.4	34.2	2.4	53.3	5.5	53.8	4.7
Meriden Street	49.7	3.5	50.9	3.6	69.6	4.9	69.8	4.8
Cycle Time (s)	**180**		**180**		**165**		**165**	
PRC (%)	**81.3**		**76.7**		**29.3**		**28.9**	

Source: Linsig V3

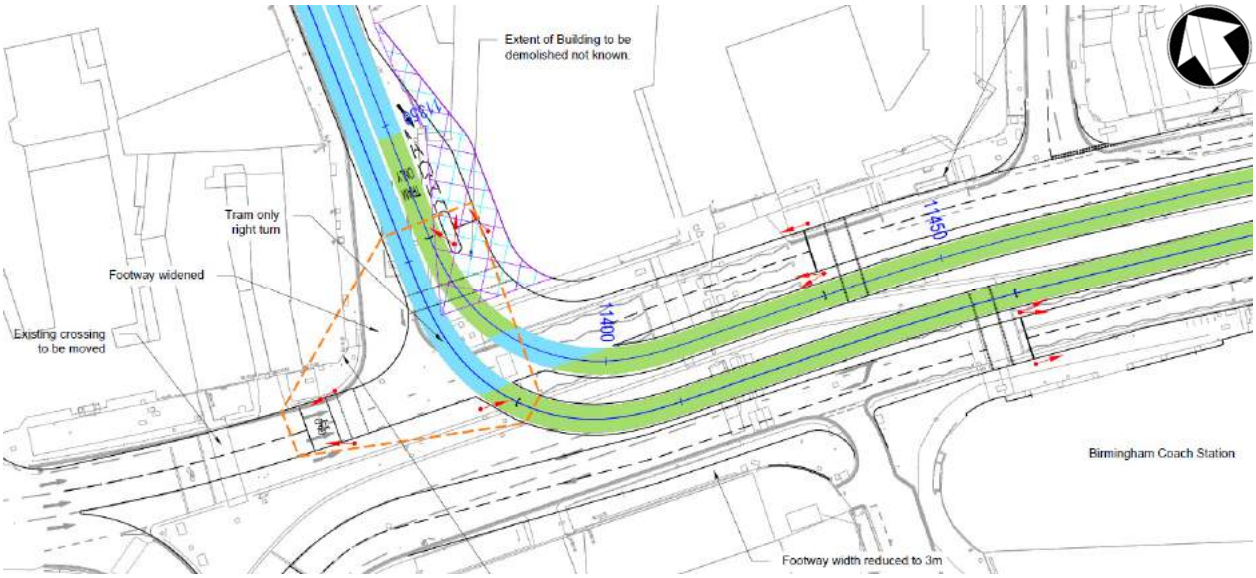
The PM 2031 scenario operates under most constraint, with a PRC of 28.9%. The results indicate during PM peak queueing is likely to block back into the Moat Lane gyratory and potentially block vehicles entering the gyratory from Allison Street. The results show maximum MMQ of 9.1 PCUs for the 2026 PM peak and 8.4 PCUs in the 2031 PM peak scenario. This queue is recorded on the Digbeth B4100 (west) ahead/left lane.

6.4.7.2 Do Something Assessment

The junction will remain signalised although with two-lanes at the Meriden Street stop line (one for the tram and one for vehicles). The flared lane for vehicular traffic is provided on safety grounds to direct general traffic away from the segregated tramway. A signalised pedestrian crossing is also to be included as part of the BEE scheme.

Figure 6 shows the proposed junction configuration.

Figure 6: Do Something Digbeth (B4100) / Meriden Street Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0015

The 2026 and 2031 DS results are shown in **Table 13**, which shows the Digbeth (B4100) / Meriden Street junction to operate within capacity in all Do Something future year scenarios.

Table 13: Digbeth B4100 / Meriden Street 2026 DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Digbeth B4100 (west) Ahead/Left (Lane 1)	47.7	11.2	48.6	11.3	72.3	18.0	73.0	18.7
Digbeth B4100 (west) Ahead (Lane 2)	42.0	10.1	43.1	10.2	70.8	18.6	71.5	19.2
Meriden Street	69.3	8.2	69.3	8.1	71.8	12.3	72.5	12.6
Cycle Time (s)	**360 (90)**		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**30.0**		**30.0**		**24.6**		**23.3**	

Source: Linsig V3

The results indicate the junction operates within capacity in all modelled scenarios however, there are generally larger modelled queues in comparison to the DM model results, which are also expected to block back into Allison Street. Due to the stop line being moved closer to Meriden Street, the effect of the blocking back into the Moat Lane gyratory is minimised. Whilst a queue is likely block back across Allison Street, the queue will clear during each cycle, during which time the relatively low flow of vehicles from Allison Street will be able to exit the junction. Should blocking of Allison Street become problematic 'Keep Clear' road markings can be installed to help assist motorists exit from the Allison Street junction.

6.4.8 Digbeth B4100 / Rea Street

The Digbeth (B4100) / Rea Street junction provides access to Rea Street from Digbeth (B4100) in the west and High Street Deritend in the east. Rea Street is left-turn only onto Digbeth (B4100).

The traffic controller for this junction includes the junction of High Street Deritend / Milk Street. The LinSig assessment of Rea Street was therefore modelled alongside the High Street Deritend / Milk Street (signalised) and High Street Deritend / Floodgate Street (priority) junctions.

6.4.8.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 14**, which shows the Digbeth (B4100) / Rea Street junction to operate within capacity in all Do Minimum future year scenarios.

Table 14: Digbeth B4100 / Rea Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
High Street Deritend (east) Left/Ahead (Lane 1)	69.0	5.7	71.6	6.1	78.1	4.9	80.3	5.5
High Street Deritend (east) Ahead (Lane 2/3)	48.4	3.8	50.1	4.0	73.5	5.1	72.5	5.2
High Street Deritend (east) Right/U-Turn (Lane 4)	63.8	8.3	67.0	9.0	73.9	9.5	80.3	11.1
Rea Street Left	7.3	0.8	7.7	0.8	27.8	3.1	25.8	2.9
Digbeth (B4100 west) Ahead/Left (Lane 1)	42.7	3.0	46.0	3.1	20.2	1.8	19.9	1.7
Digbeth (B4100 west) Ahead (Lane 2/3)	45.9	2.9	48.9	3.0	70.6	6.1	78.3	8.6
Digbeth (B4100 west) Right/U-Turn (Lane 4)	72.8	10.9	73.1	11.0	76.5	11.7	79.3	12.4
Cycle Time (s)	**83/61**		**83/61**		**77/61**		**77/61**	
PRC (%)	**23.7**		**23.2**		**15.2**		**12.1**	

Source: Linsig V3

The junction operates under the highest degree of constraint in the 2031 PM scenario with a PRC of 12.1%, and a worst case MMQ of 12.4 PCUs (on the right-turn segregated lane into Rea Street). A queue of 12.4 PCUs is not likely to block the ahead traffic on Digbeth (B4100).

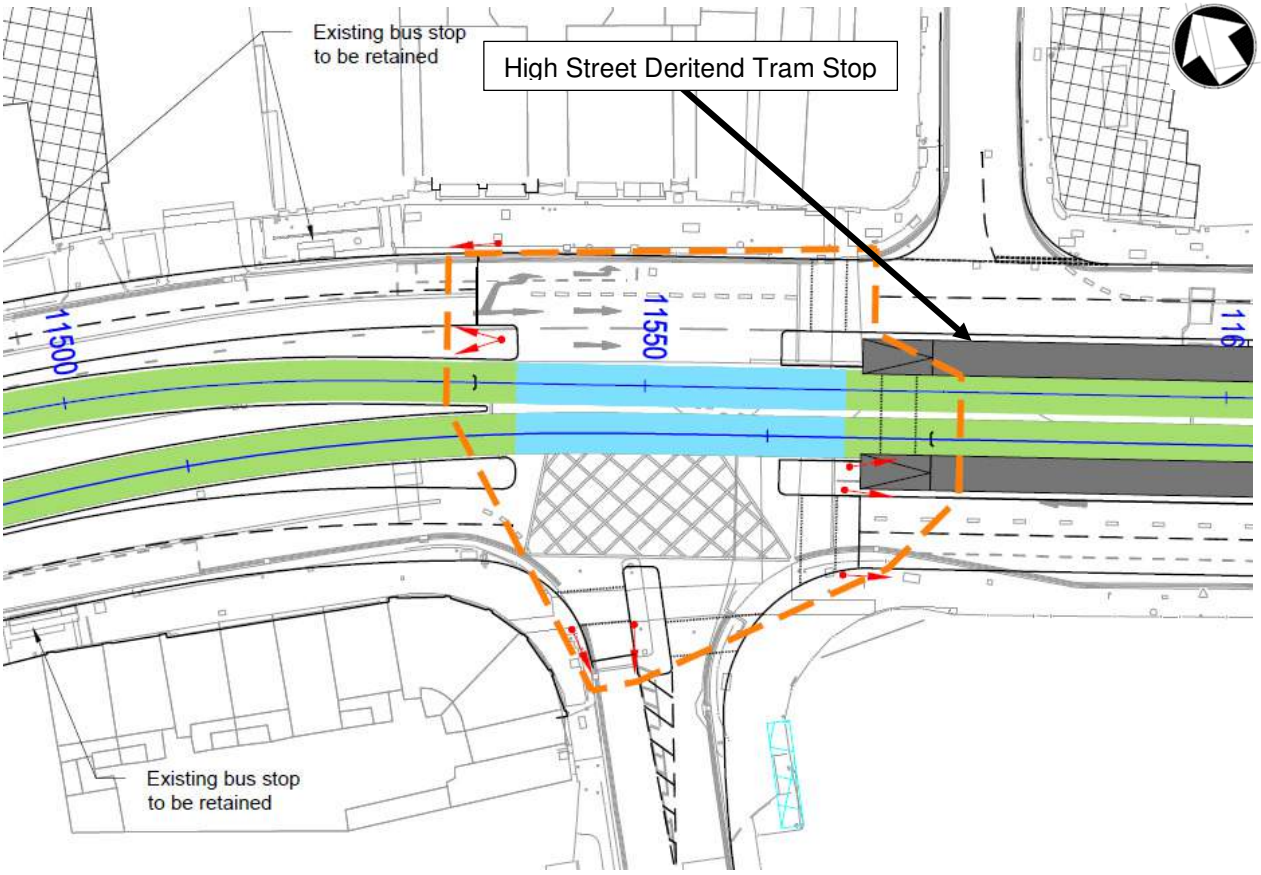
6.4.8.2 Do Something Assessment

The junction with Rea Street will remain similar in form, albeit with reduced lane capacity along Digbeth (B4100). The track alignment runs through the two offside lanes along Digbeth (B4100), therefore reducing capacity for vehicular traffic in either direction.

The final tram stop is located directly east of the Rea Street junction (shown in **Figure 7**). The right-turn and movement from High Street Deritend into Milk Street is banned in the DS scenario due to the reconfiguration of the junction. **Figure 7** shows the Do Something junction configuration.

The pedestrian crossing across Rea Street will become a staggered crossing. This ensures there are no all-red stages for traffic to allow pedestrian movements, therefore increasing green time for traffic stages.

Figure 7: Do Something Digbeth (B4100) / Rea Street Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0016

The 2026 AM and PM peak DS results are shown in **Table 15**, which shows the Digbeth (B4100) / Rea Street junction to operate within capacity in all modelled scenarios.

Table 15: Digbeth B4100 / Rea Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
High Street Deritend (east) Left/Ahead (Lane 1)	56.5	8.0	56.1	8.1	72.0	8.5	73.4	8.8
High Street Deritend (east) Ahead (Lane 2)	60.0	9.8	60.1	10.2	74.8	9.9	76.5	10.5
Rea Street	41.5	1.9	37.4	1.7	75.3	7.7	76.0	7.3
Digbeth (B4100 west) Ahead/Left (Lane 1)	41.3	8.5	40.8	8.4	71.7	19.8	71.2	19.2
Digbeth (B4100 west) Ahead/Right (Lane 2)	60.0	13.7	59.9	13.8	76.0	20.7	76.6	20.7
Cycle Time (s)	**360 (90)**		**360 (90)**		**360 (90)**		**360 (90)**	
PRC (%)	**49.9**		**49.8**		**18.4**		**17.4**	

Source: Linsig V3

In the most constrained scenario (2031 PM), the results indicate a MMQ of 19.2 and 20.7 PCUs in the nearside and offside lanes respectively (for vehicles leaving Birmingham City Centre). These queues are likely to block back past Oxford Street, however, will not block back to the proposed Meriden Street signal junction.

Whilst the predicted MMQs are longer in the DS scenarios than for the DM scenario, the PRC for the DS scenario is higher than the DM scenario during both peak periods. This indicates that there is sufficient spare capacity at the junction with the BEE scheme in place.

6.4.9 High Street Deritend / Milk Street

The High Street Deritend junction with Milk Street is a three-arm signalised junction. Milk Street is a one-way street northbound and access from Milk Street to High Street Deritend is currently restricted.

In the DS scenario, the right-turn from High Street Deritend to Milk Street is banned due to the reconfiguration of the junction and location of the tram stop. In addition, it is proposed to make Milk Street two-way as a left in left out priority junction with High Street Deritend.

This junction is included in the LinSig model for Rea Street as the junctions are in close proximity, using the same signal controller. No 'Do Minimum' results are provided as Milk Street is currently one-way northbound (exit only) and therefore no operational results are available.

6.4.9.1 Do Something Assessment

The 2026 and 2031 DS results are shown in **Table 15**, which shows the High Street Deritend / Milk Street junction to operate within capacity in all Do Something future year scenarios.

Table 16: Digbeth (B4100) West / Milk Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Milk Street	6.9	0.4	8.1	0.5	14.3	1.5	15.0	1.6

Source: LinSig V3

The results of the Linsig assessment shows the Digbeth (B4100) / Milk Street junction operates within capacity in all Do Something future year scenarios. Maximum DoS of 15.0% occurs on Milk Street in the 2031 PM peak scenario, indicating spare capacity exists on Milk Street in all DS scenarios.

6.4.10 High Street Deritend / Floodgate Street

Floodgate Street is a three-arm priority junction, with Floodgate Street being a left-in / left-out arrangement. Floodgate Street is located 50m south east of Milk Street, and the LinSig assessment of the junctions Digbeth B4100 / Rea Street and High Street Deritend / Milk Street shown above include this priority junction.

6.4.10.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 17**, which shows the High Street Deritend / Floodgate Street junction to operate within capacity in the Do Minimum future year scenarios.

Table 17: High Street Deritend / Floodgate Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Floodgate Street	21.1	0.4	23.1	0.4	37.4	1.1	42.4	1.6

Source: LinSig V3

6.4.10.2 Do Something Assessment

The junction will remain in the same format in the DS scenario, although the lane capacity on High Street Deritend will reduce from three lanes to two. The 2026 and 20 DS results are shown in **Table 18**, which shows the High Street Deritend / Floodgate Street junction to operate within capacity in the Do Something future year scenarios. There is an overall reduction in queueing in comparison to the Do Minimum scenario.

Table 18: High Street Deritend / Floodgate Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Floodgate Street	1.7	0.0	10.4	0.1	40.5	0.3	45.0	0.4

Source: LinSig V3

The results indicate queueing at the High Street Deritend / Floodgate Street junction is predicted to decrease with the BEE scheme in place when compared to all DM scenario assessments.

6.4.11 High Street Deritend / Heath Mill Lane

The Heath Mill Lane junction is a three arm signalised junction providing movement in all directions. There is a left-turn only lane approaching Heath Mill Lane from the west (along Heath Mill Lane), and similarly a right-turn only lane approaching Heath Mill Lane from the east (along Heath Mill Lane).

6.4.11.1 Do Minimum Assessment

As part of the Bullring Trading Estate development, a signalised pedestrian crossing is proposed to be installed at High Street Deritend / Heath Mill Lane junction (on the High Street Deritend west arm). This will run in two phases, and has been included in the DM LinSig model (with the staging updated to incorporate the pedestrian crossing). The 2026 and 2031 DM results are shown in **Table 19**, which shows the High Street Deritend / Heath Mill Lane junction to operate within capacity in the Do Minimum future year scenarios.

Table 19: High Street Deritend / Heath Mill Lane DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Heath Mill Lane Left/Right	56.9	7.6	59.5	7.9	61.7	9.7	65.2	10.3
High Street Deritend (east) Ahead (Lane 1)	37.9	4.6	40.0	4.8	29.2	3.5	31.4	3.8
High Street Deritend (east) Ahead (Lane 2/3)	57.6	6.1	59.8	6.3	49.2	5.3	51.2	5.5

	AM 2026		AM 2031		PM 2026		PM 2031	
High Street Deritend (east) Right/U-Turn (Lane 4)	57.3	9.0	59.0	9.3	63.3	10.0	65.7	10.3
High Street Deritend (west) Ahead/Left (Lane 1)	31.9	4.2	31.2	4.2	47.5	6.6	49.0	7.1
High Street Deritend (west) Ahead (Lane 2)	27.3	4.3	27.9	4.5	63.1	11.5	66.1	12.7
High Street Deritend (west) ahead (Lane 3)	27.2	4.3	28.0	4.5	63.2	11.5	66.2	12.8
Cycle Time (s)	**113**		**113**		**117**		**117**	
PRC (%)	**56.1**		**50.6**		**42.2**		**36.0**	

Source: Linsig V3

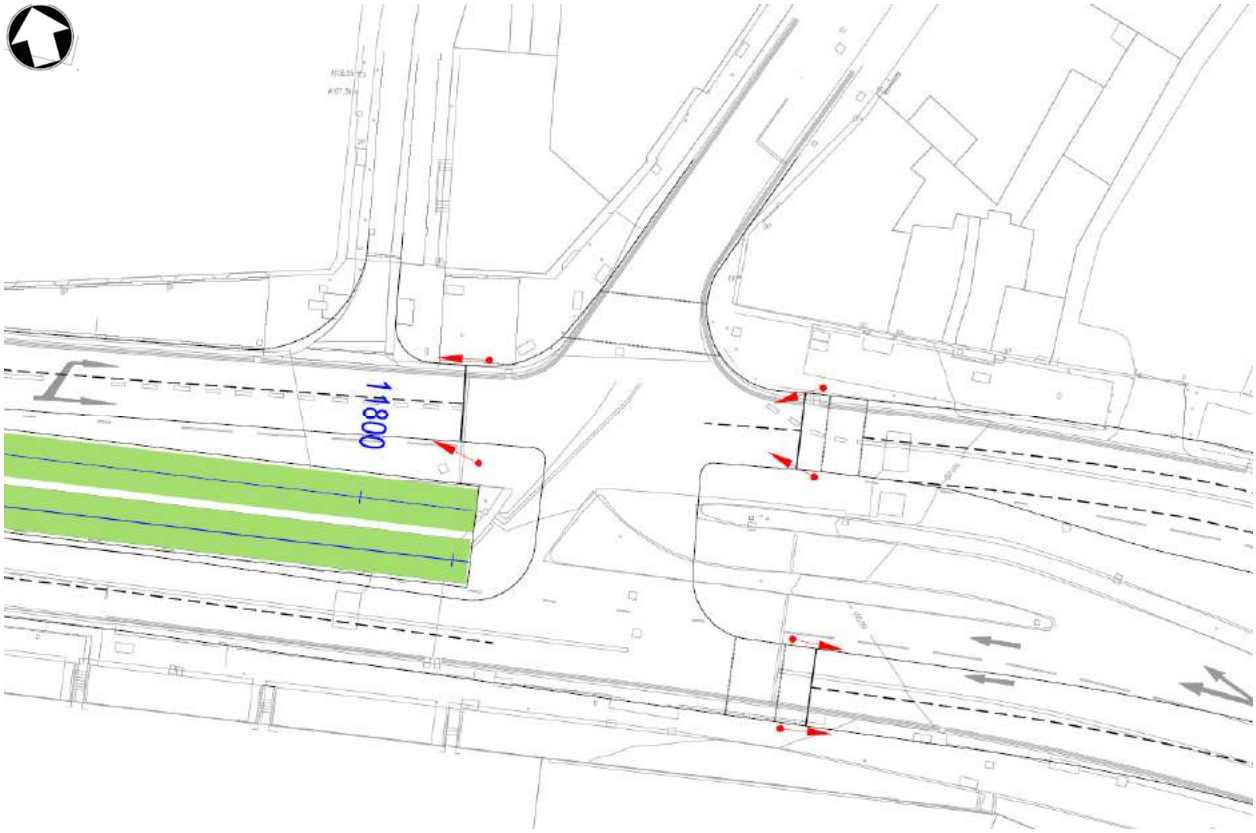
In the most constrained scenario (2031 PM) the PRC is 36.0% with MMQ of 12.8 PCU on High Street Deritend (west), for eastbound traffic leaving Birmingham City Centre. The modelled queues are not likely to block back to the existing pedestrian crossing between Heath Mill Lane and Floodgate Street.

6.4.11.2 Do Something Assessment

The BEE proposes to remodel this junction to allow for the tram and associated highway works east of the junction allowing for a future tram extension. As is the case for much of High Street Deritend, the capacity of each carriageway is reduced from three to two lanes on all approaches to this junction.

The segregated right-turn facility onto Heath Mill Lane is removed. The right-turn movement is still allowed in the proposed design, although not via a segregated lane. **Figure 8** shows the proposed junction configuration.

Figure 8: Do Something High Street Deritend / Heath Mill Lane Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0017

The 2026 and 2031 DS results are shown in **Table 20**, which shows the High Street Deritend / Heath Mill Lane junction to operate within capacity all future scenarios.

Table 20: High Street Deritend / Heath Mill Lane DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
High Street Deritend (west) Ahead/Left (Lane 1)	53.2	3.9	51.0	4.3	78.6	12.9	81.0	13.7
High Street Deritend (west) Ahead (Lane 2)	54.2	4.4	54.4	5.2	68.6	11.4	65.6	10.7
Heath Mill Lane	47.9	5.4	55.2	5.9	78.5	9.1	77.7	8.8
High Street Deritend (east) Ahead (Lane 1)	52.1	8.7	51.8	1.5	67.0	8.9	71.9	9.7
High Street Deritend (east) Ahead/Right (Lane 2)	49.7	7.3	51.2	1.3	76.8	10.2	78.0	10.5
Cycle Time (s)	**90**		**90**		**90**		**90**	
PRC (%)	**66.1**		**63.1**		**14.6**		**11.1**	

Source: Linsig V3

The results indicate spare capacity exists at during all modelled DS scenarios. It can be observed in comparison to the DM results that queueing is marginally reduced in the DS assessment with the BEE scheme in place. Queueing is not expected to block back to the existing pedestrian crossing.

6.4.12 High Street Deritend / Alcester Street

The Alcester Street junction is a three-arm signalised junction providing access to and from all directions. For vehicles travelling from Alcester Street onto High Street Deritend the single lane widens to create left and right-turn lanes at the signalised junction.

There is also a signalised right-turn only lane on High Street Deritend (west) onto Alcester Street, as well as an ahead and left-turn lane on the eastern approach onto Alcester Street. The LinSig model for Alcester Street also includes the priority junction with Adderley Street as they are in close proximity.

6.4.12.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 21**, which shows the High Street Deritend / Alcester Street junction to operate within capacity in the Do Minimum future year scenarios.

Table 21: High Street Deritend / Alcester Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
High Street Deritend (west) Ahead (Lane 1)	25.4	3.0	27.3	3.1	57.0	6.2	66.0	7.4
High Street Deritend (west) Ahead (Lane 2)	25.6	3.0	27.4	3.2	57.1	6.3	66.4	7.4
High Street Deritend (west) Ahead/Right (Lane 3/4)	28.1	3.4	30.1	3.6	71.2	7.2	78.6	8.5
High Street Deritend (east) Ahead/Left (Lane 1)	27.6	3.2	26.6	3.0	55.6	6.2	65.5	6.1
High Street Deritend (east) Ahead (Lane 2)	76.9	12.6	83.1	14.3	78.9	10.8	81.6	11.1
High Street Deritend (east) Ahead/U-Turn (Lane 3)	78.2	13.8	84.1	15.4	80.0	11.8	82.6	12.1
Alcester Street Left/Right	78.3	9.9	83.4	12.0	78.9	12.8	83.0	14.3
Cycle Time (s)	**88**		**88**		**88**		**88**	
PRC (%)	**14.9**		**7.0**		**12.5**		**8.4**	

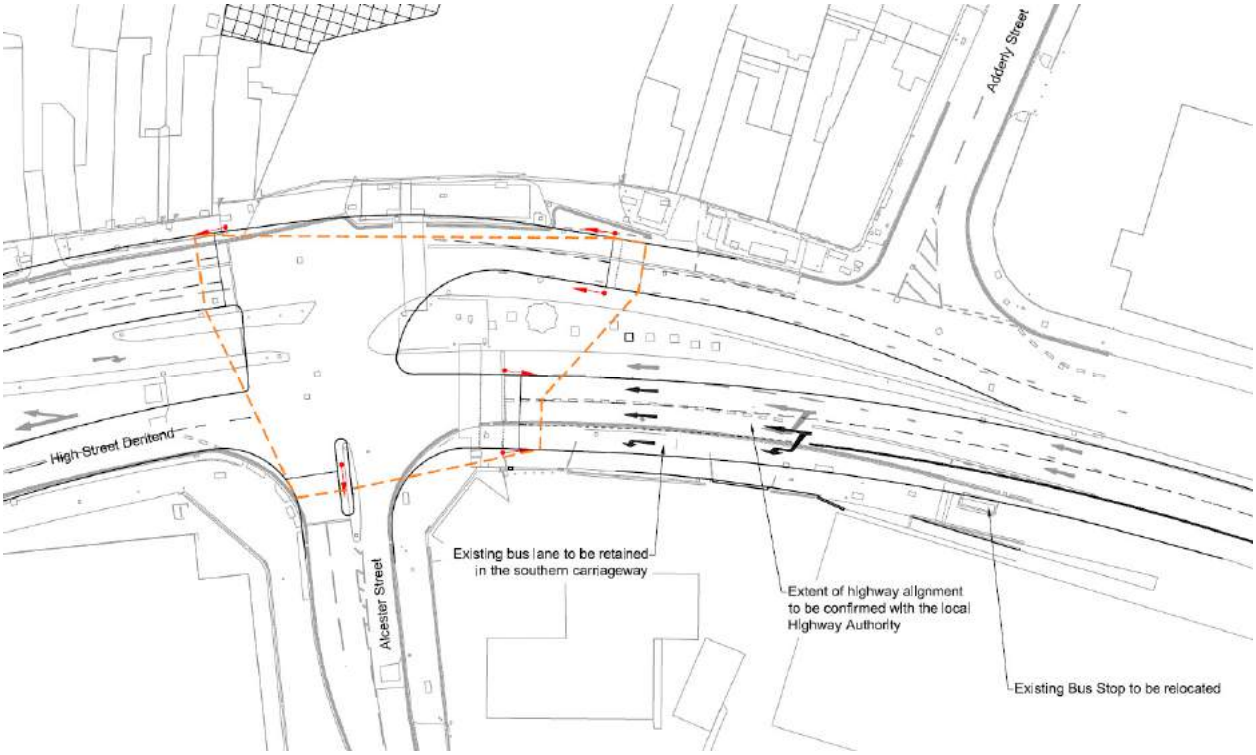
Source: Linsig V3

In the most constrained scenario (2031 AM) there is a PRC of 7.0%, with modelled queues of up to 15.4 PCUs recorded on the High Street Deritend (east) approach for traffic heading into Birmingham city centre during the morning peak.

6.4.12.2 Do Something Assessment

The highway works associated with the BEE result in a reconfiguration of the eastern arm of the High Street Deritend / Alcester Street junction. There will be three lanes at the stop line, with the nearside lane being a left-only into Alcester Street.

Figure 9: Do Something High Street Deritend / Alcester Street Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0017

The 2026 and 2031 DS results are shown in **Table 22**, which shows the High Street Deritend / Alcester Street junction to operate within capacity in all future scenarios.

Table 22: High Street Deritend / Alcester Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
High Street Deritend (west) Ahead (Lane 1)	16.5	2.4	18.0	4.1	49.0	3.8	49.0	3.7
High Street Deritend (west) Ahead/Right (Lane 2/3)	22.3	9.3	26.2	7.8	67.0	18.5	67.4	17.7
High Street Deritend (east) Ahead/Left (Lane 1/2)	62.2	8.0	62.7	7.8	60.0	6.4	61.5	6.7
High Street Deritend (east) Ahead (Lane 3)	52.2	7.6	53.2	7.8	52.4	6.8	52.7	7.1
Alcester Street Left/Right	61.4	9.4	62.9	9.6	65.5	9.6	67.8	10.1
Cycle Time (s)	**90**		**90**		**90**		**90**	
PRC (%)	**44.6**		**43.1**		**34.3**		**32.8**	

Source: Linsig V3

In the most constrained scenario (2031 PM) there is a PRC of 32.8% indicating the junction operates with spare capacity. The results show modelled queues of 17.7 PCUs in the 2031

scenario and 18.5 PCUs in the 2026 scenario, PM peak assessments. The MMQ recorded on the High Street Deritend (west) approach relates to the offside 2 lanes where 1 lane is for right turning traffic into Alcester Street measuring 7.5 PCUs. The modelled queues therefore equate to approximately 10-11 PCUs in the ahead lane, which is consistent with the DM scenario modelled queue and would not be expected to block back into the Heath Mill Lane junction.

6.4.13 High Street Deritend / Adderley Street

The Adderley Street junction is a priority junction providing access to and from Adderley Street from High Street Deritend. Adderley Street can be accessed by eastbound traffic on High Street Deritend, and consequently vehicles are restricted to a left-turn only from Adderley Street.

The DS proposal sees the three-lane High Street Deritend being reduced to two lanes, but the junction operation remains the same. This junction was included in the LinSig assessment of High Street Deritend / Alcester Street.

6.4.13.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 23**, which shows the High Street Deritend / Adderley Street junction to operate within capacity in the Do Minimum future year scenarios.

Table 23: High Street Deritend / Adderley Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Adderley Street	20.6	0.4	22.2	0.4	34.4	1.1	36.1	1.3

Source: Linsig V3

6.4.13.2 Do Something Assessment

The junction will remain in the same format in the DS scenario, although the lane capacity on High Street Deritend will reduce from three lanes to two. The 2026 and 2031 DS results are shown in **Table 24**, which shows the High Street Deritend / Adderley Street junction to operate within capacity in the Do Something future year scenarios.

Table 24: High Street Deritend / Adderley Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Adderley Street	14.8	0.1	16.0	0.1	33.0	0.2	32.8	0.2

Source: Linsig V3

The results indicate queueing at the High Street Deritend / Adderley Street junction is predicted to decrease with the BEE scheme in place when compared to all DM scenario assessments.

6.5 Off-line Junctions

6.5.1 Moor Street Queensway / Masshouse Lane

Moor Street Queensway operates a one-way system at this junction, as does Masshouse Lane. There is a central bus-only lane on Masshouse Lane which allows buses to go ahead over Moor Street Queensway onto The Priory Queensway.

6.5.1.1 Do Minimum Assessment

Table 25 shows the 2026 and 2031 DM LinSig results, which shows the Moor Street Queensway / Masshouse Lane junction to operate within capacity in all Do Minimum future year scenarios.

Table 25: Moor Street Queensway / Masshouse Lane DM

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Priory Queensway	64.0	4.0	69.9	4.3	72.5	5.3	72.5	5.3
Masshouse Lane Ahead/Left	50.9	8.5	49.1	8.1	47.6	8.4	47.6	8.4
Masshouse Lane Right	66.3	12.1	66.0	12.3	67.9	13.8	69.8	14.3
Moor Street Queensway Left	68.0	6.7	72.2	7.0	73.9	7.3	73.9	7.3
Moor Street Queensway Ahead (Lane 2)	29.7	1.4	18.9	0.9	48.0	3.0	45.1	3.0
Moor Street Queensway Ahead (Lane 3)	32.9	1.7	22.7	1.1	50.6	3.3	47.9	3.3
Cycle Time (s)	**100**		**100**		**108**		**108**	
PRC (%)	**32.4**		**24.6**		**21.7**		**21.7**	

Source: Linsig V3

In the most constrained scenarios (2026 and 2031 PM) there is a PRC of 21.7%, with modelled queues of up to 14.3 PCUs in the 2031 scenario on Masshouse Lane right turn lane. The modelled queues are due to the re-routing impacts associated with the closure of Park Street (as a result of HS2) which forces traffic to route via Masshouse Lane.

6.5.1.2 Do Something Assessment

The Moor Street Queensway / Masshouse Lane junction will not be reconfigured as part of the BEE proposals.

Table 26 shows the 2026 and 2031 DS LinSig results for Moor Street Queensway / Masshouse Lane, which shows the junction to operate within capacity in the Do Something future year scenarios.

Table 26: Moor Street Queensway / Masshouse Lane DS

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Priory Queensway	61.2	4.3	61.2	4.3	67.4	5.4	73.0	5.7
Masshouse Lane Ahead/Left	38.7	4.1	38.7	4.2	35.9	5.7	35.4	5.6
Masshouse Lane Right	65.5	13.4	68.1	13.8	74.8	15.4	75.3	15.6
Moor Street Queensway Left	56.9	3.7	56.9	3.7	64.8	3.8	64.8	3.8
Moor Street Queensway Ahead (Lane 2)	48.5	3.0	45.0	2.9	59.4	6.4	58.4	6.5

	AM 2026		AM 2031		PM 2026		PM 2031	
Moor Street Queensway Ahead (Lane 3)	47.2	2.8	43.8	2.8	58.3	6.2	57.3	6.3
Cycle Time (s)	**100**		**100**		**108**		**108**	
PRC (%)	**37.5**		**32.1**		**20.3**		**19.4**	

Source: Linsig V3

The results shows similar operational performance at the Moor Street Queensway / Masshouse Lane junction for the DS scenario compared to the DM scenario. During the AM peak the PRC is marginally higher in the DS scenario (32.1% compared to 24.6% in the DM scenario). However, during the PM peak the PRC is marginally higher for the DM scenario (21.7% compared to 19.4% in the DM scenario).

6.5.2 Moor Street Queensway / James Watt Queensway (B4114)

The Moor Street Queensway / James Watt Queensway (B4114) junction is a four arm signalised junctions providing vehicles accessing from Moor Street Queensway with the option to travel in all directions. Moor Street Queensway though operates a one-way system here, as does Park Street (east of the junction).The Moor Street Queensway / James Watt Queensway (B4114) junction will not be reconfigured as part of the BEE proposals. This junction has been assessed within the LinSig model for the Moor Street Queensway / Albert Street junction.

6.5.2.1 Do Minimum Assessment

Table 27 shows the 2026 and 2031 DM LinSig results for Moor Street Queensway / James Watt Queensway (B4114), which shows the junction to operate within capacity in the Do Minimum future year scenarios.

Table 27: Moor Street Queensway / James Watt Queensway (B4114) Street DM

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
James Watt Queensway (B4114) Left/Ahead	72.0	9.8	73.7	9.8	78.7	14.6	79.1	15.0
James Watt Queensway (B4114) Ahead	29.2	3.7	30.4	3.8	24.4	3.9	23.7	3.8
Jennens Road Left (Lane 1)	71.8	6.8	68.8	6.7	75.7	8.3	76.1	8.3
Jennens Road Left (Lane 2)	73.4	7.6	70.9	7.5	77.3	9.0	77.9	9.1
Moor Street Queensway Left (Lane 1)	5.0	0.5	4.9	0.5	11.5	1.3	12.1	1.4
Moor Street Queensway Left (Lane 2)	7.7	0.9	7.9	0.9	14.3	1.9	14.9	1.9
Moor Street Queensway Ahead/Right (Lane 3)	74.7	16.1	72.9	15.4	78.8	17.4	79.6	17.4
Cycle Time (s)	**100**		**100**		**110**		**110**	
PRC (%)	**20.5**		**22.1**		**14.2**		**13.0**	

Source: Linsig V3

The junction is shown to operate within theoretical capacity in all modelled scenarios. However, the queue on Moor Street Queensway ahead/right turn lane is predicted to block back to the

Moor Street Queensway / Masshouse Lane junction with MMQ of 17.4 PCUs during both PM peak scenarios. Furthermore, queueing on James Watt Queensway (B4114) left/ahead lane is predicted to block back to the James Watt Queensway / Dale End junction.

6.5.2.2 Do Something Assessment

The Moor Street Queensway / James Watt Queensway (B4114) junction will not be reconfigured as part of the BEE proposals.

Table 28 shows the 2026 and 2031 DS LinSig results for Moor Street Queensway / James Watt Queensway (B4114), which shows the junction to operate within capacity in the Do Something future year scenarios.

Table 28: Moor Street Queensway / James Watt Queensway (B4114) Street DS

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
James Watt Queensway (B4114) Left/Ahead	75.4	10.5	76.8	10.5	83.0	16.0	83.0	16.5
James Watt Queensway (B4114) Ahead	29.2	3.7	30.4	3.8	24.4	3.9	23.7	3.8
Jennens Road Left (Lane 1)	70.8	6.7	72.4	7.0	79.5	8.6	80.2	8.7
Jennens Road Left (Lane 2)	74.4	7.7	75.9	8.0	82.1	9.6	82.8	9.8
Moor Street Queensway Left (Lane 1)	6.4	0.8	7.0	0.9	16.6	2.0	17.0	2.0
Moor Street Queensway Left (Lane 2)	7.5	0.9	7.7	1.0	17.6	2.2	18.1	2.3
Moor Street Queensway Ahead/Right (Lane 3)	76.5	10.3	75.2	10.7	82.0	18.8	84.7	19.8
Cycle Time (s)	**100**		**100**		**110**		**110**	
PRC (%)	**17.6**		**17.1**		**8.5**		**6.2**	

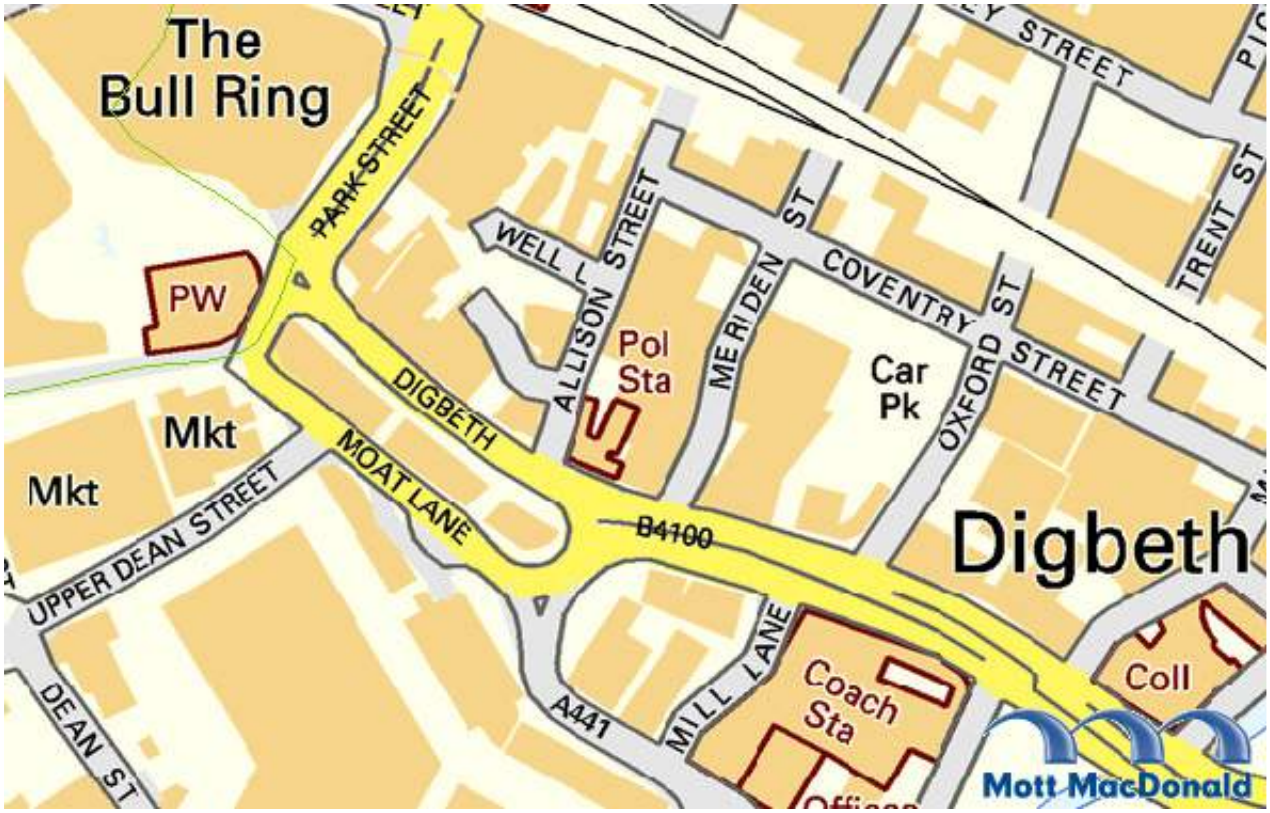
Source: Linsig V3

In the most constrained scenario (2031 PM) there is a PRC of 6.2%. Modelled queues on the Moor Street Queensway ahead/right turn lane are expected to block back into the Moor Street Queensway / Masshouse Lane junction in the same way as the DM scenario. MMQ of 19.8 PCUs in the 2031 scenario compared to 17.4 in the DM scenario representing a marginal increase is shown from the DM statistics. Furthermore, during the PM peak queueing on James Watt Queensway is likely to block back to the junction with Dale End, in a similar manner to the DM assessments. During the AM peak queue lengths are shown to reduce with the introduction of the BEE scheme and resultant rerouting of traffic at this location.

6.5.3 Moat Lane Gyratory

West of the Meriden Street / Digbeth B4100 junction is the Moat Lane signalised gyratory, providing access to Digbeth (B4100) from the west. The Moat Lane gyratory can be seen in **Figure 10** and discontinuously comprises three lanes.

Figure 10: Moat Lane Gyratory



Source: Spectrum/Mott MacDonald

6.5.3.1 Do Minimum Assessment

Table 29 shows the 2026 and 2031 DM results for the Moat Lane gyratory, which shows the junctions comprising the Moat Lane Gyratory and Digbeth (B4100) to operate within capacity in the Do Minimum future year scenarios. A description of how the cycle times were derived at this junction is shown in Appendix A.15.

Table 29: Moat Lane Gyratory DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Digbeth B4100 (east) Ahead (Lane 1)	42.5	3.9	42.2	3.3	20.5	1.8	20.9	1.9
Digbeth B4100 (east) Ahead (Lane 2)	48.3	4.8	50.7	4.3	22.2	2.1	22.6	2.1
Digbeth B4100 (east) Ahead (Lane 3)	42.5	3.9	50.7	4.3	22.2	2.1	22.6	2.1
Cycle Time (s)	**180**		**180**		**165**		**165**	
PRC (%)	**85.3**		**77.5**		**305.2**		**298.0**	
Digbeth B4100 (west) Ahead and Left (Lane 1)	47.7	5.6	47.4	5.5	70.4	9.1	71.1	8.4

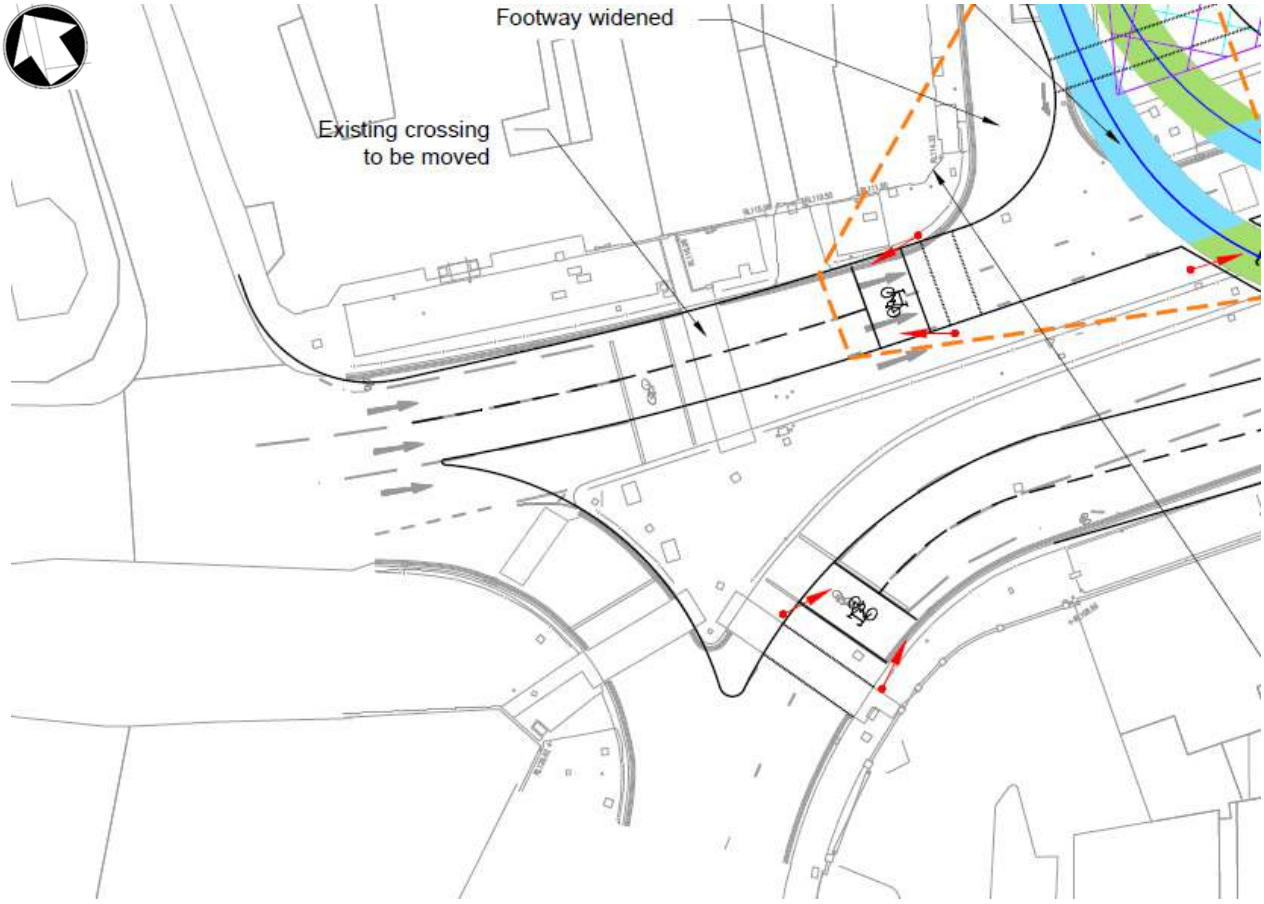
	AM 2026		AM 2031		PM 2026		PM 2031	
Digbeth B4100 (west) Ahead (Lane 2/3)	33.9	2.4	34.2	2.4	53.3	5.5	53.8	4.7
Digbeth B4100 (west) Right-turn (Lane 4)	-	-	-	-	-	-	-	-
Cycle Time (s)	**180**		**180**		**165**		**165**	
PRC (%)	**88.8**		**89.7**		**27.9**		**26.6**	

Source: Linsig V3

6.5.3.2 Do Something Assessment

The Moat Lane Gyratory itself will not be reconfigured as part of the BEE proposals, although the location of pedestrian crossings at the Digbeth (B4100) will change to improve intervisibility at the junction. The proposed junction layout is shown in **Figure 11**.

Figure 11: Do Something Moat Lane Gyratory Junction Layout



Source: ES Volume 2 Technical Appendix A, MMD-300207-HS29-DRA-0000-0015

Table 30 shows the 2026 and 2031 DS results for the Moat Lane gyratory, which shows the junctions comprising of the Moat Lane Gyratory and Digbeth (B4100) to operate within capacity in the Do Something future year scenarios.

Table 30: Moat Lane Gyratory DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Digbeth B4100 (east) Ahead (Lane 1)	29.0	5.7	24.4	4.5	23.5	1.2	24.2	1.4
Digbeth B4100 (east) Ahead (Lane 2)	28.6	5.6	24.4	4.5	22.8	1.0	23.3	1.1
Cycle Time (s)	**360(90)**		**360(90)**		**360(90)**		**360(90)**	
PRC (%)	**210.9**		**268.4**		**283.4**		**272.1**	
Digbeth B4100 (west) Ahead and Left (Lane 1)	47.7	11.2	48.6	11.3	72.3	18.0	73.0	18.7
Digbeth B4100 (west) Ahead (Lane 2)	42.0	10.1	43.1	10.2	70.8	18.6	71.5	19.2
Cycle Time (s)	**360(90)**		**360(90)**		**360(90)**		**360(90)**	
PRC (%)	**30.0**		**30.0**		**24.6**		**23.3**	
Moat Lane Ahead (Lane 1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moat Lane Ahead (Lane 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Time (s)	**360(90)**		**360(90)**		**360(90)**		**360(90)**	
PRC (%)	**599.0**		**689.5**		**456.1**		**442.5**	

Source: Linsig V3

There are generally larger modelled queues in comparison to the DM model results, which are also expected to block back into Allison Street. Due to the stop line being moved closer to Meriden Street, the effect of the blocking back into the Moat Lane gyratory is minimised.

Queues of up to 19.2 PCUs are modelled on the ahead movement (leaving the Moat Lane Gyratory). Allison Street is a priority junction with a left-in, left-out arrangement and the traffic flow on this arm is relatively low. Whilst a queue is likely to block back across Allison Street, the queue will clear during each cycle, during which time vehicles from Allison Street can exit the junction. Should blocking of Allison Street become problematic 'Keep Clear' road markings can be installed to help assist motorists exit from the Allison Street junction.

6.5.4 Heath Mill Lane / Liverpool Street

Finally, the Heath Mill Lane / Liverpool Street four-arm signalised junction (including Great Barr Street on the north-eastern arm and Fazeley Street on the north-western) has also been designated as an off-line junction which will be impacted by the track alignment of the BEE.

6.5.4.1 Do Minimum Assessment

The 2026 and 2031 DM results are shown in **Table 31**, which shows the Heath Mill Lane / Liverpool Street junction to operate over capacity in all Do Minimum scenarios.

Table 31: Heath Mill Lane / Liverpool Street DM Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Great Barr Street	95.1	14.2	102.1	22.9	121.8	58.3	130.8	72.3
Liverpool Street	92.0	7.0	88.9	6.0	105.5	12.4	117.4	20.6

	AM 2026		AM 2031		PM 2026		PM 2031	
Heath Mill Lane	95.4	9.8	97.7	11.2	112.9	35.4	137.0	67.8
Fazeley Street	93.0	9.2	89.6	8.2	118.6	69.9	86.6	14.2
Cycle Time (s)	**54**		**54**		**69**		**69**	
PRC (%)	**-6.0**		**-13.5**		**-35.4**		**-52.2**	

Source: Linsig V3

In the most constrained scenario (2031 PM) there is a PRC of -52.2%, with modelled queues in around 70 PCUs on Great Barr Street and Heath Mill Lane. Significant queuing is evident at the junction in both DM 2026 and DM 2031 PM peak scenarios

6.5.4.2 Do Something Assessment

It is proposed that the signalling at the Heath Mill Lane / Liverpool Street junction is reconfigured in order to improve capacity at the junction. It is proposed that the cycle time is increased to 90 seconds, and an indicative arrow for on Great Barr Street for the right-turn movement is introduced.

The 2026 and 2031 DS results with the proposed changes to the signalling are shown in **Table 32**.

Table 32: Heath Mill Lane / Liverpool Street DS Results

	AM 2026		AM 2031		PM 2026		PM 2031	
Movement	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**	**DoS (%)**	**MMQ (PCU)**
Great Barr Street	82.1	15.5	84.9	16.7	93.4	17.8	103.0	33.1
Liverpool Street	80.4	14.2	84.2	15.6	61.2	9.8	67.7	10.9
Heath Mill Lane	71.3	7.3	68.8	7.2	73.7	10.4	98.1	18.6
Fazeley Street	49.5	6.2	51.7	6.6	93.5	20.9	100.4	29.4
Cycle Time (s)	**90**		**90**		**90**		**90**	
PRC (%)	**9.6**		**6.0**		**-3.9**		**-14.5**	

Source: Linsig V3

Table 32 shows the junction to operate over capacity during the PM peak in both forecast year Do Something scenarios with a PRC of -14.5% for the 2031 forecast year.

In the 2031 PM scenario the worst case queuing occurs on Great Barr Street with a modelled queue of 33.1 PCUs. This queue is expected to block back past the Great Barr Street / Glover Street junction. Most vehicles should clear during the cycle in which they arrive; however, some vehicles towards the back of the queue may have to wait for a second cycle to pass through the junction.

Whilst the junction will be congested, the BEE is not the cause of the impact; the results show a significant improvement from the DM scenario MMQ results, particularly during the PM peak. For example, for the DM 2031 AM peak, worst case queueing occurs on Great Barr Street with MMQ of 22.9 PCUs whist the DS 2031 AM peak MMQ is 16.7 PCUs. Comparison of the PM peak shows maximum MMQ lengths of 72.3 for the 2031 DM scenario and 33.1 for the DS scenario.

The proposed reconfiguration of the signalling at this junction improves capacity to an extent, although to further improve capacity geometric changes to the physical layout of the junction would be necessary. Highway realignment is not considered feasible at this junction due to land

constraints, and impacts on businesses and nearby heritage assets. However, it is worth noting that the BEE scheme is not the cause of the operational issues and the junction operates more favourably with the BEE scheme in place and the resultant rerouting of traffic in this area of the network.

6.6 Summary

Extensive traffic modelling work has been undertaken, along with detailed assessments of the identified on-line and off-line junctions. The purpose of the assessments is to identify what impact the proposed BEE will have on highway capacity and general traffic.

The effect of the BEE has been determined using the Birmingham city centre strategic highway model which was built using industry standard modelling software, SATURN.

Individual junction capacity assessments were then undertaken using the industry standard LinSig and Junctions 9 (PICADY) software packages. The Do Minimum (DM) scenario represents the expected situation with regards to committed developments and traffic characteristics, and the Do Something (DS) scenario takes the DM and incorporates the BEE proposals.

Chapter 6.2.4 details the methodology used to derive the junction turning counts for use in the junction capacity assessments using a hybrid of SATURN model and observed turning counts.

The on-line junctions were assessed and it was identified that all of the junctions would operate within capacity in the future year DS scenarios.

Furthermore, an assessment was also undertaken to identify the impacts of the BEE proposals on off-line junctions. In total, four junctions across Birmingham City Centre and Birmingham Eastside were identified. Of these junctions, only Heath Mill Lane / Liverpool Street was identified to operate over capacity in one or more of the time periods modelled in both the DM and DS scenarios.

With the BEE scheme implemented it is proposed that the signalling is reconfigured at the Heath Mill Lane / Liverpool Street junction in order to improve capacity. Whilst capacity significantly improves with the reconfigured signalling, the 2026 DS PM Peak scenario continues to operate over capacity with a PRC of -3.9%.

With the proposed signal changes at the Heath Mill Lane / Liverpool Street junction, in the 2031 PM DS scenario there is still long queueing evident in the results, with modelled queues of 33.1 PCUs on Great Barr Street. Highway realignment is not considered feasible at this junction due to land constraints, and impacts on businesses and nearby heritage assets.

However, it is worth noting that the operation of this junction with the BEE scheme in place is vastly improved from the DM scenario. Although the junction is shown to operate over capacity, this is not attributable to the BEE proposals. The junction is predicted to operate over capacity without the BEE scheme in place and therefore the proposed mitigation scheme provides betterment beyond the likely operation of the junction should the BEE scheme not come forward.

It is therefore considered that whilst the junction operates over capacity the BEE scheme is not the cause of the congestion and it benefits the operation of the junction when compared to a scenario without the BEE scheme in place.

7 Impact on Bus Services

7.1 Introduction

This section includes details of VISSIM modelling carried out to provide further understanding of the impacst of the BEE scheme on bus services.

7.2 VISSIM Modelling

A microsimulation model has been developed using VISSIM to specifically understand the impact of the scheme to bus operation. As a part of early engagement with National Express, the predominant bus operator in the area, four areas of concern were identified. These are:

- The impact of the Metro operation on traffic flows along Lower Bull Street;
- The impact of the Metro crossing Moor Street Queensway, on traffic flows through that intersection, including the interaction with pedestrian flows to and from the new HS2 station;
- The impact of the Metro operation on traffic flows along the Digbeth corridor, particularly having regard to the proposed removal of the bus lanes along that corridor; and
- The impact of the Metro operation on traffic flows around the Digbeth / Rea Street junction, including the interaction with pedestrian flows between the adjacent Metro stop and Digbeth Coach Station and South Central College.

The modelling is summarised in this section of the report, with full details of model development and outputs included in **Appendix G**, which includes:

- Birmingham Eastside Extension Local Model Validation Report (BEE-D02-TAT-RP-TT-0001); and
- Birmingham Eastside Extension Forecast Modelling Report (BEE-D02-TAT-RP-TT-0002).

A validated base model was developed, which reflects December 2016 AM and PM peak hour traffic and network conditions. December traffic conditions have been applied at the request of National Express, as they are viewed to be the most congested. From the base model, Do Minimum (DM) models were developed, representing 2026 and 2031, AM and PM peak hour traffic and network conditions. The peak hours are:

- AM 08:45 – 09:45
- PM 16:15 – 17:15

The DM models include any ‘near certain’ or ‘more than likely’ schemes, as defined in the Birmingham City Centre Traffic Forecasting Report, 5th May 2017 (Atkins) included in **Appendix B**, excluding BEE. This model has been used as a benchmark against which to assess the impact of BEE. Details on the derivation of forecast traffic flows is included in Section 5 of this report.

Using the DM model as a starting point, Do Something (DS) models have been developed, which include BEE, the associated infrastructure and forecast traffic flows representing the 2026 and 2031 AM and PM peak hours.

Two DS models have been developed to address National Express’s concerns, the second of which is primarily to test the impact of retaining the bus lanes on High Street Deritend:

DS1: The proposed BEE scheme, which removes the bus lanes along High Street Deritend, retaining two traffic lanes in either direction in addition to the tramway.

DS2: As per DS1 bus retaining the bus lanes in either direction along High Street Deritend and only a single traffic lane in either direction.

The models have been assessed in terms of journey times, junction performance and overall network performance. The results from modelling are summarised below, focussing on National Express's concerns.

7.2.1 Lower Bull Street

Currently buses flow unhindered from High Street to Lower Bull Street. With the signalisation of the High Street / Lower Bull Street junction, incorporating the realigned Albert Street, some additional delay will be incurred by buses that arrive at a red signal. The average delay to vehicles, shown in Table 33, is likely to increase by around twenty seconds. Viewing the VISSIM model it is seen that all traffic arriving at a red signal will clear during the next green period. When retaining the bus lanes in DS2, the delay increases. This is due to increased congestion throughout the modelled area.

Table 33: Bull Street / High Street Average Delay

Forecast Year	Peak	Average Delay		
		DM	DS1	DS2
2026	AM	4	25	26
	PM	4	25	25
2031	AM	4	26	35
	PM	4	27	43

7.2.2 Moor Street Queensway

The journey time from Spiceal Street, next to the entrance to Selfridges car park, to James Watt Queensway is shown in **Table 34** below. The models show that travelling northbound in both the AM and PM peaks there will be an increase in journey times in DS1 compared with DM. This is due to additional delay incurred at the remodelled Albert Street junction, which will incorporate tram movements and the proposed bus interchange. In some forecast periods, there is an improvement in DS2 compared with DS1. However, this is likely due to there being reduced traffic flow caused by upstream congestion.

In contrast to the northbound movement, buses travelling southbound experience quicker journey times, which is shown in **Table 35**. This is due to introducing the bus interchange, which provides additional bus stop capacity, meaning there is less demand for the stops on Moor Street Queensway.

Table 34: Moor Street Queensway Northbound Bus Journey Time

Forecast Year	Peak	Journey Time		
		DM	DS1	DS2
2026	AM	195	226	219
	PM	217	237	244
2031	AM	199	242	230
	PM	208	239	228

Table 35: Moor Street Queensway Southbound Bus Journey Time

Forecast Year	Peak	Journey Time DM	DS1	DS2
2026	AM	341	252	257
	PM	439	277	292
2031	AM	349	259	257
	PM	441	288	313

7.2.3 High Street Deritend

The journey times between Park Street and Alcester Street are shown in **Table 36** and **Table 37**. Journey times during the PM peak are longer compared to the AM peak due to the higher demand, which reflects the current situation.

Travelling eastbound in the AM peak, the journey time is slightly higher in DS1 compared with the DM scenario. This is due to the added complexity of the traffic signals when BEE is introduced. When retaining the bus lanes in DS2, the journey times are considerably higher as severe congestion is caused at the start of the bus lane, where traffic must merge into a single lane. This is exacerbated by the right turn into Rea Street immediately after the start of the bus lane. Here, unlike the DS1 scenario, traffic queuing to turn right into Rea Street blocks the ahead movement.

A similar pattern is observed in the PM peak, although the negative impact on journey times when retaining the bus lane in DS2 is magnified as the traffic flows are higher.

Travelling westbound in the AM peak, the overall journey times for in DS1 are quicker compared with the DM scenario. This is because the right turn into Milk Street is prohibited with the introduction of BEE, which reduces the westbound flow. When retaining the inbound bus lane, journey times for buses are marginally improved. However, this is at the cost of general traffic journey times.

In the PM peak the journey time for DS1 scenario is slightly quicker for buses compared with the DM scenario. Due to increased congestion, when retaining the bus lane (DS2 scenario), the journey time is significantly longer.

Table 36: High Street Deritend Eastbound Bus Journey Time

Forecast Year	Peak	Journey Time DM	DS1	DS2
2026	AM	341	252	257
	PM	439	277	292
2031	AM	349	259	257
	PM	441	288	313

Table 37: High Street Deritend Westbound Bus Journey Time

Forecast Year	Peak	Journey Time DM	DS1	DS2
2026	AM	280	230	223
	PM	336	273	488
2031	AM	295	239	239
	PM	353	265	812

7.3 Summary

The VISSIM modelling demonstrates that the BEE proposals will have only a small impact on journey times through the network. However, if the bus lanes were to be retained along High Street Deritend, this would result in severe congestion, largely due to drivers having to merge into a single lane from two lanes at the start of the eastbound bus lane. This is exacerbated by traffic queuing to turn right into Rea Street immediately after the start of the bus lane, which would block the ahead movement.

Overall, the modelling demonstrates that the network will operate within capacity with the introduction of BEE and there will be minimal overall impact to buses.

Changes to the junction capacity assessments included in this update to the TA are not considered likely to have an effect on the findings previously recorded in the TA, in terms of the impact to bus services. The capacity assessments show all on-line junctions to be operating within capacity during all forecast year modelled scenarios.

One off-line junction (Heath Mill Lane / Liverpool Street) operates over capacity without the BEE scheme in place. Improvements to the traffic signal control plan and traffic light sequencing are proposed as part of the BEE scheme. The proposed measures provide benefits to the operation of this junction with the BEE scheme in place. One bus service (97) uses this junction and therefore the impact of the BEE scheme on this bus service is likely to be positive.

8 Impact on Light Rail

This chapter remains unchanged from the TA.

9 Impact on Heavy Rail

This chapter remains unchanged from the TA.

10 Impact on Coaches

This chapter remains unchanged from the TA.

Changes to the junction capacity assessments included in this update to the TA are not considered likely to have an effect on the findings previously recorded in the TA, in terms of the impact to coaches. All on-line junctions are shown to operate within capacity.

One off-line junction is shown to operate over capacity (Heath Mill Lane / Liverpool Street). However, the introduction of the BEE scheme benefits the operational performance of this junction. Therefore, the impact on this area of the network will be positive, with positive impact on coaches should they use this route.

11 Impact on Walking and Cycling

This chapter remains unchanged from the TA.

12 Impact on Parking

This chapter remains unchanged from the TA.

13 Impact on Taxis

This chapter remains unchanged from the TA.

Changes to the junction capacity assessments included in this update to the TA are not considered likely to have an effect on the findings previously recorded in the TA, in terms of the impact to taxis. All on-line junctions are shown to operate within capacity.

One off-line junction is shown to operate over capacity (Heath Mill Lane / Liverpool Street). However, the introduction of the BEE scheme benefits the operational performance of this junction. Therefore, the impact on this area of the network will be positive, with positive impact on taxis using this route.

14 Impact on Access and Servicing

14.1 Introduction

This chapter of the TA update has been updated to take into account the most recent collection of data to confirm existing conditions, and provides a review of the existing servicing and accessing arrangements in light of the proposed BEE scheme.

14.2 Data Collection

The original chapter in the TA required the collection of data to confirm existing conditions, which was conducted in two stages:

- Business Consultation Surveys; and
- On-site observations undertaken between September and November 2014, as referred to in the TA

As part of this update, on-site observations were undertaken on a full walk-through survey on 10 August 2017.

Information collected included:

- The name and type of companies along the route likely to be affected from an access and servicing perspective.
- How the premises are currently accessed for servicing, i.e. which building entrance and from which road.
- Which businesses and roads will be impacted by the construction of the new tramline.

The full route of the scheme from Corporation Street to Adderley Street was initially split into three sections in the TA; from Corporation Street to Eastside Park, Eastside Park to Meriden Street and Meriden Street to Adderley Street.

In order to consider the impacts on access and servicing to a greater level of detail, the route has now been considered in this note over eight sections.

14.3 Section 1: Corporation Street to Eastside Park

Existing servicing access to Bull Street is provided from Dale End, as shown in Figure 12. As the new tram alignment is shared between all vehicles at the Dale End/High Street junction, this service area will be unaffected by the proposals.

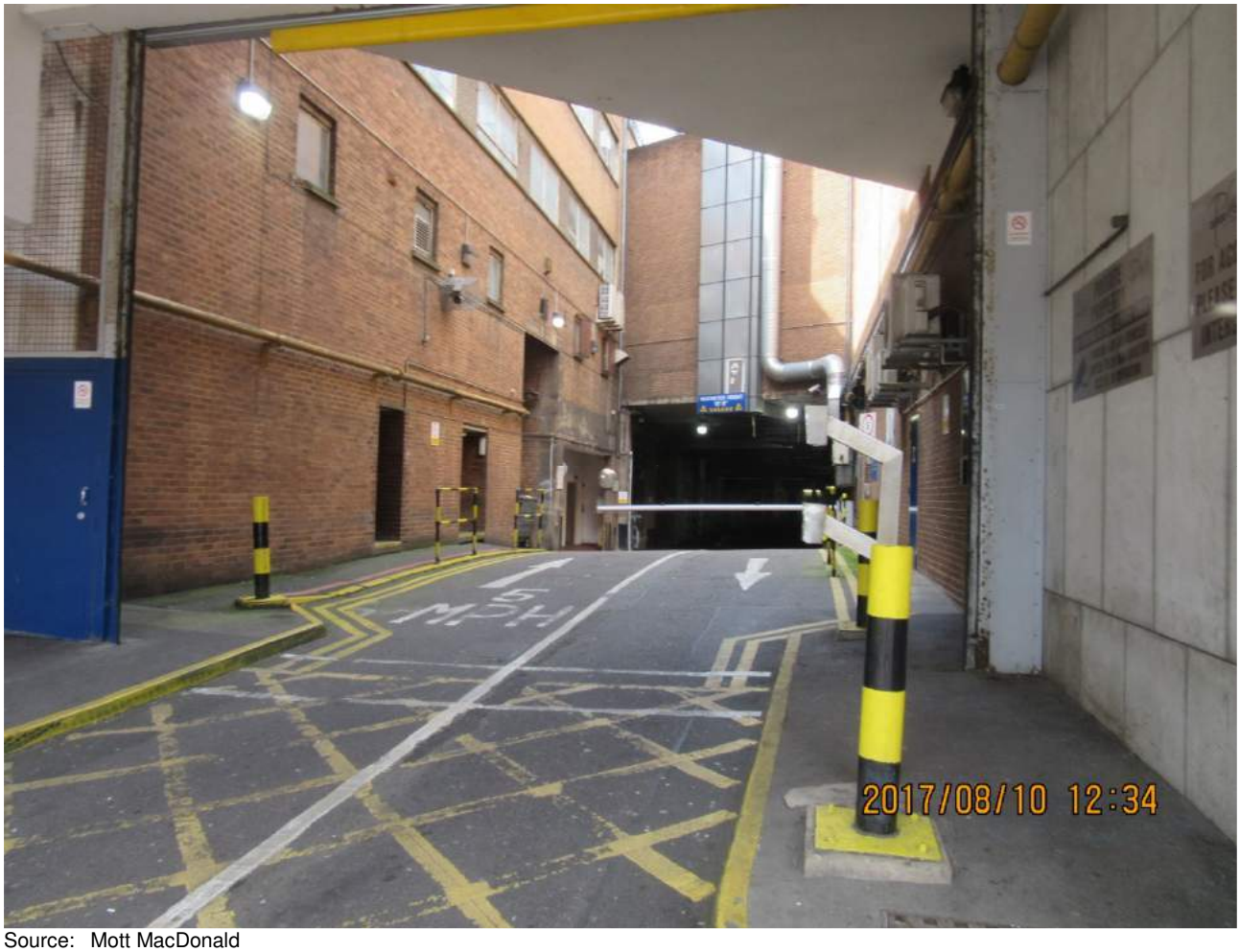
Figure 12: Dale End/High Street junction



Source: Mott MacDonald

The existing service access for Martineau Place on High Street, shown in Figure 13, is to be signalised, and 24-hour access to service vehicles will remain. Large vehicles must route via the new alignment due to the 2.8m height restriction on Dale End, requiring such traffic to re-route.

Figure 13: Martineau Place Service Access



Source: Mott MacDonald

The taxi rank adjacent to the Kings Parade building is to be removed as a result of the building's demolition, whilst the taxi rank on the opposite side of the road adjacent to The Square will be extended to compensate, as shown in Figure 14. The demolition of the Kings Parade building on Dale End will primarily affect access arrangements covered in Section 2 around Albert Street and New Meeting Street, however the removal of this building also removes its own existing servicing requirements.

Figure 14: Dale End Taxi Ranks



Source: Mott MacDonald

14.4 Section 2: Eastside Park to Meriden Street

Journeys along Albert Street must be re-routed during any closures required to support the construction works, although the new tram alignment will provide a shared use road from Moor Street Queensway to the Dale End/High Street junction, providing access for service vehicles. Construction phasing will inform the accessibility of Albert Street during the full construction process as accessibility may change as the construction progresses. This is shown in Appendix D1.

Vehicles accessing the existing NCP Car Park and Ikea Collection Point off Albert Street (directly west of the Moor Street Queensway / Albert Street junction) shown in Figure 15 must route via Dale End if the height restriction allows, or use the proposed u-turn facility at the High Street / Dale End junction. Use of Carrs Lane is not permitted as this is for Authorised Vehicles only. All movements are therefore to be retained, and general traffic can still access the NCP Car Park via Dale End, shown in Figure 16. It is understood that customers will be directed to use the Dale End entrance to the car park to avoid use of the U-turn facility on the tram alignment and Carrs Lane (subject to height restrictions on the bridge on Dale End). The pedestrian entrance will remain on Dale End as there is no through route in the car park. This

requires pedestrian access to be maintained along Albert Street to reach the entrance of the collection point.

Figure 15: NCP Car Park and Ikea Collection Point on Albert Street



Source: Mott MacDonald

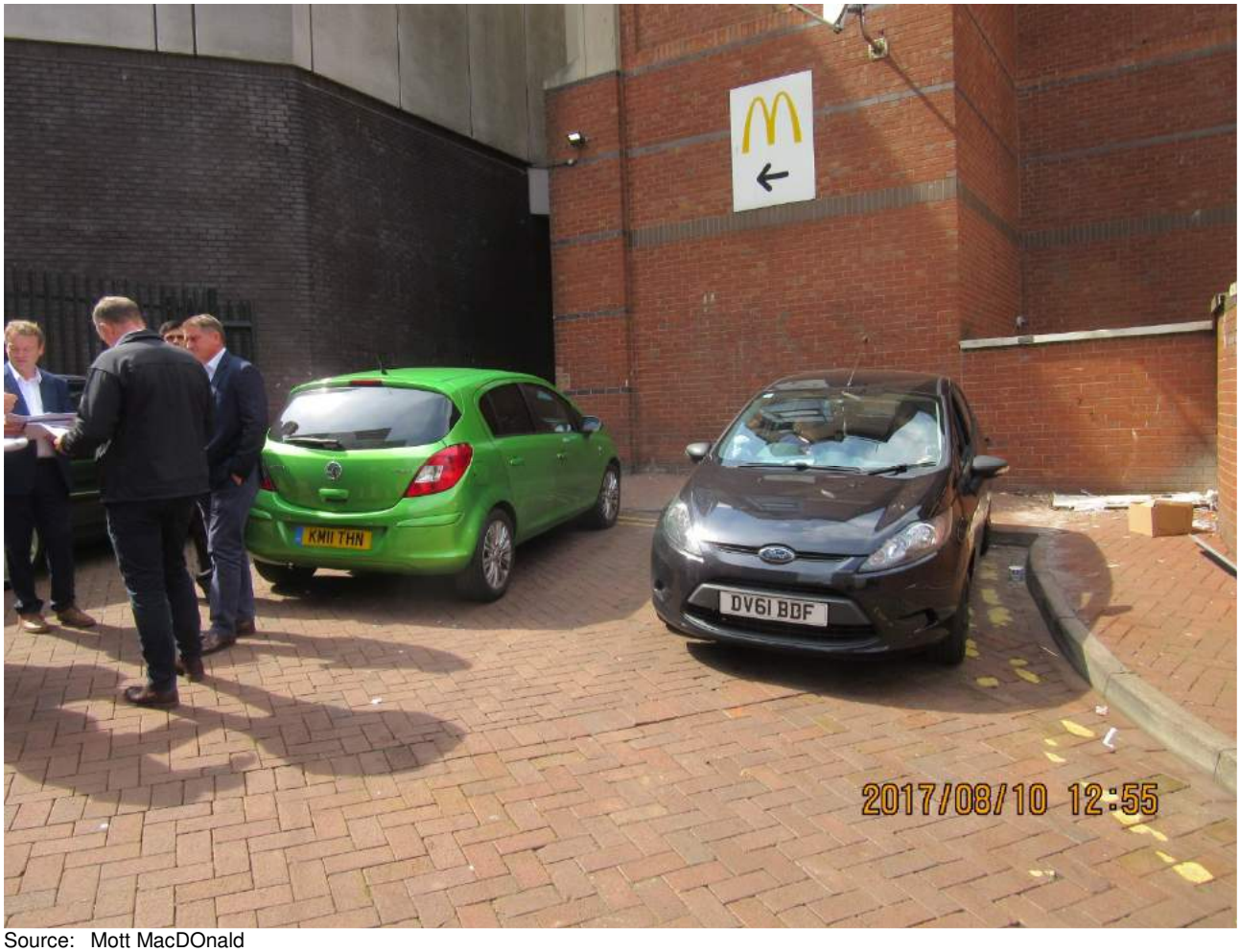
Figure 16: Ikea Pedestrian Entrance on Dale End



Source: Mott MacDonald

Existing service requirements on New Meeting Street will be reduced due to the demolition of the Kings Parade building, including the turning area shown in Figure 17 which is currently used for parking. This area is subject to double yellow lines which prevents parking except for blue badge holders. The service access for the Tesco Express, Travelodge and the retail buildings fronting High Street and Carrs Lane (Figure 18 and Figure 19) will remain, accessed via the new alignment. Three disabled parking bays on Albert Street will be removed as part of the construction works and tram alignment and relocated to Dale End.

Figure 17: New Meeting Street Car Parking on double yellow lines



Source: Mott MacDOnald

Figure 18: Travelodge and Tesco Service Access



Source: Mott MacDonald

Figure 19: Service Area for Carrs Lane and High Street Frontages



Source: Mott MacDonald

Properties on New Meeting Street such as Savills and Haynes House, as well as St. Michael's Catholic Church and the O2 Business Centre on Albert Street (Figure 20 and Figure 21 respectively) will remain open and construction phasing will need to ensure they can be safely accessed for the duration of the works, possibly aided by hard barriers between the Kings Parade demolition site and the new tram alignment on New Meeting Street. Use of the church car park during construction phases has been discussed with the land owners and the land parcel has been included in the Transport and Works Act application. If any spaces are temporarily lost as part of this, it has been agreed these being re-provided in the NCP car park on Albert Street.

Figure 20: St Michael's Catholic Church Car Park and Access



Source: Mott MacDonald

Figure 21: O2 Business Centre Moor Street



Source: Mott MacDonald

14.5 Section 3: Meriden Street to Adderley Street

The existing service access to Hotel La Tour is located on Masshouse Lane (Figure 22) and will be unaffected as part of the BEE proposals. The existing drop-off point (Figure 23) is to be retained, although the access to the drop-off point will be reconfigured due to the introduction of the Bus Interchange and the closure of Park Street. Vehicles will access the drop-off point via the Bus Interchange and exit onto Masshouse Lane (Figure 24).

Figure 22: Hotel La Tour Service Access



Source: Mott MacDonald

Figure 23: Hotel La Tour Drop-off Point



Source: Mott MacDonald

Figure 24: Hotel La Tour & Masshouse Lane



Source: Mott MacDonald

Traffic will be generally re-routed in Section 3 due to the closure of Park Street and Fazeley Street as part of the HS2 works, with Masshouse Lane and Moor Street Queensway providing alternative routes. Hotel La Tour and Hive Apartments (Figure 25) will be able to continue to be serviced as normal without any residual impact on traffic.

Figure 25: Hive Apartments Service Access on Masshouse Lane



Source: Mott MacDonald

The land upon which three private car parks are located is to be redeveloped (land directly south of Hotel La Tour) as part of the HS2 development, as shown in Appendix D2. The Fazeley Street and Albert Street private pay-and-display car parks, and the Hotel La Tour car park, all with access via Seymour Street, will be removed as part of the overall development of the area due to the HS2 proposals.

It is understood that Hotel La Tour privately rent the car park (Figure 26). The 2010 Planning Application submitted for Hotel La Tour included no parking provision. The TS stated that the due to the highly accessible location of the hotel, no parking provision was required. Any car parking that Hotel La Tour currently have is through private agreement, and is not a planning requirement.

Figure 26: Hotel La Tour Car Park



Source: Mott MacDonald

There are no access and servicing impacts further along Section 3, with access to The Woodman public house unaffected by the proposals. The tram alignment currently also cuts through the corner of the Birmingham City University gardens (Figure 27). The Eagle and Tun public house will be affected by the proposals as they are currently access off New Canal Street which is being closed to traffic. Servicing requirements for this site are to be developed alongside the HS2 proposals in the area.

Figure 27: Birmingham City University Gardens



Source: Mott MacDonald

14.6 Section 4: New Canal Street to Meriden Street / Bordsley Street

There are currently loading restrictions along New Canal Street, with no loading permitted between 08:00 and 19:30. With the introduction of BEE, there will be no waiting or loading permitted at any time along New Canal Street, meaning properties along this road must seek alternative access and servicing points.

William Marston Ltd, Digbeth Hall and Latifs are the main properties in Section 4, and all have significant servicing requirements as large buildings with multiple entrance points. William Marston Ltd is currently serviced via Fazeley Street (Figure 28), whilst refuse collection and servicing for Digbeth Hall, currently located on New Canal Street, could be undertaken via the service access on New Bartholomew Street (Figure 29), resulting in no material detrimental impact.

Figure 28: William Marston Ltd on Fazeley Street



Source: Mott MacDOnald

Figure 29: Digbeth Hall Service Access on New Bartholomew Street



Source: Mott MacDonald

Latifs has an access gate fronting onto New Canal Street used for waste collection and public entrance (Figure 30), but it is understood that deliveries and servicing is undertaken via Bordesley Street (Figure 31) and New Bartholomew Street (Figure 32). Refuse vehicles may continue to enter via New Canal Street and exit onto New Bartholomew Street and Bordesley Street following the introduction of BEE and are therefore not affected by the proposals.

Figure 30: Latifs Access on New Canal Street



Source: Mott MacDonald

Figure 31: Latifs Exit on Bordesley Street



Source: Mott MacDonald

Figure 32: Latifs Access on New Bartholomew Street



Source: Mott MacDonald

There are also two car parks in Section 4, and access to these will not be affected by the proposals. It is understood that they are identified for future development following the construction of the BEE scheme and therefore service accesses requirements will need to be considered when any planning applications are made and assessed. Such assessments will have to take account of conditions existing at the time, including BEE. This is shown in Appendix D3.

14.7 Section 5: Meriden Street / Bordesley Street to Meriden Street / Coventry Street

There are currently loading restrictions along this section of Meriden Street, with no loading permitted during 08:00 and 19:30. These restrictions serve a range of businesses located along the length of Section 5, and with the introduction of BEE, there will be no waiting or loading permitted at any time along Meriden Street.

The majority of premises along Meriden Street have service access areas off-street, meaning the impact of BEE can be minimised. However, this is not the case for all occupiers, meaning they must seek alternative access and servicing points. This is evidenced in Appendix D4.

It is understood that Whittaker Fleet Care, Chicken.Com and a number of other premises on Meriden Street currently require deliveries and refuse collection to be undertaken on Meriden Street. Deliveries and refuse collections for Whittaker Fleet Care can be undertaken on Bordesley Street (Figure 33), but for those businesses that do not have service areas off-street, discussions must take place with relevant stakeholders regarding loading restrictions in light of the introduction of shared track, and the potential for alternative routing and timing of deliveries/collections.

Figure 33: Whittaker Fleet Care and Meriden Street / Bordesley Street junction



Source: Mott MacDonald

Refuse collections have also been identified to take place along Meriden Street for a range of business premises with no alternative access, such as Chicken.Com and MyGrill. Discussions will take place with the relevant stakeholders to ensure the tram can operate alongside the refuse collections (this may mean restricting the times refuse collections take place, or relocating the collections).

It is was originally proposed that the Coventry Street Car Park will be part of the land take to house one of the BEE substations, however since the TWA application, it has been agreed that the substation can be located under the Network Rail bridge structures on Network Rail land

(which was included in the TWA). Access to the substation can be from Meriden Street via the entrance with the Network Rail structure and therefore not affected by the BEE scheme.

Access to the car park will be maintained from Meriden Street (Figure 34). During construction, all car park provision will be removed, although the location of the substation within the car park will provide an opportunity to retain some of the existing provision once the BEE is operational. Access to the revised Coventry Street Car Park will be via Coventry Street (where an old access to the site is located and a dropped kerb is provided).

Figure 34: Coventry Street Car Park, Optimus Law and MyGrill



Source: Mott MacDonald

14.8 Section 6: Meriden Street / Coventry Street to Digbeth

There are currently loading restrictions along this section of Meriden Street, with no loading permitted between 07:45-09:15 and 16:30-18:45. These restrictions serve a range of businesses located along the length of Section 6, and with the introduction of BEE, there will be no waiting or loading permitted at any time along Meriden Street.

It is understood that Norton Hydraulics, Kitchen Carcasses, Morden Solicitors LLP and Fancy Fabric Store all take deliveries on Meriden Street, as shown in Appendix D5. Norton Hydraulics currently have daily deliveries for a duration of 30 minutes as well as monthly deliveries for a

duration of up to 4 hours, from the service access shown in Figure 35. Discussions must take place with relevant stakeholders on Meriden Street regarding the loading restrictions in light of the introduction of shared track, and the potential for alternative routing and timing of deliveries/collections.

Figure 35: Norton Hydraulics Service Access



Source: Mott MacDonald

There is potential for Allison Street to be used for servicing of some of these premises (Figure 36), whilst the widening of Digbeth (B4100) to accommodate trams as well as vehicles could give rise to the introduction of a loading bay at the corner of the Meriden Street / Digbeth (B4100) junction (Figure 37), which could facilitate the servicing of the majority of premises on Meriden Street. A design for this is provided in Appendix D7.

Figure 36: Allison Street Service Access Example



Source: Mott MacDonald

Figure 37: Space for possible loading bay on Digbeth (B4100) outside of Fancy Fabrics



Source: Mott MacDonald

Refuse collections have also been identified to take place along Meriden Street for a range of business premises (Figure 38). Discussions will take place with the relevant stakeholders to ensure the tram can operate alongside the refuse collections (this may mean restricting the times refuse collections take place, or relocating the collections).

Figure 38: Meriden Street Service Access Example



Source: Mott MacDonald

The internal layout of buildings was not assessed, although where possible along Section 6 due to safety concerns, vehicles should reverse in to off-street loading areas and leave in a forward direction.

Directly north of the Digbeth (B4100) / Meriden Street junction on the eastern side of the highway, the South and City College (Figure 39) is to be demolished to allow for the tram's left-turn onto Digbeth (B4100), as shown in Appendix D5. In order to accommodate the tram, existing footway width will have to be reduced in places along some parts of Section 6. This does not result in any land take, and there is no impact upon property.

Figure 39: South & City Birmingham College on Meriden Street / Digbeth (B4100)



Source: Mott MacDonald

14.9 Section 7: Digbeth to High Street Deritend

Digbeth (B4100) is currently three lanes in both directions, as evidenced in Figure 40. Along much of Section 7 it is proposed that the three lanes in both directions are reduced to two lanes in each direction to accommodate the tram (running centrally), as shown in Appendix D5. It has been observed that some premises do operate servicing from the nearside lane (bus only) on Digbeth (B4100). The servicing and loading occurs at designated times (no loading Monday-Friday between 07:45-09:15 and 16:30-18:45).

Figure 40: Digbeth (B4100)



Source: Mott MacDonald

The reduction in vehicular lanes along Digbeth (B4100) results in the removal of the bus-only lanes in each direction, which will result in servicing in the nearside traffic lane. A review of the premises along Digbeth (B4100) has indicated that the majority do have alternative service access options either on side streets or within rear car parks, and therefore the potential impact of future servicing along the tram route can be minimised. For those without alternative servicing access points, loading / unloading can take place directly from the Digbeth (B4100) carriageway. Loading / unloading restrictions will not change and servicing will be permitted outside of peak hours.

Directly east of the Digbeth B4100 / Rea Street junction on the south side of High Street Deritend, an existing taxi stand is to be removed. The existing taxi stand, shown in Figure 41, has restrictive loading times (no loading or unloading Monday-Friday 07:45-09:15 and 16:30-18:45).

Figure 41: Taxi Stand opposite Rea Street on Digbeth (B4100)



Source: Mott MacDonald

Several business premises have identified refuse collections to take place along Digbeth (B4100) (although the majority of refuse collections take place on side streets such as Rea Street and Oxford Street). It is, however, considered that refuse collections already exist along Digbeth (B4100) and the implementation of a segregated tram on this section will not impact upon future operations. Discussions are required to take place with the relevant stakeholders to set out the proposals for reducing capacity along this section, and ensure that this does not impact refuse collections.

14.10 Section 8: High Street Deritend to Adderley Street

High Street Deritend is currently three lanes in both directions, as evidenced in Figure 42. Along much of Section 8 it is proposed that the three lanes in both directions are reduced to two lanes in each direction to accommodate the tram (running centrally), as shown in Appendix D6. It has been observed that some premises do operate servicing from the nearside lane (bus only) on High Street Deritend. The servicing and loading occurs at designated times (no loading Monday-Friday between 07:45-09:15 and 16:30-18:45).

Figure 42: High Street Deritend



Source: Mott MacDonald

The reduction in vehicular lanes along High Street Deritend results in the removal of the bus-only lanes in each direction, which will result in servicing in the nearside traffic lane. A review of the premises along High Street Deritend has indicated that the majority do have alternative service access options either on side streets or within rear car parks, and therefore the potential impact of future servicing along the tram route can be minimised. For those without alternative servicing access points, existing loading / unloading restrictions will not change, and will still be permitted outside of peak hours.

Several business premises have identified refuse collections to take place along High Street Deritend, although the majority of refuse collections take place on side streets such as Floodgate Street and Stone Yard (Figure 43). It is, however, considered that refuse collections already exist along High Street Deritend and the implementation of a segregated tram on this section will not impact upon future operations. Discussions are required to take place with the relevant stakeholders to set out the proposals for reducing capacity along this section, and ensure that this does not impact refuse collections.

Figure 43: Irish Centre Service Access on Stone Yard



Source: Mott MacDonald

14.11 Summary

- Section 1: Existing service access will remain from Dale End and High Street, but large vehicles must route via the new alignment due to the height restriction on Dale End. The service access for Martineau Place is to be signalised.
- Section 2: Albert Street is to be closed, but the new tram alignment will provide a shared use road between Moor Street Queensway and High Street. Vehicles accessing the NCP Car Park and Ikea collection point parking will be instructed to route via the High Street/ Dale End junction. The Kings Parade building is to be demolished, reducing existing service requirements on New Meeting Street. Access to remaining properties on New Meeting Street will be maintained for the duration of the construction works. Disabled parking bays on Albert Street are to be relocated to Dale End. Any loss of parking in the St Michaels Catholic Church would be offset by using the NCP car park on Albert Street.
- Section 3: Access to Hotel La Tour will be unaffected as this is located on Masshouse Lane. Park Street is to be closed after the Masshouse Lane junction due to the HS2 works, whilst the three private car parks accessed via Seymour Street are to be redeveloped. Hotel La Tour currently have private agreement to use the car park. However, the 2010 Planning

Application submitted for Hotel La Tour included no parking provision. The document stated that the due to the highly accessible location of the hotel, no parking provision was required. Any car parking that Hotel La Tour currently have is therefore through private agreement, and is not a planning requirement. Access to the Eagle and Tun public house will be considered as part of the HS2 proposals.

- Section 4: Waiting or loading will not be permitted at any time along New Canal Street, so arrangements for access, servicing and refuse collection must be made for Digbeth Hall, most probably via New Bartholomew Street. Latif's is unlikely to be affected by the proposals.
- Section 5: Waiting or loading will not be permitted at any time along Meriden Street, so alternative arrangements for access, servicing and refuse collection must be made for Whittaker Fleet Care, Chicken.Com and other premises. The majority of premises along Meriden Street have service areas off-street, meaning the impact of BEE can be minimised. This is not the case for all occupiers, however, meaning discussions must take place with relevant stakeholders regarding this topic.
- Section 6: Waiting or loading will not be permitted at any time along Meriden Street, so alternative arrangements for access, servicing and refuse collection must be made for Norton Hydraulics, Kitchen Carcasses, Morden Solicitors LLP and Fancy Fabric Store. Allison Street could be used to service these premises, whilst the widening of Digbeth (B4100) could give rise to the introduction of a loading bay. The Coventry Street Car Park will be used to house one of the BEE substations, with parking provision only possible once BEE is operational. The South & City College on the corner of Digbeth (B4100)/ Meriden Street is also to be demolished to allow for the tram's left-turn, although this will not result in any land take or impact upon property.
- Section 7: Servicing is currently undertaken from the nearside bus lane on Digbeth (B4100) at designated times, but this will not be possible given the reduction in lanes from three to two on each side to accommodate the new tram alignment. Most properties on Digbeth (B4100) have alternative access points on side streets or within rear car parks, so these must be utilised so as not to impact on traffic. For those without alternative access/ servicing points, existing loading restrictions will not change and loading / unloading can take place from the Digbeth (B4100) carriageway. An existing taxi stand is also to be removed opposite the Rea Street junction.
- Section 8: Servicing is currently undertaken from the nearside bus lane on High Street Deritend at designated times, but this will not be possible given the reduction in lanes from three to two on each side to accommodate the new tram alignment. Most properties on High Street Deritend have alternative access points on side streets or within rear car parks, so these must be utilised so as not to impact on traffic.

15 Impact on Road Safety

15.1 Introduction

This chapter of the TA update provides the collision history in the study area of the BEE proposal analysed over the most recently available five-year period of data.

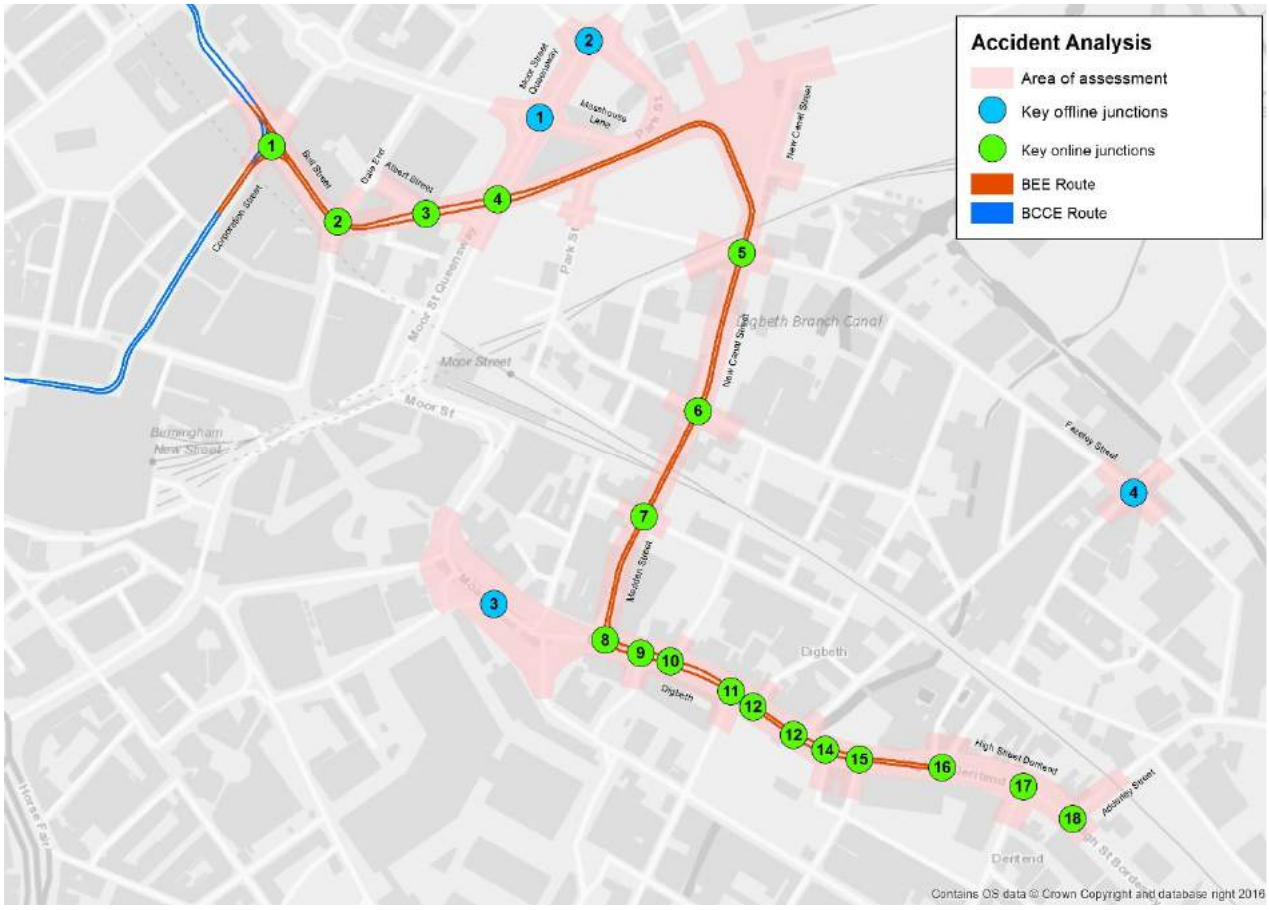
As in previous chapters, the study area has been split into the following sections for analysis:

- Section 1 – Corporation Street to Eastside Park
- Section 2 – Eastside Park to Meriden Street
- Section 3 – Meriden Street to Adderley Street

15.2 Collision History Summary

This assessment considers the formal personal injury collision record over the five year period 1 January 2012 to 31 December 2016. The assessment area has been agreed with BCC during the scoping of the TA, shown in **Figure 44**, and includes the on-line and off-line junctions.

Figure 44: Collision History Area of Assessment



Source: Mott MacDonald

The collision history in the full assessment area (including the off-line junctions) is shown in **Table 38**.

Table 38: BEE Study Area Collision History

Date	Fatal	Serious	Slight	Total
2012	0	3	18	21
2013	0	5	30	35
2014	0	4	25	29
2015	0	3	23	26
2016	1	4	14	19
Total	1	19	110	130

In total, there were 130 collisions over the five year period, of which 19 of the collisions were serious and 1 fatal. As shown in **Table 39**, the 130 collisions resulted in 194 casualties. 21 of the casualties were classified as serious.

Table 39: BEE Study Area Casualty Data

	Casualty by Classification			Casualty by Severity			
Date	Driver	Passenger	Pedestrian	Fatal	Serious	Slight	Total Casualties
2012	12	13	8	0	4	29	33
2013	21	17	12	0	5	45	50
2014	23	10	12	0	4	41	45
2015	13	12	13	0	4	34	38
2016	11	9	8	1	4	23	28
Total	80	61	53	1	21	172	194

This chapter analyses the collision data in the three outlined sections of the BEE track alignment in accordance with the rest of the TA. The analysis also includes the off-line junctions. The full dataset is located in Appendix E.

15.3 Section 1: Corporation Street to Eastside Park

15.3.1 Collision History

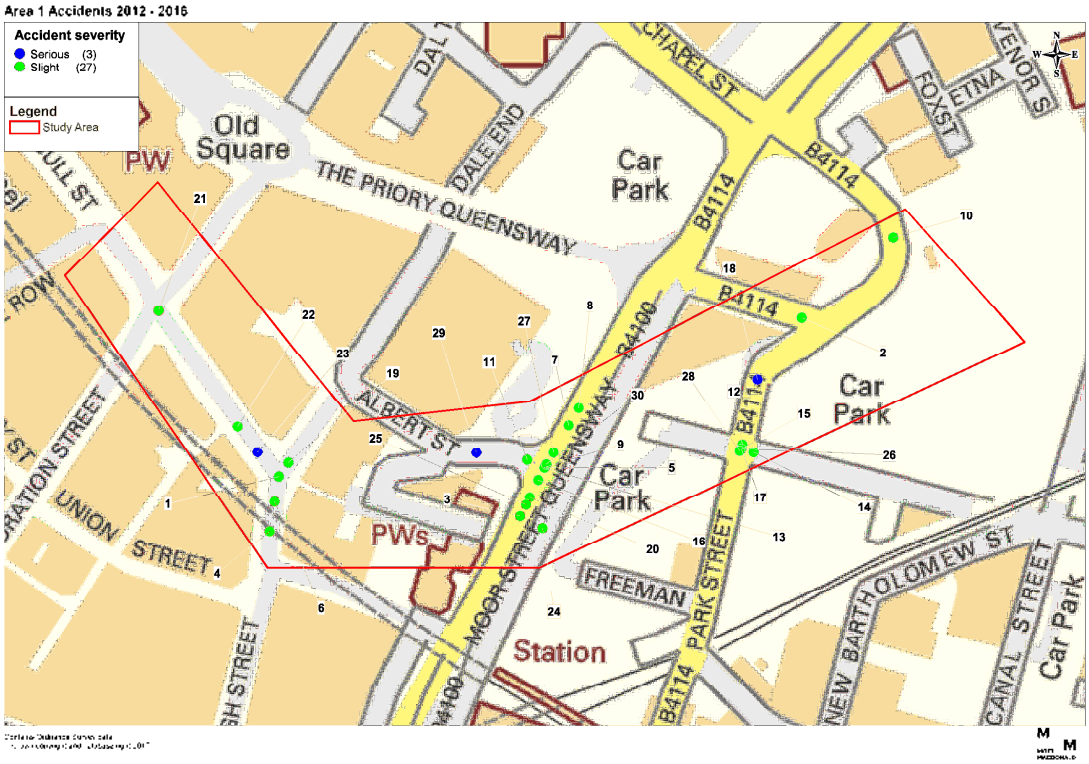
Table 40 shows the collision history in Section 1 (see **Figure 45**) of the BEE route over the five year period.

Table 40: Section 1 Collision History

Date	Fatal	Serious	Slight	Total
2012	0	0	5	5
2013	0	0	9	9
2014	0	1	4	5
2015	0	1	8	9
2016	0	1	1	2
Total	0	3	27	30

The location of the collisions is shown in **Figure 45**.

Figure 45: Section 1 Collision Map



Source: Mott MacDonald 2017

Table 40 shows a total of 30 personal injury collisions, with zero fatalities and three serious collisions.

Table 41 shows the casualty data for Section 1 of the study area.

Table 41: Section 1 Casualty Data

	Casualty by Classification			Casualty by Severity			
Date	Driver	Passenger	Pedestrian	Fatal	Serious	Slight	Total Casualties
2012	2	0	3	0	0	5	5
2013	6	1	3	0	0	10	10
2014	5	5	1	0	1	10	11
2015	2	1	7	0	1	9	10
2016	2	0	0	0	1	1	2
Total	21	7	14	0	3	35	38

Table 40 and **Table 41** show the 30 collisions produced 38 casualties, of which 14 were pedestrians. There were 3 serious casualties over the five year period.

Three serious collisions took place on this section of the route. One of the collisions resulted in two pedestrian casualties (see Appendix E).

15.3.2 Impact on Road Safety

The conclusion of the assessment is that implementation of the scheme will not give rise to a detrimental impact highway safety. For much of Section 1, trams are segregated from vehicular traffic and run off-line. Where on-line running occurs, signalised junctions allow for safe vehicular and pedestrian management.

Pedestrian facilities at the Bull Street / Dale End junction will need to cater for a high number of pedestrian movements in all directions. However, the re-location of the signalised pedestrian crossing from Upper Bull Street to this junction will provide a safe crossing facility for pedestrians and cyclists across the junction.

15.4 Section 2: Eastside Park to Meriden Street

15.4.1 Collision History

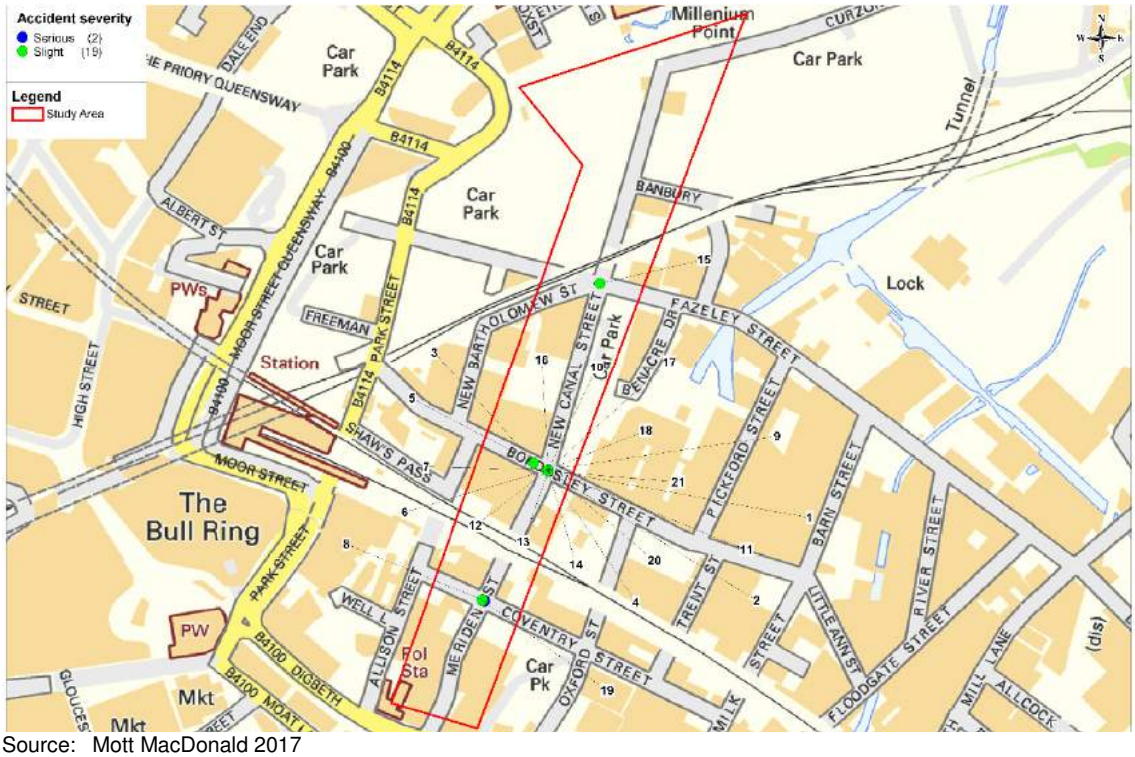
Table 42 shows the collision data in Section 2 (see **Figure 46**) over the assessed five year period.

Table 42: Section 2 Collision History

Date	Fatal	Serious	Slight	Total
2012	-	-	-	-
2013	0	1	7	8
2014	0	0	4	4
2015	0	1	5	6
2016	0	0	3	3
Total	0	2	19	21

The location of the collisions is shown in **Figure 46**.

Figure 46: Section 2 Collision Map



Source: Mott MacDonald 2017

Table 42 shows a total of 21 personal injury collisions in the area of assessment in Section 2. There were no fatalities and three serious collisions.

Table 43 shows the casualty data for Section 2.

Table 43: Section 2 Casualty Data

	Casualty by Classification			Casualty by Severity			
Date	Driver	Passenger	Pedestrian	Fatal	Serious	Slight	Total Casualties
2012	-	-	-	-	-	-	-
2013	9	9	0	0	1	17	18
2014	5	1	0	0	0	6	6
2015	6	8	0	0	2	12	14
2016	5	2	0	0	0	7	7
Total	25	20	0	0	3	36	45

Table 43 shows there were no pedestrian casualties over the five year period in Section 2. This is likely due to low pedestrian and vehicle flows within this section as opposed to Section 1 and Section 3. There were 3 serious casualties over the five year period.

All of the junctions in Section 2 are four arm junctions, with the most northern (New Canal Street / Fazeley Street) being signalised.

Twenty-one collisions were recorded at these junctions; two being serious. The tow serious collisions all involved vehicle-to-vehicle conflict, one of these collisions occurred at Coventry

Street / Meriden Street with the other occurring at the junction of Bordesley Street / New Canal Street.

The collision at the Coventry Street / Meriden Street junction involved a vehicle to vehicle junction overshoot in wet conditions and resulted in one casualty.

The serious collision at the New Canal Street / Bordesley Street four-armed priority junction resulted in five casualties (two serious casualties). This happened as the vehicle travelling along Bordesley Street towards New Canal Street failed to stop at the priority junction and collided with a northbound vehicle.

15.4.2 Impact on Road Safety

The conclusion of the assessment is that implementation of the scheme will not give rise to a detrimental impact to highway safety.

It is evident from the analysis that there is an existing safety issue with vehicles travelling from side roads failing to stop at the junction with New Canal Street/Meriden Street. Both the New Canal Street/Fazeley Street and New Canal Street/Bordesley Street junctions are due to be signalised as part of the proposals; this will reduce fail to give way collisions.

The Meriden Street/Coventry Street junction is to remain as a priority junction due to the relatively low traffic levels on the side roads compared to the other junctions. There is currently no signage at this junction indicating to drivers that they need to give way. Therefore, signs will be erected to warn drivers of the impending junction and possible tram conflict. This will improve safety.

15.5 Section 3: Meriden Street to Adderley Street

15.5.1 Collision History

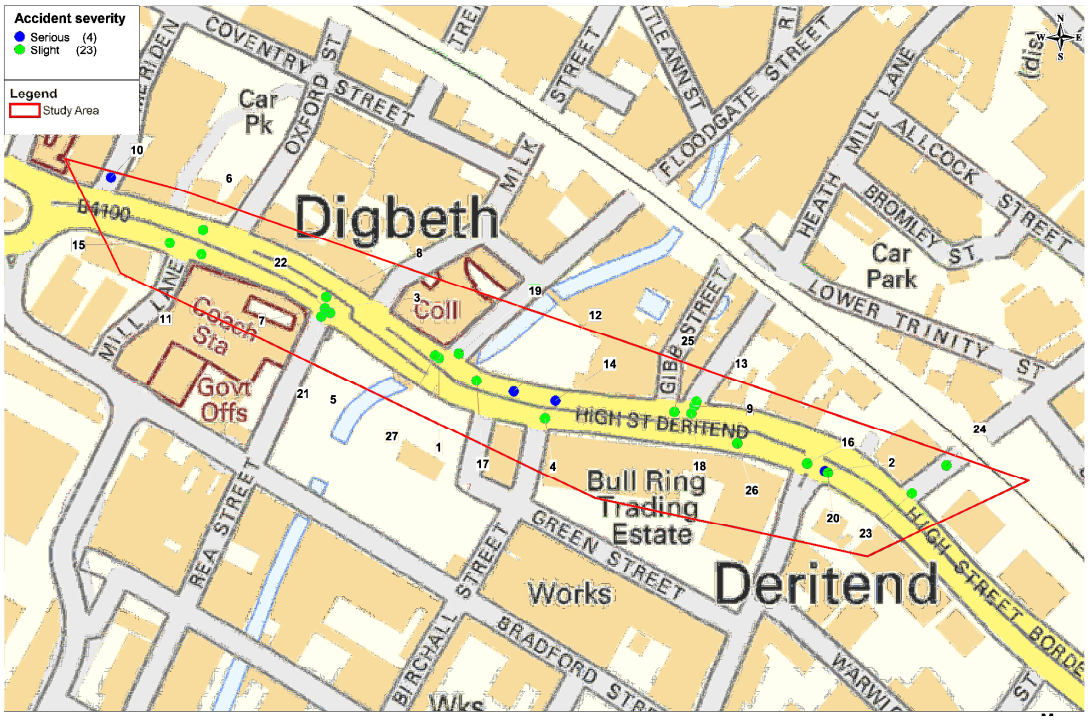
Section 3 of the route has 11 on-line junctions. **Table 44** shows the collision history over the five year period for Section 3.

Table 44: Section 3 Collision History

Date	Fatal	Serious	Slight	Total
2012	0	0	1	1
2013	0	1	5	6
2014	0	3	7	10
2015	0	0	6	6
2016	0	0	4	4
Total	0	4	23	27

The location of the collisions is shown in **Figure 47**.

Figure 47: Section 3 Collision Map



Source: Mott MacDonald 2017

Table 44 shows a total of 27 personal injury collisions with zero fatalities and four serious collisions in Section 3; although all of the serious collisions can be attributed to gross negligence on behalf of either the driver or the pedestrian.

Table 45 shows the casualty data for Section 3.

Table 45: Section 3 Casualty Data

	Casualty by Classification			Casualty by Severity			
Date	Driver	Passenger	Pedestrian	Fatal	Serious	Slight	Total Casualties
2012	0	1	0	0	0	1	1
2013	3	2	1	0	1	5	6
2014	8	4	4	0	3	13	16
2015	3	1	3	0	0	7	7
2016	1	5	1	0	0	7	7
Total	15	13	9	0	4	33	37

Table 45 shows the highest casualty type are driver casualties (40%) with 24% being pedestrian casualties. There were 5 serious casualties over the five year period.

There are signalised pedestrian crossing facilities along Digbeth (B4100) and High Street Deritend, although observations made by the authors during a site visit (15:30 - 16:30 on 6th January 2016) identified a number of pedestrians crossing both sides of the highway away from controlled crossing facilities by jumping over the central reservation guard rail.

One of the serious collisions involved a pedestrian casualty at the High Street Deritend / Heath Mill Lane junction. A vehicle turning left from High Street Deritend struck a pedestrian as the pedestrian stepped out from between two stationary vehicles. Police reports suggest the pedestrian stepped out without looking. This collision happened in daylight in the AM peak period with a wet carriageway surface.

One serious collision occurred at the High Street Deritend / Alcester Street junction when a pedestrian stepped out in front of a moving vehicle. The two main causes were the pedestrian 'failed to look properly' and was 'impaired by drugs'.

A serious collision occurred 20m from the Digbeth (B4100) / Meriden Street junction in 2014 when a vehicle travelled along the pavement at 03:00 resulting in a pedestrian casualty.

The final serious collision occurred at 03:05 and resulted in two casualties. A vehicle pursued by the police travelled the wrong way down Digbeth (B4100) and collided head on with another vehicle. This occurred 50m west of the Floodgate Street junction.

15.5.2 Impact on Road Safety

A number of pedestrians have been involved in collisions on this section despite the presence of pedestrian guard rail. When developing the detailed layout of this section, the use and location of pedestrian guard rail will be a key consideration for pedestrian safety. As part of the BEE scheme existing crossings will be retained or relocated as appropriate and additional crossings are proposed to enhance the availability of safe crossing points for pedestrians.

15.6 Off-line Junctions

The following summaries are focused on the off-line junction located along Moor Street Queensway, the Moat Lane Gyratory and the Heath Mill Lane / Liverpool Street junction.

15.6.1 Masshouse Lane and Jennens Road

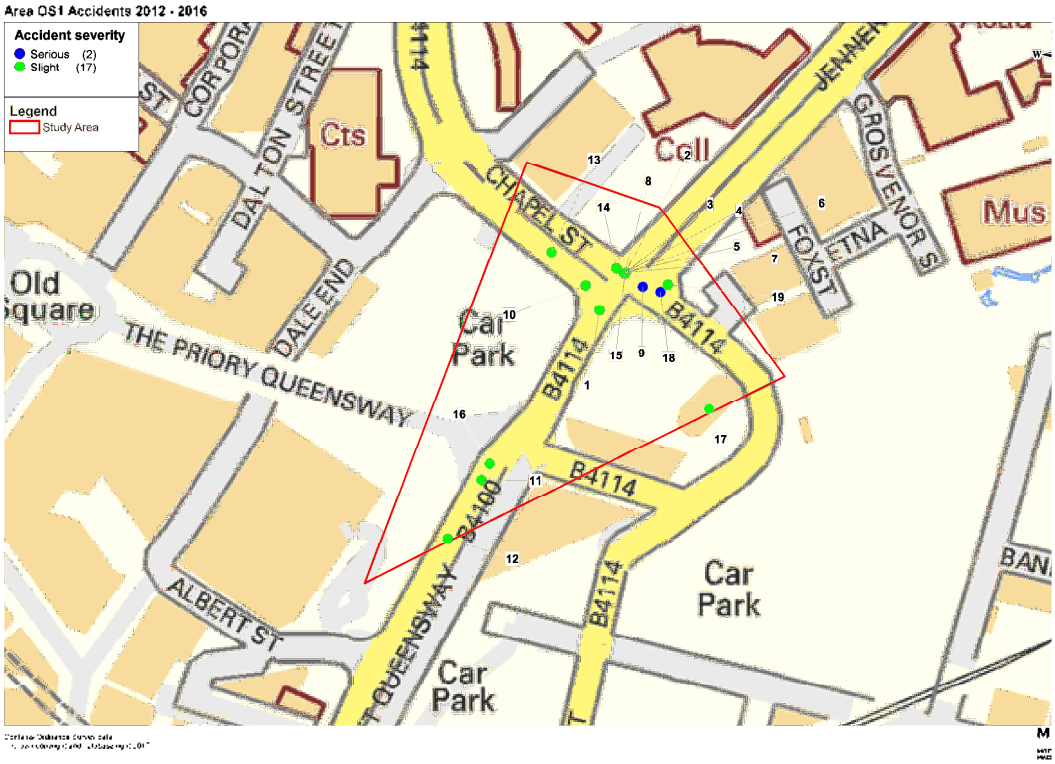
Table 46 shows the collision history for the Masshouse Lane and Jennens Road junctions with Moor Street Queensway.

Table 46: Masshouse Lane and Jennens Road Collision History

Date	Fatal	Serious	Slight	Total
2012	0	0	8	8
2013	0	1	3	4
2014	0	0	3	3
2015	0	0	2	2
2016	0	1	1	2
Total	0	2	17	19

The location of the collisions is shown in **Figure 48**.

Figure 48: Masshouse Lane and Jennens Road Collision Map



Source: Mott MacDonald 2016

Table 46 shows a total of 19 collisions, with only two collisions being classed as serious. **Table 47** shows the casualty data for the Masshouse Lane and Jennens Road junctions with Moor Street Queensway.

Table 47: Masshouse Lane and Jennens Road Casualty Data

	Casualty by Classification			Casualty by Severity			
Date	Driver	Passenger	Pedestrian	Fatal	Serious	Slight	Total Casualties
2012	8	11	0	0	0	19	19
2013	1	1	3	0	1	4	5
2014	3	0	0	0	0	3	3
2015	1	1	1	0	0	3	3
2016	1	0	1	0	1	1	2
Total	14	13	5	0	2	30	32

Both serious collisions involved pedestrians and were caused by driver error. One serious collision was caused by the driver of the vehicle failing to look properly whilst the other serious collision involved the vehicle travelling art excess speeds.

15.6.2 Moat Lane Gyratory

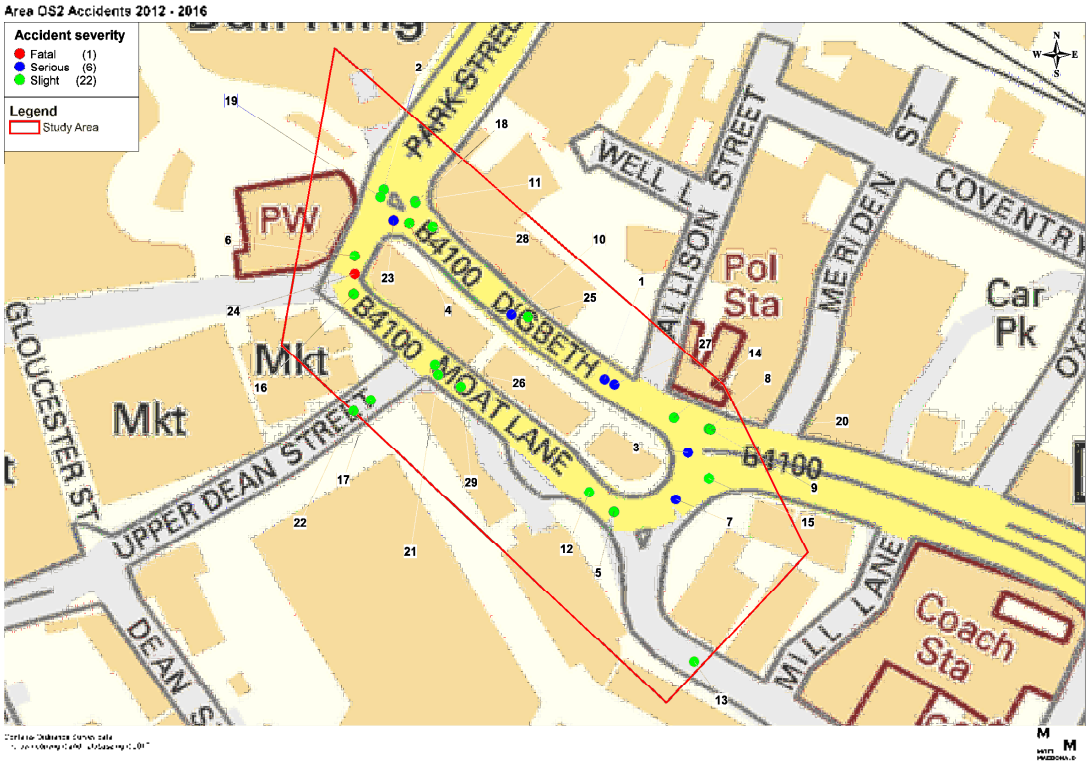
Table 48 shows the collision history for the Moat Lane Gyratory.

Table 48: Moat Lane Gyratory Collision History

Date	Fatal	Serious	Slight	Total
2012	0	2	4	6
2013	0	2	6	8
2014	0	0	6	6
2015	0	1	2	3
2016	1	1	4	6
Total	1	6	22	29

The location of the collisions is shown in **Figure 49**.

Figure 49: Moat Lane Gyratory Collision Map



Source: Mott MacDonald 2017

Table 48 shows there were a total of 29 accidents over the five year assessment period on the Moat Lane Gyratory.

Table 49 shows the casualty data for the Moat Lane Gyratory.

Table 49: Moat Lane Gyratory Casualty Data

	Casualty by Classification			Casualty by Severity			
Date	Driver	Passenger	Pedestrian	Fatal	Serious	Slight	Total Casualties
2012	2	1	3	0	2	4	6
2013	2	4	5	0	2	9	11

	Casualty by Classification			Casualty by Severity			
2014	1	0	7	0	0	8	8
2015	1	1	2	0	1	3	4
2016	2	2	4	1	1	6	8
Total	8	8	21	1	6	30	37

29 collisions are attributed to the Moat Lane Gyratory, six being serious. The 29 collisions produced 37 casualties, with a large proportion of pedestrians involved. Six of the casualties were classified as serious and 1 fatal, which was attributed to driver error.

15.6.3 Heath Mill Lane / Liverpool Street

Over the five year assessed period there were four collisions (two serious and two slight) at the Heath Mill Lane / Liverpool Street junction, which produced five casualties of which four were pedestrians.

15.6.4 Impact on Road Safety

Both the Moor Street Queensway / James Watt Queensway (B4114) junction and the Moat Lane Gyratory have experienced a large number of collisions over the five year assessment period. However, the majority of these can be attributed to slight collisions or driver error.

A number of pedestrians were involved in collisions at Moat Lane Gyratory. However, the tram alignment is not proposed to route through this junction, and the Do Something traffic scenario demonstrates less traffic travelling along this route. The reduction in traffic flows at the junction is likely to have a positive impact on road safety.

15.7 Summary

The personal injury collision data review considers the collision record over the five year period up to 31 December 2016 along the BEE track alignment and wider assessment area.

In total, there were 130 collisions over the five year period, resulting in 194 casualties. Of these casulaties one involved a fatality, 19 of the collisions were serious. It can be seen that after a rise in collisions from 2012 to 2013 (21 up to 35) there has since been a decline down to 19 in 2016, which is similar to the 2012 figure.

Of the 130 collisions, the following breakdown can be observed:

- Section 1 – 30 collisions
- Section 2 – 21 collisions
- Section 3 – 27 collisions
- Moor Street Queensway off-line junctions – 19 collisions
- Moat Lane Gyratory – 29 collisions
- Heath Mill Lane / Liverpool Street – 4 collisions

The scheme will be retaining or re-locating all signalised pedestrian crossings along the route. Additional signalised crossings are to be provided at the Bull Street / Dale End and High Street Deritend / Heath Mill Lane junctions. This will improve pedestrian safety and amenity.

The data suggests an existing safety problem with vehicles travelling from minor roads failing to stop at a number of junctions along New Canal Street and Meriden Street. The New Canal Street / Fazeley Street is currently signalised, and the New Canal Street / Bordesley Street

junction is due to be signalised as part of the proposals; therefore, reducing the risk of these types of collisions.

Regarding Section 3 of the route, it is evident that a number of pedestrians have been involved in collisions along this section. Whilst pedestrian guardrails are in place throughout the majority of this section, consideration of the use and location of pedestrian guard rail will be a key consideration for pedestrian safety when developing the detailed layout. As part of the BEE scheme existing crossings will be retained or relocated as appropriate and additional crossings are proposed to enhance the availability of safe crossing points for pedestrians.

Therefore, although there have been a number of collisions recorded on the BEE alignment and at nearby off-line junctions during the assessment period, the majority of these were caused by driver error and gross negligence. Measures have been included within the scheme design to minimise the detrimental impact on road safety, such as re-location of signalised pedestrian crossings and signalisation of problem junctions to improve road safety.

16 Impact on Emergency Services

This chapter remains unchanged from the TA.

17 Impact from Construction

This chapter remains unchanged from the TA.

18 Summary and Conclusions

18.1 Overview

The document updates the Transport Assessment (TA) to take account of changes which have occurred since the submission of the application and to present the results of some additional transport modelling which has been undertaken by the applicant. This section provides a summary of the aspects of the document which have changed since the TA was submitted.

18.2 Traffic

This document updates the traffic modelling assessments carried out in the TA. New traffic surveys were undertaken during December 2016 to provide an updated baseline position for assessment.

Detailed modelling assessments of all of the identified on-line and off-line junctions is provided. The purpose of the assessments is to identify what impact the proposed BEE will have on highway capacity and general traffic.

The effect of the BEE has been determined using the Birmingham City Centre Strategic Highway Model, built using industry standard modelling software, SATURN. The model has recently been updated to 2016 base year conditions. The updated traffic flow data from this model has been acquired for use in undertaking the junction operational assessments.

The updated data is used to derive the Do Minimum [DM] and Do Something demand scenarios for the operational assessments. The DM scenario represents the expected situation with regards to committed developments and traffic characteristics, and the Do Something (DS) scenario takes the DM and incorporates the BEE proposals.

Assessments have been carried out for the forecast years 2026 and 2031 representing an opening year and future year position.

All on-line junctions were shown to operate within capacity in the all future year DS scenarios.

In terms of the operational assessments at the offline junctions; in total, four junctions across the study area were identified. Three of these are shown to operate within capacity during all forecast year scenarios. The Heath Mill Lane / Liverpool Street junction is shown to operate over capacity during the PM peak in both 2026 and 2031 future year DS scenarios. Alterations to the signal control plan are proposed however, the junction continues to operate over capacity during the PM peak (albeit somewhat improved from the DM scenario).

The DS 2031 PM peak scenario queue is expected to block back past the Great Barr Street / Glover Street junction with a MMQ of 33.1 with BEE in place. Most vehicles should clear during the cycle in which they arrive; however, some vehicles towards the back of the queue may have to wait for a second cycle to pass through the junction. Whilst the junction will be congested, the impact on traffic is not deemed to be severe as the proposed DS scenario operation is an improvement on the DM scenario.

Whilst the junction operates over capacity in the PM Peak DS scenario, the DM scenario is shown to operate much less favourably without the introduction of BEE. In the DS 2031 PM scenario the PRC at the junction is -14.5% with a worst case MMQ of 33.1 on Great Barr Street. Compared to the DM 2031 PM scenario with PRC of -52.2% and worst case MMQ of 72.3 on

Great Barr Street, it can be seen that the operation of this junction is improved with the proposed BEE scheme in place and the proposed alterations to the traffic signal control plan.

To further improve capacity geometric changes to the junction would need to be implemented. Highway realignment is not considered feasible at this junction due to land constraints, and impacts on businesses and nearby heritage assets.

18.3 Impact on Bus Services

VISSIM modelling demonstrates that the BEE proposals will have only a small impact on journey times through the network. Overall, the modelling demonstrates that the network will operate within capacity with the introduction of BEE and there will be minimal overall impact to buses.

Changes to the junction capacity assessments included in this update to the TA are not considered likely to have an effect on the findings previously recorded in the TA. The findings of the review of the impacts to bus services are therefore unchanged from the TA.

18.4 Servicing and Access

The impact of the BEE scheme on access and servicing has been reviewed in detail to determine any changes to accessibility since the submission of the TA. Some minor changes are identified along the BEE alignment. The implementation of the proposed BEE scheme will alter some existing access routes, the availability of on-street loading/unloading and refuse collection access. However, the proposed diversions are not considered to represent a material impact on general access within the BEE scheme corridor.

It has been demonstrated that in relatively few cases where existing access cannot be retained, alternative access arrangements can be provided or arrangements will be put in place to mitigate the impacts of the BEE scheme. Where service areas are impacted upon by the future tram network, solutions have been identified and incorporated into the tram alignment design.

18.5 Highway Safety

A review of the injury collision record has been carried out for this update to the TA. The update takes account of the formal accident record over the most recent five year period up to 31 December 2016, along the BEE track alignment and wider assessment area.

In total, there were 130 collisions over the five year period resulting in 194 casualties. 17 of the collisions were serious and 1 involved a fatality. It can be seen that a general trend in the number of collisions increasing over time from 21 in 2012 to 35 in 2013 has now reduced to a total of 19 collisions during 2016.

It is evident from the analysis that there is a potential safety concern with vehicles travelling from minor roads failing to stop at a number of junctions with New Canal Street / Meriden Street. Both the New Canal Street / Fazeley Street and New Canal Street / Bordesley Street junctions are due to be signalised as part of the proposals, and therefore this will reduce safety concerns.

Although there have been a number of accidents recorded on the BEE alignment and at nearby off-line junctions during the assessment period, the majority of these were caused by driver error. Measures are proposed, where possible to minimise the impact on road safety, such as re-location of signalised pedestrian crossing and signalisation of problem junctions to remove safety concerns.

18.6 Overall Conclusion

This document serves as an update to the TA document submitted to support the application under the Transport and Works Act 1992 for the Midland Metro (Birmingham Eastside Extension) Order". The document updates the Transport Assessment (TA) to take account of changes which have occurred since the submission of the application.

The TA has been reviewed in detail to determine where changes have occurred. Where changes are identified the impacts of the proposed BEE scheme on these transportation aspects has been evaluated.

The most notable changes to the TA relate to the updates to highway network / junction modelling. The Birmingham City Centre Strategic Highway Model, which is used for understanding future year traffic demand changes as a result of the BEE scheme, has been recently updated. In addition, new traffic survey data was acquired during December 2016 which is used to undertake the base year operational assessments.

The junction modelling results indicate all junctions along the proposed BEE alignment operate within capacity during all modelled scenarios. One junction Liverpool Street / Heath Mill Lane which is not located along the proposed BEE alignment is identified to operate over capacity in the do minimum scenario. The proposed BEE scheme is shown to dramatically improve the predicted operation of the junction; therefore the impact of this scheme on this junction is positive.

Updates to injury collision data has been acquired for the most recently available 5 year period. Whilst there are changes to the specifics of the collision data analysis of the number, severity and classification indicates the findings remain unchanged from the TA.

Appendices

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A. Base Year Junction Capacity Assessments and Calibration

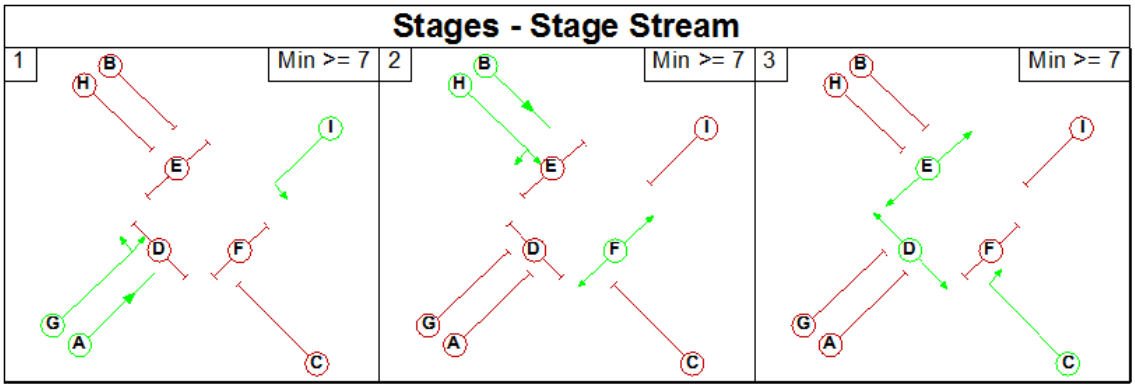
A.1 Corporation Street / Bull Street

This junction has recently undergone construction and the new staging can be seen below in **Figure 50**. It will be reconfigured again once the BEE routweenede is in place. The junction currently operates in three stages with a Tram phase (green in **Figure 50**) also operating over this junction as part of the BCCE.

- Stage 1 provides vehicle movements and tram movements from Corporation Street, and cycle movements from Corporation Street to Lower Bull Street.
- Stage 2 provides vehicle and tram movements from Bull Street with a pedestrian phase operating across Bull Street.
- Stage 3 provides bus and cycle movements on Lower Bull Street onto Corporation Street, as well as two pedestrian phases across the LRT alignment.

Based on site observations stages typically run for their minimum green time which has been reflected in the modelling. The key exception is when a tram approaches and in this case the stage green time will be extended for longer. The minimum cycle time has been modelled which represents a worst case scenario as it results in more inter-stage periods in the hour.

Figure 50: Corporation Street / Bull Street Staging



The 2016 Base Year results are summarised in **Table 50**.

Table 50: Corporation Street / Bull Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	DoS (%)	MMQ (PCU)	DoS (%)	MMQ (PCU)
Bull Street (north) to Corporation Street	Tram Only			
Bull Street (south) to Corporation Street	44.2	2.3	46.5	2.4
Corporation Street to Corporation Street	Tram Only			
Cycle Time (s)	**51**		**51**	
PRC (%)	**103.8**		**93.6**	

Source: Linsig V3

Table 50 shows the junction works within capacity in the 2016 observed scenarios.

It was not possible to compare modelled queues and surveyed queues at this location due to the junction being under construction at the time of the traffic surveys, although on-site observations were used to calculate the signal timings.

A.2 Bull Street / Dale End

The 2016 Base Year results are shown in **Table 51**.

Table 51: Bull Street / Dale End 2016 Base Year Results

	AM Peak		PM Peak	
Movement	RFC	Queue (PCU)	RFC	Queue (PCU)
Bull Street		Exit Only		
Dale End	0.07	0.1	0.06	0.1
High Street	0.26	0.8	0.26	0.8

Source: Junctions 9 (PICADY)

The results in **Table 51** show the priority junction at Bull Street / Dale End to work within capacity in the 2016 Base Year over the three peak periods.

The LinSig model was compared against the average queue lengths in **Table 52**.

Table 52: Bull Street / Dale End Surveyed Queue Lengths (PCUs)

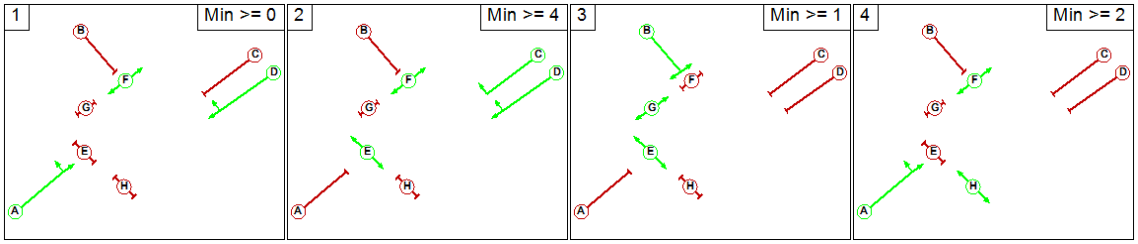
	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Bull Street		Exit Only		
Dale End	0.0	0.1	0.0	0.1
High Street	0.0	0.8	0.0	0.8

Source: Mott MacDonald/Junctions 9 (PICADY)

A.3 Moor Street Queensway / Albert Street

Figure 51 shows the current signal staging of the Moor Street Queensway / Albert Street junction (where phases A and C are Moor Street Queensway, and Phase B is Albert Street).

Figure 51: Corporation Street / Bull Street Staging



The Base Year AM and PM results are shown in **Table 53**, with the results taken from the wider LinSig model of Moor Street Queensway (with the junctions of Albert Street, Masshouse Lane and James Watt Queensway B4114).

Table 53: Moor Street Queensway / Albert Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Albert Street Left/Right	49.0	3.5	54.3	5.1
Moor Street Queensway (north) Ahead (Lane 1)	12.2	1.4	13.5	1.4
Moor Street Queensway (north) Right/Ahead (Lane 2/3)	20.0	2.1	22.3	2.2
Moor Street Queensway (south) Left/Ahead (Lane 1)	22.6	2.7	30.6	3.9
Moor Street Queensway (south) Ahead (Lane 2/3)	33.8	3.2	45.3	4.6
Cycle Time (s)	**78**		**78**	
PRC (%)	**83.6**		**65.7**	

Source: LinSig V3

The modelled results for the Moor Street Queensway / Albert Street junction in the Base Year show the junction to operate within capacity in all scenarios.

The LinSig model was compared against the average queue lengths in **Table 54** and video footage.

Table 54: Moor Street Queensway / Albert Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Albert Street Left/Right	4.3	3.5	6.3	5.1
Moor Street Queensway (north) Ahead (Lane 1)	5.4	1.4	3.9	1.4
Moor Street Queensway (north) Right/Ahead (Lane 2/3)	4.3	2.1	3.4	2.2
Moor Street Queensway (south) Left/Ahead (Lane 1)	3.9	2.7	5.0	3.9
Moor Street Queensway (south) Ahead (Lane 2/3)	3.2	3.2	4.4	4.6

Source: Mott MacDonald/LinSig V3

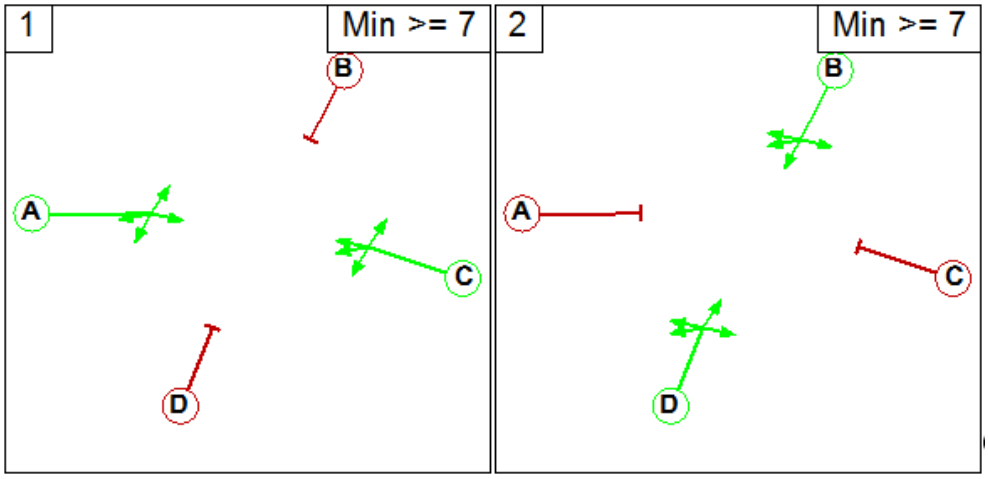
A.4 New Canal Street / Fazeley Street

The New Canal Street / Fazeley Street junction operates in two stages:

- Fazeley Street in Stage 1
- New Canal Street in Stage 2.

All movements are permitted and the pedestrian facilities are uncontrolled.

Figure 52: Current Staging of New Canal Street / Fazeley Street



The 2016 Base Year results are shown in **Table 55**.

Table 55: New Canal Street / Fazeley Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
New Canal Street (north)	38.4	4.4	41.5	5.1
Fazeley Street (east)	34.0	3.2	41.8	4.6
New Canal Street (south)	17.5	1.8	28.1	3.2
Fazeley Street (west)	31.1	3.3	35.0	4.1
Cycle Time (s)	**68**		**73**	
PRC (%)	**134.2**		**115.3**	

Source: LinSig V3

The results for the New Canal Street / Fazeley Street junction in **Table 55** show the junction operates within capacity in the Base Year.

The LinSig model was compared against the average surveyed queue lengths in **Table 56**.

Table 56: New Canal Street / Fazeley Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
New Canal Street (north)	3.3	4.4	5.3	5.1
Fazeley Street (east)	2.7	3.2	6.1	4.6
New Canal Street (south)	1.5	1.8	25.5	3.2
Fazeley Street (west)	2.6	3.3	3.4	4.1

Source: Mott MacDonald/LinSig V3

A.5 New Canal Street / Bordesley Street

Table 57 shows the 2016 Base Year modelled results for the New Canal Street / Bordesley Street junction.

Table 57: New Canal Street / Bordesley Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**RFC**	**Queue (PCU)**	**RFC**	**Queue (PCU)**
New Canal Street	0.04	0.1	0.06	0.1
Bordesley Street (east)	0.1	0.1	0.19	0.2
Meriden Street	0.03	0.0	0.07	0.1
Bordesley Street (west)	0.24	0.3	0.39	0.6

Source: Junctions 9 (PICADY)

Table 57 shows the junction operates within capacity within all scenarios.

The PICADY model was compared against the surveyed queue lengths in **Table 58**.

Table 58: New Canal Street / Bordesley Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
New Canal Street	0.0	0.1	0.0	0.1
Bordesley Street (east)	0.0	0.1	0.25	0.2
Meriden Street	0.0	0.0	0.0	0.1
Bordesley Street (west)	0.0	0.3	0.1	0.6

Source: Mott MacDonald/Junctions 9 (PICADY)

A.6 Digbeth B4100 / Meriden Street

The current staging at Digbeth B4100 / Meriden Street operates in three streams with five pedestrian crossings. A map with the direction of traffic and pedestrian crossings is shown in **Figure 53** and the staging of the signalised junction is shown in **Figure 54**.

Figure 53: Digbeth B4100 / Meriden Street Junction Directions

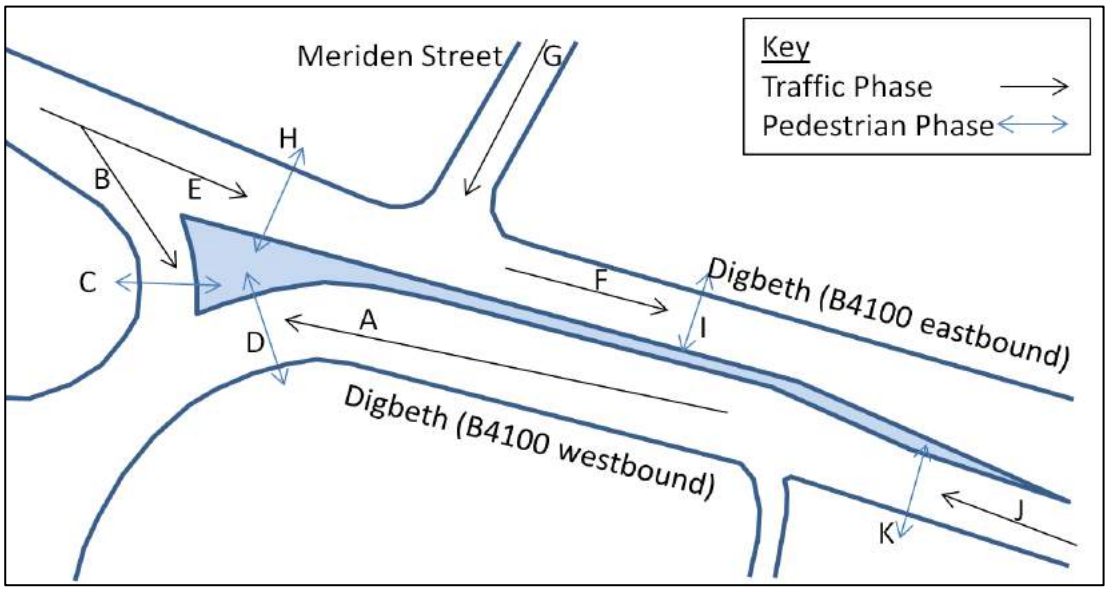


Figure 54: Existing Digbeth B4100 / Meriden Street Staging

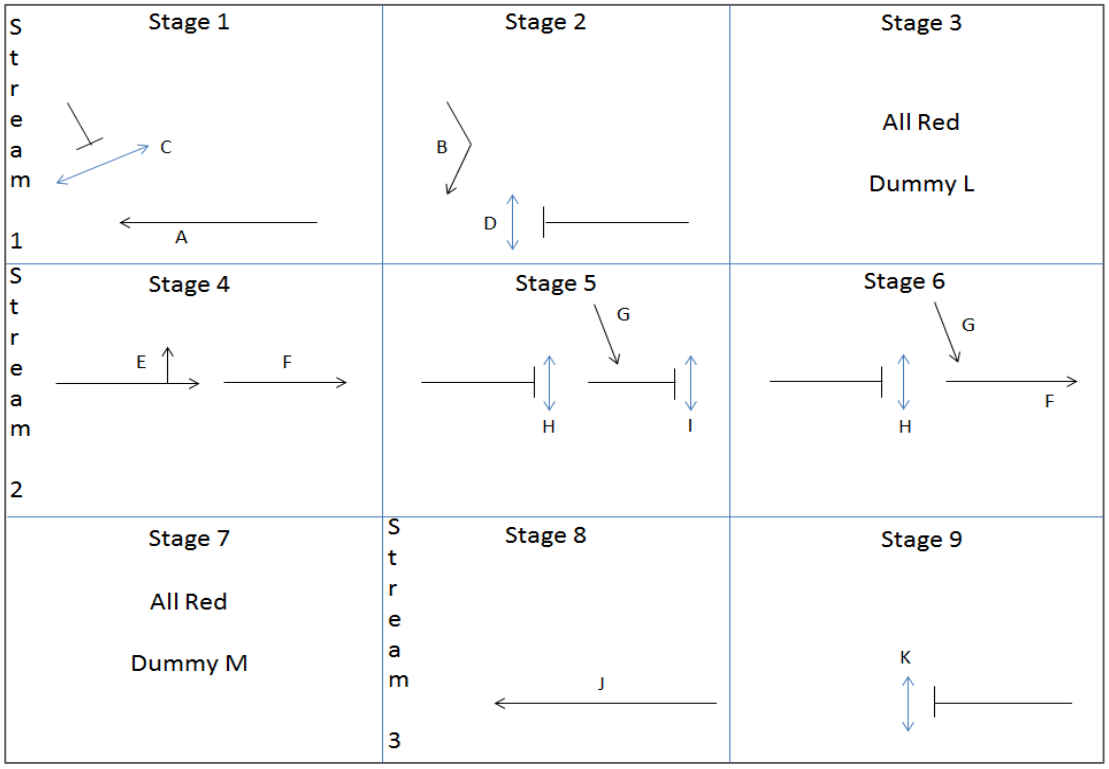


Figure 54 shows:

- Stream 1 is the Digbeth (B4100) / Moat Lane Gyratory node.
- Stream 2 is the Digbeth (B4100) / Meriden Street node.
- Stream 3 is the crossing over the westbound Digbeth (B4100) carriageway.

The Digbeth B4100 /Meriden Street 2016 Base Year results are shown in **Table 59**.

Table 59: Digbeth B4100 / Meriden Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Digbeth B4100 (west) Ahead and Left (Lane 1)	43.8	4.6	70.7	8.5
Digbeth B4100 (west) Ahead (Lane 2/3)	33.2	2.1	56.1	5.3
Meriden Street	75.7	3.7	70.9	4.8
Cycle Time (s)	**180**		**165**	
PRC (%)	**18.8**		**26.9**	

Source: LinSig V3

It is evident at the Meriden Street junction that there are queues up to 4.9 PCUs (PM Peak) modelled. The degree of saturation though in all cases is below 90%.

The LinSig model was compared against the surveyed queue lengths in **Table 60**.

Table 60: Digbeth B4100 / Meriden Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Meriden Street Left	0.7	3.7	3.2	4.8

Source: Mott MacDonald/LinSig V3

A.7 Digbeth B4100 / Rea Street

The controller for the Digbeth B4100 / Rea Street and High Street Deritend / Milk Street junction operates in two streams (as shown in **Figure 55** and **Figure 56**).

Figure 55: Current Staging of Digbeth B4100 / Rea Street / Milk Street (Stream 1)

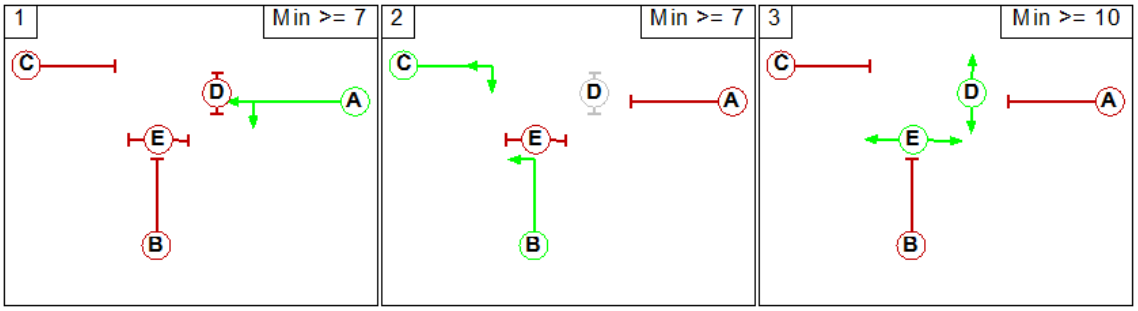
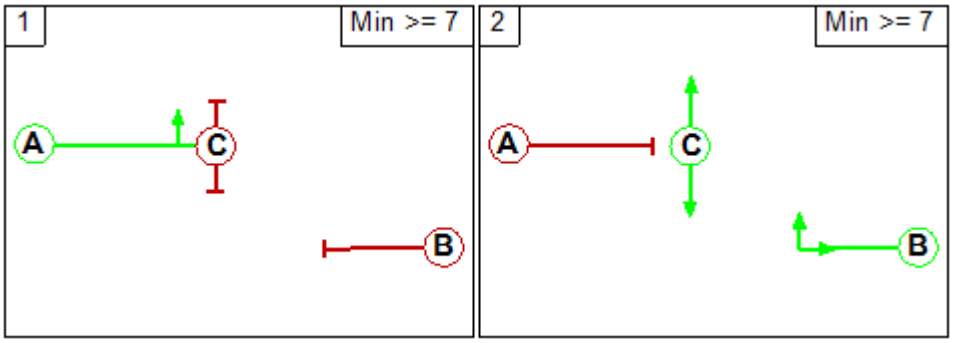


Figure 56: Current Staging of Digbeth B4100 / Rea Street / Milk Street (Stream 2)



Stream 1 allows movements to and from Rea Street and the second stream allows movements to Milk Street. The right-turn movement from Rea Street is not permitted.

- Stream 1 (Stage 1) allows ahead and left movements from Digbeth (B4100) East.
- Stream 1 (Stage 2) allows for a right-turn into Rea Street from the right-turn lane on Digbeth (B4100) and movements from Rea Street to Digbeth (westbound).
- Stream 1 (Stage 3) allows for pedestrian movements across Rea Street and across Digbeth (B4100) westbound into a central pedestrian refuge.
- Stream 2 (Stage 1) allows for ahead movements from Digbeth (B4100 east) and a left-turn onto Milk St.
- Stream 2 (Stage 2) allows for a right-turn from Digbeth (B4100 east) onto Milk Street, with a pedestrian crossing across the eastbound direction of Digbeth (B4100).

The 2016 Base Year results are shown in **Table 61**.

Table 61: Digbeth B4100 / Rea Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
High Street Deritend (east) Left/Ahead (Lane 1)	24.9	2.6	35.5	2.8
High Street Deritend (east) Ahead (Lane 2/3)	54.0	5.3	66.2	6.0
High Street Deritend (east) Right/U-Turn (Lane 4)	55.1	4.3	62.5	4.1
Rea Street Left	5.3	0.4	18.8	1.7
Digbeth (B4100 west) Ahead/Left (Lane 1)	8.4	0.7	3.4	0.3
Digbeth (B4100 west) Ahead (Lane 2/3)	28.4	1.9	57.6	4.3
Digbeth (B4100 west) Right/U-Turn (Lane 4)	107.0	38.2	91.4	17.5
Cycle Time (s)	**83**		**77**	
PRC (%)	**-18.8**		**-1.6**	

Source: LinSig V3

Table 61 shows the Digbeth B4100 / Rea Street junction (including the Milk Street junction) operates within capacity during the assessed peak periods.

The LinSig model was compared against the average surveyed queue lengths (in **Table 62**) and video footage.

Table 62: Digbeth B4100 / Rea Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
High Street Deritend (east) Left/Ahead (Lane 1)	6.6	2.6	8.6	2.8
High Street Deritend (east) Ahead (Lane 2/3)	8.4	5.3	6.6	6.0
High Street Deritend (east) Right/U-Turn (Lane 4)	5.1	4.3	6.2	4.1
Rea Street Left	1.4	0.4	3.2	1.7
Digbeth (B4100 west) Ahead/Left (Lane 1)	1.9	0.7	0.9	0.3
Digbeth (B4100 west) Ahead (Lane 2/3)	1.8	1.9	4.2	4.3
Digbeth (B4100 west) Right/U-Turn(Lane 4)	15.2	38.2	26.4	17.5

Source: Mott MacDonald/LinSig V3

A.8 High Street Deritend / Milk Street

This junction is included in the LinSig model for Rea Street as the junctions operate the same signal controller.

A.9 High Street Deritend / Floodgate Street

The 2016 Base Year results for the High Street Deritend / Floodgate Street junction are shown in **Table 63**.

Table 63: High Street Deritend / Floodgate Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Floodgate Street Left	9.3	0.1	30.2	0.6

Source: LinSig V3

The results for the Base Year assessment of High Street Deritend / Floodgate Street show the junction operates within capacity over all the peak hours.

The LinSig model was compared with the surveyed queue lengths shown in **Table 64**.

Table 64: High Street Deritend / Floodgate Street Surveyed Queue Lengths (PCUs)

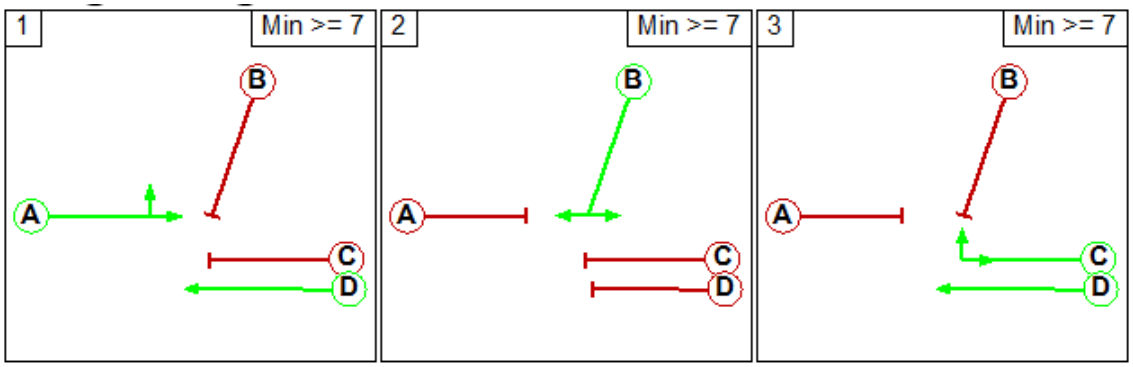
	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Floodgate Street Left	0.1	0.1	0.1	0.6

Source: Mott MacDonald/LinSig V3

A.10 High Street Deritend / Heath Mill Lane

Figure 57 shows the staging of the signalised junction at High Street Deritend / Heath Mill Lane.

Figure 57: Current Staging of High Street Deritend / Heath Mill Lane



The staging is as follows:

- Stage 1 allows for ahead movements in both directions on High Street Deritend, as well as a left-turn to Heath Mill Lane.
- Stage 2 allows for all movements from Heath Mill Lane.
- Stage 3 allows for all movements from High Street Deritend (east).

The 2016 Base Year results are shown in **Table 65**.

Table 65: High Street Deritend / Heath Mill Lane 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Heath Mill Lane Left/Right	48.2	7.8	61.4	10.8
High Street Deritend (east) Ahead (Lane 1)	22.3	3.9	15.3	2.6
High Street Deritend (east) Ahead (Lane 2/3)	38.3	4.5	28.9	3.3
High Street Deritend (east) Right/U-Turn (Lane 4)	50.7	8.2	68.7	10.0
High Street Deritend (west) Ahead/Left (Lane 1)	39.2	3.8	33.3	4.3
High Street Deritend (west) Ahead (Lane 2)	47.8	5.5	81.7	16.5
High Street Deritend (west) ahead (Lane 3)	47.8	5.5	81.8	16.6
Cycle Time (s)	**113**		**117**	
PRC (%)	**77.4**		**10.0**	

Source: LinSig V3

Table 65 shows the junction to operate within capacity in the Base Year assessment in all peak periods. The highest modelled queue is 7.8 (AM Peak) for right-turners and U-turn movements from High Street Deritend (east) onto Heath Mill Lane.

The LinSig model was compared with the surveyed queue lengths in **Table 66** and video footage of the junction.

Table 66: High Street Deritend / Heath Mill Lane Surveyed Queue Lengths (PCUs)

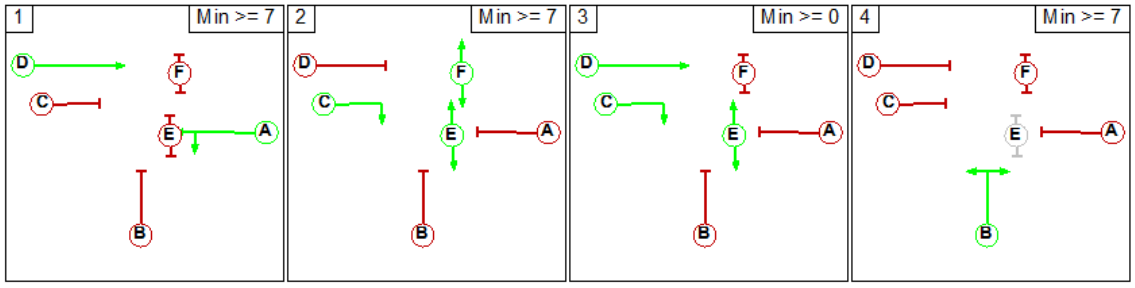
	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Heath Mill Lane Left/Right	16.0	7.8	16.1	10.8
High Street Deritend (east) Ahead (Lane 1)	0.8	3.9	1.2	2.6
High Street Deritend (east) Ahead (Lane 2/3)	2.8	4.5	2.7	3.3
High Street Deritend (east) Right/U-Turn (Lane 4)	13.1	8.2	11.1	10.0
High Street Deritend (west) Ahead/Left (Lane 1)	4.4	3.8	4.2	4.3
High Street Deritend (west) Ahead (Lane 2)	3.3	5.5	10.2	16.5
High Street Deritend (west) ahead (Lane 3)	1.8	5.5	8.4	16.6

Source: Mott MacDonald/LinSig V3

A.11 High Street Deritend / Alcester Street

The existing controller operates with four stages as shown in **Figure 58**.

Figure 58: Current Staging of High Street Deritend / Alcester Street



The staging is as follows:

- Stage 1 allows ahead and left-turn movements from High Street Deritend (east) and an ahead movement on High Street Deritend (west).
- Stage 2 allows for movements from High Street Deritend (west) onto Alcester Street via a right-turn only lane. Pedestrians are also able to cross High Street Deritend via the staggered crossing facility.
- Stage 3 allows for all movements from High Street Deritend (west) as well as half of the staggered pedestrian crossing across High Street Deritend.
- Stage 4 allows for all movements from Alcester Street.

The 2016 Base Year results are shown in **Table 67**.

Table 67: High Street Deritend / Alcester Street (Adderley Street) 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**

	AM Peak		PM Peak	
High Street Deritend (west) Ahead (Lane 1)	19.5	2.4	51.2	6.5
High Street Deritend (west) Ahead (Lane 2)	19.6	2.4	51.0	6.5
High Street Deritend (west) Ahead/Right (Lane 3/4)	39.6	2.8	91.5	12.0
High Street Deritend (east) Ahead/Left (Lane 1)	28.9	3.4	38.1	4.3
High Street Deritend (east) Ahead (Lane 2)	61.8	9.1	47.3	5.8
High Street Deritend (east) Ahead/U-Turn (Lane 3)	57.8	8.8	44.2	5.7
Alcester Street Left/Right	45.2	3.7	59.6	6.0
Cycle Time (s)	**88**		**88**	
PRC (%)	**45.6**		**-1.7**	

Source: LinSig V3

The results in **Table 67** show that in the Base Year all of the assessed lanes over the two junctions operate within capacity.

The LinSig model was compared with the surveyed queue lengths in **Table 68**.

Table 68: High Street Deritend / Alcester Street (and Adderley Street) Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
High Street Deritend (west) Ahead (Lane 1)	1.1	2.4	0.3	6.5
High Street Deritend (west) Ahead (Lane 2)	2.7	2.4	4.5	6.5
High Street Deritend (west) Ahead/Right (Lane 3/4)	3.1	2.8	6.0	12.0
High Street Deritend (east) Ahead/Left (Lane 1)	2.4	3.4	3.2	4.3
High Street Deritend (east) Ahead (Lane 2)	4.4	9.1	3.7	5.8
High Street Deritend (east) Ahead/U-Turn (Lane 3)	4.0	8.8	3.8	5.7
Alcester Street Left/Right	4.0	3.7	14.7	6.0

Source: Mott MacDonald/LinSig V3

A.12 High Street Deritend / Adderley Street

This junction was included in the LinSig assessment of High Street Deritend / Alcester Street.

The 2016 Base Year results for the High Street Deritend / Adderley Street junction are shown in **Table 69**.

Table 69: High Street Deritend / Adderley Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Adderley Street	10.0	0.1	24.9	0.8

Source: LinSig V3

The results for the Base Year assessment of High Street Deritend / Adderley Street show the junction operates within capacity over all the peak hours.

The LinSig model was compared with the surveyed queue lengths shown in **Table 70**.

Table 70: High Street Deritend / Adderley Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Adderley Street	0.3	0.1	0.0	0.8

Source: Mott MacDonald/LinSig V3

A.13 Moor Street Queensway / Masshouse Lane

Figure 59 shows the staging of the Moor Street Queensway / Masshouse Lane junction.

Figure 59: Current Staging of Moor Street Queensway / Masshouse Lane

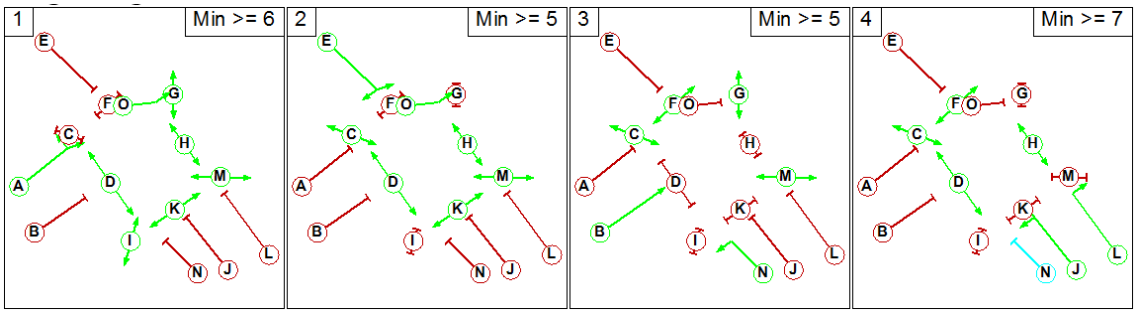


Figure 59 shows the following staging:

- Stage 1 provides for left-turn only traffic from Moor Street Queensway (onto Priory Queensway) and Priory Queensway (onto Moor Street Queensway). Six pedestrian crossing phases are in operation during Stage 1.
- Stage 2 provides for all movements from Priory Queensway, and five pedestrian crossing phases.
- Stage 3 provides for a left-turn filter lane from Masshouse Lane onto Moor Street Queensway, as well as four pedestrian phases.
- Stage 4 provides for all movements off Masshouse Lane, along with four pedestrian phases.

This junction has been assessed within the LinSig model for the Moor Street Queensway / Albert Street junction due to the interconnected nature of the junctions. The results are shown in **Table 71**.

Table 71: Moor Street Queensway / Masshouse Lane 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Priory Queensway	57.8	4.5	62.8	4.4
Masshouse Lane Ahead/Left	42.6	3.3	50.4	3.6
Masshouse Lane Right	42.6	3.6	71.4	6.3
Moor Street Queensway Left/Ahead	59.0	5.1	64.5	5.7
Moor Street Queensway Ahead (Lane 2)	38.8	5.3	47.1	8.4
Moor Street Queensway Ahead (Lane 3)	40.3	5.8	48.5	9.2
Cycle Time (s)	**100**		**108**	
PRC (%)	**52.4**		**26.1**	

Source: LinSig V3

The Moor Street Queensway / Masshouse Lane junction operates within capacity in all of the Base Year peak periods.

The LinSig model was compared with the surveyed queues lengths in **Table 72** and video footage of the junction.

Table 72: Moor Street Queensway / Masshouse Lane Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Priory Queensway	9.9	4.5	4.7	4.4
Masshouse Lane Ahead/Left	3.1	3.3	8.0	3.6
Masshouse Lane Right	7.2	3.6	6.1	6.3
Moor Street Queensway Left/Ahead	5.9	5.1	5.2	5.7
Moor Street Queensway Ahead (Lane 2)	8.8	5.3	21.9	8.4
Moor Street Queensway Ahead (Lane 3)	8.9	5.8	18.5	9.2

Source: Mott MacDonald/LinSig V3

A.14 Moor Street Queensway / James Watt Queensway (B4114)

The existing staging operates in two streams, with stream two operating due to pedestrian demand crossing the Moor Street Queensway leading to James Watt Queensway B4114 (see **Figure 60**).

Figure 60: Existing Staging of Moor Street Queensway / James Watt Queensway (B4114)

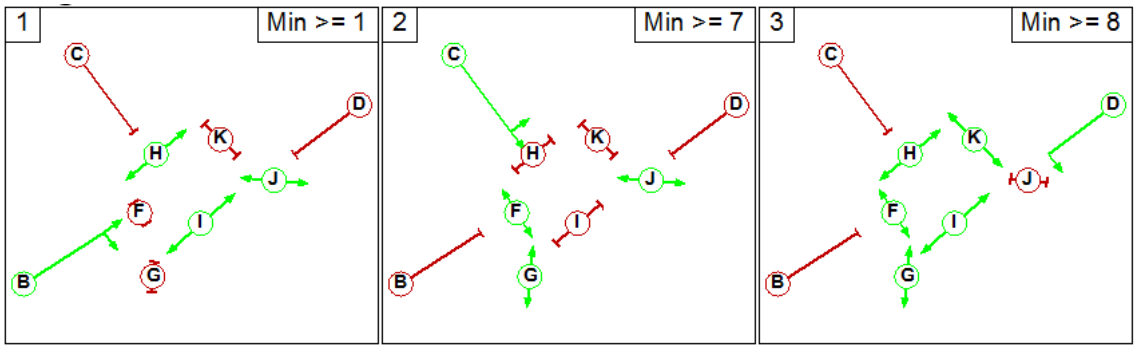


Table 73: Moor Street Queensway / James Watt Queensway (B4114) 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
James Watt Queensway (B4114) Left/Ahead	57.4	10.4	65.0	13.3
James Watt Queensway (B4114) Ahead	59.6	12.2	67.1	15.4
Jennens Road Left (Lane 1)	74.8	6.6	72.4	8.0
Jennens Road Left (Lane 2)	76.4	7.3	74.3	8.9
Moor Street Queensway Left (Lane 1)	14.3	1.7	24.3	3.1
Moor Street Queensway Left (Lane 2)	16.8	2.1	26.7	3.8
Moor Street Queensway Ahead/Right (Lane 3)	61.8	8.9	66.8	10.8
Cycle Time (s)	**100**		**110**	
PRC (%)	**17.7**		**21.0**	

Source: LinSig V3

It is evident in **Table 73** that the junction operates within capacity in the Base Year peak periods, with a maximum degree of saturation of 71.5% (James Watt Queensway B4114 Ahead, PM Peak).

The LinSig model was compared with the surveyed queue lengths in **Table 74**.

Table 74: Moor Street Queensway / James Watt Queensway (B4114) Street Surveyed Queue Lengths (PCUs)

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
James Watt Queensway (B4114) Left/Ahead	13.1	10.4	16.9	13.3
James Watt Queensway (B4114) Ahead	11.0	12.2	15.2	15.4
Jennens Road Left (Lane 1)	5.1	6.6	7.3	8.0
Jennens Road Left (Lane 2)	10.5	7.3	14.6	8.9
Moor Street Queensway Left (Lane 1)	1.6	1.7	3.0	3.1
Moor Street Queensway Left (Lane 2)	0.4	2.1	2.1	3.8
Moor Street Queensway Ahead/Right (Lane 3)	7.6	8.9	8.6	10.8

Source: Mott MacDonald/LinSig V3

A.15 Moat Lane Gyratory

The 2016 Base Year assessment of the entry and exit junctions to and from the Moat Lane gyratory from Digbeth (B4100) is shown in **Table 75**, with the worst case degree of saturation and queue results taken at each junction. Cycle times have been obtained from on-site observations, and have been triple cycled within the model to represent on-site conditions.

Table 75: Moat Lane Gyratory 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Digbeth B4100 (east) Ahead (Lane 1)	48.9	3.5	55.0	4.1
Digbeth B4100 (east) Ahead (Lane 2)	51.3	3.9	57.3	4.5
Digbeth B4100 (east) Ahead (Lane 3)	51.1	3.9	57.0	4.5
Cycle Time (s)	**180**		**180**	
PRC (%)	**75.4**		**57.2**	
Digbeth B4100 (west) Ahead and Left (Lane 1)	43.8	4.6	70.7	8.5
Digbeth B4100 (west) Ahead (Lane 2/3)	33.2	2.1	56.1	5.3
Digbeth B4100 (west) Right-turn (Lane 4)	0.0	0.0	0.0	0.0
Cycle Time (s)	**180**		**165**	
PRC (%)	**105.7**		**27.4**	

Source: LinSig V3

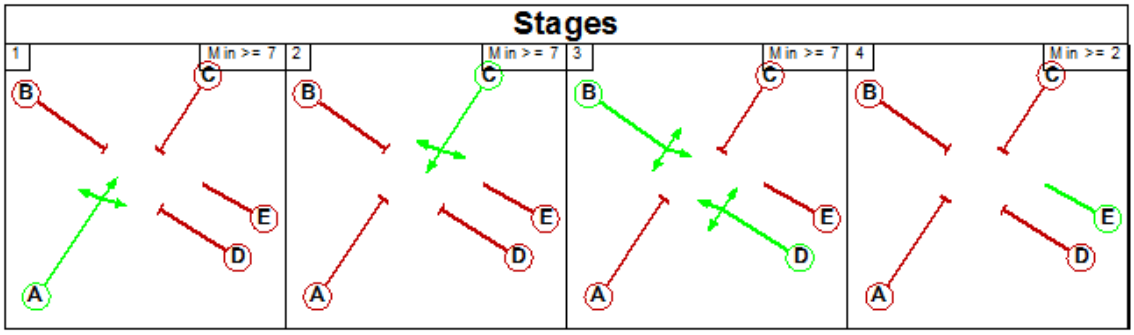
As evident in **Table 75** all junctions compromising the Moat Lane gyratory operate within capacity in the 2016 Base Year.

A.16 Heath Mill Lane / Liverpool Street

The Heath Mill Lane / Liverpool Street four-arm signalised junction (including Great Barr Street on the north-eastern arm and Fazeley Street on the north-western) has been designated as an off-line junction that may be impacted by the track alignment of the BEE.

The junction currently operates in four stages. Stages one and two allow all movements from Heath Mill Lane and Great Barr Street respectively. Stage three allows all movements from Fazeley Street and Liverpool Street. This is shown in **Figure 61**.

Figure 61: Current Staging of Heath Mill Lane / Liverpool Street



The 2016 Base Year results are shown in **Table 76**.

Table 76: Heath Mill Lane / Liverpool Street 2016 Base Year Results

	AM Peak		PM Peak	
Movement	**DoS (%)**	**Queue (PCU)**	**DoS (%)**	**Queue (PCU)**
Great Barr Street	74.5	8.0	69.7	8.1
Liverpool Street	58.0	1.8	88.5	4.0
Heath Mill Lane	67.4	5.2	92.4	12.8
Fazeley Street	81.5	4.5	98.1	16.6
Cycle Time (s)	**54**		**69**	
PRC (%)	**10.5**		**-9.0**	

Source: LinSig V3

Table 76 shows the junction to operate within its practical capacity in the AM and PM peaks in the base year.

The LinSig model was compared with the surveyed queue lengths in **Table 77**.

Table 77: Heath Mill Lane / Liverpool Street Surveyed Queue Results

	AM Peak		PM Peak	
Movement	Observed	Modelled	Observed	Modelled
Great Barr Street	7.7	8.0	7.2	8.1
Liverpool Street	1.6	1.8	1.8	4.0
Heath Mill Lane	5.2	5.2	13.3	12.8
Fazeley Street	3.9	4.5	9.1	16.6

Source: Mott MacDonald/LinSig V3

B. BCC SATURN Model – Local Model Validation Report

Birmingham City Centre Model

Traffic Forecasting Report

Birmingham City Council

5 May 2017

Contains *sensitive* information

Notice

This document and its contents have been prepared and are intended solely for Birmingham City Council's information and use in relation to Birmingham City Centre Model.

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1. Introduction

Birmingham City Council (BCC) has commissioned Atkins to undertake the development of an updated Birmingham City Centre Model (BCCM) using the latest version of the SATURN software suite. The updated BCCM is to be used for the purposes of assisting decision making for various future transport schemes and planning applications within the City Centre – including the HS2 Curzon Street Masterplan and Local Enterprise Zone development. This report details the development of the future year forecast models and initial analysis of network impacts arising from expected future changes.

1.1. Background

The previous version of the model was largely bounded by the A4540 Ring Road, and was therefore unable to consider the impacts of wider reassignment caused by changes within the City Centre in terms of how trips enter/leave and circumnavigate the Ring Road and internal routes. The model update has included creating a skeletal surrounding network, increasing the spatial extent of the model to cover the wider Birmingham area and allowing any such potential changes in future year assignments to be better reflected.

This increase in spatial scope is particularly important given that a number of committed developments and transport schemes are likely to increase pressure at several key junctions on the Ring Road as well as the A38 Queensway. The HS2 Curzon Street Station development is an area of key interest, likely to have an impact on the junctions of Curzon Circle, Garrison Circus and Ashted Circus. Planned extensions to the Midlands Metro service through Eastside and also along Broad Street underneath the Five Ways junction are also likely to have significant implications for the routeing of private motor vehicles, particularly on parallel or alternative routes. Meanwhile, key areas of redevelopment such as Arena Central and Paradise Circus will place new pressures on the local road network.

As such it is important that any future testing of schemes or developments is considered in the context of these significant expected changes to the City Centre. The updated BCCM will provide a key tool for facilitating this.

1.2. Report Scope

Following this introduction, the report is structured as follows:

- Chapter 2 – provides an overview of the forecasting process and a comparison of growth across the PRISM cordon matrices with growth from NTEM and NRTF forecasts;
- Chapter 3 – details the highway schemes included within the forecast networks;
- Chapter 4 – summarises the approach taken to forecasting future traffic growth based on growth levels taken from PRISM forecast matrices cordons.
- Chapter 5 – details the assignment process and presents an overview of the some of the key impacts resulting from the future year changes.
- Chapter 6 – summarises the process and analysis.

2. Forecasting Approach

This chapter provides an overview of the process adopted for producing the BCCM forecast assignments which includes the use of PRISM forecast cordon matrices in order to inform the level of growth in each of the modelled future years. These levels have growth have been compared with TEMPRO version 7.2 to provide assurance that the levels of growth maintain consistency with DfT guidance.

2.1. Base Model Overview

The updated BCCM has involved extending the spatial scope of the model, in order to allow for the wider reassignment of traffic around the City Centre to be represented. Whilst the detailed internal simulation network has been updated and refined from the previous version of the BCCM, the wider skeletal network structure (not including capacity restraint, with only fixed-speed applied) is consistent with the Highways England West Midlands Regional Traffic Model (WMRTM) structure. A buffer "collar" area was also added around the City Centre to provide capacity restraint, representing congestion leading into and out of the City Centre, influencing route choice. It is important to note that validation is only conducted within the simulation network and the buffer network collar which remains the core focus area for the model.

The full model and simulation network spatial extents are shown in **Figure 2-1** and **Figure 2-2** respectively.

Figure 2-1 BCCM Full Model Extent

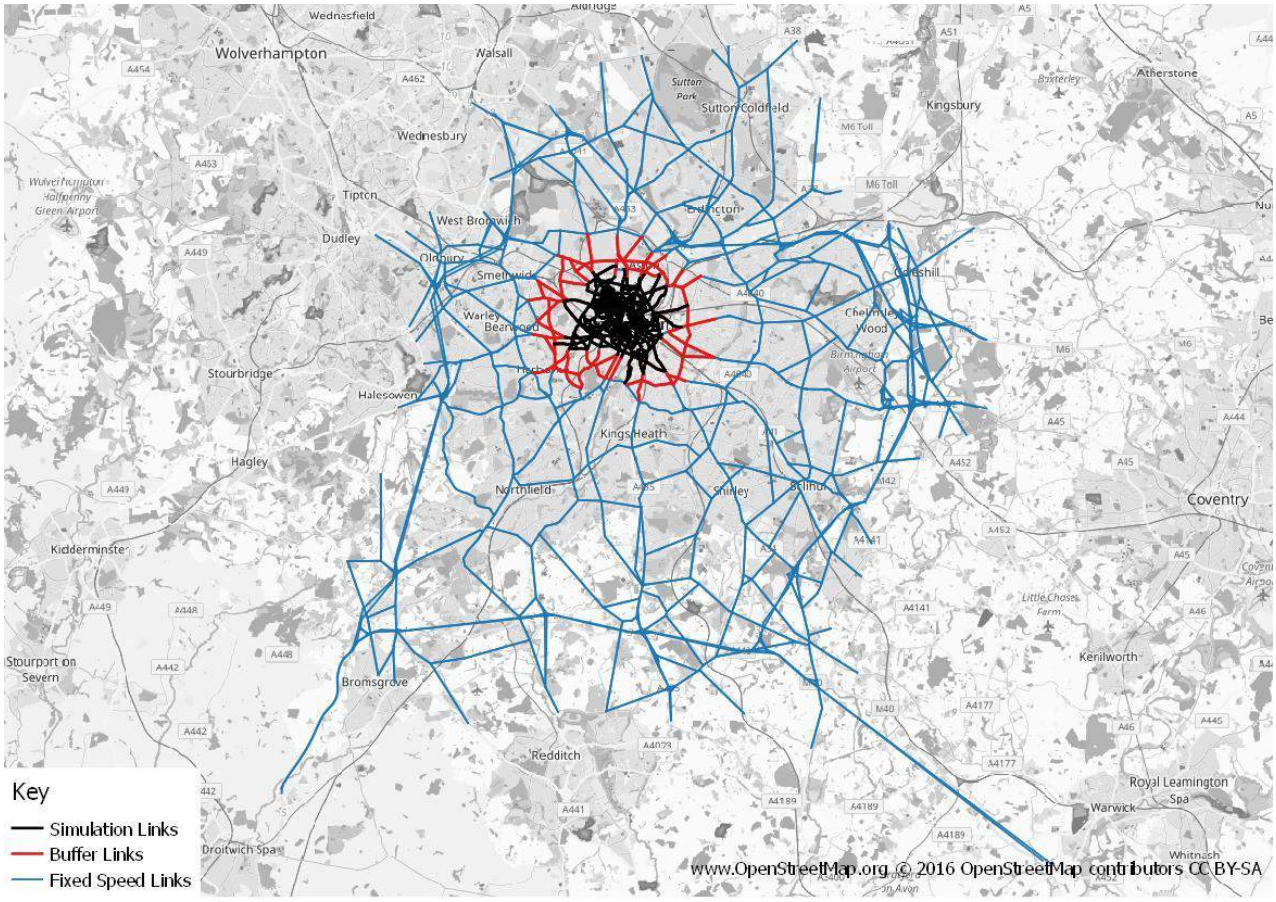
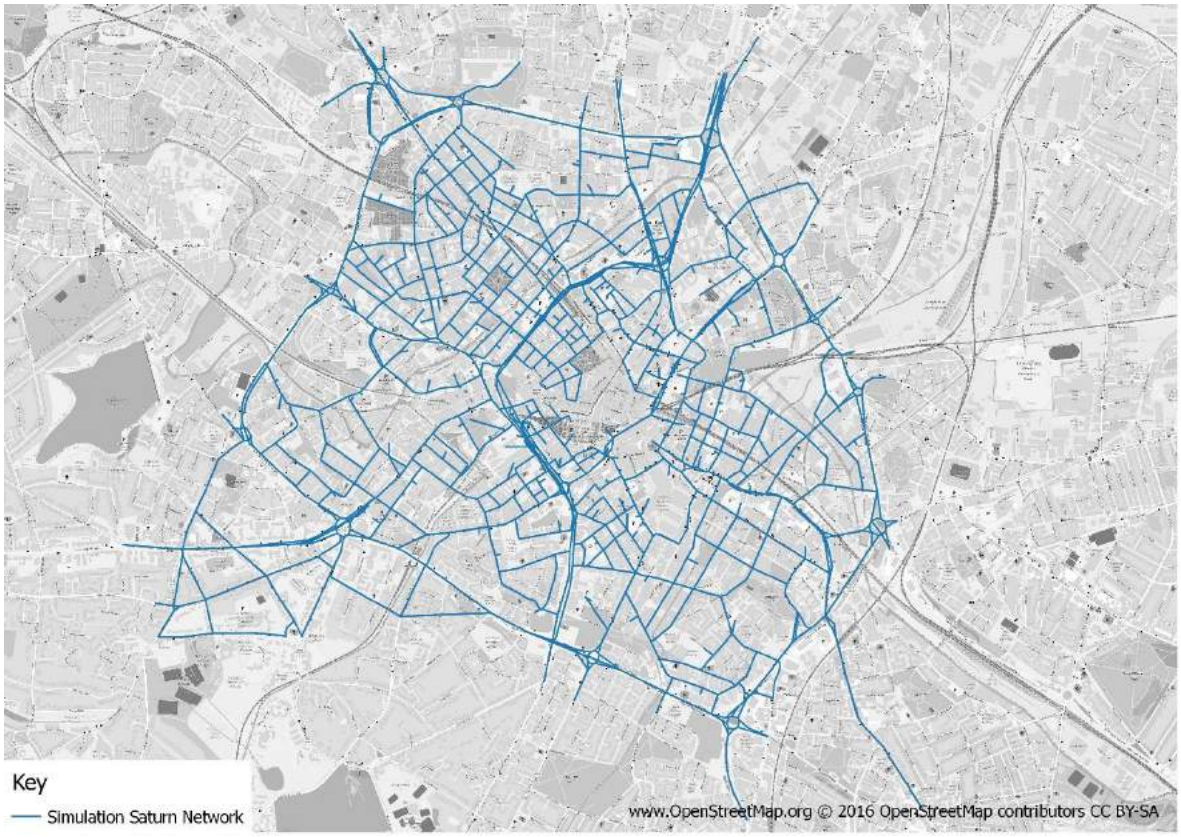


Figure 2-2 BCCM Simulation Network Extent



A key requirement of the model development was to ensure consistency with the latest version of the PRISM base model (version 4.6 validated to a 2011 base year). A consistent zoning system has therefore been adopted whilst PRISM matrices cordons were also used to provide prior matrices for initial assignment. The new BCCM has also adopted the same demand segmentation as PRISM in terms of journey purpose and vehicle type which are as follows:

- UC1: Car - Business
- UC2: Car – Commuting/Other
- UC3: Light Goods Vehicles (LGV) – defined as goods vehicles <3.5 tonnes[1]
- UC4: Heavy Goods Vehicles (HGV) – defined as goods vehicles >3.5 tonnes[1]

The base model was validated to represent September 2016 average hour conditions for the following time periods (which again are consistent with PRISM):

- AM Peak Period (07:30-09:30);
- Inter-peak Period (09:30-15:30); and
- PM Peak Period (15:30-19:00).

Full details of the base model specification and validation results are provided in the LMVR document for this study.

2.2. Forecasting Approach

Following the validation of the 2016 base model, forecast model assignments for each modelled time period have been produced to represent a “Do-Minimum” reference case scenario from which to use for future testing of proposals for developments and highway schemes.

The future years modelled within the BCCM include:

- 2026 – the scheduled opening year for HS2 (Phase 1);

[1] Definitions referenced from the DfT COBA Manual Section 13 Chapter 8

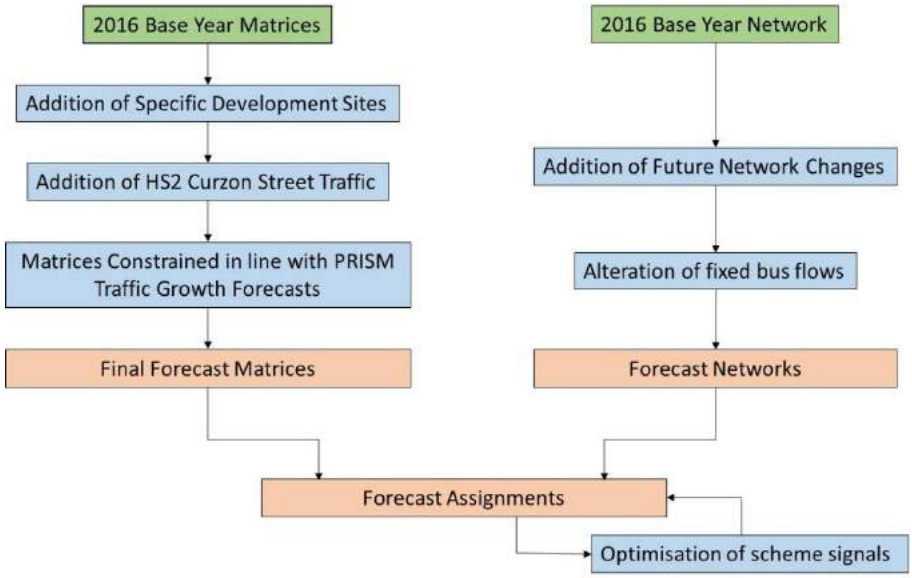
- 2031 – end of the current Birmingham Development Plan; and
- 2041 – HS2 Y-Shape completion year.

The forecast models have been constructed using development data as well as details of committed future network changes provided by BCC. Forecast highway impacts of the HS2 Curzon Street Station have also been included based on trip generation and distribution assumptions previously provided by HS2 Limited as used in the previous version of the BCCM.

A key requirement for this project was that the level of traffic growth assumed is consistent with the latest PRISM forecast assignments (produced in line with planning assumptions from NTEM version 7.0), again maintaining consistency between the two models whilst also allowing for potential impacts of future modal shift to be reflected in the BCC assignments.

The overall process is summarised in **Figure 2-3**.

Figure 2-3 BCCM Forecast Methodology



2.3. PRISM Cordons

PRISM cordon matrices were provided to Atkins by Mott MacDonald for the purpose of informing the overall level of traffic growth across the modelled areas in each of the agreed future years for the BCCM. Cordons were based off PRISM version 4.7, with forecast matrices provided for 2015, 2021 and 2031 for all 3 modelled time periods. These assignments have been based on planning assumptions taken from NTEM version 7.0 (the latest available guidance at the time the cordons were produced).

Comparison with NTEM

In order to ensure that the PRISM cordon growth forecasts were suitable for purpose, an initial task involved comparing the overall level of growth across the cordons with the NTEM version 7.2 (the latest available) growth levels for the Birmingham area to ensure these were relatively consistent. This comparison is summarised in **Table 2-1**.

Table 2-1 Comparison of PRISM Cordons with NTEM

Time Period	Matrix	2015	2021			2031		
		Trips	Trips	Growth	NTEM*	Trips	Growth	NTEM
AM Peak	Car Employers Business	14,992	15,808	1.05	1.06	16,955	1.13	1.14
	Car Commuter and Other	185,790	196,023	1.06	1.06	210,237	1.13	1.14
	LGV	32,755	38,208	1.17	1.16	46,839	1.43	1.44
	HGV	14,311	14,983	1.05	1.04	16,023	1.12	1.12
	Total	**247,848**	**265,022**	**1.07**	**-**	**290,054**	**1.17**	**-**
Inter-Peak	Car Employers Business	23,414	24,714	1.06	1.05	26,637	1.14	1.11
	Car Commuter and Other	162,745	172,969	1.06	1.06	189,888	1.17	1.16
	LGV	26,404	30,799	1.17	1.17	37,762	1.43	1.44
	HGV	16,207	16,966	1.05	1.05	18,150	1.12	1.12
	Total	**228,770**	**245,448**	**1.07**	**-**	**272,437**	**1.19**	**-**
PM Peak	Car Employers Business	21,082	22,327	1.06	1.05	23,973	1.14	1.13
	Car Commuter and Other	219,918	232,290	1.06	1.06	250,165	1.14	1.14
	LGV	25,418	29,360	1.16	1.17	36,036	1.42	1.44
	HGV	8,826	9,239	1.05	1.05	9,861	1.12	1.13
	Total	**275,245**	**293,216**	**1.07**	**-**	**320,035**	**1.16**	**-**

*NB: LGV and HGV growth rates are taken from NRTF Core Scenario 1, locally adjusted

The table above demonstrates that the levels of growth observed across the PRISM cordons is generally closely matched with the growth from NTEM 7.2 across all time periods and user classes. This provides confidence that the cordon matrices provide a suitable basis for deriving growth to apply to the BCCM forecast matrices. Slight variations from NTEM would be expected due to the multi-modal nature of the PRISM model.

Sector System

The PRISM cordon matrix zones were grouped according to a geographic sector system in order to provide the level of growth within different areas of the modelled area.

As the BCCM and PRISM zoning system is consistent, with BCCM zones directly corresponding with PRISM zones, this allows for the level of growth observed across each sector to be applied to the relevant SATURN model zones. The sector system is a key element of this process as applying growth at an individual zone-to-zone level could lead to unrealistic variations where the proportional growth within an individual PRISM zone is high (i.e. a large proportional increase within a PRISM zone with relatively few trips would be inappropriate to inform the level of growth within a corresponding SATURN zone which may have a higher volume of trips to begin with).

Interpolation for 2026 and 2041 Future Years

As the forecast cordons were not available for the 2026 and 2041 forecast years required for the BCCM, it was necessary to interpolate the level of growth based on growth profiles derived from NTEM 7.2. This was achieved through matching NTEM zone boundaries to the corresponding sectors and then applying the growth profiles from 2021 and 2031 to 2026 and 2041 in order to calculate appropriate growth factors for each sector OD combination.

Sector-to-sector growth factors applied to each user class and time period are presented in **Appendix A**.

2.4. Uncertainty

WebTAG Unit M4 sets out the guidance for treatment of uncertainty in model forecasting. Determining uncertainty around input assumptions on demand forecasts is used to develop and assess alternative scenarios.

The guidance anticipates that a 'core' scenario will be developed and a range of sensitivity tests and/or alternative scenarios will also be developed to account for future uncertainty. The current scope of works associated with the BCCM is to produce the 'core scenario'.

The key issues in assessing uncertainty are:

- The range of possible inputs;
- The likelihood of each input; and
- The interaction between different elements which affect inputs.

In order to analyse uncertainty it is necessary to create an uncertainty log. This log highlights all the local and external uncertainties and factors likely to affect the traffic/patronage, revenues and delivery of scheme benefits.

The uncertainty log includes an assessment of the uncertainty of each individual input by placing it into one of four categories, as defined in **Table 2-2** (taken from WebTAG M4 Appendix A Table A2)

Table 2-2 Classification of Future Inputs

Probability of the Input	Status
Near Certain: The outcome will happen or there is a high probability that it will happen.	Intent announced by proponent to regulatory agencies; Approved development proposals; and Projects under construction
More than likely: The outcome is likely to happen but there is some uncertainty.	Submission of planning or consent application imminent; Development application within the consent process; and Projects under construction.
Reasonably Foreseeable: The outcome may happen, but there is significant uncertainty.	Identified within a development plan; Not directly associated with the transport strategy/scheme, but may occur if the strategy/scheme is implemented; Development conditional upon the transport strategy/scheme proceeding; Or, a committed policy goal, subject to tests (e.g. of deliverability) whose outcomes are subject to significant uncertainty.
Hypothetical: There is considerable uncertainty whether the outcome will ever happen.	Conjecture based upon currently available information; Discussed on a conceptual basis; One of a number of possible inputs in an initial consultation process; Or a policy aspiration.

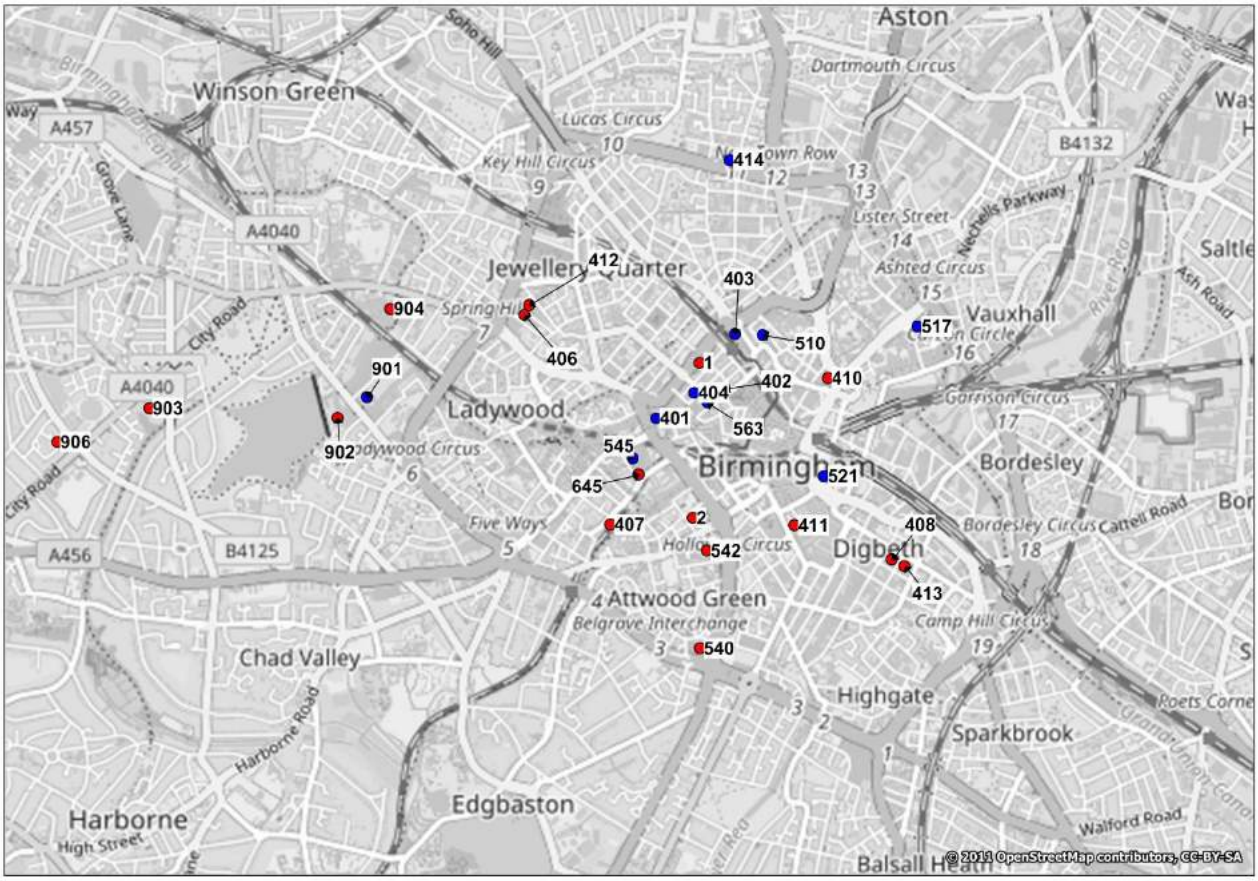
The development of the 'core' scenario in relation to land use is considered below in the following section. Details of highway schemes are included in Chapter 3.

2.5. Specific Development Sites

In line with guidance and standard practice, BCC provided Atkins with an uncertainty log of specific residential and employment/mixed used development sites to be included within the model forecast assignments. The uncertainty log contained key information including the type (and proportional split if applicable) of land use, the size (in terms of number of dwellings or Gross Floor Area) and phasing in terms of completion by each of the forecast model years. Critically, the uncertainty log also detailed the likelihood associated with each development (with only those classed as either Near Certain or More than likely being included within the core matrices). Some developments were also removed from the initial list either due to being relatively small in nature, located away from the core simulation network, or because they were deemed to generate a relatively insignificant volume of car trips (e.g. student flat accommodation). A total of 17 residential and 11 employment and/or mixed land use sites were taken forward for inclusion within the forecast matrices – the locations of which are displayed in **Figure 2-5** (with the developments referenced by zone number. Zones for the HS2 Curzon Street Station were also included, with a unique zone for each type of trip associated with the station (i.e. car parking, kiss and ride and taxis). The full list of developments included is provided in **Table 2-3** for residential sites and **Table 2-4** for all other developments.

Figure 2-4 Location of BCCM Development Sites

NB



NB: Red sites are residential, blue sites are mixed use/employment

Table 2-3 BCCM Forecast Residential Development Sites

Zone	Development Name	Dwellings	Uncertainty	Completion	Notes
645	Arena Central Plot E3	230	MTL	50% by 2026 100% by 2031	
	Arena Central Plot G	322	MTL		
540	Attwood Green Zone 11	335	NC	100% by 2026	
621	Boerma Phases 2 and 3	198	NC	100% by 2026	
NA - ID1	Britannia House	80	MTL	100% by 2026	Net reduction of trips to existing zone only
903	City Road	116	MTL	100% by 2026	
904	Dudley Road	504	MTL	100% by 2026	
406	Former Moulinex Swan/Kettleworks	291	MTL	100% by 2026	
407	Granville Street	112	NC	100% by 2026	
408	Harrison Drape	313	MTL	100% by 2026	
NA - ID2	Holloway Head Phase 1 and 2	487	MTL	100% by 2026	Net reduction of trips to existing zone only
902	Icknield Port Loop	920	MTL	72% by 2026 100% by 2031	
410	Masshouse Exchange Square 1	603	MTL	100% by 2026	
	Masshouse Exchange Square 2	223	MTL		
411	Pershore Street	334	MTL	100% by 2026	
906	Portland Centre	92	NC	100% by 2026	
412	SGUV 1 Pope Street	208	MTL	100% by 2026	
	SGUV 2 Pope Street	94	MTL		
413	St. Annes	170	MTL	100% by 2026	
542	Windmill Street	304	MTL	100% by 2026	

Table 2-4 BCCM Forecast Employment/Mixed Use Development Sites

Zone	Development Name	Land Use	Breakdown (Sqm)	Uncertainty	Completion
901	Icknield Port Loop/Rotton Park 1&2	Office/Retail/ Leisure	2,500/2,500	MTL	100% by 2026
545	Arena Central Plot D	Office/Retail	15,035/755	MTL	100% by 2026
	Arena Central Plot A	Office/Retail	15,582/718	MTL	50% by 2026 100% by 2031
	Arena Central Plot C	Office/Retail		NC	100% by 2026
401	Paradise Project	Office Led	170,012	MTL	50% by 2026 100% by 2031
563	103 Colmore Row	Office/Retail	25,393/1,479	MTL	100% by 2026
402	55-73 Colmore Row	Office/Retail	975/1,512	NC	100% by 2026
414	The Brandauer Works	Office Led	4,071	NC	100% by 2026
521	Boerma Phase 2	Office Led	18,181/1,148	NC	100% by 2026
510	Former Post & Mail Building	Office	49,800	NC	100% by 2026

Zone	Development Name	Land Use	Breakdown (Sqm)	Uncertainty	Completion
517	Eastside Locks Phase 1	Office/Retail	1,955/732	MTL	50% by 2026 100% by 2031
	Eastside Locks Phase 1 (Building 5)	Office/Retail	7,463/303	NC	100% by 2026
403	Snow Hill Site 3	Office Led	46,684/2,086/ 2,500	NC	100% by 2026
404	Louisa Ryland House	Office/Retail	8,682/657	MTL	100% by 2026
908	HS2 – Taxi Trips	NA	NA	NA	NA
909	HS2 – Kiss and Ride	NA	NA	NA	NA
910	HS2 – Car Parking	NA	NA	NA	NA

The zone numbers allocated to each development indicate the manner in which the forecast development loads onto the BCCM network:

- Zones numbered 401 to 414 represent sites which load via a defined access point specific to the development within the City Centre;
- Zones numbered between 510 and 645 represent zones where the development traffic utilises an existing access point provided by an existing public car park (e.g. zones 545 and 645 load from the same location as zone 145);
- Zones numbered 901 to 907 represent developments which are located outside of the A4540 Ring Road; and
- Zones numbered 908 to 910 are specific to HS2 Curzon Street traffic.

Further details regarding the process undertaken in developing the forecast matrices are provided in Chapter 4 of this report.

3. Forecast Network Schemes

This chapter details the various highway schemes which have been incorporated within the BCCM forecast networks as instructed by BCC as well as additional infrastructural changes – specifically the future closure of existing car parks and the highway changes associated with the HS2 Curzon Street Station and Midlands Metro Extensions.

3.1. Future Highway Schemes

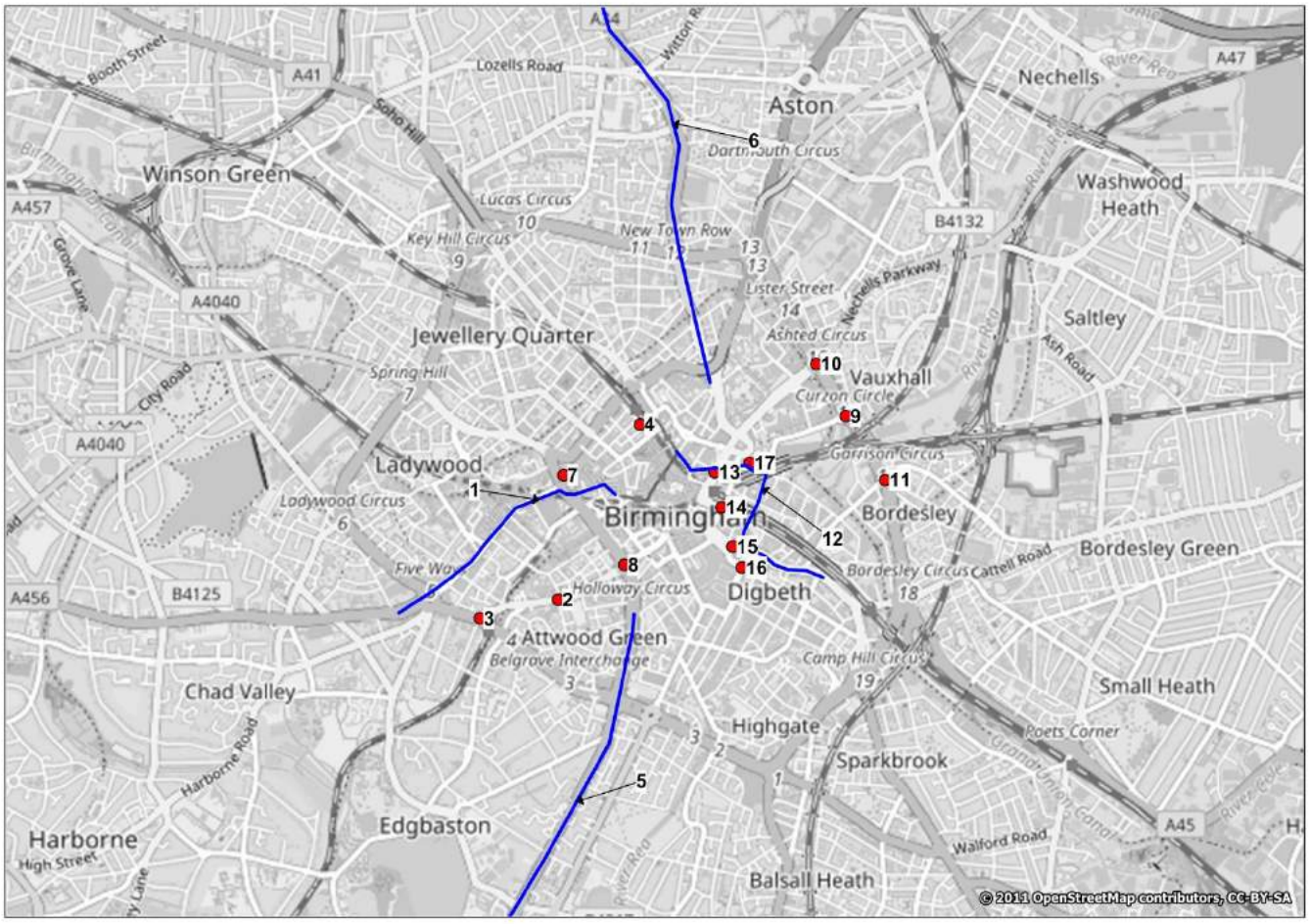
As with future developments, BCC provided Atkins with an uncertainty log of future highway schemes. Those identified as being either “Near Certain” (NC) or “More than Likely” (MTL) are listed in **Table 3-1**. The location of each scheme (with IDs corresponding) is provided in **Figure 3-1**.

Table 3-1 Forecast Network Schemes

Scheme ID	Scheme Name	Description	Uncertainty
1	Midland Metro (Centary Sq / Edgbaston)	Extension of the metro line out from Grand Central to Cetenary Square and Edgbaston (Hagley Road) via Broad Street with associated re-routeing of private vehicles	NC
2	Bath Row / Cregoe St	Signalisation of junction to complement Midland Metro works	NC
3	Bath Row / Ring Road	Signalised right turn from Bath Row onto A4540 Ring Road.	MTL
4	Snow Hill Tranche 1	Closure or right turn from Livery Street to Colmore Row with changes to lane allocations, re-routeing of bus routes and reconfiguring junctions. Livery Street partially made 2-way and bus gate added on Lionel Street.	NC
5	Birmingham Cycle Revolution A38 Improvements	Changes to several junctions including addition of right turn from Bristol Road to Wellington Road and southbound lane reallocation at Lee Bank Middleway Junction. Conversion of Wrentham Street to a 1-way arrangement and Gooch Street to a 2-way arrangement.	NC
6	Birmingham Cycle Revolution A34 Improvements	Narrowing of Newtown Row northbound exit from Lancaster Circus junction. Majority of other scheme works are offline.	NC
7	Paradise Circus	Temporary construction traffic management arrangement re-coded to represent final arrangement, opening access up to Spring Hill and including new access points for underground car park. Broad Street re-opened to buses.	NC
8	Holloway Circus	Installation of a left slip road on the Holloway Head approach.	NC
9	Curzon Circle	Part of HS2 mitigation. Roundabout removed and replaced with signalised junction. Signal staging timings based on designs provided by HS2.	NC
10	Ashted Circus	Roundabout removed and replaced with signalised junction.	NC
11	Garrison Circus	Part of HS2 mitigation. Roundabout removed and replaced with signalised junction. Signal staging timings based on designs provided by HS2.	NC
12	Midland Metro (Eastside Extension)	Metro line extended from Corporation Street, running across Moor Street past HS2 station and out along B4100 through Eastside. Highway coding includes.alteration of signals and inclusion of a new bus link between Park Street and Moor Street. Removal of	NC

Scheme ID	Scheme Name	Description	Uncertainty
		bus lanes and lane reductions along B4100 Digbeth Expressway to accommodate new metro line.	
13	Moor St Queensway	Bus, hackney, cycle and access only.	NC
14	Moor St Car Park Left Turn Only	Left turn only out of Moor St car park.	NC
15	Digbeth Cyratory SE Loop	Bus gate added on east side of circulatory.	NC
16	Bradford St	Right turn into Barford Street removed.	MTL
17	HS2 Closures	Road closures associated with HS2 Curzon Street Station. Includes partial removal of Park Street, Fazeley Street, Banbury Street.	NC

Figure 3-1 Location of Highway Changes



BCC also provided scheme drawings where available to support the coding process. Signal staging and timings for the newly signalised Curzon Circle and Garrison Circus junctions were based off LINSIG assessments provided by HS2. Similar information was not available for other newly signalised junctions and so logical staging arrangements were adopted with signal timings later optimised as part of the forecast model assignment process. All schemes have been included in all future year assignments.

All changes to the network were reviewed together with BCC to provide clarity on scheme arrangements and to ensure coding of the above schemes was accurate in line with current available design information.

3.2. Bus Routes and Metro Extensions

Transport for West Midlands (TfWM) and the Midland Metro Alliance (MMA) were consulted regarding the impacts of the highway schemes in terms of bus service re-routeing and traffic diversions resulting from the extension of the metro service.

All bus services which were diverted in the base model away from the eastern section of Broad Street due to the ongoing Paradise Circus works were routed back onto Broad Street via the Paradise Circus junction. This included the 9, 120, 127, 128, 129, 140 and X10. Alterations were also required to be made to routeing of services around Snow Hill as a result of the Tranche 1 alterations (particularly the closure of the right turn from Livery Street onto Colmore Row and the addition of a bus gate on Lionel Street) however TfWM advised that actual agreed routes are yet to be fully agreed with BCC as so the re-routeing of some services may be subject to change in later assessments.

MMA provided latest available scheme plans for both the Eastside metro extension and the Centenary Square/Edgbaston extension. In order to reflect the impact of these works on the highway assignment, a number of changes were made in terms of interaction between tram services and road traffic at signalised junctions. For the Eastside extension, bus lanes were also removed along the B4100 Digbeth Expressway (required to provide necessary carriageway space for the metro line through the centre of the link). A bus only link was also added between Park Street and the Moor Street/Albert Street signalised junction, representing the new interchange at this location. Along Broad Street, several turns and movement were altered, diverting private traffic away from sections of the route as indicated by the proposals provided by MMA, including the underpass beneath Five Ways junction. No definitive information has been provided on tram service frequency and so it has been assumed that where trams share the public highway with motor vehicles, services operate every six minutes. Tram only links have not been included in the model as these have no impact on the assignment of road traffic.

3.3. Car Park Closures

In addition to the various highway changes, BCC indicated that a number of car parks were subject to closure in the future years, with a need to consider the reallocation of traffic. This includes the following sites:

- Curzon Street (Zone 119);
- Fazeley Street (Zone 118);
- Chapel Street (Zone 113);
- Lower Lionel Street (Zone 161); and
- Ludgate Hill (Zone 161).

As such, these access arrangements have been removed from the forecast year networks. Zones have been reloaded and maintained within the network for assignment purposes, however all trips have been removed and relocated from these zones to reflect the re-distribution of traffic. The reallocation of traffic is discussed in the following Chapter.

3.4. Fixed Speed Alteration

In addition to including forecast changes within the detailed City Centre area of the model, it is also necessary to alter the fixed speeds coded across the wider extents of the model, accounting for the increased congestion likely to occur from higher traffic levels. These changes have been applied based on the proportional change in average speed taken from NRTF core scenario 1 for the West Midlands. Factors applied to the base model fixed speed values are show in **Table 3-2**.

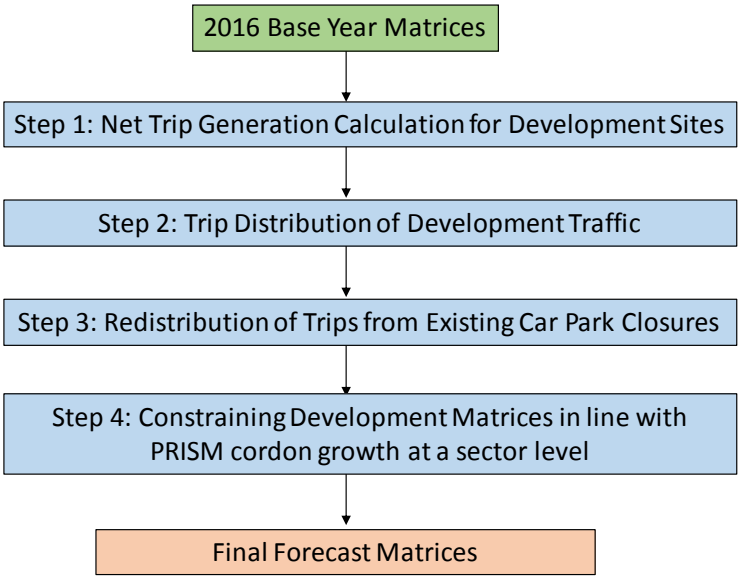
Table 3-2 Fixed Speed Future Year Rate of Change

Road type	2016	2026	2031	2041
Average Speed (kph)	31.9	30.9	30.5	29.5
Rate of Change	-	0.969	0.957	0.928

4. Forecast Matrix Development

This chapter explains the methodology for producing the BCCM forecast matrices for each of the future years required. This includes the following step-by-step process shown in **Figure 4-1**.

Figure 4-1 Forecast Matrix Process



Each step in the process is detailed throughout this Chapter.

4.1. Step 1: Net Trip Generation for Development Sites

The first task in developing forecast matrices for the BCCM was to determine the level of trips each individual site would generate in each time period and forecast year (depending on the level of completion). A standard approach to achieve this in strategic modelling is to derive agreed trip rates from the TRICs database for each land use and apply these generically to each site. However, the proportion of car driver trips for developments across Birmingham City Centre is likely to vary considerably between sites of the same land use type owing to the various modes of transport available. Consequently, it was agreed that where possible, the preferred method would be to consider each site on an individual basis, basing the level of trips on trip rates taken from specific transport assessments which proportion the number of person trips from the development according to a defined modal split.

Transport assessments were available for all residential developments included within the forecast trip matrices. For mixed use and employment sites with no TA, trip rates were derived from TRICs, filtering surveys to include only large urban areas. The generic trip rate values for total vehicles are displayed in **Table 4-1**.

Table 4-1 Generic Trip Rates for Mixed Use/Employment Developments in BCCM

Development Type	Unit	AM Peak		Inter-peak		PM Peak	
		In	Out	In	Out	In	Out
B1a Office	100 sqm	0.520	0.038	0.068	0.050	0.051	0.399
Hotel	100 sqm	0.195	0.277	0.143	0.142	0.239	0.189

Trip generation for HS2 Curzon Street Station was derived from values previously provided to Atkins and agreed with BCC as part of development testing for the station. These are shown in **Table 4-2** for 2026/2031 (following the opening of the first phase of the line between London and Birmingham), and **Table 4-3** for 2041 (following the assumed opening of the full Y-shape design).

Table 4-2 2026/2031 HS2 Trip Generation (Total Vehicles)

Trip Type	AM Peak		Inter-Peak		Inter-Peak	
	In	Out	In	Out	In	Out
Taxi	38	34	34	33	45	43
Kiss and Ride	39	39	27	27	35	35
Car Park	51	2	46	29	1	38

Table 4-3 2041 HS2 Trip Generation (Total Vehicles)

Trip Type	AM Peak		Inter-Peak		Inter-Peak	
	In	Out	In	Out	In	Out
Taxi	69	61	63	59	83	78
Kiss and Ride	61	61	49	49	64	64
Car Park	94	4	85	53	2	69

A further consideration for the addition of new developments was whether the change of land use would result in the loss of some existing traffic. Where transport assessments specified as such, existing trips were removed from the corresponding base model zones.

Overall net trip volumes for individual sites (at 100% completion) are displayed in **Table 4-4** and **Table 4-5** for residential and mixed use/employment sites respectively.

Table 4-4 Residential Trip Generation (Total Vehicles)

Zone	Development Name	AM Peak		Inter-peak		PM Peak	
		In	Out	In	Out	In	Out
645	Arena Central Plot E3	21	45	22	29	33	24
	Arena Central Plot G						
540	Attwood Green Zone 11	13	34	26	20	39	22
621	Boerma Phases 2 and 3	9	24	6	7	16	10
NA - ID1	Britannia House	-65	-4	-3	-2	-5	-43
903	City Road	13	40	25	23	38	19
904	Dudley Road	-619	2	-16	1	-25	-346
406	Former Moulinex Swan/Kettleworks	33	62	44	37	68	41
407	Granville Street	5	15	8	9	13	7
408	Harrison Drape	17	21	14	12	22	20
NA - ID2	Holloway Head P1 and 2	-70	-5	-1	-3	-1	-53
902	Icknield Port Loop	173	276	203	164	311	170
410	Masshouse Exchange Sq 1	17	50	42	30	65	38
	Masshouse Exchange Sq 2						
411	Pershore Street	18	22	7	13	11	14
906	Portland Centre	-25	35	23	21	36	-17
412	SGUV 1 Pope Street	25	47	34	28	51	31
	SGUV 2 Pope Street						
413	St. Annes	10	30	25	18	39	16
542	Windmill Street	8	39	26	23	40	14

Table 4-5 Mixed Use/Employment Trip Generation (Total Vehicles)

Zone	Development Name	AM Peak		Inter-peak		PM Peak	
		In	Out	In	Out	In	Out
901	Icknield Port Loop/Rotton Park 1&2	83	27	71	16	108	103
545	Arena Central Plot D	201	25	34	28	31	165
	Arena Central Plot A						
	Arena Central Plot C						
401	Paradise Project	421	28	38	17	58	358
563	103 Colmore Row	161	31	46	38	38	136
402	55-73 Colmore Row	35	22	30	26	26	39
414	The Brandauer Works	21	2	3	2	2	16
521	Boerma Phase 2	9	2	4	3	3	7
510	Former Post & Mail Building	161	32	22	19	33	134
517	Eastside Locks Phase 1	26	7	8	7	8	25
	Eastside Locks Phase 1 (Building 5)						
403	Snow Hill Site 3	85	13	8	7	13	76
404	Louisa Ryland House	46	7	1	4	2	45
908	HS2 – Taxi Trips	69	61	63	59	83	78
909	HS2 – Kiss and Ride	61	61	49	49	64	64
910	HS2 – Car Parking	94	4	85	53	2	69

4.2. Step 2: Trip Distribution of Development Traffic

Trip distributions for the majority of developments included within the forecast matrices are based on distributions from nearby existing zones of a similar land use, maintaining the trip patterns observed in the base model assignments.

The exception to this is for the HS2 Curzon Street traffic which has utilised the distribution details provided by HS2, adopted for the forecast testing work undertaken using the previous version of the model. The previous model was restricted in spatial scope to just outside of the City Centre – with distribution details only specifying the proportion of external trips which enter/leave according to the various radial routes surrounding the A4540 Ring Road. As the updated model has a much larger spatial scope, it was therefore necessary to further disaggregate the trips on each radial route to several zones which would logically use the radial routes in order to access Curzon Street Station. For example, trips entering/leaving the City Centre via the A34 Newtown Row were assigned to zones in the Perry Barr/Great Barr and West Sutton Coldfield area.

4.3. Step 3: Redistribution of Trips from Car Park Closures

Following the addition of new development trips, the next step in production of the forecast matrices was to reallocate trips from existing car parks set to be closed in future year. Trips were moved to neighbouring zones representing adjacent car park sites likely to be used as an alternative to the site being closed. Where trips were shifted to more than 1 alternative site, the proportions to the various sites was determined based upon the number of existing trips using the available sites. The reallocation of trips is summarised in **Table 4-6** below.

Table 4-6 Mixed Use/Employment Trip Generation (Total Vehicles)

Zone	Car Park	Trip Relocation Zones
119	Curzon Street	117, 123

Zone	Car Park	Trip Relocation Zones
118/218	Fazeley Street	120, 168
113	Chapel Street	112
161	Lower Lionel Street/Ludgate Hill	160, 162

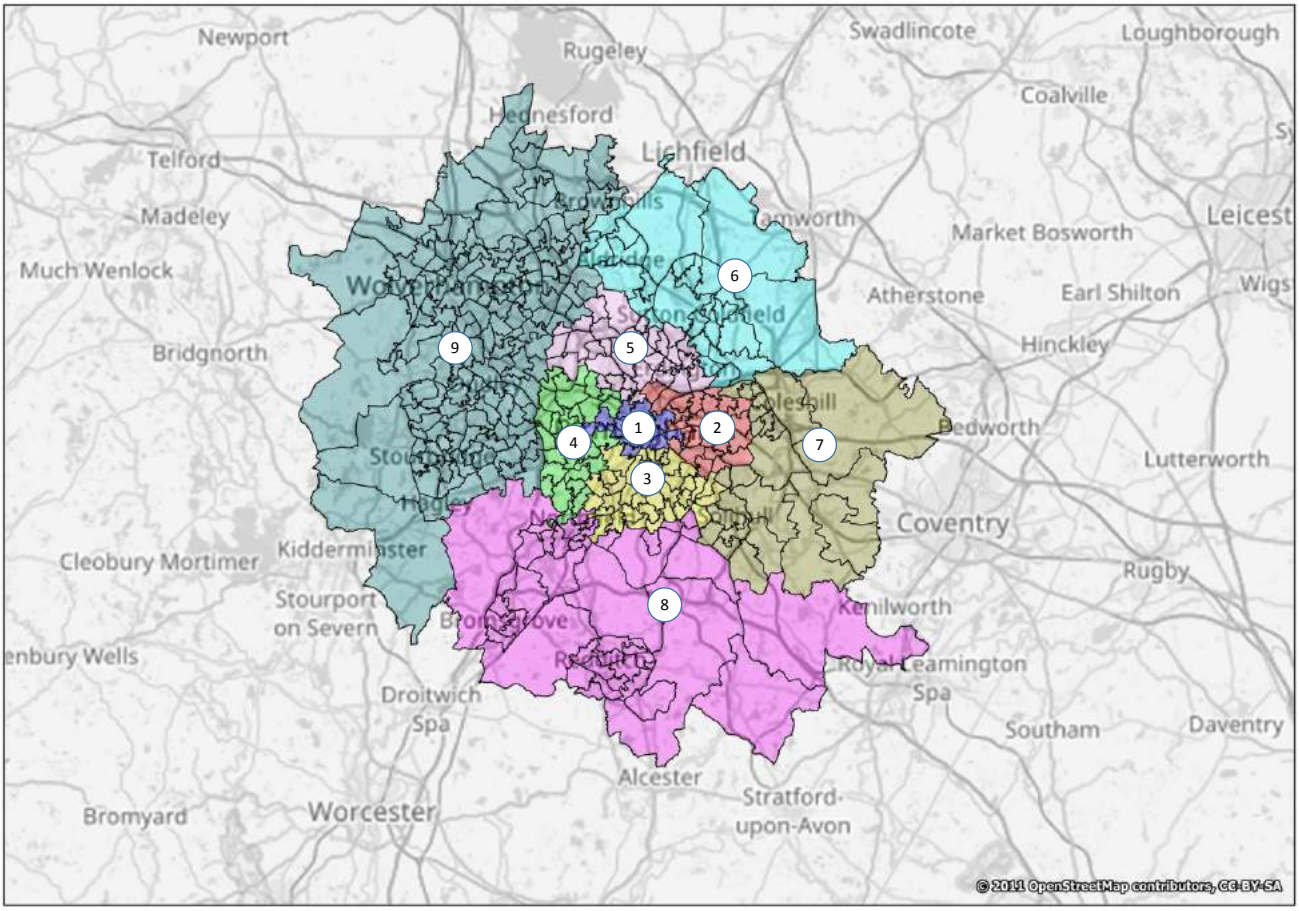
4.4. Step 4: Constraining in line with PRISM

The final matrix development stage involved the application of background growth, bringing the overall level of growth from the base model matrices to the individual forecast year matrices in line with that observed across the PRISM cordons. As demonstrated in Chapter 2, the levels of growth observed across the cordons are consistent with growth levels for the Birmingham area derived from NTEM 7.2 and NRTF (Scenario 1) for all user classes and time periods and as such represent a suitable reference for use in the BCCM.

The PRISM cordon matrix zones were grouped according to a geographic sector system in order to provide the level of growth within different areas of the modelled area. This sector system is shown in **Figure 4-1**. As the BCCM zones directly correspond with PRISM zones, this allows for the level of growth observed across each sector to be applied to the relevant SATURN model zones. The sector system is a key element of this process as applying growth at an individual zone-to-zone level could lead to unrealistic variations where the proportional growth within an individual PRISM zone is high (i.e. a large proportional increase within a PRISM zone with relatively few trips would be inappropriate to inform the level of growth within a corresponding SATURN zone which may have a higher volume of trips to begin with). The sector system allows for the creation of individual OD matrices for each individual user class and time from which to derive the overall level of growth between each sector as well as to the external road network.

As the forecast cordons were not available for the 2026 and 2041 forecast years required for the BCCM, it was necessary to interpolate the level of growth based on growth profiles derived from NTEM 7.2. This was achieved through matching NTEM zone boundaries to the corresponding sectors and then applying the growth profiles from 2021 and 2031 to 2026 and 2041 in order to calculate appropriate overall growth factors for each sector OD combination. Sector-to-sector growth factors applied to each user class and time period are presented in **Appendix A**.

Figure 4-2 PRISM Cordon Sector System



*NB: Sector 10 represents external trips outside of the model area.

As the specific developments traffic added to the forecast matrices represented a proportion of the growth across the various sectors, it was necessary to constrain the overall growth observed across the sector matrices in order to avoid double counting. This involved the following process:

1. Calculating the overall percentage sector-to-sector OD growth across the cordon matrices;
2. Sectoring the base model and development only matrices for each user class and time period;
3. Applying the overall percentage growth to the base model sector matrices to produce the desired overall level of growth at a sector-to-sector level;
4. Deducting the development only sector matrices from the overall growth matrices to calculate background growth factors at a sector matrix level;
5. Expanding the background growth sector matrices to full matrix level (i.e. applying the sector factors to equivalent individual zone i-j pairs);
6. Applying the expanded background growth factor matrices to the full matrix base model matrices;
7. Adding the development only trips to the background growth matrices to provide the overall future year matrices, constrained to the levels of growth observed in the PRISM cordon matrices.

Final forecast matrix totals by user class and time period are shown in **Table 4-7**.

Table 4-7 BCCM Forecast Matrix Totals

User Class	Time Period	Base 2016	2026	% from 2016	2031	% from 2016	2041	% from 2016
Car– Business	AM	16,794	18,400	10%	19,030	13%	20,231	20%
	IP	24,125	26,275	9%	27,207	13%	29,002	20%
	PM	22,202	24,235	9%	24,927	12%	26,587	20%
Car– Commuter and Other	AM	184,866	202,192	9%	209,078	13%	223,621	21%
	IP	158,924	175,870	11%	183,912	16%	196,875	24%
	PM	216,534	236,905	9%	244,853	13%	263,761	22%
LGV	AM	35,562	46,267	30%	50,848	43%	59,311	67%
	IP	29,495	38,332	30%	42,088	43%	49,127	67%
	PM	28,218	36,774	30%	40,355	43%	47,084	67%
HGV	AM	31,320	33,844	8%	35,055	12%	36,443	16%
	IP	35,838	38,693	8%	40,085	12%	41,665	16%
	PM	19,262	20,805	8%	21,538	12%	22,390	16%
Total	**AM**	268,542	300,703	12%	314,011	17%	339,606	26%
	IP	248,382	279,170	12%	293,292	18%	316,669	27%
	PM	286,216	318,719	11%	331,673	16%	359,822	26%

5. Forecast Assignments

Forecast trips matrices and networks developed for the future years of 2026, 2031 and 2041 were used to produce fixed demand assignments for the BCCM. Variable demand modelling has not been undertaken as growth levels have been taken from the PRISM model cordons which as a multi-modal model should account for changes in demand due to different modes. Generalised cost parameters defined as 'pence per minute' (PPM) and 'pence per kilometre' (PPK) were also updated each year in line with TAG guidance (March 2017 Databook v1.7). These values are shown in **Table 5-1**.

Table 5-1 Forecast Assignment PPM:PPK Values

Year	UC	Description	PPM (pence per minute)			PPK (pence per kilometre)		
			AM	IP	PM	AM	IP	PM
2026	1	Car (Business)	35.67	36.55	36.19	14.80	14.80	14.80
	2	Car (Commuter/Other)	20.41	18.53	20.43	6.47	6.47	6.47
	3	LGV	25.21	25.21	25.21	14.42	14.42	14.42
	4	HGV	51.20	51.20	51.20	57.18	57.18	57.18
2031	1	Car (Business)	39.34	40.31	39.91	14.42	14.42	14.42
	2	Car (Commuter/Other)	22.51	20.44	22.53	6.12	6.12	6.12
	3	LGV	27.81	27.81	27.81	14.31	14.31	14.31
	4	HGV	56.46	56.46	56.46	57.84	57.84	57.84
2041	1	Car (Business)	48.33	49.52	49.03	14.49	14.49	14.49
	2	Car (Commuter/Other)	27.66	25.11	27.68	6.20	6.20	6.20
	3	LGV	34.16	34.16	34.16	14.48	14.48	14.48
	4	HGV	69.36	69.36	69.36	59.21	59.21	59.21

Convergence statistics for each assignment scenario are displayed in **Table 5-2, Table 5-3 and Table 5-4** for 2026, 2031 and 2041 respectively.

Table 5-2 2026 Summary Convergence Statistics

Time Period	Assignment Iterations	Delta	% Flow	% Gap
AM Peak	44	0.0070	99.3	0.0085
	45	0.0074	99.4	0.014
	46	0.0076	99.6	0.0065
	47	0.0088	99.5	0.0079
	48	0.0066	99.5	0.0066
Inter-peak	19	0.0025	98.4	0.0042
	20	0.0045	98.6	0.0032

Time Period	Assignment Iterations	Delta	% Flow	% Gap
	21	0.0035	98.7	0.0022
	22	0.0019	99.2	0.0027
	23	0.0020	99.2	0.0028
PM Peak	46	0.0031	98.1	0.0071
	47	0.0026	98.6	0.0032
	48	0.0022	99.2	0.0072
	49	0.0021	99.0	0.0060
	50	0.0026	99.0	0.0031

Table 5-3 2031 Summary Convergence Statistics

Time Period	Assignment Iterations	Delta	% Flow	% Gap
AM Peak	50	0.0123	98.0	0.012
	51	0.0113	98.7	0.0095
	52	0.0107	98.7	0.0073
	53	0.0066	99.1	0.020
	54	0.0061	98.7	0.017
Inter-peak	26	0.0027	97.9	0.0026
	27	0.0023	98.8	0.0028
	28	0.0019	99.4	0.0025
	29	0.0019	99.4	0.0020
	30	0.0019	99.2	0.0011
PM Peak	62	0.0044	97.0	0.0073
	63	0.0030	98.6	0.0044
	64	0.0031	99.3	0.0065
	65	0.0025	98.9	0.0044
	66	0.0031	99.3	0.0099

Table 5-4 2041 Summary Convergence Statistics

Time Period	Assignment Iterations	Delta	% Flow	% Gap
AM Peak	57	0.0117	99.3	0.014
	58	0.0076	99.2	0.012
	59	0.0068	99.5	0.017
	60	0.0147	99.4	0.011
	61	0.0086	99.5	0.011
Inter-peak	33	0.0033	98.5	0.0038
	34	0.0029	98.9	0.0042
	35	0.0028	99.0	0.0032
	36	0.0037	99.2	0.0072
	37	0.0027	99.7	0.0027
PM Peak	143	0.057	98.5	0.0088
	144	0.113	98.5	0.0076

Time Period	Assignment Iterations	Delta	% Flow	% Gap
	145	0.083	98.5	0.0077
	146	0.060	98.7	0.017
	147	0.048	98.5	0.0088

The tables above demonstrate that all forecast assignments reach a stable state of equilibrium, with the majority of assignments converging after 70 loops. The exception to this is the 2041PM assignment, which reaches the required guidance conditions after 147 loops. However, from 55 loops onwards, there is no consecutive change in flow of greater than 3.0%, demonstrating that the assignment is still relatively stable.

The remainder of this chapter presents the future traffic impacts seen in the future year assignments for the core “Do Minimum” scenario (with no particular scheme or specific development being tested at this stage). The following indicators have been assessed:

- Overall network statistics;
- Flow difference analysis (2026 vs Base);
- Journey time analysis for key routes; and
- Volume/capacity statistics for key junctions.

5.1. Overall Network Statistics

Table 5-5, **Table 5-6** and **Table 5-7** show the assignment summary statistics for all forecast year models in the AM peak, inter-peak and PM peak periods respectively. Of particular note are the overcapacity queued time, which is generally taken as a measure of congestion, and the average speed, which summarises operating conditions for all drivers included in the trip matrices (those passing through the model area). The total travel time, made up of cruise time, transient queued time (e.g. waiting at a red light at signals) and overcapacity queued time, and total travel distance are summed over full journey lengths for all modelled trips. These together determine the average overall journey speed.

Table 5-5 AM Peak Assignment Statistics

Statistic	2016	2026	2031	2041
Total Assigned Trips (pcus)	258,697	289,701	302,476	327,144
Link Cruise Time (pcu-hrs)	46,754	52,892	55,388	60,634
Transient Queued Time (pcu-hrs)	1,588	2,256	2,410	2,751
Overcapacity Queued Time (pcu-hrs)	126	478	617	885
Total Travel Time (pcu-hrs)	48,503	55,669	58,460	64,271
Travel Distance (pcu-kms)	2,849,289	3,189,670	3,328,767	3,599,476
Average Journey Speed (kph)	58.7	57.3	56.9	56.0

Table 5-6 Inter-peak Assignment Statistics

Statistic	2016	2026	2031	2041
Total Assigned Trips (pcus)	237,410	266,857	280,331	302,738
Link Cruise Time (pcu-hrs)	40,277	45,720	48,176	52,640
Transient Queued Time (pcu-hrs)	1,196	1,538	1,660	1881
Overcapacity Queued Time (pcu-hrs)	79	102	133	262
Total Travel Time (pcu-hrs)	41,552	47,321	49,969	54,782
Travel Distance (pcu-kms)	246,9067	2,771,417	2,908,640	3,138,368
Average Journey Speed (kph)	59.4	58.5	58.2	57.3

Table 5-7 PM Peak Assignment Statistics

Statistic	2016	2026	2031	2041
Total Assigned Trips (pcus)	274,505	305,642	318,022	345,093
Link Cruise Time (pcu-hrs)	47,640	53,584	55,870	61,482
Transient Queued Time (pcu-hrs)	1,505	1,996	2,137	2,393
Overcapacity Queued Time (pcu-hrs)	120	327	426	745
Total Travel Time (pcu-hrs)	49,265	55,906	58,432	64,621
Travel Distance (pcu-kms)	2,849,781	3,172,463	3,293,733	3,589,228
Average Journey Speed (kph)	57.8	56.7	56.4	55.5

As would be expected, the results demonstrate a logical increase in congestion for each time period, with a 7-fold and 6-fold increase in overcapacity queued time observed in the AM and PM peak respectively between the 2016 base year and the final 2041 future year assignment. The inter-peak shows significantly less over-capacity queued time due to lower numbers of trips. Each time period also shows a corresponding decrease in average speed, although the average speed across the full model network remains relatively high due to the wider skeletal network which includes the surrounding motorway box.

5.2. Flow Differences

As currently, only one core forecast scenario has been produced, the most recent forecast year assignments have been compared with the base model in order to demonstrate how traffic flows are expected to change in future years owing to increasing volumes but also due to the numerous highway and land use changes expected.

Figure 5-1 and **Figure 5-2** show the changes in traffic flow across the simulation model area between the 2016 base year and 2026 future year for the AM and PM peak respectively.

Figure 5-1 2016 to 2026 AM Peak Flow Difference (PCUs)

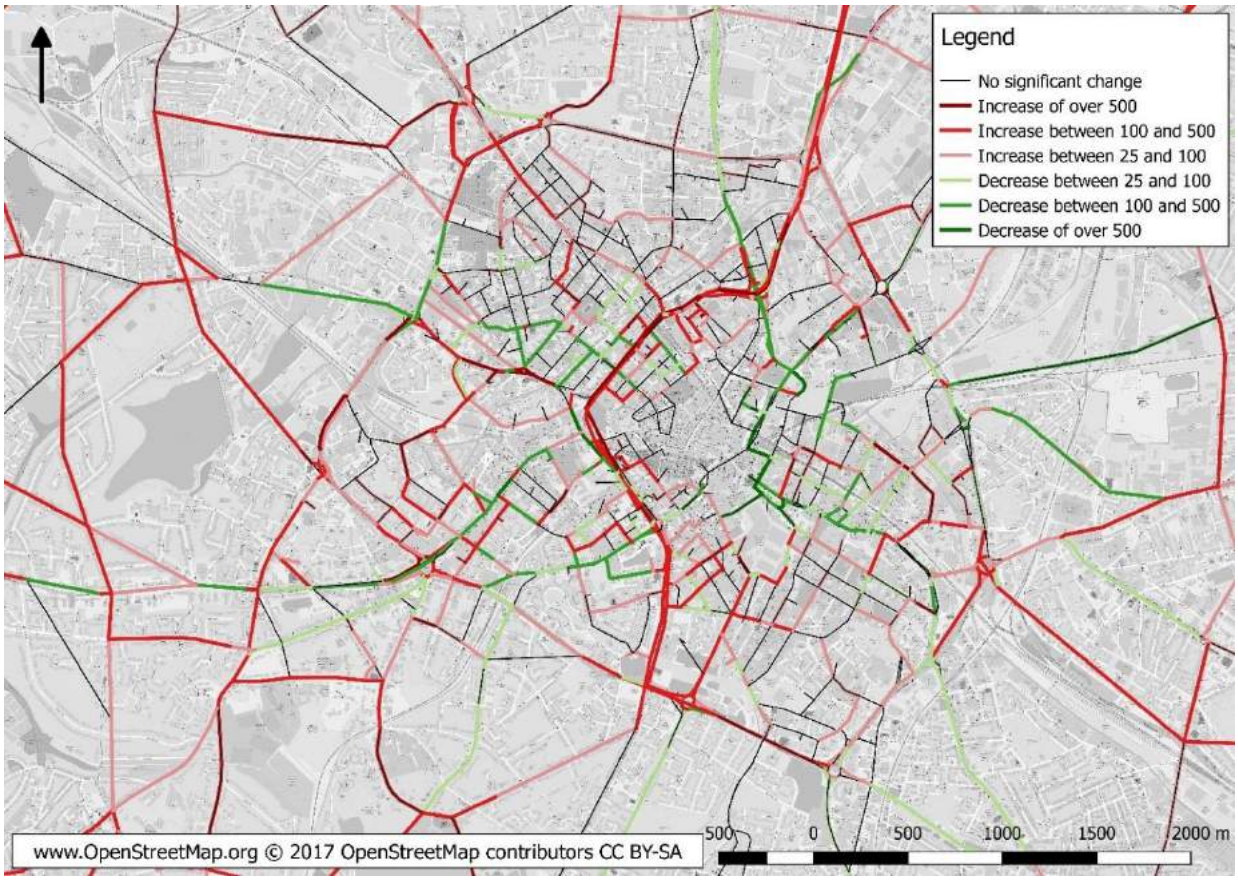
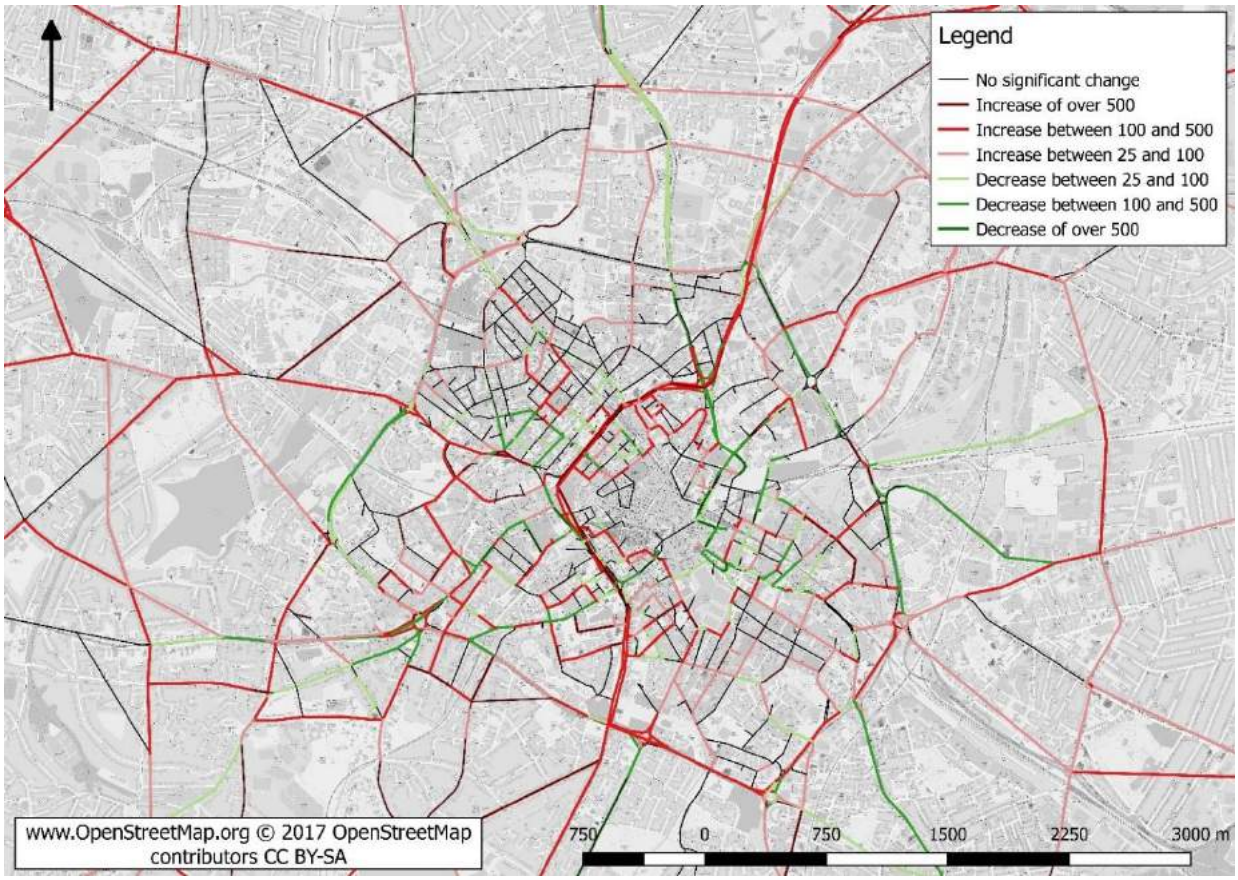


Figure 5-2 2016 to 2026 PM Peak Flow Difference (PCUs)



Analysis of the two flow comparison diagrams reveals that whilst there is a general increase in traffic in the future year assignment as would be expected, there are also some areas of the road network within the Ring Road which show significant decreases in traffic. For example, Broad Street shows a drop in the level of traffic in 2026 which can be attributed to the closure of several sections of the route to private vehicles as part of the Edgbaston Metro extension – with a large amount of traffic diverting onto Holliday Street. Similarly, traffic decreases on James Watt Queensway as a result of Park Street being closed off as part of the HS2 Curzon Street implementation. Moor Street also shows a large decrease, again due to the closure of the road to private vehicles.

Several of the largest increases in traffic can also be attributed to changes in traffic management. For example, the completion and full re-opening of the Paradise Circus junction leads to an increase in traffic along the A457 Summer Hill Road.

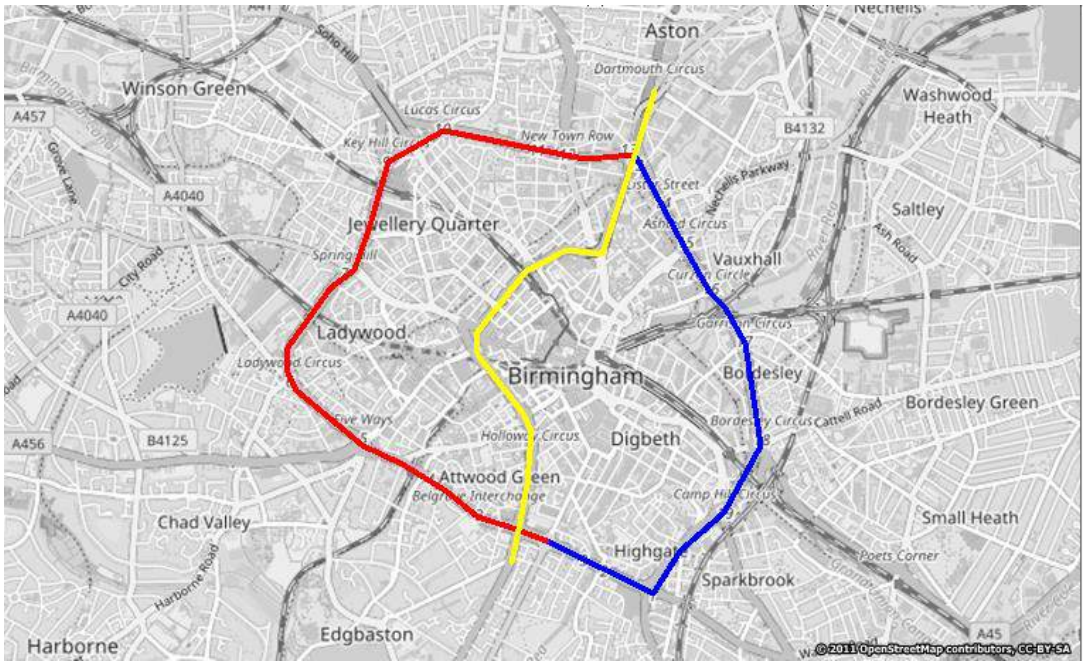
5.3. Journey Time Analysis

In addition to comparing the change in traffic flows between the base model and the forecast assignments, journey time comparisons have also been conducted for the Ring Road and the A38 Queensway. These are presented in **Table 5-8** with the routes shown in **Figure 5-3**.

Table 5-8 Journey Time Comparison (in seconds)

Route	Time Period	2016	2026	2031	2041
A4540 Ring Road West Anticlockwise (Red)	AM	795	908	937	974
	IP	674	704	720	752
	PM	710	792	837	862
A4540 Ring Road West Clockwise (Red)	AM	833	932	945	990
	IP	725	815	830	866
	PM	896	1056	1077	1152
A4540 Ring Road East Anticlockwise (Blue)	AM	597	631	654	698
	IP	546	629	639	669
	PM	521	636	654	687
A4540 Ring Road East Clockwise (Blue)	AM	513	691	714	753
	IP	607	685	707	738
	PM	579	722	754	807
A38 Queensway Northbound (Yellow)	AM	384	432	442	470
	IP	352	369	377	391
	PM	373	400	406	422
A38 Queensway Southbound (Yellow)	AM	387	494	515	542
	IP	353	427	443	468
	PM	371	476	500	550

Figure 5-3 Journey Time Comparison Routes



As expected, all routes analysed show progressive increases in journey time in later future years for all 3 model time periods as the increased levels of traffic cause additional queuing.

5.4. Volume/Capacity Ratios

Weighted Volume/Capacity Ratios for key A4540 Ring Road junctions and A38 Queensway junctions through the City Centre have been compared for the base model with the future year scenarios. These are presented for the AM and PM peak in **Table 5-9**.

Table 5-9 Junction Volume Capacity Ratio Comparison

Junction	AM Peak				PM Peak			
	Base	2026	2031	2041	Base	2026	2031	2041
Dartmouth Circus	84	90	91	95	84	81	82	85
Ashted Circus	58	38	40	44	52	44	45	48
Bordesley Circus	71	80	81	83	71	76	77	79
Camp Hill	72	76	77	79	72	75	76	78
Haden Circus	81	82	82	82	81	77	77	76
Belgrave Middleway	76	81	83	86	76	74	76	82
Bristol St/Lee Bank Middleway	72	82	83	85	72	74	75	78
Five Ways	81	90	91	92	81	87	87	89
Ladywood Circus	53	66	68	69	53	54	56	58
Spring Hill	79	84	86	89	79	94	96	99
Hockley Circus	51	56	57	57	51	57	57	56
Newtown Row	71	71	73	76	71	65	66	68
Lancaster Circus	61	83	86	86	61	73	76	80
Holloway Circus	56	50	51	51	56	51	51	51

Analysis of the change of in weighted volume/capacity ratios demonstrates that generally, junction stress increases over time with the build up of traffic in future years in both the peak periods. Junctions such as

Five Ways (as a result of the restricting access to the underpass for private vehicles as part of the metro extension) and Spring Hill (as a result of the removal of traffic management at Paradise Circus) experience particularly large increases in the V/C ratio in future years.

That said there are some exceptions to this. For example, V/C ratios are significantly lower for Ashted Circus following the conversion of the junction from a roundabout to a signalised junction. Similarly, Holloway Circus sees a reduction in the V/C ratio, following the implementation of an unopposed left slip lane on the Western arm of the junction.

6. Summary

This Traffic Forecasting Report has provided a detailed explanation of the process in developing core scenario 2026, 2031 and 2041 future year assignments for the updated Birmingham City Centre Model. These assignments will be used as the basis for assessing future proposals for highway improvements and developments, allowing for them to be considered within the context of committed significant future changes.

In terms of forecast networks, major schemes coded within the model simulation network include the Edgbaston and Eastside metro extensions, HS2 Curzon Street Station highway changes and the completion of the Paradise Circus junction rearrangement (replacing the temporary traffic management arrangement included in the base model) as well as several smaller scale improvements. Additionally, a number of changes have been made to bus services, re-routeing services diverted in the base model as a result of the Paradise Circus redevelopment, back onto Broad Street as well as altering the routeing of services out of Colmore Row due to the Snow Hill Tranche 1 highway changes. Metro services have also been coded as fixed flows where the extensions will share road space with motor vehicles.

The forecast matrices have utilised growth levels observed from PRISM cordon matrices (version 4.7) provided to Atkins by the PRISM team. The overall levels of growth for these cordons (in terms of each time period and user class) have been compared against NTEM (version 7.2) and NRTF (Core Scenario 1 Locally Adjusted) which have confirmed that the levels of growth match well with guidance and are therefore suitable for purpose.

The BCCM forecast matrices include a number of specific developments, details of which regarding land use, size and completion expectations were provided by BCC in an uncertainty log (with only developments classed as “Near Certain” or “More than Likely” included. This includes large sites such as Arena Central, Paradise Circus and HS2 Curzon Street Station. Trip generation for most these sites has been derived from corresponding Transport Assessments, with a minority of sites where TAs were not available utilising trip rates derived from TRICs. The use of TAs allows for the consideration of net trip generation accounting for changes of land use which see a reduction in terms of existing trips. Trip distribution for most sites has been based on existing nearby base model zones. The exception to this is the distribution of trips from HS2 Curzon Street, which has been based on assumptions provided by HS2 as part of previous model tests. Future car park closures have also been accounted for in the forecast matrices, diverting trips to nearby sites. Finally, the forecast matrices were constrained in line with the levels of growth observed across the PRISM cordons, applying the growth observed at a sector-to-sector level across the full modelled area.

Model assignments have adopted the latest PPM:PPK parameters in line with TAG guidance. Analysis of the changes in flow between the base model assignments and the future year assignments demonstrates that whilst flows generally increase across the City Centre, there are a number of areas where flows decrease as a result of schemes which divert private vehicles away from roads ear-marked for public transport schemes (e.g. Broad Street and Moor Street). As would be expected, comparison of model journey times for the A4540 Ring Road and the A38 Queensway reveals increases in travel across all time periods, as would be expected due to increased traffic levels. However, analysis of weighted average volume/capacity ratios for key junctions on these strategic routes shows that in some cases where future highway schemes are proposed, the V/C ratio is reduced due to increased capacity.

This report concludes that the core forecast scenarios for the BCCM represent a suitable reference case from which to conduct future options testing for highway schemes and developments within the City Centre area.

Appendix A. Overall Matrix Sector Growth Factors

A.1. 2026 AM Peak Growth Factors

A.1.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.21	1.11	1.07	1.09	1.08	1.10	1.25	1.13	1.18	1.09
2	1.25	1.09	1.04	1.05	1.06	1.06	1.19	1.09	1.12	1.09
3	1.18	1.06	1.06	1.04	1.02	0.99	1.17	1.13	1.10	1.08
4	1.16	1.06	1.06	1.11	1.04	1.04	1.15	1.12	1.16	1.11
5	1.18	1.06	1.02	1.04	1.06	1.09	1.18	1.04	1.05	1.09
6	1.18	1.05	0.98	1.02	1.04	1.07	1.08	0.96	1.02	1.11
7	1.24	1.14	1.13	1.14	1.09	0.92	1.30	1.18	1.12	1.11
8	1.13	1.03	1.05	1.05	1.01	0.94	1.10	1.10	1.15	1.06
9	1.17	1.06	1.05	1.10	1.04	1.04	1.19	1.04	1.15	1.11
10	1.13	1.04	1.02	1.04	1.02	1.06	1.27	1.07	1.07	1.05

A.1.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.18	1.12	1.09	1.11	1.09	1.09	1.17	1.06	1.18	1.08
2	1.16	1.11	1.04	1.03	1.08	1.05	1.15	1.05	1.06	1.08
3	1.12	1.06	1.10	1.06	1.00	1.00	1.12	1.11	1.09	1.06
4	1.14	1.02	1.09	1.12	1.05	0.97	1.19	1.10	1.21	1.10
5	1.15	1.08	1.02	1.08	1.10	1.10	1.16	1.03	1.08	1.08
6	1.18	1.03	1.00	1.01	1.06	1.11	1.09	0.98	0.99	1.09
7	1.14	1.09	1.09	1.15	1.06	0.94	1.13	1.10	1.14	1.19
8	1.10	1.00	1.07	1.08	0.97	0.91	1.06	1.10	1.09	1.06
9	1.11	1.05	1.09	1.10	1.06	0.99	1.22	1.05	1.16	1.09
10	1.09	1.02	1.00	1.05	1.01	1.07	1.24	1.06	1.09	1.02

A.1.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.31
2	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
3	1.30	1.30	1.30	1.30	1.30	1.29	1.30	1.30	1.30	1.30
4	1.30	1.29	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.31
5	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.28	1.30	1.31
6	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.28	1.27	1.31
7	1.30	1.30	1.30	1.30	1.30	1.15	1.30	1.30	1.30	1.31

	1	2	3	4	5	6	7	8	9	10
8	1.30	1.30	1.30	1.30	1.30	1.28	1.30	1.30	1.30	1.30
9	1.31	1.31	1.31	1.32	1.31	1.31	1.30	1.29	1.27	1.31
10	1.31	1.31	1.31	1.31	1.30	1.31	1.31	1.30	1.31	1.29

A.1.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
2	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
3	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
4	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
5	1.08	1.08	1.09	1.08	1.08	1.08	1.09	1.08	1.08	1.08
6	1.08	1.08	1.08	1.07	1.08	1.08	1.08	1.08	1.08	1.08
7	1.08	1.08	1.08	1.08	1.08	1.06	1.08	1.08	1.08	1.08
8	1.08	1.08	1.08	1.08	1.08	1.06	1.08	1.08	1.08	1.08
9	1.08	1.08	1.08	1.09	1.19	1.11	1.08	1.09	1.08	1.08
10	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08

A.2. 2026 Inter-Peak Growth Factors

A.2.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.21	1.14	1.08	1.11	1.19	1.20	1.42	1.13	1.17	1.19
2	1.20	1.06	1.01	1.01	1.04	1.03	1.20	1.05	1.03	1.03
3	1.11	1.02	1.02	1.01	0.99	1.00	1.22	1.08	1.03	1.04
4	1.10	0.99	0.99	1.05	0.98	0.98	1.23	1.05	1.08	1.07
5	1.24	1.04	0.99	1.01	1.02	1.04	1.18	1.06	1.02	1.04
6	1.24	1.00	1.00	0.97	1.04	1.08	1.16	0.99	1.00	1.06
7	1.32	1.26	1.23	1.22	1.19	1.11	1.41	1.21	1.20	1.17
8	1.14	1.03	1.07	1.06	1.02	1.01	1.23	1.11	1.10	1.06
9	1.07	0.99	1.03	1.09	0.99	1.00	1.19	1.07	1.14	1.09
10	1.16	1.06	1.06	1.07	1.04	1.07	1.19	1.07	1.09	1.05

A.2.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.17	1.11	1.10	1.13	1.15	1.15	1.20	1.11	1.14	1.12
2	1.12	1.11	1.06	1.03	1.08	1.04	1.16	1.05	1.05	1.05
3	1.09	1.06	1.11	1.09	1.02	0.98	1.13	1.11	1.09	1.06
4	1.14	1.02	1.09	1.13	1.08	0.99	1.32	1.09	1.16	1.09
5	1.14	1.07	1.03	1.07	1.09	1.08	1.16	1.02	1.05	1.06
6	1.03	1.05	1.01	1.01	1.08	1.12	1.19	1.00	1.00	1.10
7	1.18	1.16	1.14	1.27	1.16	1.09	1.17	1.13	1.37	1.29

	1	2	3	4	5	6	7	8	9	10
8	1.13	1.04	1.13	1.18	1.04	0.95	1.12	1.15	1.14	1.10
9	1.13	1.06	1.11	1.15	1.07	1.01	1.27	1.10	1.17	1.10
10	1.11	1.06	1.06	1.10	1.07	1.12	1.28	1.10	1.11	1.06

A.2.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.30	1.30	1.30	1.30	1.30	1.30	1.31	1.30	1.30	1.30
2	1.30	1.30	1.30	1.30	1.30	1.29	1.31	1.30	1.30	1.30
3	1.30	1.30	1.30	1.30	1.30	1.29	1.30	1.30	1.30	1.31
4	1.30	1.31	1.30	1.30	1.31	1.30	1.30	1.30	1.30	1.30
5	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.31
6	1.30	1.29	1.30	1.29	1.30	1.29	1.32	1.27	1.29	1.32
7	1.30	1.30	1.30	1.30	1.30	1.26	1.30	1.30	1.30	1.30
8	1.30	1.31	1.30	1.30	1.30	1.20	1.31	1.30	1.30	1.31
9	1.31	1.31	1.31	1.32	1.31	1.31	1.31	1.31	1.31	1.30
10	1.31	1.31	1.31	1.30	1.31	1.32	1.30	1.31	1.30	1.29

A.2.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
2	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.07	1.08	1.08
3	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.09
4	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.09	1.08
5	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.34	1.08
6	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.16	1.08
7	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
8	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.05	1.08	1.09
9	1.08	1.08	1.08	1.10	1.15	1.12	1.08	1.05	1.09	1.08
10	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.09	1.08	1.08

A.3. 2026 PM Peak Growth Factors

A.3.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.20	1.12	1.10	1.10	1.10	1.15	1.24	1.13	1.17	1.12
2	1.21	1.09	1.04	1.05	1.06	1.07	1.19	1.07	1.10	1.08
3	1.15	1.05	1.06	1.04	1.02	1.01	1.16	1.10	1.08	1.07
4	1.14	1.05	1.06	1.10	1.04	1.04	1.15	1.09	1.14	1.10
5	1.15	1.06	1.02	1.04	1.05	1.07	1.17	1.02	1.05	1.08
6	1.15	1.04	0.98	1.01	1.05	1.07	1.09	0.97	1.03	1.10
7	1.25	1.16	1.14	1.15	1.11	0.96	1.31	1.18	1.13	1.13

	1	2	3	4	5	6	7	8	9	10
8	1.13	1.04	1.06	1.06	1.02	0.95	1.11	1.10	1.12	1.06
9	1.17	1.08	1.07	1.13	1.06	1.06	1.20	1.05	1.16	1.10
10	1.12	1.06	1.04	1.06	1.04	1.07	1.25	1.07	1.08	1.06

A.3.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.17	1.12	1.10	1.11	1.11	1.14	1.16	1.08	1.16	1.09
2	1.15	1.11	1.05	1.03	1.08	1.05	1.13	1.04	1.05	1.07
3	1.11	1.06	1.10	1.07	1.02	1.07	1.11	1.10	1.08	1.05
4	1.13	1.02	1.08	1.13	1.06	0.99	1.16	1.09	1.18	1.09
5	1.14	1.07	1.02	1.07	1.09	1.09	1.14	1.01	1.07	1.07
6	1.15	1.02	0.97	1.01	1.07	1.11	1.08	0.93	1.01	1.09
7	1.13	1.11	1.09	1.14	1.07	0.99	1.13	1.09	1.15	1.19
8	1.09	1.01	1.07	1.09	0.99	0.94	1.07	1.11	1.08	1.06
9	1.11	1.04	1.10	1.13	1.06	1.00	1.19	1.07	1.15	1.09
10	1.08	1.03	1.02	1.07	1.03	1.08	1.22	1.07	1.09	1.04

A.3.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
2	1.30	1.30	1.30	1.30	1.30	1.29	1.30	1.30	1.30	1.30
3	1.30	1.30	1.30	1.30	1.30	1.29	1.30	1.30	1.30	1.30
4	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.31
5	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.29	1.31	1.31
6	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.27	1.28	1.31
7	1.30	1.30	1.30	1.30	1.30	1.18	1.30	1.30	1.30	1.30
8	1.30	1.30	1.30	1.30	1.30	1.28	1.30	1.30	1.30	1.31
9	1.31	1.31	1.31	1.32	1.31	1.31	1.31	1.29	1.28	1.31
10	1.31	1.31	1.31	1.31	1.31	1.32	1.31	1.31	1.31	1.29

A.3.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
2	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
3	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
4	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
5	1.08	1.08	1.09	1.08	1.08	1.08	1.08	1.08	1.08	1.08
6	1.08	1.08	1.08	1.07	1.08	1.08	1.08	1.08	1.08	1.08
7	1.08	1.08	1.08	1.08	1.08	1.06	1.08	1.08	1.08	1.08
8	1.08	1.08	1.08	1.08	1.08	1.07	1.08	1.08	1.08	1.08
9	1.08	1.08	1.08	1.09	1.22	1.11	1.08	1.09	1.08	1.08

	1	2	3	4	5	6	7	8	9	10
10	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08

A.4. 2031 AM Peak Growth Factors

A.4.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.28	1.15	1.09	1.12	1.11	1.15	1.35	1.18	1.24	1.12
2	1.35	1.13	1.05	1.06	1.09	1.10	1.28	1.12	1.16	1.12
3	1.24	1.09	1.08	1.06	1.03	1.00	1.25	1.18	1.13	1.11
4	1.21	1.08	1.09	1.15	1.05	1.06	1.22	1.15	1.22	1.15
5	1.24	1.08	1.03	1.06	1.08	1.13	1.26	1.05	1.07	1.12
6	1.25	1.07	0.97	1.01	1.05	1.10	1.13	0.95	1.02	1.14
7	1.35	1.21	1.19	1.22	1.14	0.90	1.46	1.27	1.17	1.17
8	1.17	1.03	1.06	1.06	1.00	0.89	1.11	1.14	1.17	1.08
9	1.24	1.09	1.07	1.15	1.06	1.06	1.29	1.04	1.22	1.15
10	1.18	1.05	1.02	1.05	1.02	1.08	1.40	1.09	1.10	1.07

A.4.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.25	1.17	1.13	1.15	1.13	1.12	1.24	1.10	1.25	1.10
2	1.22	1.16	1.06	1.04	1.11	1.07	1.21	1.07	1.07	1.10
3	1.17	1.09	1.14	1.08	1.00	1.00	1.17	1.16	1.12	1.08
4	1.20	1.03	1.12	1.18	1.06	0.94	1.27	1.14	1.29	1.14
5	1.21	1.11	1.03	1.10	1.13	1.14	1.23	1.04	1.11	1.12
6	1.25	1.04	0.98	1.01	1.08	1.15	1.12	0.94	0.98	1.13
7	1.20	1.14	1.13	1.23	1.08	0.94	1.19	1.14	1.20	1.27
8	1.13	0.99	1.09	1.11	0.95	0.87	1.08	1.14	1.09	1.08
9	1.15	1.03	1.13	1.14	1.09	0.98	1.30	1.09	1.21	1.14
10	1.11	1.02	1.00	1.08	1.02	1.11	1.34	1.09	1.12	1.03

A.4.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
3	1.43	1.43	1.43	1.43	1.43	1.42	1.43	1.43	1.43	1.43
4	1.43	1.42	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.44
5	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.40	1.43	1.44
6	1.43	1.43	1.43	1.42	1.43	1.43	1.43	1.39	1.36	1.44
7	1.43	1.43	1.43	1.43	1.43	1.22	1.43	1.43	1.43	1.44
8	1.43	1.43	1.43	1.43	1.43	1.39	1.43	1.43	1.43	1.43

	1	2	3	4	5	6	7	8	9	10
9	1.43	1.43	1.43	1.45	1.43	1.43	1.43	1.40	1.39	1.44
10	1.44	1.43	1.43	1.43	1.43	1.44	1.44	1.43	1.44	1.41

A.4.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
2	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
3	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
4	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
5	1.12	1.12	1.13	1.12	1.12	1.12	1.12	1.12	1.12	1.12
6	1.12	1.12	1.12	1.11	1.12	1.12	1.11	1.12	1.12	1.12
7	1.12	1.12	1.12	1.12	1.12	1.09	1.12	1.12	1.12	1.12
8	1.12	1.12	1.12	1.12	1.12	1.08	1.12	1.12	1.12	1.12
9	1.12	1.12	1.12	1.13	1.34	1.16	1.12	1.12	1.12	1.11
10	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.11

A.5. 2031 Inter-Peak Growth Factors

A.5.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.30	1.19	1.12	1.15	1.26	1.28	1.59	1.17	1.24	1.26
2	1.27	1.08	1.02	1.01	1.05	1.04	1.30	1.07	1.04	1.04
3	1.15	1.03	1.03	1.01	0.98	0.99	1.33	1.11	1.04	1.06
4	1.14	0.98	0.98	1.08	0.97	0.98	1.33	1.06	1.10	1.09
5	1.33	1.06	0.99	1.01	1.03	1.05	1.27	1.08	1.03	1.05
6	1.33	0.99	1.00	0.95	1.05	1.11	1.21	0.99	1.00	1.09
7	1.47	1.39	1.34	1.32	1.29	1.19	1.63	1.31	1.28	1.26
8	1.19	1.04	1.09	1.08	1.02	1.01	1.33	1.15	1.13	1.09
9	1.11	0.99	1.04	1.13	0.99	1.00	1.27	1.10	1.20	1.12
10	1.22	1.08	1.09	1.10	1.06	1.09	1.29	1.09	1.12	1.07

A.5.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.24	1.16	1.14	1.19	1.21	1.20	1.28	1.15	1.19	1.17
2	1.18	1.16	1.09	1.05	1.11	1.05	1.24	1.07	1.07	1.07
3	1.14	1.09	1.16	1.14	1.03	0.96	1.19	1.16	1.13	1.08
4	1.20	1.03	1.14	1.20	1.11	0.99	1.47	1.13	1.24	1.13
5	1.20	1.10	1.04	1.11	1.14	1.11	1.23	1.02	1.06	1.08
6	1.06	1.06	1.00	1.01	1.12	1.17	1.27	0.99	1.01	1.15
7	1.27	1.24	1.21	1.40	1.24	1.16	1.25	1.19	1.55	1.43
8	1.17	1.05	1.18	1.25	1.04	0.92	1.16	1.21	1.18	1.14

	1	2	3	4	5	6	7	8	9	10
9	1.18	1.08	1.17	1.21	1.08	1.01	1.38	1.13	1.26	1.15
10	1.15	1.08	1.09	1.15	1.10	1.17	1.41	1.13	1.16	1.08

A.5.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.43	1.43	1.43	1.43	1.43	1.43	1.45	1.43	1.43	1.43
2	1.43	1.43	1.43	1.43	1.43	1.41	1.44	1.43	1.43	1.43
3	1.43	1.43	1.43	1.43	1.43	1.41	1.43	1.43	1.43	1.43
4	1.43	1.43	1.43	1.43	1.44	1.43	1.43	1.43	1.43	1.43
5	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.42	1.43	1.43
6	1.43	1.40	1.42	1.40	1.43	1.41	1.45	1.38	1.40	1.45
7	1.43	1.43	1.43	1.43	1.43	1.38	1.43	1.43	1.43	1.44
8	1.43	1.43	1.43	1.43	1.43	1.30	1.43	1.43	1.43	1.44
9	1.43	1.43	1.43	1.44	1.43	1.43	1.43	1.43	1.43	1.43
10	1.43	1.44	1.44	1.43	1.43	1.46	1.43	1.44	1.43	1.41

A.5.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
2	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.10	1.12	1.12
3	1.12	1.12	1.12	1.10	1.12	1.12	1.12	1.12	1.12	1.13
4	1.12	1.12	1.12	1.12	1.12	1.11	1.12	1.12	1.13	1.12
5	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.40	1.12
6	1.12	1.12	1.12	1.12	1.12	1.12	1.11	1.12	1.22	1.12
7	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
8	1.12	1.12	1.12	1.12	1.12	1.11	1.11	1.09	1.15	1.14
9	1.12	1.12	1.12	1.14	1.24	1.19	1.12	1.06	1.12	1.11
10	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.14	1.12	1.11

A.6. 2031 PM Peak Growth Factors

A.6.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.28	1.15	1.09	1.12	1.11	1.15	1.35	1.18	1.24	1.12
2	1.35	1.13	1.05	1.06	1.09	1.10	1.28	1.12	1.16	1.12
3	1.24	1.09	1.08	1.06	1.03	1.00	1.25	1.18	1.13	1.11
4	1.21	1.08	1.09	1.15	1.05	1.06	1.22	1.15	1.22	1.15
5	1.24	1.08	1.03	1.06	1.08	1.13	1.26	1.05	1.07	1.12
6	1.25	1.07	0.97	1.01	1.05	1.10	1.13	0.95	1.02	1.14
7	1.35	1.21	1.19	1.22	1.14	0.90	1.46	1.27	1.17	1.17
8	1.17	1.03	1.06	1.06	1.00	0.89	1.11	1.14	1.17	1.08

	1	2	3	4	5	6	7	8	9	10
9	1.24	1.09	1.07	1.15	1.06	1.06	1.29	1.04	1.22	1.15
10	1.18	1.05	1.02	1.05	1.02	1.08	1.40	1.09	1.10	1.07

A.6.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.25	1.17	1.13	1.15	1.13	1.12	1.24	1.10	1.25	1.10
2	1.22	1.16	1.06	1.04	1.11	1.07	1.21	1.07	1.07	1.10
3	1.17	1.09	1.14	1.08	1.00	1.00	1.17	1.16	1.12	1.08
4	1.20	1.03	1.12	1.18	1.06	0.94	1.27	1.14	1.29	1.14
5	1.21	1.11	1.03	1.10	1.13	1.14	1.23	1.04	1.11	1.12
6	1.25	1.04	0.98	1.01	1.08	1.15	1.12	0.94	0.98	1.13
7	1.20	1.14	1.13	1.23	1.08	0.94	1.19	1.14	1.20	1.27
8	1.13	0.99	1.09	1.11	0.95	0.87	1.08	1.14	1.09	1.08
9	1.15	1.03	1.13	1.14	1.09	0.98	1.30	1.09	1.21	1.14
10	1.11	1.02	1.00	1.08	1.02	1.11	1.34	1.09	1.12	1.03

A.6.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
2	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
3	1.43	1.43	1.43	1.43	1.43	1.42	1.43	1.43	1.43	1.43
4	1.43	1.42	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.44
5	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.40	1.43	1.44
6	1.43	1.43	1.43	1.42	1.43	1.43	1.43	1.39	1.36	1.44
7	1.43	1.43	1.43	1.43	1.43	1.22	1.43	1.43	1.43	1.44
8	1.43	1.43	1.43	1.43	1.43	1.39	1.43	1.43	1.43	1.43
9	1.43	1.43	1.43	1.45	1.43	1.43	1.43	1.40	1.39	1.44
10	1.44	1.43	1.43	1.43	1.43	1.44	1.44	1.43	1.44	1.41

A.6.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
2	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
3	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
4	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
5	1.12	1.12	1.13	1.12	1.12	1.12	1.12	1.12	1.12	1.12
6	1.12	1.12	1.12	1.11	1.12	1.12	1.11	1.12	1.12	1.12
7	1.12	1.12	1.12	1.12	1.12	1.09	1.12	1.12	1.12	1.12
8	1.12	1.12	1.12	1.12	1.12	1.08	1.12	1.12	1.12	1.12
9	1.12	1.12	1.12	1.13	1.34	1.16	1.12	1.12	1.12	1.11
10	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.11

A.7. 2041 AM Peak Growth Factors

A.7.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.37	1.23	1.16	1.20	1.18	1.22	1.45	1.26	1.32	1.20
2	1.45	1.21	1.12	1.14	1.16	1.17	1.37	1.20	1.24	1.20
3	1.33	1.16	1.16	1.13	1.10	1.06	1.33	1.25	1.21	1.19
4	1.31	1.16	1.17	1.24	1.13	1.14	1.31	1.23	1.31	1.24
5	1.33	1.16	1.10	1.13	1.16	1.21	1.35	1.13	1.14	1.20
6	1.32	1.13	1.03	1.07	1.12	1.16	1.19	1.01	1.08	1.21
7	1.42	1.28	1.25	1.28	1.20	0.95	1.54	1.34	1.23	1.23
8	1.24	1.09	1.12	1.12	1.06	0.94	1.17	1.20	1.24	1.14
9	1.32	1.16	1.14	1.22	1.12	1.13	1.37	1.10	1.29	1.22
10	1.25	1.12	1.08	1.12	1.08	1.15	1.49	1.16	1.16	1.13

A.7.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.35	1.25	1.21	1.23	1.21	1.21	1.33	1.18	1.34	1.18
2	1.31	1.25	1.14	1.12	1.19	1.15	1.30	1.15	1.15	1.18
3	1.25	1.17	1.22	1.16	1.07	1.07	1.25	1.24	1.20	1.16
4	1.30	1.11	1.21	1.27	1.15	1.02	1.37	1.23	1.39	1.23
5	1.30	1.19	1.11	1.19	1.22	1.23	1.33	1.12	1.19	1.20
6	1.33	1.10	1.04	1.08	1.15	1.23	1.19	1.00	1.04	1.20
7	1.26	1.20	1.19	1.30	1.14	1.00	1.26	1.20	1.27	1.35
8	1.20	1.05	1.16	1.18	1.00	0.92	1.15	1.21	1.16	1.14
9	1.23	1.10	1.21	1.22	1.16	1.05	1.39	1.16	1.29	1.22
10	1.19	1.08	1.07	1.15	1.08	1.18	1.43	1.16	1.20	1.10

A.7.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
2	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
3	1.68	1.68	1.68	1.68	1.68	1.66	1.68	1.67	1.68	1.68
4	1.68	1.68	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.71
5	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.65	1.68	1.69
6	1.66	1.66	1.66	1.65	1.66	1.66	1.66	1.61	1.58	1.67
7	1.65	1.65	1.65	1.65	1.65	1.41	1.65	1.65	1.65	1.66
8	1.66	1.66	1.66	1.66	1.65	1.61	1.66	1.66	1.66	1.66
9	1.67	1.67	1.67	1.69	1.67	1.67	1.67	1.63	1.62	1.68
10	1.67	1.67	1.67	1.67	1.67	1.68	1.67	1.67	1.68	1.64

A.7.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
2	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
3	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
4	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.17	1.18
5	1.18	1.18	1.18	1.18	1.18	1.17	1.18	1.18	1.18	1.18
6	1.16	1.16	1.16	1.15	1.16	1.16	1.15	1.16	1.16	1.16
7	1.15	1.15	1.15	1.15	1.15	1.13	1.15	1.15	1.15	1.15
8	1.15	1.15	1.15	1.15	1.15	1.13	1.15	1.15	1.16	1.16
9	1.17	1.17	1.17	1.18	1.28	1.19	1.17	1.17	1.17	1.16
10	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.15

A.8. 2041 Inter-Peak Growth Factors

A.8.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.39	1.27	1.19	1.23	1.35	1.37	1.70	1.25	1.32	1.35
2	1.37	1.16	1.09	1.09	1.13	1.11	1.39	1.15	1.11	1.12
3	1.23	1.10	1.10	1.08	1.05	1.06	1.41	1.18	1.11	1.13
4	1.23	1.06	1.06	1.16	1.04	1.05	1.43	1.14	1.19	1.17
5	1.43	1.13	1.06	1.08	1.10	1.13	1.36	1.16	1.11	1.13
6	1.40	1.05	1.05	1.00	1.11	1.17	1.28	1.05	1.06	1.15
7	1.55	1.47	1.41	1.39	1.36	1.25	1.71	1.38	1.35	1.33
8	1.26	1.10	1.15	1.14	1.08	1.06	1.41	1.21	1.19	1.15
9	1.18	1.05	1.11	1.20	1.05	1.07	1.36	1.17	1.28	1.19
10	1.29	1.15	1.15	1.17	1.12	1.16	1.36	1.16	1.19	1.14

A.8.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.34	1.25	1.23	1.28	1.30	1.30	1.38	1.24	1.28	1.26
2	1.27	1.24	1.18	1.13	1.19	1.13	1.33	1.16	1.15	1.16
3	1.22	1.17	1.24	1.22	1.10	1.03	1.28	1.25	1.21	1.16
4	1.30	1.11	1.23	1.29	1.20	1.07	1.59	1.22	1.34	1.22
5	1.29	1.19	1.12	1.19	1.22	1.20	1.32	1.10	1.15	1.17
6	1.13	1.13	1.07	1.07	1.19	1.24	1.35	1.05	1.07	1.22
7	1.34	1.31	1.28	1.48	1.31	1.23	1.33	1.25	1.64	1.51
8	1.24	1.11	1.26	1.33	1.11	0.97	1.23	1.28	1.26	1.21
9	1.26	1.15	1.25	1.30	1.15	1.08	1.48	1.21	1.35	1.24
10	1.22	1.15	1.16	1.22	1.17	1.24	1.50	1.20	1.23	1.15

A.8.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.68	1.68	1.68	1.68	1.68	1.67	1.70	1.68	1.68	1.68
2	1.68	1.68	1.68	1.68	1.68	1.65	1.69	1.68	1.68	1.68
3	1.68	1.68	1.68	1.68	1.68	1.64	1.68	1.67	1.68	1.68
4	1.69	1.69	1.69	1.69	1.70	1.69	1.69	1.69	1.69	1.69
5	1.69	1.69	1.69	1.68	1.69	1.68	1.68	1.67	1.69	1.69
6	1.66	1.63	1.65	1.63	1.66	1.64	1.68	1.60	1.62	1.69
7	1.65	1.65	1.65	1.65	1.65	1.59	1.65	1.65	1.65	1.66
8	1.65	1.66	1.66	1.66	1.65	1.50	1.66	1.66	1.65	1.66
9	1.67	1.67	1.67	1.68	1.67	1.67	1.67	1.67	1.67	1.67
10	1.67	1.67	1.67	1.67	1.67	1.70	1.66	1.67	1.67	1.64

A.8.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
2	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.18
3	1.17	1.17	1.17	1.16	1.17	1.17	1.17	1.17	1.17	1.17
4	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.19	1.18
5	1.18	1.17	1.18	1.18	1.18	1.17	1.17	1.18	1.45	1.17
6	1.16	1.16	1.16	1.16	1.16	1.16	1.15	1.16	1.24	1.16
7	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
8	1.16	1.15	1.16	1.16	1.16	1.15	1.15	1.13	1.15	1.17
9	1.17	1.17	1.17	1.19	1.24	1.20	1.17	1.14	1.17	1.16
10	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.17	1.16	1.15

A.9. 2041 PM Peak Growth Factors

A.9.1. User Class 1 Car Employers Business

	1	2	3	4	5	6	7	8	9	10
1	1.37	1.23	1.16	1.19	1.18	1.22	1.44	1.25	1.32	1.20
2	1.44	1.21	1.12	1.14	1.16	1.17	1.37	1.19	1.24	1.19
3	1.32	1.15	1.15	1.12	1.09	1.06	1.33	1.25	1.20	1.18
4	1.30	1.15	1.16	1.23	1.13	1.14	1.31	1.23	1.31	1.23
5	1.33	1.16	1.10	1.13	1.16	1.20	1.34	1.13	1.14	1.20
6	1.32	1.13	1.03	1.07	1.11	1.16	1.19	1.01	1.08	1.21
7	1.42	1.27	1.25	1.28	1.20	0.95	1.54	1.33	1.23	1.23
8	1.24	1.08	1.12	1.11	1.06	0.93	1.17	1.20	1.24	1.14
9	1.32	1.15	1.14	1.22	1.12	1.12	1.37	1.10	1.29	1.22
10	1.25	1.11	1.08	1.12	1.08	1.15	1.48	1.16	1.16	1.13

A.9.2. User Class 2 Car Commuter/Other

	1	2	3	4	5	6	7	8	9	10
1	1.34	1.25	1.21	1.23	1.21	1.21	1.33	1.18	1.34	1.18
2	1.31	1.25	1.14	1.12	1.19	1.15	1.30	1.15	1.15	1.18
3	1.25	1.16	1.21	1.16	1.07	1.07	1.25	1.24	1.20	1.16
4	1.30	1.11	1.21	1.27	1.15	1.02	1.37	1.23	1.39	1.23
5	1.30	1.19	1.11	1.19	1.22	1.22	1.33	1.12	1.19	1.20
6	1.33	1.10	1.04	1.08	1.15	1.23	1.19	1.00	1.04	1.20
7	1.26	1.20	1.19	1.30	1.14	1.00	1.26	1.20	1.26	1.34
8	1.20	1.05	1.16	1.17	1.00	0.92	1.15	1.21	1.16	1.14
9	1.23	1.10	1.21	1.22	1.16	1.05	1.39	1.16	1.29	1.22
10	1.19	1.08	1.07	1.15	1.08	1.18	1.43	1.15	1.20	1.09

A.9.3. User Class 3 LGV

	1	2	3	4	5	6	7	8	9	10
1	1.68	1.68	1.68	1.68	1.68	1.68	1.67	1.68	1.68	1.68
2	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
3	1.68	1.68	1.68	1.68	1.68	1.66	1.68	1.67	1.68	1.68
4	1.69	1.68	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.71
5	1.69	1.68	1.68	1.69	1.69	1.68	1.68	1.65	1.69	1.69
6	1.66	1.66	1.66	1.65	1.66	1.66	1.66	1.61	1.58	1.67
7	1.65	1.65	1.65	1.65	1.65	1.41	1.65	1.65	1.65	1.66
8	1.66	1.66	1.66	1.66	1.65	1.61	1.66	1.66	1.66	1.66
9	1.67	1.67	1.67	1.69	1.67	1.67	1.67	1.64	1.62	1.68
10	1.67	1.67	1.67	1.67	1.67	1.68	1.67	1.67	1.68	1.64

A.9.4. User Class 4 HGV

	1	2	3	4	5	6	7	8	9	10
1	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
2	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
3	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
4	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
5	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
6	1.16	1.16	1.16	1.15	1.16	1.16	1.15	1.16	1.16	1.16
7	1.15	1.15	1.15	1.15	1.15	1.13	1.15	1.15	1.15	1.15
8	1.16	1.16	1.15	1.15	1.16	1.14	1.16	1.16	1.16	1.16
9	1.17	1.17	1.17	1.17	1.31	1.20	1.17	1.17	1.17	1.16
10	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16

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Birmingham City Centre

Local Model Validation Report

Birmingham City Council

8 May 2017

Contains *sensitive* information

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1. Introduction

1.1. Project Overview

Birmingham City Council (BCC) has commissioned Atkins to undertake the development of an updated Birmingham City Centre Model (BCCM) using the latest version of the SATURN software suite. The updated BCCM is to be used for the purpose of assisting decision making for future transport schemes and planning applications within the City Centre. This report details the development of the base model and the performance against key validation criteria consistent with DfT TAG guidance.

1.2. Project Requirements

A number of key requirements for the BCCM have been identified through discussions with BCC at the outset of the project. These include the following:

- The spatial extent of the model is to be increased beyond the previously modelled area in order to allow for the wider reassignment of traffic to be represented;
- The model needs to provide consistency with the latest version of the PRISM base model (version 4.6 validated to a 2011 base year) as well as the West Midlands Regional Traffic Model (WMRTM). The new BCCM will therefore adopt the same demand segmentation as PRISM in terms of journey purpose and vehicle type, as well as a consistent zoning system. PRISM matrices cordons will also be used to provide prior matrices for initial assignment. The wider network structure will be consistent with the WMRTM;
- Consideration needs to be given to the split in terms of public and private car parking facilities – maintaining the 2-tier zoning system adopted in the original model and dividing car user classes appropriately;
- The identified forecast dates mark key milestones in terms of future development timescales, with 2026 being the scheduled opening year for HS2, 2031 representing the end of the Birmingham Development Plan and 2041 the planned HS2 Y-shape completion year. It is important to ensure therefore that the impact of these future changes are accurately represented in the forecast models; and
- The updated model needs to link to Geographic Information Systems (GIS), allowing for the import on digital network data and production of high quality outputs for presentational purposes and air quality models.

1.3. Scope of this Report

The remainder of this report will be structured as follows:

- Chapter 2 – Base Model Specification
- Chapter 3 – Summary of Data Collation and Collection
- Chapter 4 – Model Development: Network
- Chapter 5 – Model Development: Matrices
- Chapter 6 – Model Development: Assignment Process
- Chapter 7 – Model Calibration
- Chapter 8 – Model Validation
- Chapter 9 - Conclusion

2. Base Model Specification

This chapter details the specification of the BCCM base model in terms of temporal scope, spatial coverage and the level of network and zoning detail, demonstrating its suitability for its intended purposes. This section also sets out the details regarding some of the key characteristics of the model.

2.1. Spatial Coverage

As agreed with BCC, the extent of the new model has been increased to allow for wider reassignment of traffic to be reflected. The level of model coding is split into 3-tiers as follows:

- **Internal Simulation Network** – limited to the same extents as the previous model, including the A4540 Ring Road and part of Hagley Road. Junctions within this area have been represented in detail along with information on the links between each junction;

- **Buffer Network Collar** – extending for a radius of approximately 1 mile outside of the A4540 Ring Road with appropriate speed-flow curves applied. This provides a suitable degree of capacity restraint to represent congestion leading into the City Centre which will influence route choice;

- **Skeletal Fixed-speed Network** – beyond the collar area, the buffer network has been extended to include the Birmingham motorway network, to enable route choice between the key radial routes leading into the City Centre. The outer area is skeletal in nature and does not include any form of capacity restraint, with only fixed-speeds applied. Speed-flow curves would not be appropriate across this wider area as this would result in reassignment due to changes in costs outside of the core area.

It is important to note that validation is only conducted within the simulation network and the buffer network collar which is the core focus area for the model.

In order to ensure the model network was compatible with other transport models in the region, Atkins requested access to the current version of the model network being developed for the West Midlands Regional Traffic Model (WMRTM). This existing network has been developed from the ITN map layer and contains the key radial links into Birmingham City Centre and surrounding motorway network. As such, following agreement from the Highways England TAME group, it provided an ideal starting point from which to develop the BCCM wider network.

The extents of the BCCM network for the full network (including all 3-tiers) and detailed simulation network are shown below in **Figure 2-1** and **Figure 2-2** respectively.

Figure 2-1 BCCM Model Full Extent

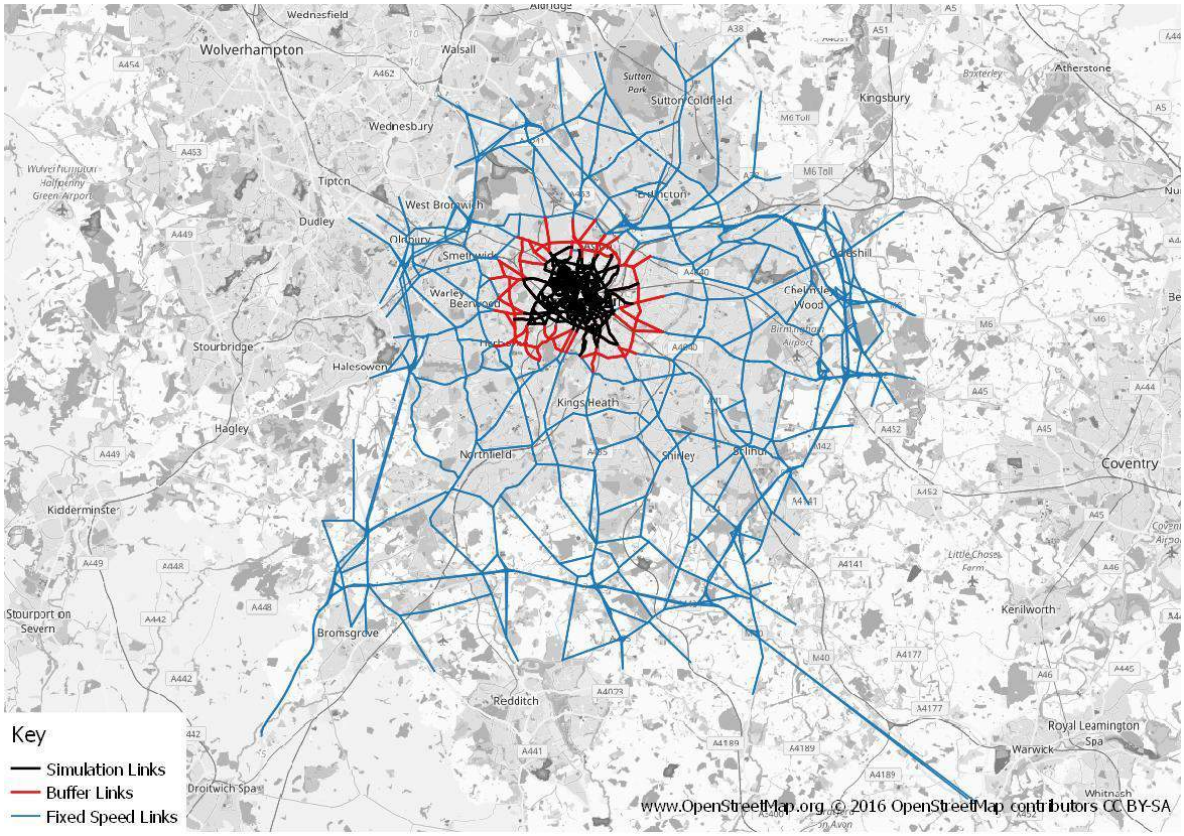
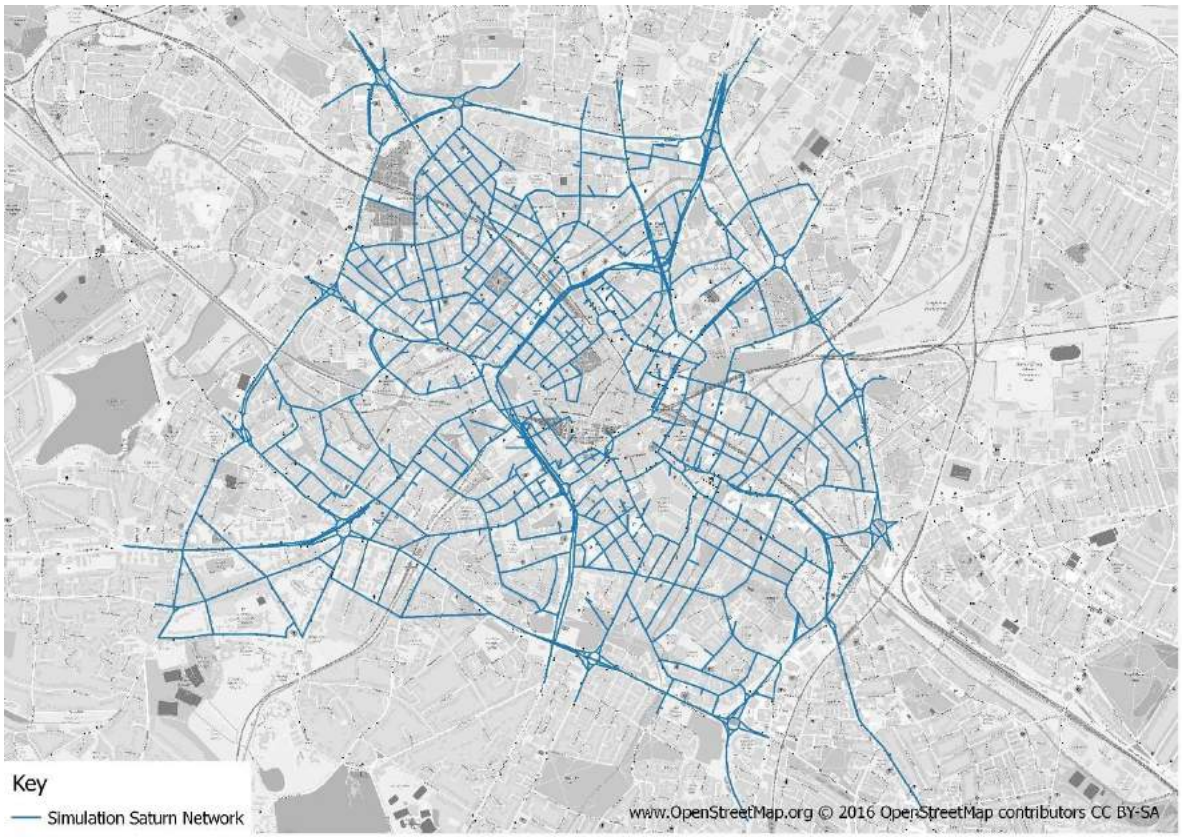


Figure 2-2 BCCM Simulation Network Extent

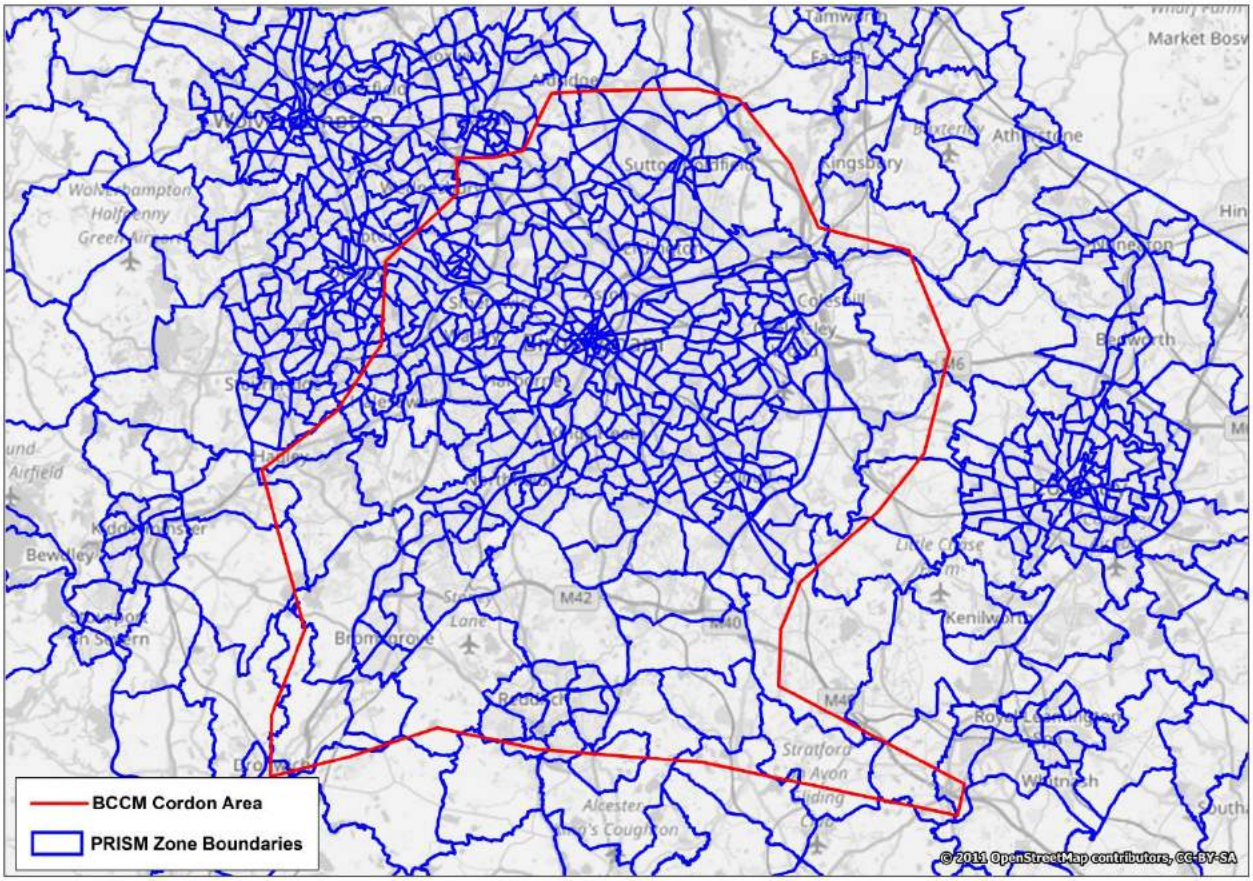


Zoning System

To maintain consistency with the West Midlands PRISM model, the zoning system for the updated BCCM has been revised to accord with the 2011 PRISM refresh zoning system – the boundaries for which have been supplied to Atkins by the PRISM team. A cordon of the PRISM model has been used to provide initial trip matrices for the BCCM base model and so it is critical that the two zoning systems were consistent.

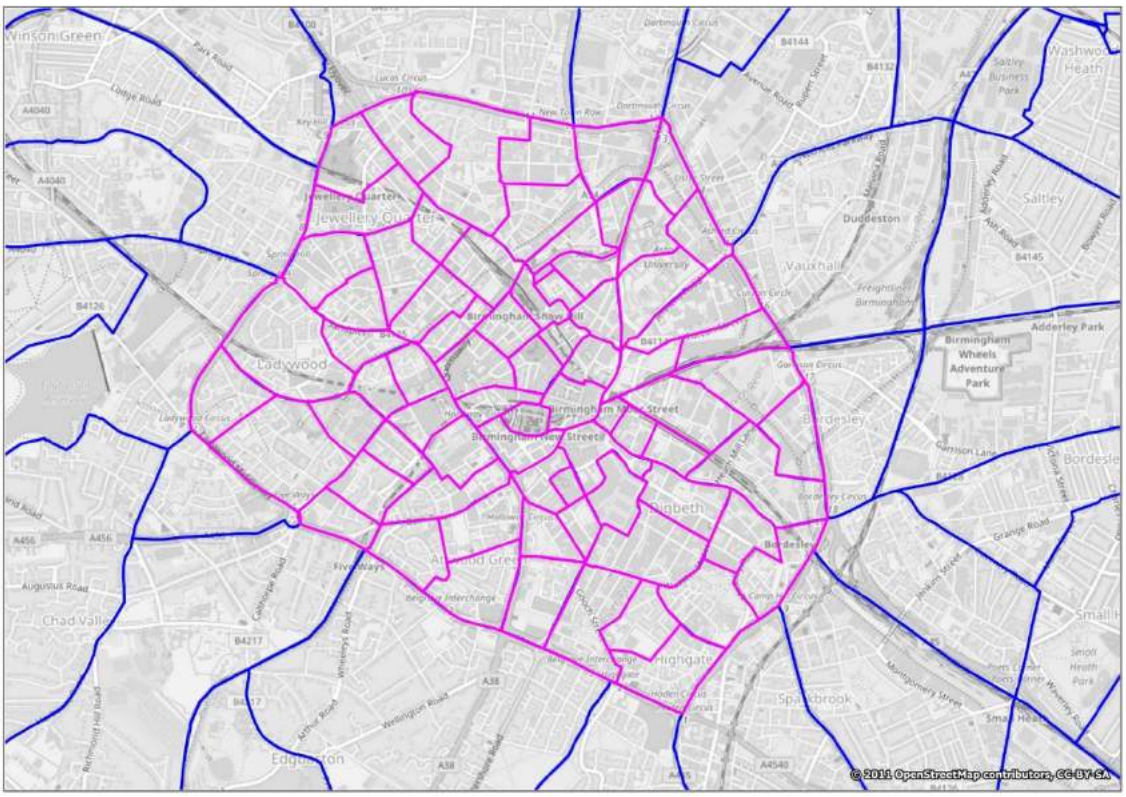
Figure 2-3 shows the extents of the cordon area used for the BCCM overlaid on top of the PRISM 4.6 zoning system. All zones within this boundary have been used for the BCCM, with external traffic loaded at connection points encircling this boundary.

Figure 2-3 PRISM Cordon Area for BCCM Zoning System



Whilst the latest version of PRISM has enhanced level of detail within Birmingham City Centre compared to the previous version (with 32 zones within the A4540 Ring Road), for the purposes of the BCCM, zones within the core simulation area were further disaggregated to provide the necessary level of detail based on geographic boundaries and key car park locations. The zone structure within the City Centre is shown in **Figure 2-4**.

Figure 2-4 Birmingham City Centre Zone System



2.2. Temporal Scope

The new BCCM has been produced for a 2016 base year, for 3 time periods:

- AM Peak Period (07:30-09:30);
- Inter-peak Period (09:30-15:30); and
- PM Peak Period (15:30-19:00).

These periods are consistent with the PRISM modelled time periods from which the prior matrices are derived. It is necessary to maintain this consistency in order to ensure the demand segmentation of trip matrices in terms of journey purpose can be considered appropriate for each modelled time period as well as to maintain consistency with future year forecasts.

However, to understand the difference between peak hour and peak period traffic levels, traffic count data used for the November 2015 Birmingham Cordon survey has been analysed. This revealed peak hours of 08:00-09:00 and 16:00-17:00 for the AM and PM peaks respectively. The difference in observed total inbound and outbound flows between the peak period and these specific hours is compared in **Table 2-1**.

Table 2-1 Observed Hourly Flows for Peak Period vs Peak Hour Flow

Direction	AM Period			PM Period		
	07:30-09:30	08-09	% Diff	15:30-19:00	16-17	% Diff
Inbound	16,528	17,760	7%	11,404	11,984	5%
Outbound	10,096	10,842	7%	14,895	16,317	9%
Total	**26,624**	**28,602**	**7%**	**26,300**	**28,301**	**7%**

The table above demonstrates that flows in the busiest peak hours are 7% higher than the overall peak periods adopted for both PRISM and the BCCM. This difference should be considered for any future operational testing work (e.g. junction assessment), with traffic flows being potentially factored using the cordon count data to represent the busiest peak hours.

2.3. Demand Segmentation

User classes (UCs) are used to represent the impacts that different users have on the road network. Again, as initial demand matrices are to be provided from the PRISM model, it was necessary to ensure consistency in terms of segmentation for the BCCM. The PRISM model contains the following 4 user classes which have also been adopted for the BCCM:

- UC1: Car - Business
- UC2: Car – Commuting/Other
- UC3: Light Goods Vehicles (LGV) – defined as goods vehicles <3.5 tonnes[1]
- UC4: Heavy Goods Vehicles (HGV) – defined as goods vehicles >3.5 tonnes[1]

An additional consideration for the BCCM demand segmentation was the need to address the differences between private non-residential and public car parks, and their differences in where they load onto the model network. For business car trips, it was assumed that all vehicles use private non-residential car parks whereas car commuting/other trips load separately via public car parks. The City Centre zone system is therefore a two-tier system, with appropriate loading points determined separately based on the availability of private parking facilities for User Class 1and public car parks for User Class 2.

For the purposes of assignment, in accordance with TAG Unit M3.1, the latest values of time (derived from the TAG Databook 2016 1.6) have been applied to each user class.

PCU Factor

Analysis of turning counts undertaken as part of the project specific data collection process (see Chapter 3) have been utilised to determine appropriate PCU factor to apply to Heavy Goods Vehicles (UC4 – HGV) based on the ratio of OGV1 to OGV2. This has involved comparing the total 12-hour flows across all sites as demonstrated in **Table 2-2**.

Table 2-2 MCC OGV1 vs. OGV2 Ratio Analysis

Site	Description	Vehicles		Ratio	
		OGV1	OGV2	OGV1	OGV2
6615/1	Dartmouth Circus	3531	2128	62%	38%
6615/2	Garrison Circus	2835	1518	65%	35%
6615/3	Camp Hill Circus	1803	459	80%	20%
6615/4	Sherlock Street / Belgrave Middleway	1259	291	81%	19%
6615/5	Key Hill Circus	1097	337	76%	24%
6615/6	Hockley Circus	844	201	81%	19%
6615/7	Lancaster Circus	1077	97	92%	8%
6615/8	Holloway Circus	779	59	93%	7%
6615/9	Spring Hill Circus	1066	239	82%	18%
6615/10	Ladywood Circus	1046	126	89%	11%
6615/11	Five Ways	1544	348	82%	18%
6615/12	Bordesley Circus	2753	871	76%	24%
6615/14	St Chads Queensway / Snow Hill Queensway	802	110	88%	12%
6615/15	Great Charles Street Queensway / Newhall Street	560	113	83%	17%
6615/20	Hagley Road / Monument Road	1099	219	83%	17%
Total		**22,095**	**7,116**	**76%**	**24%**

[1] Definitions referenced from the DfT COBA Manual Section 13 Chapter 8

The analysis demonstrates a fairly typical pattern, with OGV1 representing the majority of total HGV traffic. Based on a standard PCU factor 1.9 for OGV1 and 2.9 for OGV2 (taken from TAG guidance), applying the calculated ratio from **Table 2-2** this provides an overall HGV PCU factor of **2.14** which has been adopted for the purposes of the BCCM.

Fixed Flows

Given the relative proportion of taxis and buses compared to other road vehicles within Birmingham City Centre, consideration of these vehicle types was also of importance for operation of the road network within the proposed simulation network area. In line with the standard approach for SATURN models, buses are modelled effectively as fixed flows based on the most up to date route and timetable information, with a PCU factor of 3.0. For automated counts which do not include buses as a specific vehicle classification, bus flows have been discounted from heavy goods vehicle counts to avoid double counting of these flows.

Due to the variable origin and destination movements of taxi movements, taxis have also been included as fixed flows in key areas of the model where their volume is significant (e.g. around Birmingham New Street Station). This approach has been successfully adopted on several studies using the previous model and allows for greater control of taxi numbers and routeing, simplifying the use of forecast models for scheme or developer assessment whilst ensuring realistic volumes are maintained.

The representation of these fixed flows is detailed further in Chapter 4 of this report.

2.4. SATURN Version

The BCCM is built in the SATURN Version 11.3.12U highway modelling suite. SATURN is a proprietary software suite able to encompass strategic modelling at a regional level down to the assessment of individual junctions at the simulation level. As a simulation modelling tool, SATURN is capable of analysing relatively minor changes in the network such as traffic management and provides detailed analysis of traffic behaviours at junctions. SATURN is an industry respected assignment modelling tool used widely for the assessment of highways schemes and can provide robust analysis of small to large infrastructure developments. Accordingly, it is ideally suited to the requirements of the BCCM.

3. Summary of Data Collection

This chapter summarises the data sources which have been collated for the development of the BCCM base model, detailing the specification and the purpose of each data source. Further information regarding the suitability and robustness of data is provided within the BCCM Data Collection Report.

The data sources presented in this chapter include:

- Existing traffic count data taken from the Spectrum Count Database
- New traffic count data collected for the specific purpose of this study
- Car park data
- TomTom journey time data
- Trafficmaster journey time data
- Traffic signal data
- ANPR surveys

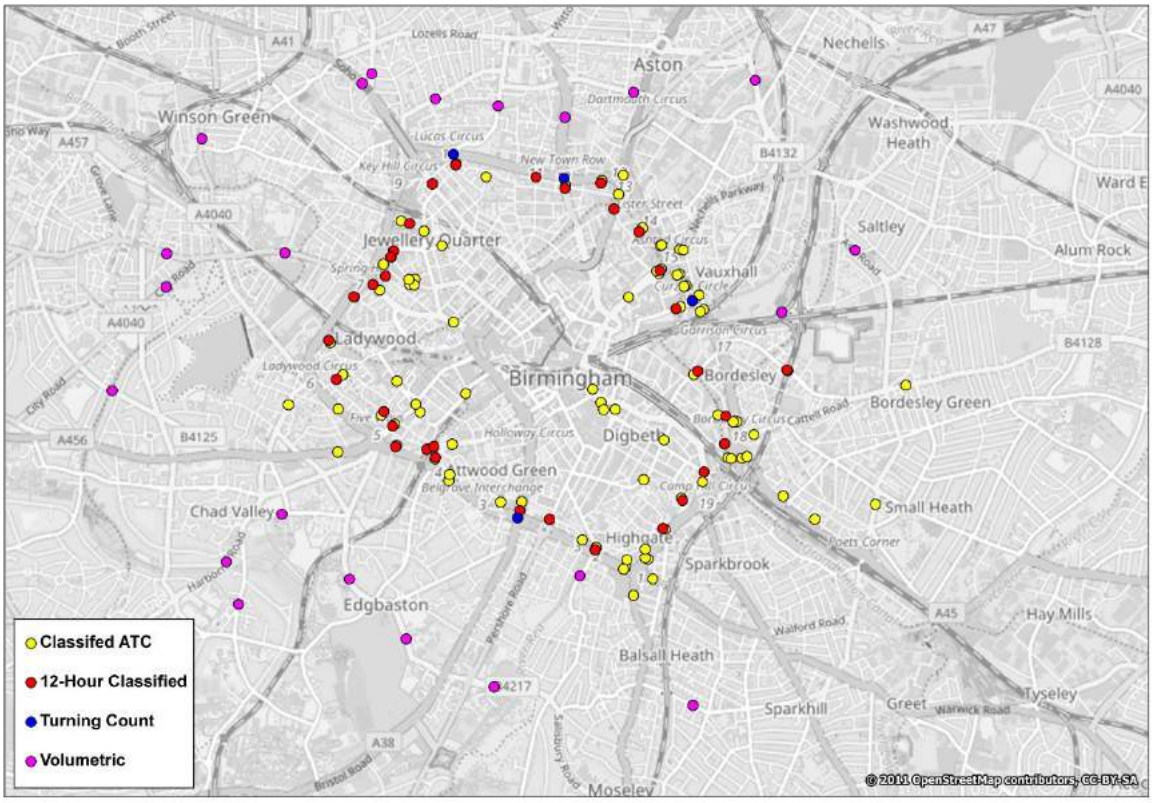
3.1. Existing Count Data

Existing count data, collected from 2013 onwards was extracted from the online SPECTRUM count database. This included

- 105 classified automatic traffic counts (ATC);
- 40 classified one-day counts;
- 7 junction turning counts; and
- 22 volumetric counts.

The count data was processed to obtain average hourly traffic flows at each site for the three modelled time periods. The locations for these sites are shown below in **Figure 3-1**.

Figure 3-1 Spectrum Count Data Locations



This data was used primarily for the purposes of base model screenline and link validation. However, existing data also included the A4540 cordon sites conducted on a biennial basis which were used to inform calculations for the adjustment of the PRISM 2011 cordon matrices to represent 2016 traffic levels as well as the adjustment of historic data to 2016 levels as summarised below.

Birmingham City Centre Cordon Analysis

In order to adjust City Centre traffic flows to the required level, cordon counts were analysed for 2011, 2013 and 2015 in order to determine annual trends in traffic flows and the appropriate adjustment to apply to the level of demand for the PRISM cordon matrices.

A total of 31 sites have been used for the purpose of this analysis, utilising 2-week ATC sites to provide a measure of total vehicle volume and corresponding 12-hour video surveys to understand the proportional split by vehicle type in each survey year. 6 of the sites for the 2015 cordon survey were conducted in January 2016 rather than November 2015 due to data collection issues. As data for the previous years was collected in November 2015, data for these 6 sites was excluded from the calculation of the change in traffic levels, with November 2015 levels for these sites instead being calculated from the change observed at other sites.

Analysis has been conducted separately for each of the 3 modelled time periods in order to calculate specific growth factors for each period. Full cordon analysis is presented in the BCCM Data Collection Report. A summary of the change in volume by vehicle type for all time periods between 2011 and 2015 is presented in **Table 3-1**.

Table 3-1 2011 vs. 2015 Change in Volume by Vehicle Type

Time Period	Car			LGV			HGV		
	2011	2015	% 2011	2011	2015	% 2011	2011	2015	% 2011
AM Peak	21,619	20,843	**96%**	3,010	2,512	**83%**	357	293	**82%**
Inter-peak	16,918	15,491	**92%**	3,231	2,780	**86%**	363	290	**80%**
PM Peak*	22,318	19,299	**86%**	1,981	1,481	**75%**	126	88	**70%**

Each time period demonstrates a similar trend, with clear decreases in traffic observed between 2011 and 2015. The decrease is most significant in the PM peak, with a 14% drop in car levels and even larger reductions in LGV and HGV levels. Although not displayed above, the decreases are also very similar between the inbound and outbound direction for each time period. Changes from 2015 to 2016 were then taken from NTEM 7 values for the centre of Birmingham.

It is noted that significant ongoing works to strategic routes through Birmingham City Centre may well have contributed to the observed decrease – particularly with the Paradise Circus redevelopment resulting in potential diversion of through movements onto the A4540 Ring Road which is outside of the cordon analysis. Consequently, these factors have only been applied to internal movements to/from zones located within the City Centre, recognising that the trends observed from the cordon analysis are unlikely to apply to the wider model area. External movements are adjusted using separate factors calculated based on 2011 to 2016 NTEM and NTM growth factors. Further details on this are provided in Chapter 5. The factors calculated were also used for the adjustment of existing count data collected prior to 2016.

3.2. New Count Data

New traffic count data was collected between the 19th September and 2nd October 2016 to supplement the existing data discussed in Section 3. The key reasons for these additional surveys includes:

- Ensuring that full model screenlines had been observed in line with the Model Specification Report;
- Allowing for the effects on any long-term traffic management arrangements to be accounted for in a September 2016 model (e.g. the Paradise Circus redevelopment works);
- Ensuring that up-to-date traffic flows were observed for junctions on the A4540 Ring Road and the A4400 Queensway – particularly where recent junction improvement schemes had been implemented;

- Collecting information on taxi movements at key locations to allow for these to be represented as fixed flows where volumes were concentrated.

A range of surveys types were undertaken by Nationwide Data Collection on behalf of BCC. These surveys included:

- 19 two-week Automatic Traffic Counts (ATCs) conducted in both directions for 2-way links;
- 4 12-hour Manual Classified Link Counts (MCCs) using video camera recordings; and
- 18 turning counts at key junctions around the city centre.

Two additional turning counts surveys, undertaken on Broad Street and Sheepcote Street in July 2016 by TRACSIS for another recent BCC project were also made available to Atkins.

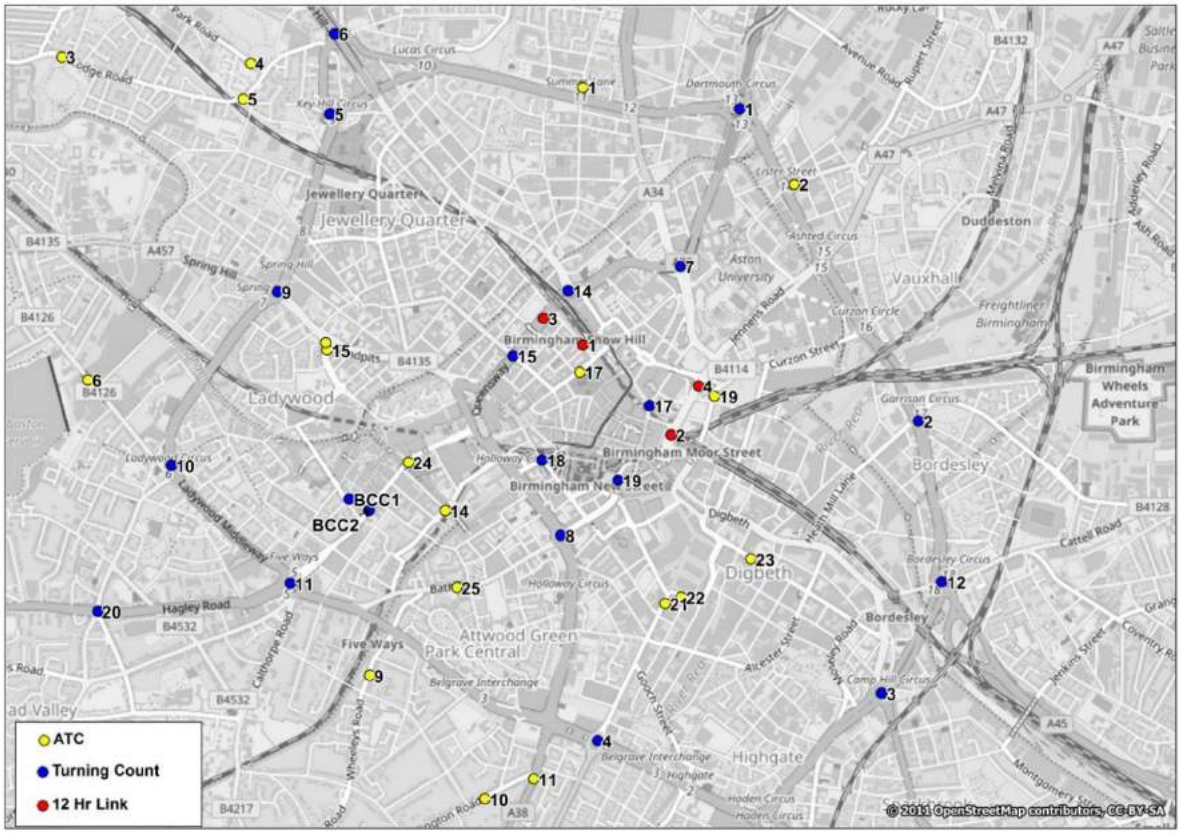
ATC counts were categorised in line with DfT guidance from the COBA manual, allowing for vehicle types to be categorised as either “light” (cars and LGVs) or “heavy” vehicles (OGV1 and OGV2).

Manual counts included the following vehicle type classifications:

- Cars;
- Taxis (separate for NDC counts but included with cars for the 2 turning counts commissioned earlier by BCC);
- LGV – Light Goods Vehicle;
- OGV1 – Other Goods Vehicles Type 1;
- OGV2 – Other Goods Vehicles Type 2;
- PSV – Buses and Coaches; and
- MCL – Motorcycles.

The locations of these surveys are shown in **Figure 3-4.** The locations of these sites were verified during a site visit conducted by Atkins with evidence of positioning of loops and cameras also provided by NDC in their survey report (dated 18th October 2016).

Figure 3-4 New Traffic Count Locations



As with the existing data, the counts have been processed for each of the 3 modelled time periods.

Following the processing of this data, checks have been undertaken on the full count data set, including:

- Comparisons with adjacent sites for consistency in traffic flow levels; and
- Consistency between 2-week/long term counts and 1-day counts in terms of volume and vehicle composition.

Manually classified traffic counts including taxis as a separate category were undertaken at all key locations where taxis will be modelled explicitly as fixed flows, including:

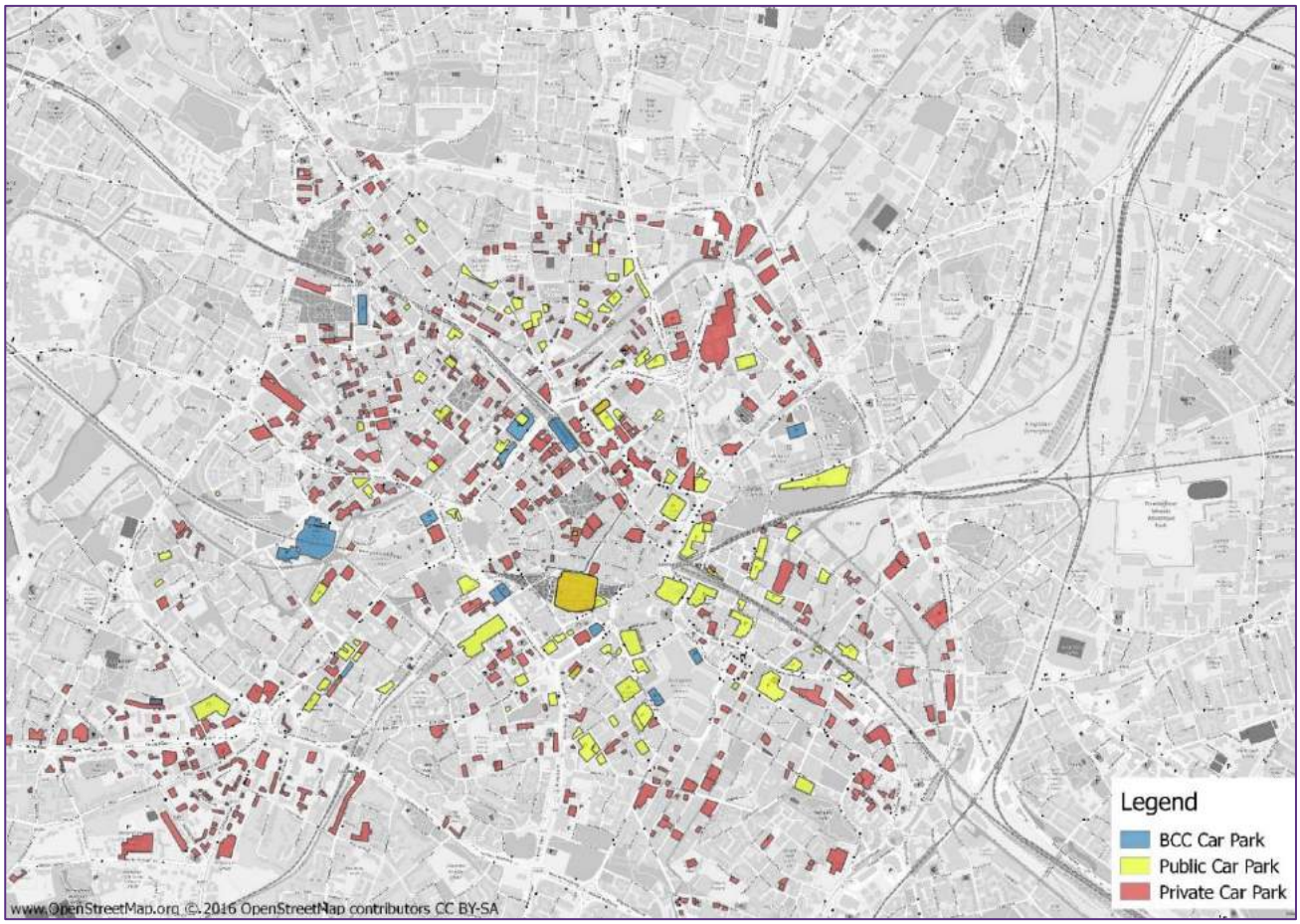
- Moor Street Queensway;
- Smallbrook Queensway;
- Broad Street;
- Navigation Street/Hill Street; and
- High Street/Dale End.

The application of this data in terms of fixed flows is detailed in Chapter 4.

3.3. Car Park Data

Up to date information on public and private car parks within the A4540 Ring Road has been supplied to Atkins by BCC. This included a GIS layer, detailing the locations of all private and public car parks as well as the available capacities at each site. This GIS layer is displayed in **Figure 3-2**.

Figure 3-2 2016 Birmingham City Centre Car Park Locations



Occupancy data summarised in **Table 3-2** was also provided by BCC for 19 key car park locations.

Table 3-2 Car Park Occupancy Rates

Car Park	Capacity	% Occupancy		
		AM Peak	Inter-Peak	PM Peak
Bull Ring Centre	1,010	8	51	42
Arcadian	508	17	31	33
Mailbox	687	41	72	54
Broad Street 1	470	37	80	51
Broad Street 2	220	41	88	39
Broad Street	192	32	80	47
Arena Central	496	59	57	58
Edgbaston Street	849	9	24	18
Markets	577	16	37	32
Moor Street	1,194	11	49	40
NCP Grand Central	450	18	29	23
NCP High Street	1,200	24	62	34
NCP Londonderry House	720	45	82	43
NCP New Street	485	50	64	57
NCP Newhall Street	500	41	84	37
NCP Royal Angus	600	49	91	53
NIA South	788	14	32	19
Pershore Street	317	21	11	12
Snow Hill	863	69	87	41

As explained further in Chapter 5, this information was used in 2 distinct steps for the adjustment of PRISM cordon matrices:

1. The number of private and public spaces was used to inform the initial disaggregation of PRISM trip matrices into the more detailed SATURN zoning system within the City Centre. This was based on the ratio of car park spaces for the SATURN zones within the corresponding PRISM zone;
2. Following the adjustment of trips using the original car park model distribution, the capacity data was used to refine this process in conjunction with the occupancy data for key sites accounting for the change in car park sites since the car park model was developed.

3.4. TomTom Journey Time Data

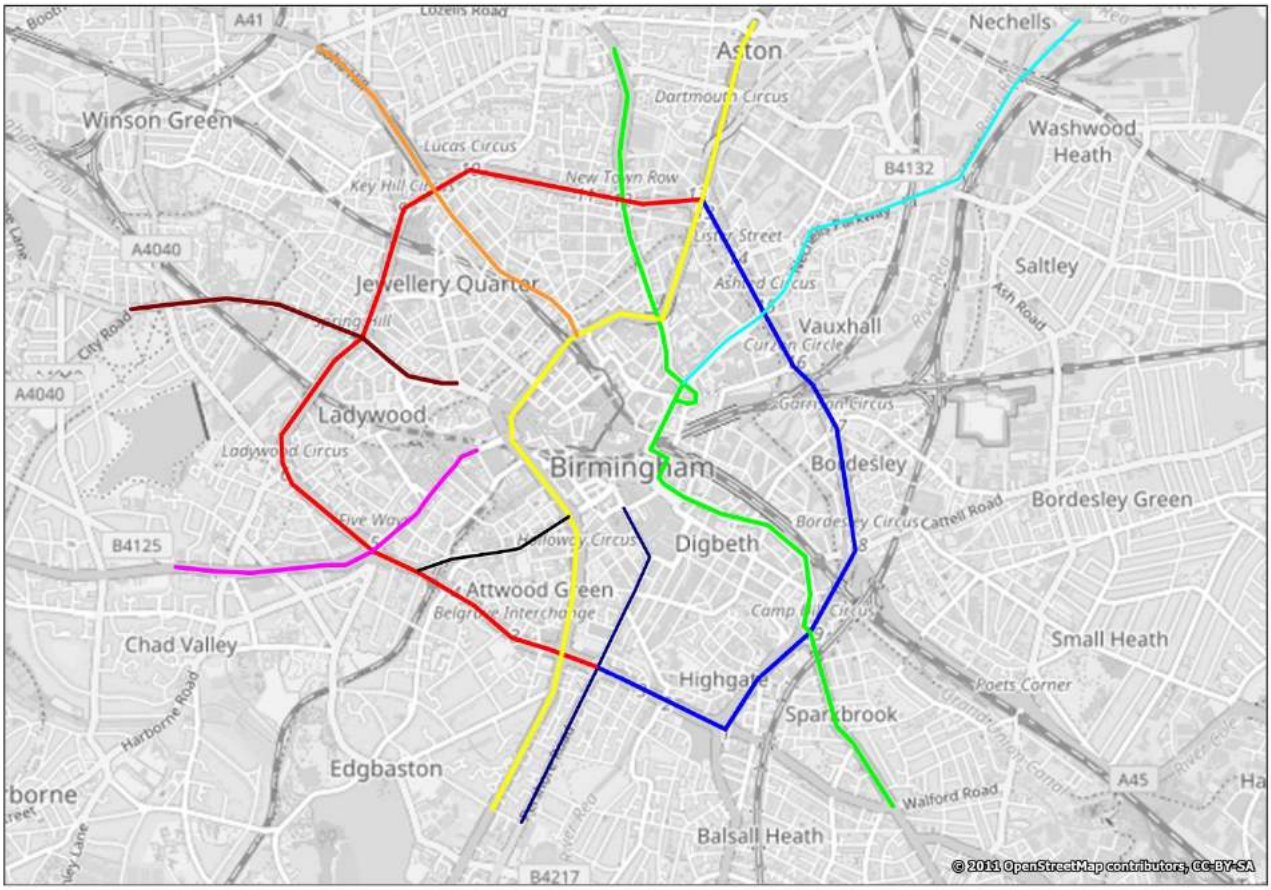
TomTom GPS journey time data was obtained for several routes within Birmingham City Centre for the purposes of model journey time validation. Data for all routes was collected for several 'neutral' months in 2016 from April to May and 12th September to October to ensure a high and representative sample rate was obtained.

Route descriptions are as follows:

- Route 1 (Red): A4540 Ring Road West between Dartford Circus and Belgrave Interchange;
- Route 2 (Blue): A4540 Ring Road East between Dartford Circus & Belgrave Interchange;
- Route 3 (Yellow): A38 Queensway between Park Circus Roundabout and Wellington Road;
- Route 4 (Green): A34 between Newbury Road and Highgate Road;
- Route 5: (Pink): Between B456 Hagley Road at Portland Road junction and Broad Street as far Bridge Street;
- Route 6 (Orange): Between A41 at Villa Road junction and B4100 as far as Queensway;
- Route 7 (Brown): A457 between City Road and George Street;
- Route 8 (Light Blue): A47 between the B4137 and James Watt Queensway
- Route 9 (Dark Blue): Pershore Road between Pershore Street and Edgbaston Street
- Route 10: (Black): Bath Row between the A4540 Ring Road and Holloway Circus

The 10 routes are shown in **Figure 3-3**.

Figure 3-3 Journey Time Validation Routes



TomTom allows for the disaggregation of data in to 7 distinct time periods. Consequently, in order to understand the variation in journey times across the AM and PM peak periods, data was extracted for the following time periods:

- AM Peak Period: 07:30-08:30, 08:30-09:00, 09:00-09:30
- Inter-peak: 09:30-15:30
- PM Peak Period: 15:30-16:00 and 18:00-19:00, 16:30-17:30, 16:00-16:30 and 17:30-18:00

Individual time periods for both the AM and PM period were determined based on the flow profiles across these hours. This allows for representative weighted values to be calculated across these two periods, without biasing the data in favour of the busiest hours of the time period (where samples are likely to be higher).

Birmingham City Centre is a highly congested network particularly at peak times of the day. As a result there can be significant variation in terms of day-to-day journey reliability with traffic incidents having the potential to lead to significant disruption. The impact of this in terms of observed journey times is that the mean average is likely to be significantly skewed by incidents which would not be represented in the SATURN model. Consequently, it is necessary to analyse both the mean and median journey times in order to understand how journey times can be considered representative for model validation.

Table 3-3 demonstrates the variation between the mean and median journey time values for the full route in both the AM and PM peak periods. It is important to note that the median route time (as calculated directly by the TomTom Trafficstats portal) is different to the sum of the individual median values for segments which make up the route. The route median is considered a more appropriate measure as the sum of individual segment values will generally be lower as each segment will only consider junction delays in isolation.

Table 3-3 Mean and Median Observed Journey Times in Seconds

Route	Description	Dir	AM Peak			PM Peak		
			Mean	Median	% Diff	Mean	Median	% Diff
1	Ring Road West	ACW	852	771	9%	931	796	15%
1	Ring Road West	CW	992	907	9%	1243	1018	18%
2	Ring Road East	CW	651	596	9%	817	670	18%
2	Ring Road East	ACW	626	567	9%	709	606	15%
3	A38 Queensway	SB	460	387	16%	642	521	19%
3	A38 Queensway	NB	397	361	9%	689	529	23%
4	Newtown Row/Camp Hill	SB	789	698	12%	901	766	15%
4	Newtown Row/Camp Hill	NB	924	871	6%	1113	990	11%
5	Hagley Road/Broad Street	EB	352	333	5%	366	316	14%
5	Hagley Road/Broad Street	WB	323	275	15%	486	431	11%
6	Villa Road/St Chads	SB	326	291	11%	333	299	10%
6	Villa Road/St Chads	NB	222	212	5%	260	235	10%
7	Spring Hill/Newhall St	EB	149	128	14%	160	132	18%
7	Spring Hill/Newhall St	WB	121	105	13%	200	172	14%
8	Cuckoo Road/Park St	SB	478	396	17%	400	342	15%
8	Cuckoo Road/Park St	NB	338	279	17%	369	316	15%
9	Edgbaston St/Pershore St	SB	227	205	10%	505	406	20%
9	Edgbaston St/Pershore St	NB	249	231	7%	255	216	15%
10	Bath Row	NB	214	181	16%	246	203	17%
10	Bath Row	SB	179	151	16%	212	175	17%

The table above demonstrates that the mean journey time generally significantly higher than the median journey time for each route. The most significant variation is observed for the A38 Queensway (Route 3), with a 16% difference between the mean and median for the southbound direction in the AM peak and a 23% difference observed for the northbound direction in the PM peak. This demonstrates the high variability in journey times experience within Birmingham City Centre, with mean journey times being skewed by particularly disruptive incidents. Consequently, the median journey times have been used for comparison with model journey times for validation purposes, the results of which are detailed in Chapter 8.

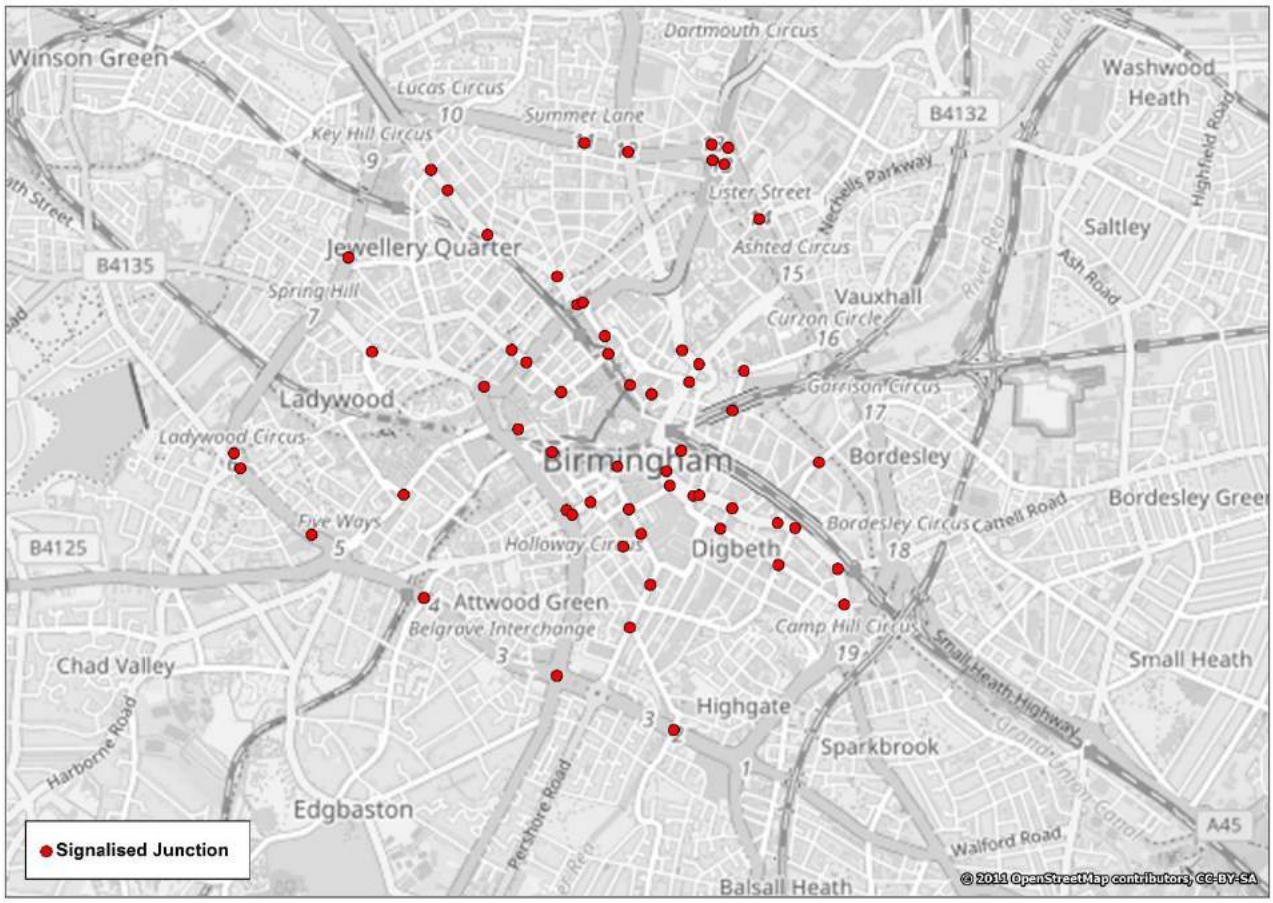
3.5. Trafficmaster Journey Time Data

2016 Trafficmaster GPS journey time data has been obtained from the DfT for the wider Birmingham area. This data was used for the purpose of determining appropriate fixed speed values for the outer network where no capacity restraint has been applied. This is an important step as leaving these links as free flow speeds would most likely result in the number of through trips in the City Centre and trips using the A4540 Ring Road being underestimated as traffic re-routes to unconstrained faster routes. The fixed speed values have been determined separately for each time period, representing the different delays throughout the course of a day.

3.6. Traffic Signal Data

BCC provided Atkins with 2015 signal timing information for all 3 modelled time periods for key signalised junctions within the City Centre. This included the staging arrangements and maximum green time allocations for each junction. The locations of these junctions are shown in **Figure 3-4** with the full list of information provided in Appendix A.

Figure 3-4 Locations of Signalised Junctions with Timing Data Provided



Timings for the key junctions on the A4540 Ring Road and along the A4400 through the City Centre where data was provided have been verified during a site visit conducted in September 2016. Additional locations where data was not provided have also been reviewed, including recent changes at junctions such as Spring Hill and the Paradise Circus temporary arrangement.

3.7. Automatic Number Plate Recognition Survey

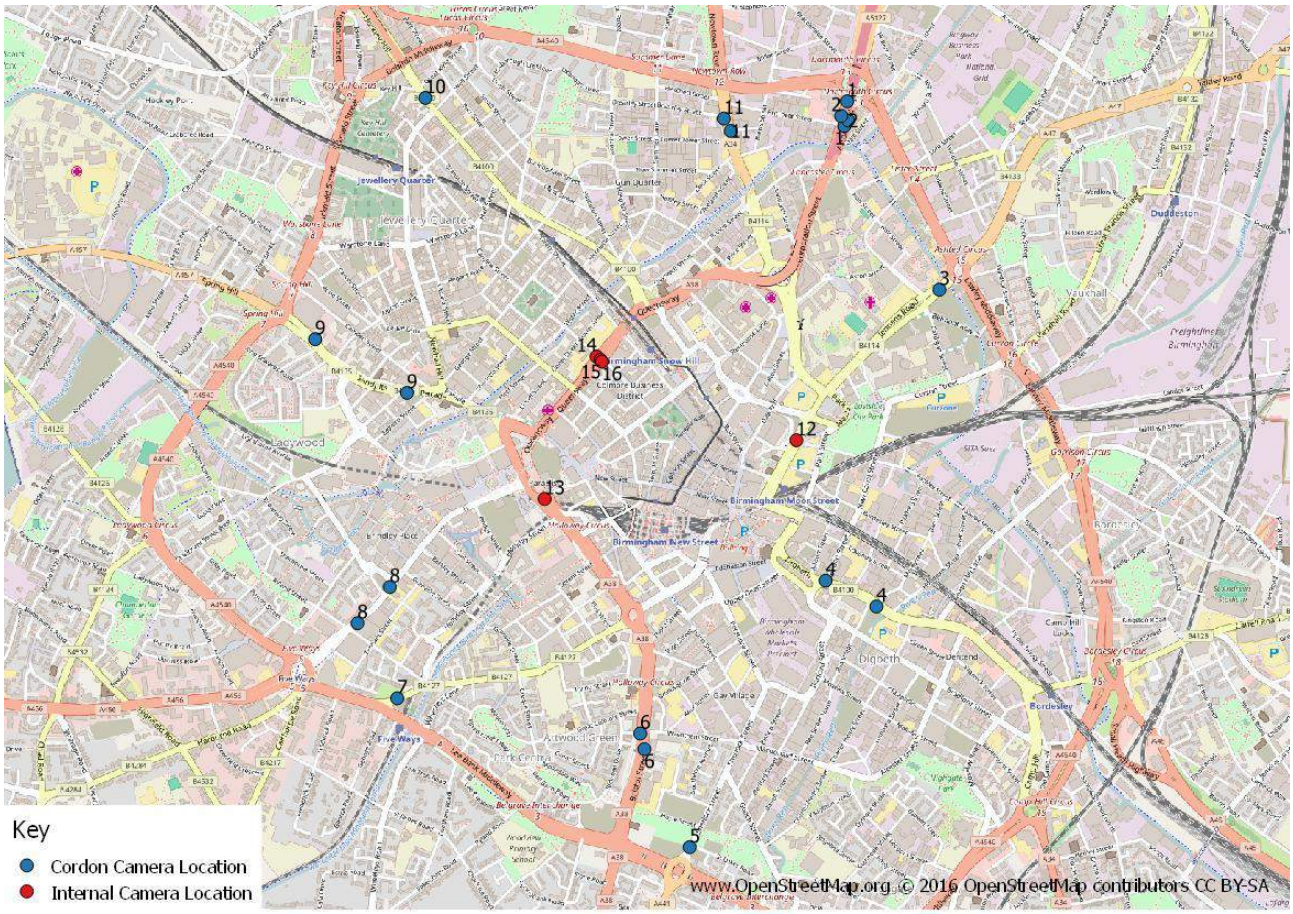
Between the 7th and 15th November 2016, BCC conducted an Automatic Number Plate Recognition (ANPR) Survey in order to better understand traffic patterns within the City Centre. Although not conducted solely for the specific purposes of the BCCM, this data provides a useful means of performing an additional validation check on in terms of traffic routeing within the model.

The locations of the ANPR cameras which have been used for comparison purposes with the model are shown in **Figure 3-5**. Descriptions of the locations are as follows:

1. A38 Aston Expressway beneath Dartmouth Circus
2. Aston Road on and off slip
3. A47 Jennens Road
4. B4100 south of Digbeth
5. Sherlock Street
6. Bristol Street
7. Bath Row
8. Broad Street
9. Summer Hill Road
10. B4100 south of Key Hill
11. New Town Row
12. Moor Street Queensway
13. Suffolk Street Queensway Northbound (Tunnel)
14. Great Charles Street Queensway Northbound

15. Great Charles Street Queensway Southbound (Tunnel)
16. Great Charles Street Queensway Southbound

Figure 3-5 ANPR Camera Location



The comparison between the ANPR observed and ANPR routeing patterns is detailed in Chapter 8.

3.8. Summary of Data sources

Table 3-4 gives a summary of the data sources shown in this chapter and shows how each piece of data has been used to develop the base model. The majority of the data can be used for more than one purpose and this is clear in the table below.

Table 3-4 Summary of BCCM data sources and their purposes

Data \ Stage	Network and Matrix Development	Matrix Calibration	Matrix Validation
Traffic Counts	Biennial cordon analysis used to adjust internal trips in prior matrices to represent 2016 levels. Long-term data used to calculate appropriate adjustment factors for all counts to represent 2016 traffic levels.	Calibration targets based on observed count data split by vehicle type.	Some data reserved for validation of strategic links.
Car Park Data	Used initially to disaggregate trips from PRISM city centre zones into smaller BCCM zones, based on the ratio of available car parking capacity. Then used	Capacity and occupancy data used to check and adjust redistribution of trips from initial Car Park Model factors.	-
TomTom Journey Time Data	-	-	Route median observed values compared against modelled journey times for 10 routes.
Trafficmaster Journey Time Data	Used to determine appropriate fixed speed values to apply to external network for each modelled time period where no capacity restraint has been applied.	-	-
Signal Data	Staging and timing data provided by BCC in order to update modelled signal junctions to current arrangements. Timings were checked as part of the calibration process, particularly at junctions with temporary arrangements in place.		
ANPR Survey	-	-	Observed trips proportions compared against model to ensure appropriate routeing is observed.

4. Model Network Development

This chapter describes the process of developing the BCCM highway networks. The approach has involved first combining the existing BCCM network with the WMRTM network and then refining the network to represent changes since the development of the original model. The network development has been aided by the use of GIS software to ensure model outputs and analysis can be presented accurately on map backgrounds.

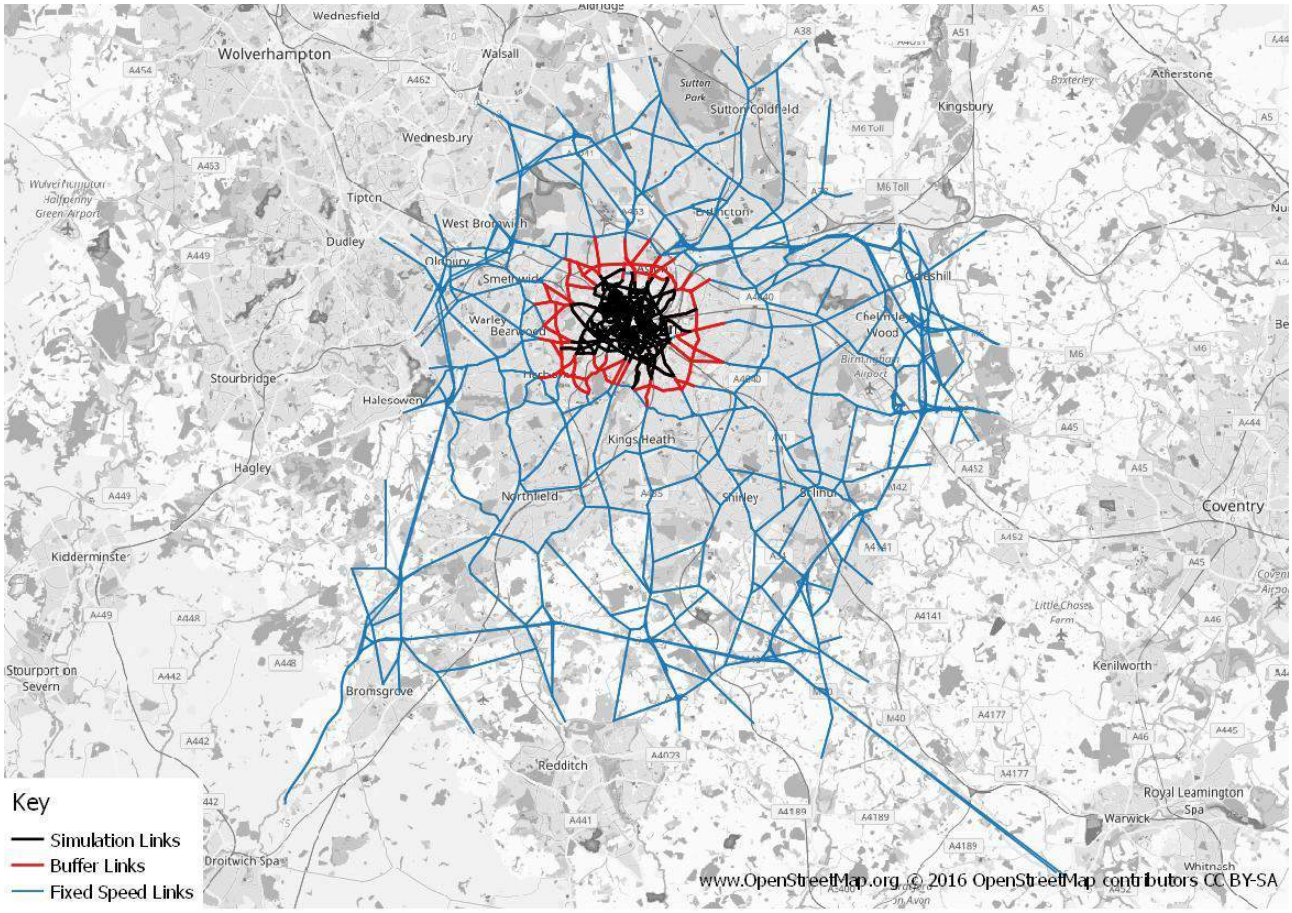
4.1. Combination of Networks

The updated BCCM model network has been created my merging two pre-existing model networks. These were the West Midlands Regional Traffic Model (WMRTM), developed for Highways England by Mott MacDonald for the wider network and the original BCCM network for the City Centre.

The full WMRTM network was obtained from Mott MacDonald with permission from the Highways England TAME group. The network was then cordoned externally to include the agreed extents of the model shown below.

To enable the merging of the two models and in order to allow for routeing of traffic around the outside of the A4540 Ring Road, extra detail was added by Atkins in the region where the two models join. **Figure 4-1** shows the full extent of the BCCM model.

Figure 4-1 BCCM Full Extent



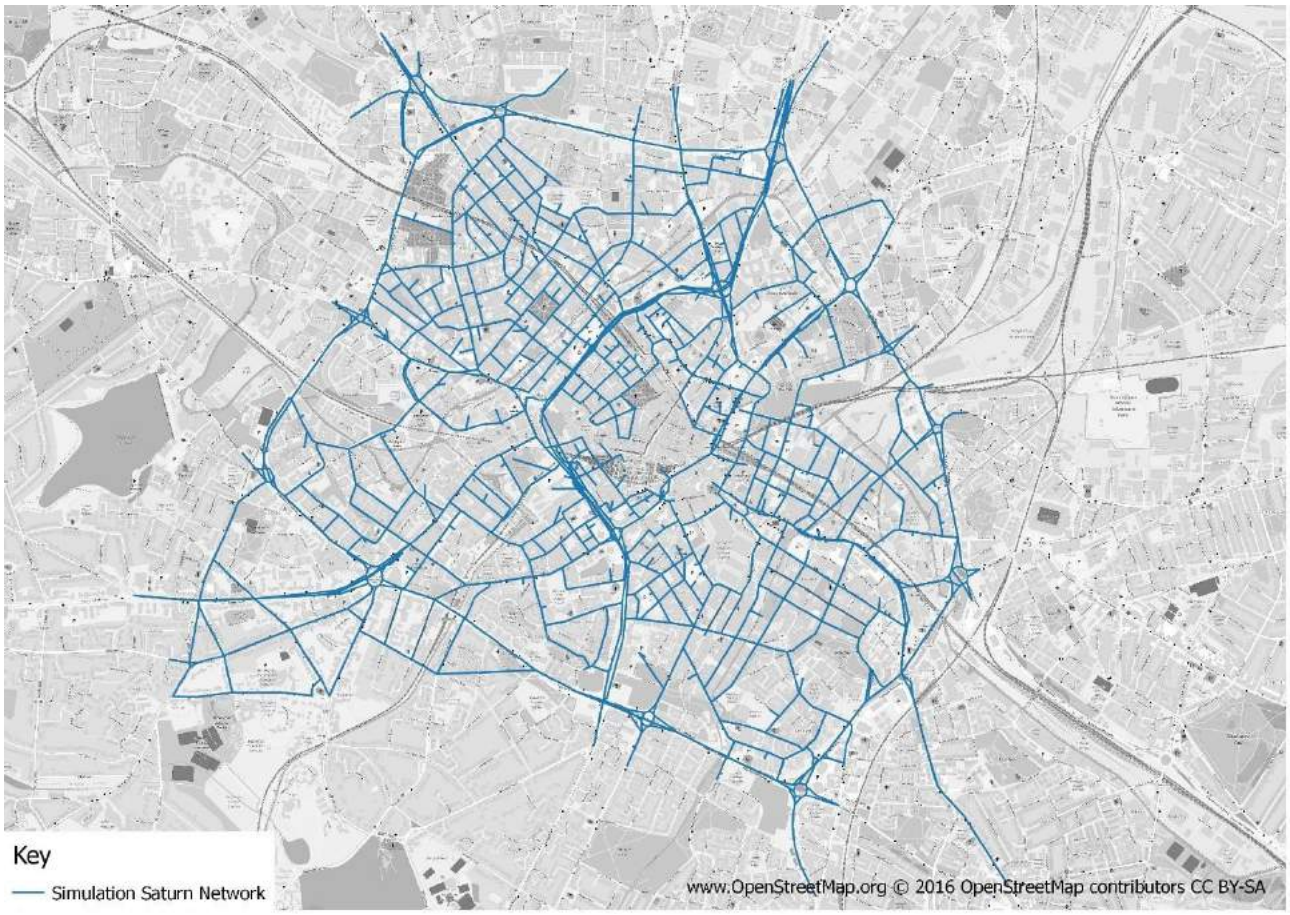
4.2. Update of City Centre Coding

The City Centre aspect of the model is taken from the original BCCM network and is made up entirely of simulation network. As the original network was developed over 10 years ago, Atkins undertook a full review

of the simulation coding in order to identify areas which needed to be updated following changes to the infrastructure over time.

Figure 4-2 shows the extent of the simulation network within the city centre.

Figure 4-2 BCCM Simulation Network Extent



At the outset of the project it was agreed that the new simulation network would be developed to represent a September 2016 arrangement. This was done to ensure the network was consistent with the new traffic surveys undertaken for the project.

Atkins undertook site visits of the simulation area during September 2016. The purpose of these was to enable the study team to familiarise themselves with the study area and undertake a network inventory. This involved a windshield survey of roads to be included in the model network, collecting information on speed limits, link free flow speeds and specific link and junction characteristics (including areas of traffic calming/vehicle restrictions, location of pedestrian crossings etc.). Signalised junction arrangements were also observed, noting timings and staging arrangements.

The first task in updating the simulation network involved fully geo-coded all nodes using GIS software, ensuring the positions of all junctions and links were accurately represented. Curvature of individual links was also shaped in a linked GIS file which is linked to the SATURN network for presentation purposes. Distances were then exported and applied to links within the network with manual checks then undertaken to ensure accuracy.

A key factor for traffic patterns in terms of September 2016 was the traffic management arrangements in place as part of the Paradise Circus redevelopment works. This includes the removal of the eastern side of the junction with inbound traffic from the A4400 to the north being diverted via a single lane to the western side of the junction. Access to the junction from the A457 was removed (as was the case in September 2016). Access and egress to/from Broad Street was removed for private vehicles whilst buses and taxis could only enter Broad Street from the south and exit to the north.

Another key change involved recoding large roundabout junctions on both the A4540 Ring Road and the A44400 Queensway as 'exploded' junctions, introducing nodes to allow for entry and circulating carriageways to be explicitly defined, with the entry points represented as separate priority or signalised junctions. Circulating and entry saturation flows and gap acceptance are defined in line with values for a normal roundabout node. Recent Pinch Point improvement schemes (implemented prior to September 2016) were also included within the base model coding.

A number of further changes were also made that included:

- Speed flow curves were added to long sections of the Queensway route in both directions where no junction restraint applies.
- Zone loading has been re-designed in line with the new zoning system, taking into account new car park locations, particularly around the Bullring Shopping Centre.
- Junction characteristics were checked in terms of the number of lanes, speeds and saturation flows;
- Signal timings were updated in line with data provided by BCC for all 3 time periods, which were then checked against on-site observations.

As part of the detailed simulation coding involved adding in additional nodes where required, these nodes were geo-referenced back in MapInfo as part of the final stage of the network development process. New link distances were then updated accordingly.

4.3. Buffer Collar

The network "buffer collar" surrounds the simulation area of the network for approximately 1 mile in all directions. The key function of this area is to allow for appropriate routeing of traffic into and out of the City Centre from radial routes. Whereas the principal form of capacity restraint within the simulation area is at modelled junctions, as links within this area are buffer links, with no specific junction characteristics assigned, speed-flow curves are used to restrain traffic speeds based on the level of traffic on the link as is standard practice. Appropriate values based on speed flow curves adopted for the Highways England Regional Traffic Models have been applied based on the free-flow speed, the location of each link and the level of development in the immediate vicinity of the link.

Speed-flow curve details are provided in Appendix B.

4.4. Re-coding of External Network

The WMRTM network included some simulation coding in vicinity of the motorway network, given the focus of this model on the strategic road network. For the purposes of the BCCM, this was converted back into a buffer format to provide consistency with the rest of the external network.

Following this, average fixed speeds were applied to the remainder of the network. This was informed by the Trafficmaster journey time data provided by the DfT, with different values applied based on observed data for the individual modelled time period. Speed-flow curves would not be appropriate in this external network as this would result in re-assignment due to cost changes outside of the core study area.

Connections with the internal network were reviewed to ensure adjacent links were not "double-counting" distances and were consistent in terms of the number of lanes and speed limits etc.

Figure 4-3 shows the extent of the fixed-speed network.

Figure 4-3 Fixed Speed BCCM Network



4.5. Fixed Flows

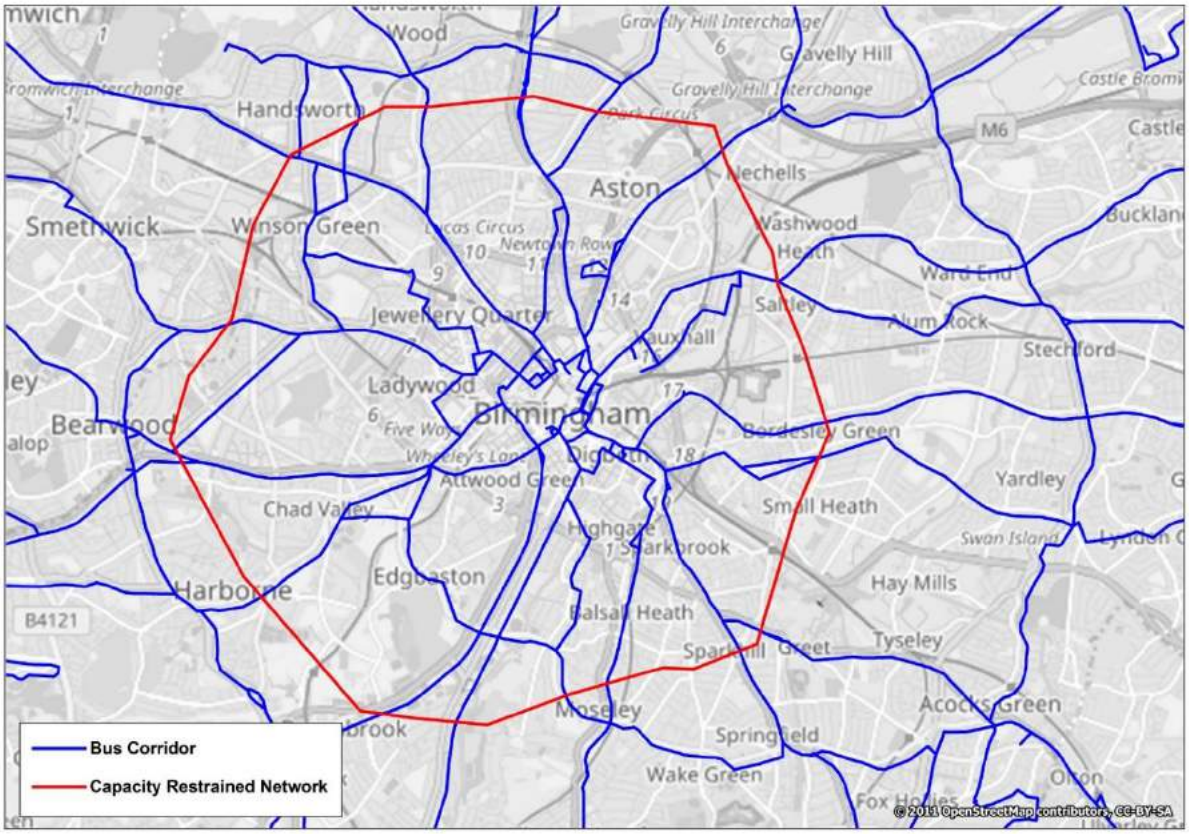
As detailed in Chapter 2, buses for the BCCM are represented as fixed flows, traversing pre-defined node chains defined within the model network file. Additionally, given the high volume of taxis in particular areas of the City Centre, these vehicles are also represented as fixed flows in these specific areas of the network. Further details regarding the coding process for both buses and taxis is provided below.

Bus Fixed Flows

Given the focus of the model on the City Centre, fixed bus flows routes have only been coded within the simulation network area and the buffer 'collar' area where speed-flow capacity restraint has been applied. Beyond this area, no capacity restraint has been applied to the fixed-speed wider network and so fixed flows will have no impact on assignment.

BCC provided Atkins with an up to date bus route GIS layer from Transport for West Midlands (TfWM) as well as a summary of service frequencies for each of the modelled time periods. The bus corridors shown by the GIS layer together with the extents of the buffer network collar within which fixed flows are included are shown in **Figure 2-4**. The frequency data provided is presented in Appendix C.

Figure 2-4 Bus Corridors within Capacity Restrained BCCM Network



On incorporating the routes within the BCCM, Atkins have cross-checked the route corridors with route information available online from bus operator websites. Atkins then held a meeting with TfWM to review each bus route individually to ensure these were correct.

A key point to note is that outbound services which would normally access Broad Street from Paradise Circus, have been re-routed in the base model via Summer Hill Street to represent route diversions resulting from traffic management at the time of network development. These services will be recoded as part of the model forecasting work, where the Paradise Circus redevelopment is complete.

Taxi Fixed Flows

Taxis have been included as fixed flows in the following areas of the model:

- Between Holloway Circus and Moor Street/Dale End via Swan Passage;
- Colmore Row with movements from/to Livery Street, Colmore Circus and Newhall Street;
- Broad Street between Paradise Circus and Five Ways; and
- Navigation Street between New Street Station taxi rank and Smallbrook Queensway.

The routes were assigned based on turning flows within these key areas of the City Centre. Only links with high taxi volumes were considered. Frequencies were set to match volumes observed by the counts.

Although taxis in the wider simulation network are not modelled, their numbers would form a relatively low proportion of overall traffic flows and so are unlikely to affect routeing of private vehicles.

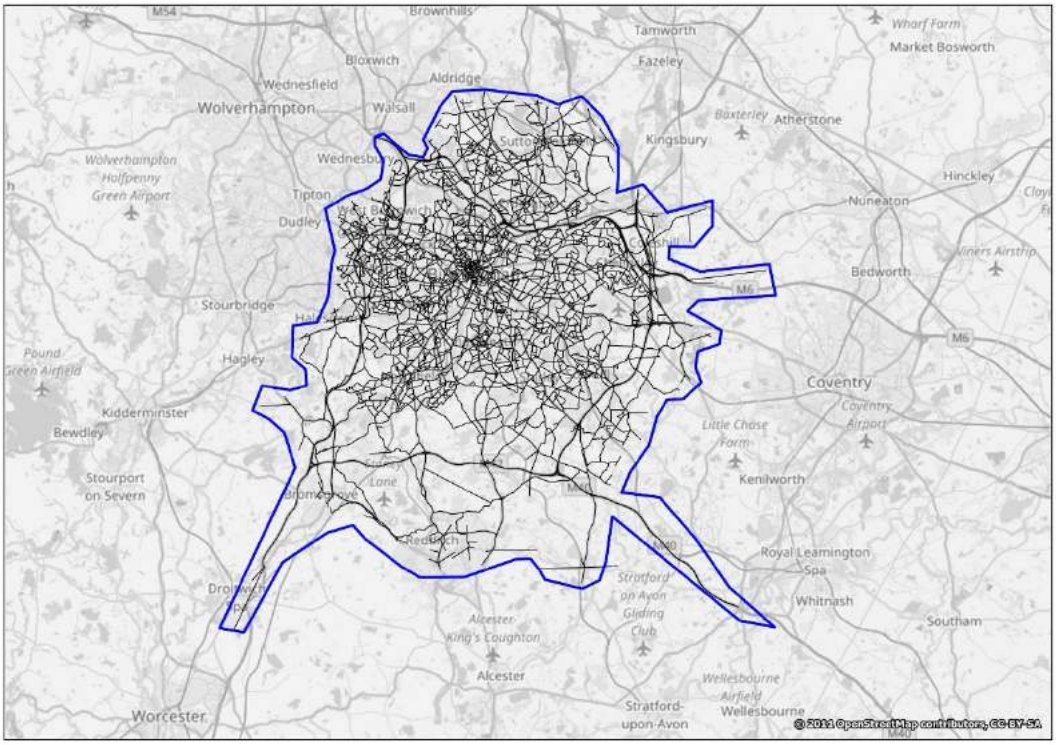
5. Base Model Prior Matrices

The prior matrices provide the initial data input into the model development process. This chapter describes the work undertaken in converting 2011 cordon matrices derived from the PRISM model and re-developing these for the purposes of the 2016 BCCM base model.

5.1. PRISM Cordon Matrices

Cordon matrices have been obtained from the 2011 PRISM model (version 4.6) for use as the basis of the matrices in the BCCM. Matrices were obtained for the AM, inter-peak and PM time periods which correspond directly with the BCCM. The extents of the PRISM cordon are shown in **Figure 5-1**.

Figure 5-1 PRISM Cordon Extents



The matrices supplied are for the 4 user classes detailed in Section 2 which have also been adopted for the BCCM.

The level of validation achieved by the PRISM model was reviewed to confirm that the matrices were suitable as a basis for the BCCM matrices. In particular, the level of traffic flow entering the City Centre Cordon, shown in **Figure 5-2**.

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Figure 5-2 Birmingham City Centre PRISM Cordon (provided by Mott MacDonald)

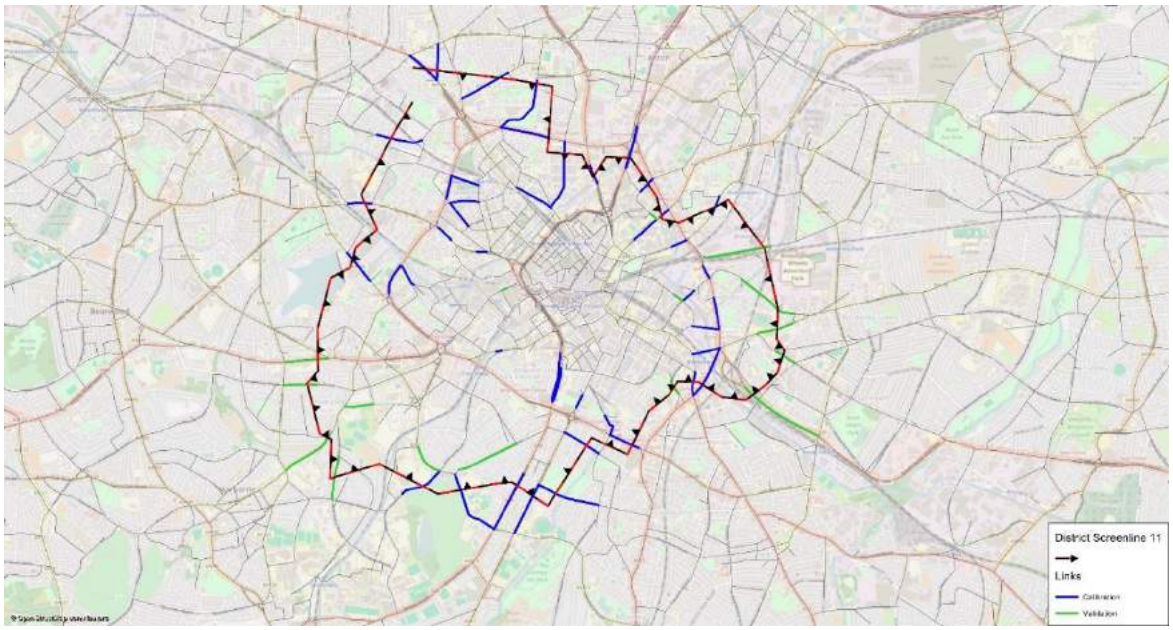

Table 5-1 shows the observed traffic flows and PRISM modelled flows across the PRISM City Centre Cordon for the 2011 base model. The WebTAG acceptability guideline for screenlines is for the difference between modelled flows and observed counts to be less than 5%.

Table 5-1 Validation of PRISM City Centre Screenline

Time	Direction	Observed traffic flow	Modelled observed traffic flow	% difference	Within 5%
AM	Inbound	27,374	26,191	-4%	Yes
	Outbound	18,264	17,788	-3%	Yes
IP	Inbound	20,869	20,275	-3%	Yes
	Outbound	20,642	20,203	-2%	Yes
PM	Inbound	20,536	21,055	3%	Yes
	Outbound	27,440	27,228	-1%	Yes

It can be observed from the table above that the modelled cordon traffic flows are within 4% of observed flows both inbound and outbound for all time periods, satisfying the WebTAG criteria. Individual link calibration/validation was also analysed (as detailed in the Data Collection Report) which revealed link flows were generally accurate within the City Centre. Consequently, the cordon matrices were considered suitable for the development of prior matrices, subject to adjustment to account for changes in traffic levels between 2011 and 2016 and further refinement for the purposes of the BCCM. **Table 5-2** demonstrates the 2011 matrix totals split by user class for the PRISM model cordons.

Table 5-2 2011 PRISM Cordon Matrix Totals (In PCUs)

User Class	AM Peak		Inter-Peak		PM Peak	
	Veh Trips	% of Trips in Time Period	Veh Trips	% of Trips in Time Period	Veh Trips	% of Trips in Time Period
UC1 – Car Employers Business	14,005	6%	21,643	9%	19,619	7%
UC2 – Car Commuting and Other	170,255	69%	149,377	65%	202,289	76%
UC3 – LGV	30,814	13%	24,814	11%	23,679	9%
UC4 – HGV*	30,758	13%	34,565	15%	18,862	7%
Total	**245,832**	**100%**	**230,399**	**100%**	**264,449**	**100%**

*BCCM HGV PCU factor of 2.14 applied to UC4

5.2. Disaggregation of trips

Once the PRISM cordon matrices were converted into a suitable format which could be read by SATURN, the first stage of adjusting the matrices for the BCCM involved disaggregating trips within the City Centre from the PRISM zone structure to the BCCM zoning structure. This was based on the ratio of available public and private parking available across the SATURN zones within the PRISM zone, with trips split according to these ratios.

5.3. 2011 to 2016 Adjustment

As the PRISM cordon matrices were produced to represent a 2011 base year, it was important factor these to account for changes in traffic levels between 2011 and 2016. In terms of trips travelling to and from Birmingham City Centre, the biennial cordon surveys within the A4540 Ring Road represented an ideal source of data to inform these changes.

As presented in Chapter 3 (with further detail provided in the Data Collection Report), the cordon surveys have demonstrated a marked decrease in traffic levels within the Ring Road between 2011 and 2015, particularly for LGVs and HGVs. NTEM (version 7) and NRTF factors (separated by journey purpose and vehicle type) for 2015 to 2016 provide a small level of growth within Birmingham which was then combined with the 2011 to 2015 change to provide the overall change to be applied to trips to and from the City Centre (as well as internally within the City Centre).

For through trips and external trips not passing through the City Centre, given the scale of area to be considered, it was decided to adjust the prior matrices based on NTEM (version 7) and NRTF growth factors between 2011 and 2016 for the wider Birmingham area. These factors suggest a general increase in car employer's business trips as well as for LGVs and HGVs but car trips for commuters and other purposes remain fairly static. Use of the cordon surveys would not have been suitable given the focus of these counts on the City Centre.

The overall adjustment factors for both internal and external trips between 2011 and 2016 adjustments are provided in **Table 5-3**.

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Table 5-3 2011 to 2016 Adjustment Factors for Internal and External Trips

User Class	AM Peak		Inter-Peak		PM Peak	
	Internal Factor	External Factor	Internal Factor	External Factor	Internal Factor	External Factor
UC1 – Car Employers Business	0.98	1.07	0.92	1.04	0.88	1.05
UC2 – Car Commuting and Other	0.96	0.99	0.91	0.99	0.87	0.99
UC3 – LGV	0.86	1.11	0.88	1.09	0.77	1.11
UC4 – HGV	0.83	1.02	0.80	1.00	0.74	1.02

5.4. Car Parking Adjustment

A key consideration for the BCCM is that the cordon matrices from PRISM reflect the ultimate destination of trips as opposed to where people actually park. Consequently, using the PRISM matrices without consideration of where car trips are likely to terminate would result in an unrealistic representation of origins and destinations within the City Centre.

The previous version of the BCCM made use of a car park model to convert ultimate destination matrices from PRISM to car park destination matrices in SATURN. Historically, this model has not been well utilised due to the need to continually update the model with car park costs and capacity information followed by re-optimisation. Adopting a similar approach has therefore not been considered for this update of the SATURN model.

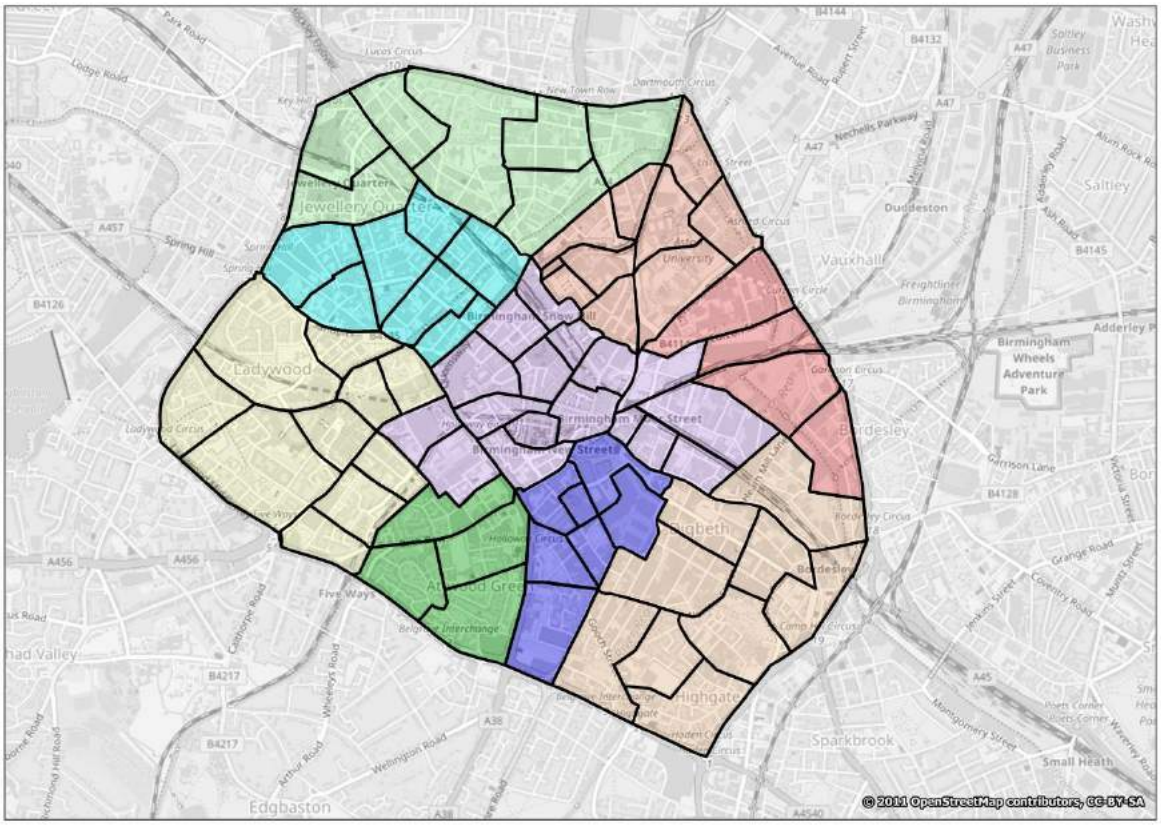
However, the existing car park model (last updated in November 2007) has been used as the basis for redistribution of commuting and other car trips (User Class 2). This has been achieved as follows:

- A sectoring system was developed for internal zones within the City Centre where the overall level of trips across the sector remains consistent with the original cordon matrices following the application of the car park model - but with trips being redistributed based on the level of parking available and cost considerations for specific zones.
- Zones from the old model (used in the existing car park model) were matched with the equivalent zones in the new model to produce the sectoring system.
- Since the development of the original car park model, there have been significant changes to car parking provision within the City Centre, with changes to capacities and large new facilities such as Millennium Point and B4 (accessed via Printing House Street) being developed. Consequently following the calculation of initial adjustment factors from the car park model, these values were refined to account for the change in car park spaces within sectors.
- Trips for other user classes have not been redistributed as it is considered that employer's business car trips as well as freight vehicle trips are likely to be able to park close to their ultimate destination (i.e. at private office car parks or delivery drop off points).
- External zones were also sectored to allow for different adjustment factors to be adopted for movements outside of the City Centre to be redistributed differently depending on which direction they were likely to enter the City Centre from.

Figure 5-3 shows the internal sector system adopted for the AM and PM peak models – note the IP system differs slightly in order to maintain the balance of trips within sectors.

Final overall adjustment factors adopted in the prior matrices are presented in Appendix D.

Figure 5-3 BCCM Internal Car Park Sector System (AM and PM)



5.5. Validation Adjustments

Following the production of the initial prior matrices representing a 2016 base year, initial assignments of the model were undertaken to understand the suitability of the matrices prior to calibration. A number of checks were undertaken, comparing flows against screenlines and individual radial links leading into the City Centre. A consistent finding across all 3 time periods was that whilst modelled flows across the internal cordon within the A4540 Ring Road compared relatively well against the observed flows (taken from the Ring Road cordon surveys), flows were generally low across the all 3 external screenlines (displayed in Figure 8-1 Chapter 8). This suggests that whilst the level of external to internal traffic was well reflected, external through movements using the Ring Road were generally being under-represented. Given that the original PRISM cordon flows were generally low against observed 2011 flows (with the majority of the cordon lying outside of the ring road), external trips were therefore up-scaled to account for this difference.

In addition to factoring of external flows, comparison of the original PRISM model flows against observed counts on key radial links revealed that the flows on Newtown Row both inbound and outbound were considerably lower than observed flows in all 3 time periods (between 30% and 60% in all 3 time periods). Consequently, a select link adjustment was made to flows at this location in order to account for the difference in the SATURN model.

The final prior matrix totals are shown in **Table 5-4**. Although internal trip totals are lower, trip totals across the full matrix are higher due to the factoring of external movements to account for the initial difference observed compared against external screenlines. The relative proportions of individual user classes remains generally consistent. Validation of the final prior matrices as well as post-matrix estimation is presented in Chapter 8.

Table 5-4 2016 BCCM Prior Matrix Totals

User Class	AM Peak		Inter-Peak		PM Peak	
	Veh Trips	% of Trips in Time Period	Veh Trips	% of Trips in Time Period	Veh Trips	% of Trips in Time Period
UC1 – Car Employers Business	16,793	6%	24,124	10%	22,202	8%
UC2 – Car Commuting and Other	184,866	69%	158,924	64%	216,534	76%
UC3 – LGV	35,562	13%	29,495	12%	28,218	10%
UC4 – HGV*	31,319	12%	35,837	14%	19,261	7%
Total	**268,540**	**100%**	**248,380**	**100%**	**286,215**	**100%**

6. Model Assignment and Standards

This chapter describes the assignment process used the in BCCM, including assignment parameters, generalised cost coefficients and convergence criteria. The calibration and validation procedures are also described.

6.1. Assignment Algorithm

Model assignment of trips to the highway network was undertaken using a standard approach based on a 'Wardrop User Equilibrium', which seeks to minimise travel costs for all vehicles in the network. The Wardrop User Equilibrium is based on the following proposition:

'Traffic arranges itself on congested networks such that the cost of travel on all routes used between each origin-destination pair is equal to the minimum cost of travel and unused routes have equal or greater costs.'

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

6.2. Route Choice Cost Coefficients

The model generalised costs have been updated using the latest WebTAG Unit A1.3 guidance on values of time and operating costs (TAG Databook Spring 2016 v1.6). The values of time for HGVs have been doubled to account for the importance of time for HGV routing, in line with the guidance.

Error! Reference source not found. shows the PPM (pence per minute) and PPK (pence per kilometre) for the f our user classes used in the model for the AM, PM and Inter-peak.

Table 6-1 Generalised Costs

User Class	AM Peak		Inter-Peak		PM Peak	
	PPM	PPK	PPM	PPK	PPM	PPK
1	30.20	15.20	30.94	15.20	30.63	15.20
2	17.28	6.83	15.69	6.83	17.29	6.83
3	21.34	14.19	21.34	14.19	21.34	14.19
4	43.34	49.32	43.34	49.32	43.34	49.32

The average network speeds used in the calculation of these values were derived from the original BCCM model assignments.

6.3. Calibration Procedure

The calibration procedure involved a number of steps to ensure that the model reproduces observed traffic flows and travel times in the model network. These included:

- Adjustments of link and junction operating parameters to represent the existing situation;
- Checks to ensure that link speeds on the network were realistic;
- Checks to ensure that delays at junctions were realistically represented; and
- Use of matrix estimation (ME2) procedure to fine tune the prior trip matrices to obtain the best 'fit' with the observed link flows within the model network.

The matrix estimation process was closely monitored to ensure stability and that realistic trip matrices were created. Analysis of the matrix estimation process has been undertaken in Chapter 7.

6.4. Model Validation Criteria

Flow Validation Criteria

During model development, validation checks were incorporated into processing of the model output data. This primarily consisted of the comparing the observed and modelled link flows. The calibration and validation link flow comparison used the guidelines set out in TAG Unit M3.1, shown in **Table 6-2**.

Table 6-2 TAG Unit M3.1 Acceptability Guidelines

Criteria & Measure		Guideline	
Flow Criteria			
1	Observed flow < 700vph	Modelled flow within ± 100vph	> 85% of links
	Observed flow 700 to 2700vph	Modelled flow within ± 15%	
	Observed flow > 2700vph	Modelled flow within ± 400vph	
2	Total screen line flows to be within ± 5%	All (or nearly all) screen lines	
GEH Criteria			
3	GEH statistic for individual links <5	> 85% of links	
4	GEH statistic for screen line totals <4	All (or nearly all) screen lines	

NB: the acceptability requirement for individual links is for either the flow or GEH to be within the guideline values (i.e. both are not required).

GEH Statistic

The GEH statistic is a generally accepted value used as an indicator of 'goodness of fit', i.e. the extent to which the modelled flows match the corresponding observed flows. This is defined as:

$$GEH = \sqrt{\frac{(M-C)^2}{0.5 \times (M + C)}}$$

Where M = modelled flow and C = observed flow

Journey Time Validation

For journey time validation, guidance states that the measure to be used is: the percentage difference between modelled and observed journey times, subject to an absolute maximum difference.

The acceptability guidelines are defined as: Modelled times along routes should be within 15% of surveyed times or 1 minute, if higher than 15% (for 85% of routes).

6.5. Convergence

Table 6-3 show the latest convergence criteria outlined in TAG Unit M3.1 (Table 4)

Table 6-3 Convergence Measures and Base Model Acceptance Values

Measure of Convergence	Base Model Acceptance Values
Delta and % Gap	Less than 0.1% or at least stable with convergence fully documented and other criteria met
Percentage of links with flow change (P) <1%	Four consecutive iterations of greater than 98%
Percentage of links with cost change (P2) <1%	Four consecutive iterations of greater than 98%

Convergence statistics for the post-matrix estimation assignments are included within Chapter 7.

7. Model Calibration

This chapter provides details regarding the techniques used and the changes made as part of the model calibration process, and the results achieved.

A two-stage process was taken to the calibration process. The first stage involved calibration of an initial base year assignment, based on the initial network and matrices.

Analysis of the initial base year assignment provided the opportunity to demonstrate the robustness of the initial model development activities, and enabled errors in the network, matrix and count data to be identified and remedied at an early stage. The second stage of calibration involved the application of matrix estimation to fine-tune the trip matrices in order that the assigned traffic flows matched the surveyed counts.

7.1. Calibration of the Initial Assignment

Calibration of the initial base year assignment focussed on reviewing, fine-tuning and rectification of network and routeing issues. Checks were undertaken to ensure that free flow speeds, signal phasing and timings, saturation flows and turn capacities were appropriate. Saturation flows for key junctions are based on standard values based on TRL formulae. As part of model calibration, some these values were varied based on actual measurements where modelled journey times did not match observed values (i.e. where modelled junction delays were significantly higher/lower than observed) and where turn capacities were lower than observed turning movements.

Routeing checks were carried out using select link and origin-destination tree analysis within the P1X module of SATURN to ensure that vehicles were routeing in a realistic manner. In terms of the BCCM, a specific consideration was to ensure that the buffer collar network was sufficiently constrained in order to prevent rat-running away from the A4540 Ring Road which provides key road infrastructure for movements circulating the City Centre. This meant ensuring the speed-flow curves were able to effectively reflect the breakdown in flow during busy peak periods with no junction delays specifically modelled. Internally within the Ring Road, in cases where vehicles were found to be rat-running, free flow speeds and junction capacities were reviewed to ensure main routes were not over-restricting traffic or parallel routes were too fast. This was undertaken in conjunction with journey time validation checks mentioned above.

The locations of both internal and external zone centroids were also re-examined to ensure trips were loading and leaving the network in a sensible manner when compared against observed link counts. Internally, in some situations, zones were separated in order to better reflect traffic behaviour. For example at the Bull Ring shopping Centre, the Moor Street car park was separated from the main central car park to ensure appropriate use of all accesses, with trips being proportioned according to available capacities and car park occupancy rates. Externally, it was necessary to add network detail in the buffer area to allow traffic to enter/leave the network at appropriate locations.

Count data was checked for consistency between counts on adjacent links. Typically, the main source of inconsistency between neighbouring counts arises as a result of counts being carried out on different survey dates. Differences can also arise where neighbouring counts have been carried out using different survey techniques, for example, where an ATC is compared against a manual classified count. Where inconsistencies were identified, the issue was addressed first through checking of the data and then excluding counts deemed unrepresentative in comparison to adjacent sites (based on which counts were considered more reliable and likely to be more representative of 2016 conditions).

Traffic flows and patterns across a number of screenlines were reviewed to ensure that they closely matched the observed data. Once calibration of the initial base year assignment had been satisfactorily completed, matrix estimation was applied to the prior matrix to fine-tune the demand in the trip matrices to ensure that the assigned flows match the observed link and junction counts.

7.2. Matrix Calibration

Matrix calibration involved checking the validity of the trip data used to produce the matrices and focused principally on ensuring that traffic was assigning correctly to the network. This involves the use of an adjustment process known as matrix estimation which in essence attempts to match assigned link flows in the model with observed traffic counts.

Matrix Estimation

The matrix estimation process is an integral part of the model calibration. It is undertaken within SATURN using the SATME2 element of the program suite. The basic function of matrix estimation is to produce an updated matrix using traffic counts. Trips are adjusted in the matrix to produce an estimated matrix that is consistent with the traffic counts. The equation used may be written as:

$$T_{ij} = tij \prod_a X_a^{Pija}$$

where: T_{ij} is the output matrix of OD pairs ij;

tij is the prior matrix of OD pairs ij;

$\prod_a$ product over all counted links a;

X_a is the balancing factor associated with the counted link;

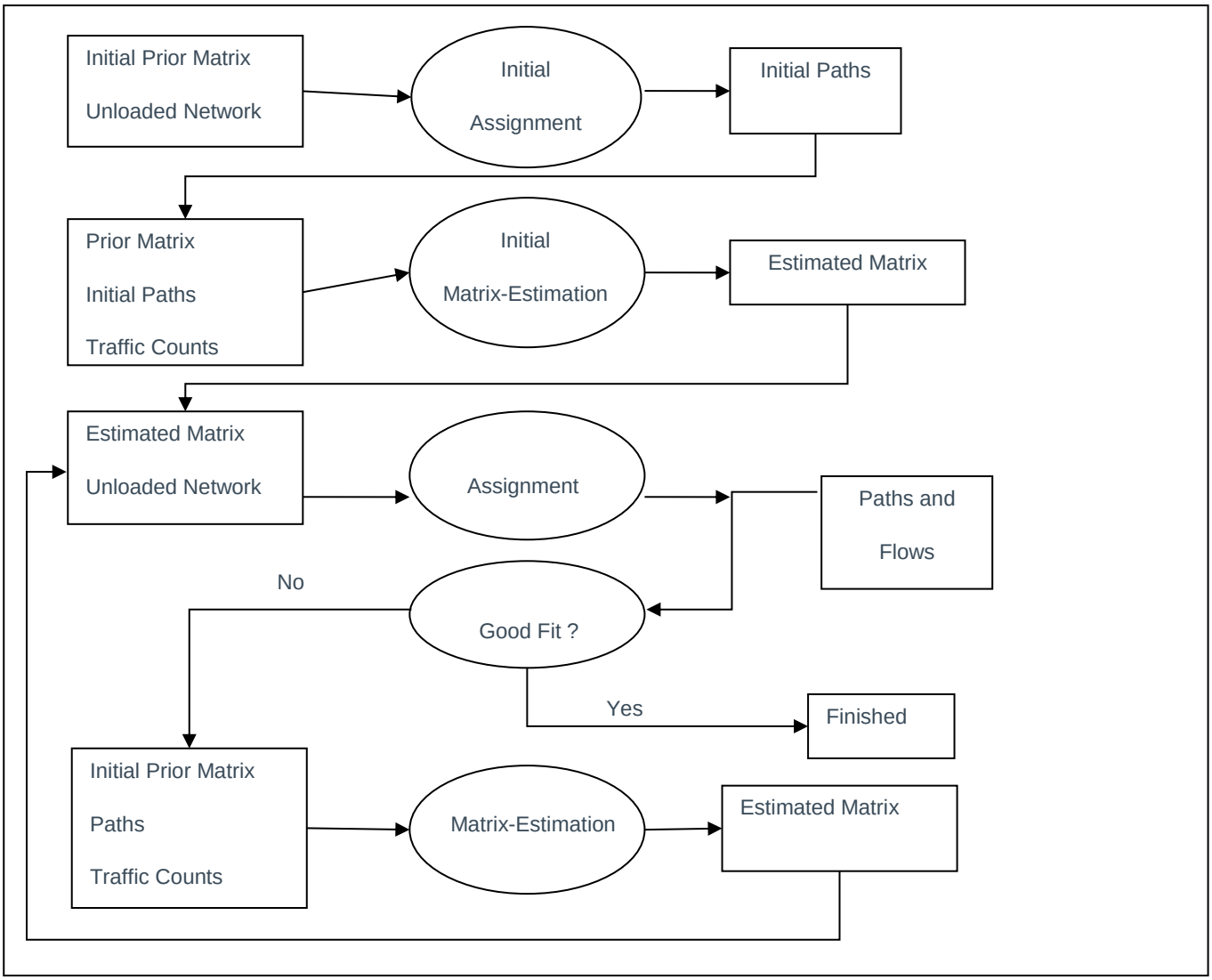
Pija is the fraction of trips from i to j using link a.

This process is dependent on several factors including the quality of the prior matrix, traffic routeing, and the order and consistency of the observed traffic counts. It is, therefore, essential that the process be monitored closely to ensure the following:

- The trip matrix is converging to a stable solution;
- Trip length distributions are reasonable; and
- Travel patterns at a sector level are reasonable.

The matrix estimation from maximum entropy (ME2) process provides a method by which an initial estimate of the trip matrix can be adjusted in order to reflect observed traffic count data. This process is accomplished within SATURN through use of the SATPIJA program, which creates a file in which each element represents the proportion (P) of the trips between a particular origin-destination pair (IJ) which uses the counted link (A). The SATME2 program then uses the PIJA file to adjust the prior matrix to create the most likely trip matrix consistent with the information contained in the count file. In undertaking this process a maximum balancing factor (XAMAX) of 2.5 has been applied. Finally the output matrix is assigned back to the model network, and is compared to the observed count to gauge the degree to which these match. This process is looped for a limited number of iterations until satisfactory model calibration is achieved. **Figure 7.1** shows the matrix estimation process as a flow chart.

Figure 7-1 Matrix Estimation Process



Matrix Estimation Convergence

The matrix estimation process used for the BCCM has been monitored to ensure that the estimate matrix converged to a stable solution. The total trips for each iteration of the process as well as total trips which either start or end from zones within the City Centre for the AM, inter-peak and PM peak models are shown in **Table 7-1** and **Table 7-2** respectively.

Table 7-1 ME Convergence Statistics Full Matrix

Iteration	AM Peak		Inter-Peak		PM Peak	
	Totals	% Change	Totals	% Change	Totals	% Change
Prior	271,521	-	250,079	-	288,221	
Post – 1	269,914	-0.59%	248,575	-0.60%	287,240	-0.34%
Post – 2	269,228	-0.25%	248,172	-0.16%	286,388	-0.30%
Post – 3	268,810	-0.16%	248,283	0.04%	286,089	-0.10%
Post – 4	268,417	-0.15%	248,432	0.06%	286,082	0.00%
Post – 5	268,644	0.08%	248,428	0.00%	286,069	0.00%
Post – 6	268,540	-0.04%	248,380	-0.02%	286,215	0.05%

Table 7-2 ME Convergence Statistics From/To Internal Zones Only

Iteration	AM Peak		Inter-Peak		PM Peak	
	Totals	% Change	Totals	% Change	Totals	% Change
Prior	22,189	-	18,797	-	21,713	-
Post – 1	22,742	2.49%	18,900	0.55%	22,448	3.39%
Post – 2	22,348	-1.73%	18,856	-0.23%	22,240	-0.93%
Post – 3	22,141	-0.93%	18,878	0.12%	22,088	-0.68%
Post – 4	21,993	-0.67%	18,960	0.43%	22,173	0.38%
Post – 5	21,862	-0.60%	18,907	-0.28%	22,220	0.21%
Post – 6	21,855	-0.03%	18,882	-0.13%	22,264	0.20%

Analysis of changes in the full matrix reveal very little change in terms of the percentage change between each iteration for all 3 time periods, with no change greater than ±0.6% and negligible change in the last 3 iterations in terms of the full matrix size. This is to be expected given the scale of the full model in comparison to the calibration of links either within the ring road or within the close vicinity within the buffer collar network. For this reason, analysis of changes for trips originating or ending with City Centre zones is also important. This shows that after 3 iterations, there is no proportional change in trips greater than 1% for any of the 3 time periods, providing confidence that the process has reached an acceptable equilibrium state.

The matrix estimation process was reviewed to establish which iteration gave the best fit of observed and modelled flows. This analysis revealed that for all modelled time periods, the sixth iteration gave the best fit. Subsequent analysis therefore is focussed on data extracted from these iterations.

Impact of matrix estimation

WebTAG guidance on developing, calibrating and validating a highway model is provided in unit M3.1. The key criteria for measuring the significance of matrix estimation changes are shown in **Table 7-3**.

Table 7-3 Significance of Matrix Estimation TAG Criteria

Measure	Significance Criteria
Matrix zonal cell values	Slope within 0.98 and 1.02 Intercept near zero R^2 in excess of 0.95
Matrix zonal trip ends	Slope within 0.99 and 1.01 Intercept near zero R^2 in excess of 0.98
Trip length distributions	Means within 5% Standard deviations within 5%
Sector Matrices	Differences within 5%

Zonal Cell Values and Trip Ends

Regression statistics (in terms of zonal cells and trip ends) for the BCCM are shown in **Table 7-4** . Scatter plots for zonal cell values and trip ends are shown in Appendix E.

Table 7-4 LTM Regression Statistics

Measure	Slope		R^2	
AM Peak				
Zonal Cell Values	0.99	✓	0.99	✓
Zone Trip Origins	0.98	×	0.99	✓
Zonal Trip Destinations	0.98	×	0.99	✓
Inter-peak				
Zonal Cell Values	0.99	✓	0.99	✓
Zonal Trip Origins	0.99	✓	0.99	✓
Zonal Trip Destinations	0.99	✓	0.99	✓
PM Peak				
Zonal Cell Values	0.99	✓	0.99	✓
Zonal Trip Origins	0.98	×	0.99	✓
Zonal Trip Destinations	0.98	×	0.99	✓

The table above demonstrates that all 3 model time periods satisfy the criteria in terms of cell values, with both the slope and R^2 statistic within the significance bounds. In terms of trip ends, all of the models satisfy the R^2 correlation statistic. The IP model satisfies the slope gradient criteria, whilst the AM and PM time periods are both very close to the threshold and therefore considered acceptable.

Trip Distribution

A comparison of the trip length distribution of the prior and post ME2 matrices for the three modelled time periods is shown in **Figure 7-2**, **Figure 7-3** and **Figure 7-4** respectively. Only Origin-Destination movements from or to City Centre zones have been considered in this analysis. The reason for this is that comparison of all movements is unlikely to reveal any significant changes in overall trip length distribution due to the size of the external network. Considering only City Centre movements provides a better understanding of the changes being applied by matrix estimation.

Figure 7-2 AM Trip Length Distribution (Internal Only)

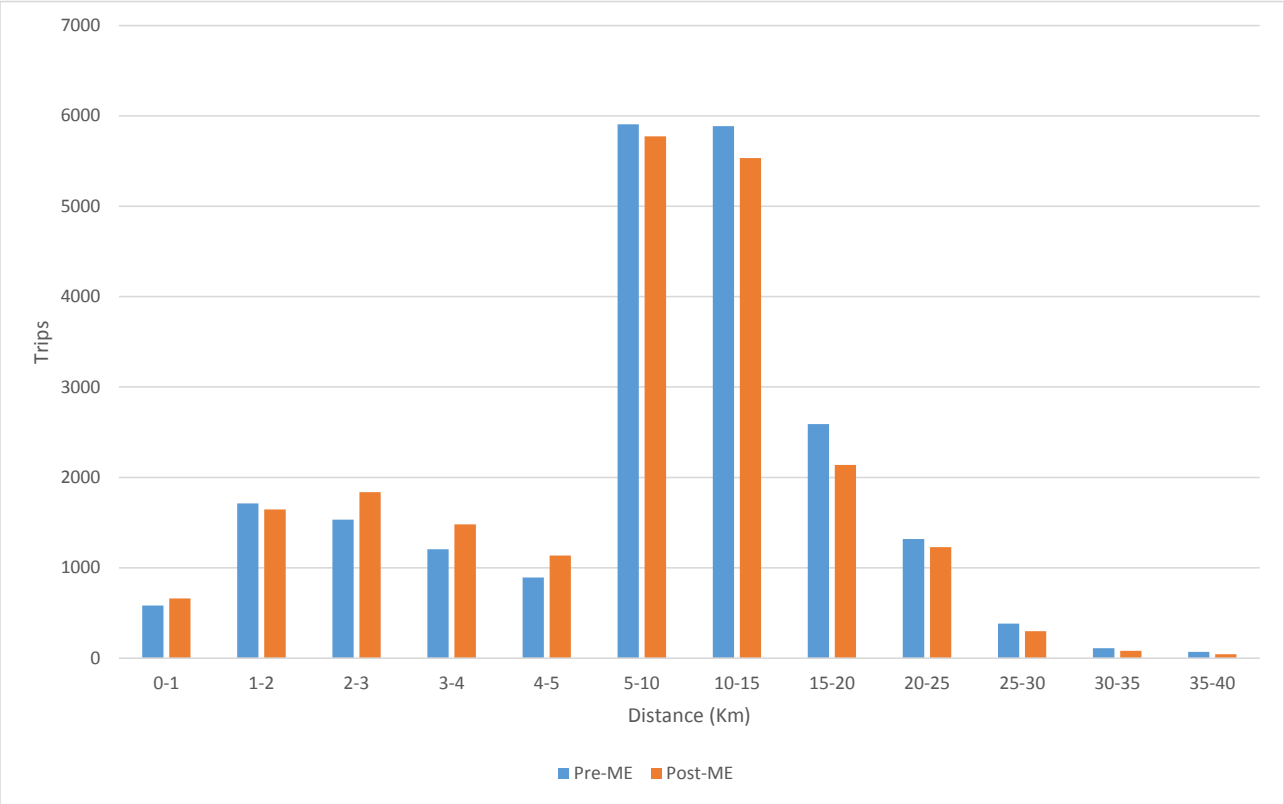


Figure 7-3 IP Trip Length Distribution (Internal Only)

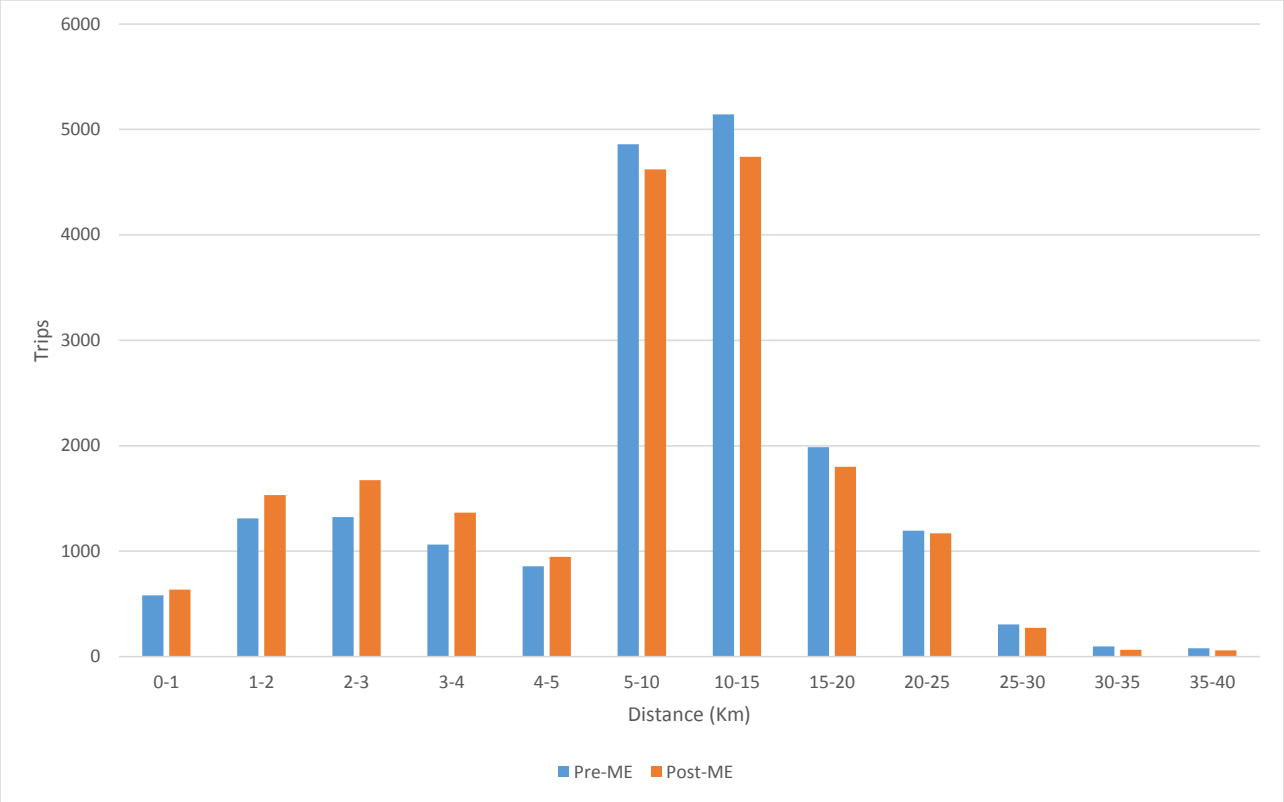
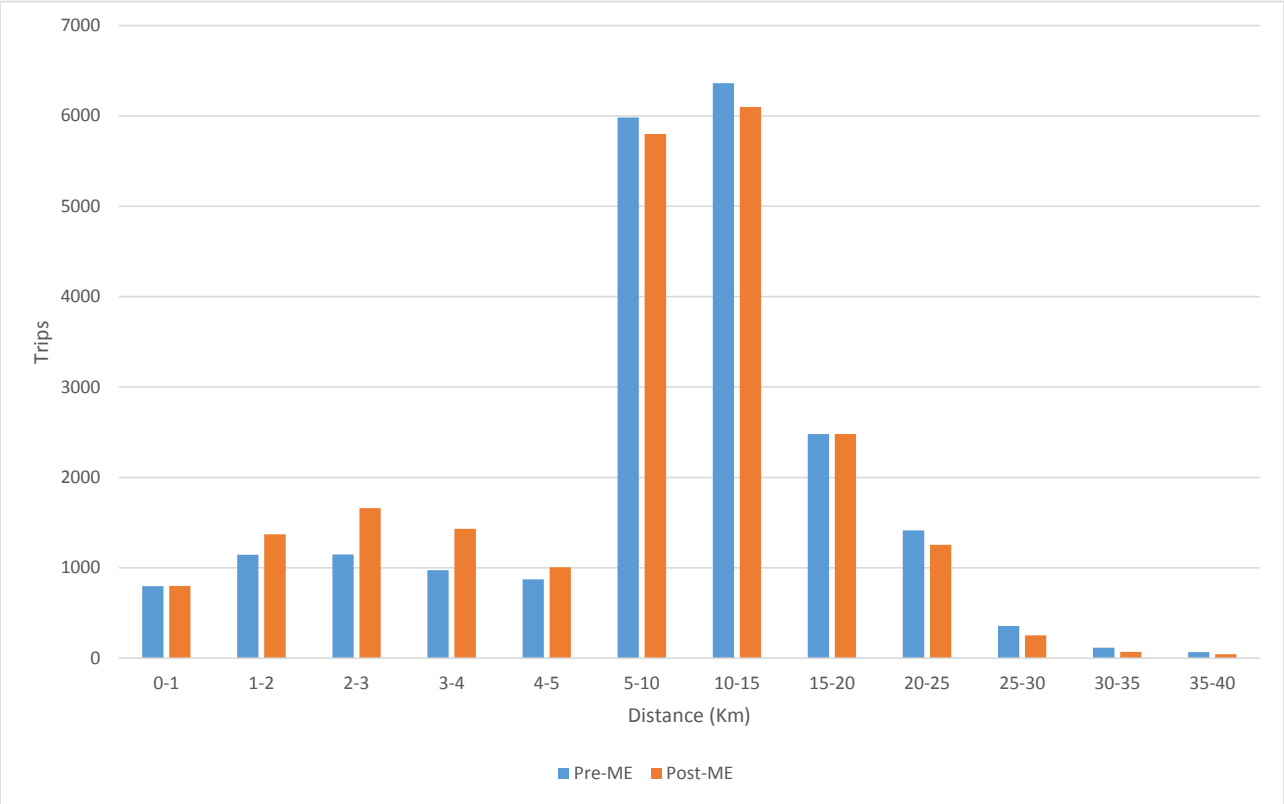


Figure 7-4 PM Trip Length Distribution (Internal Only)



All 3 graphs presented demonstrate slight increases in shorter distance trips between 2-5km and slight decreases in longer distance trips (between 5-20km). However, these changes are not deemed to be overly significant, with the general trend in trip length distribution being maintained for all 3 models.

Average trip length comparisons for both the full matrix and for trips to/from the City Centre are shown in **Table 7-5.**

Table 7-5 Average Trip Length Comparison

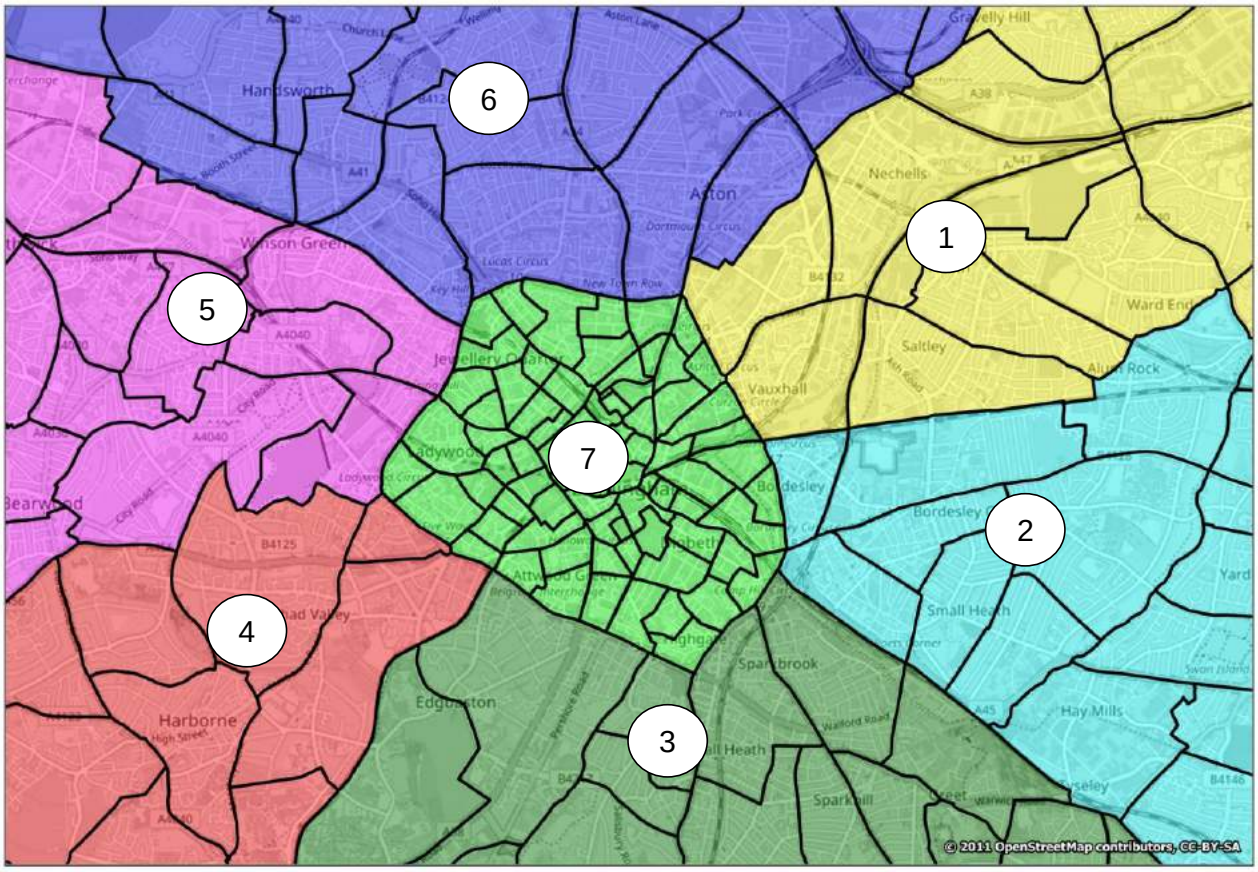
Time Period	Matrix	Full Matrix Average Trip Length (km)	ME % Change	City Centre Average Trip Length (km)	ME % Change
AM Peak	Prior	10.4	-0.9%	10.3	-7.3%
	Post	10.3		9.5	
Inter-peak	Prior	9.6	0.9%	10.1	-6.9%
	Post	9.5		9.5	
PM Peak	Prior	9.8	-1.2%	10.5	-6.9%
	Post	9.7		9.7	

Guidance within TAG M3.1 states that changes in average trip length distribution should be no greater than ±5%. Across the full matrix, all time periods show changes within ±1%, demonstrating the criteria has been met. Changes for trips which originate or terminate within the A4540 are also close to this threshold, with a change of circa -7% in all time periods. It should also be noted that as the BCCM uses cordon outputs from PRISM, the full trip lengths for trips which travel to/from areas outside of the model are not accounted for which distorts the impact of matrix estimation on average trip length. This provides further confidence that matrix estimation has not had an overly significant impact on trip lengths.

Sector Analysis

For the purposes of sector analysis, the model zoning system has been grouped as shown in **Figure 7-5**, with a sector representing zones within the A4540 Ring Road and 6 external sectors representing movements to/from the north, west, south and east of the City Centre via different model areas.

Figure 7-5 Sector Comparison Diagram



A comparison of the percentage changes in trip levels between sectors is shown in **Table 7-6**, **Table 7-7** and **Table 7-8** for the AM peak, inter-peak and PM peak models respectively. Full comparison statistics are presented in Appendix F.

Table 7-6 AM Peak Pre-ME vs. Post-ME Sector Analysis % Change

Sector	1	2	3	4	5	6	7	Total
1	-2%	-1%	4%	-3%	-21%	-2%	-17%	**3%**
2	-5%	-3%	1%	-7%	-11%	-1%	6%	**2%**
3	-5%	-2%	-1%	-5%	9%	-1%	-5%	**2%**
4	-5%	-11%	-6%	-1%	-1%	8%	2%	**2%**
5	-26%	4%	-1%	2%	1%	4%	-23%	**2%**
6	1%	1%	6%	9%	-4%	0%	6%	**-1%**
7	-10%	-10%	7%	10%	-27%	8%	17%	**-5%**
Total	**4%**	**2%**	**1%**	**1%**	**2%**	**-1%**	**1%**	

Table 7-7 Inter-peak Pre-ME vs. Post-ME Sector Analysis % Change

Sector	1	2	3	4	5	6	7	Total
1	-2%	-1%	4%	-3%	-21%	-2%	-17%	**3%**
2	-5%	-3%	1%	-7%	-11%	-1%	6%	**2%**
3	-5%	-2%	-1%	-5%	9%	-1%	-5%	**2%**
4	-5%	-11%	-6%	-1%	-1%	8%	2%	**2%**
5	-26%	4%	-1%	2%	1%	4%	-23%	**2%**
6	1%	1%	6%	9%	-4%	0%	6%	**-1%**
7	-10%	-10%	7%	10%	-27%	8%	17%	**-5%**
Total	**4%**	**2%**	**1%**	**1%**	**2%**	**-1%**	**1%**	

Table 7-8 PM Peak Pre-ME vs. Post-ME Sector Analysis % Change

Sector	1	2	3	4	5	6	7	Total
1	-1%	-2%	2%	-6%	-14%	1%	7%	**1%**
2	-5%	-3%	-3%	6%	-4%	-6%	5%	**3%**
3	1%	0%	-1%	-1%	0%	-4%	-8%	**1%**
4	-14%	3%	-6%	-1%	6%	2%	-7%	**2%**
5	-10%	8%	-4%	1%	1%	1%	-14%	**0%**
6	4%	-2%	-10%	-1%	0%	1%	15%	**-1%**
7	4%	13%	-4%	-12%	-20%	12%	14%	**-3%**
Total	**2%**	**1%**	**2%**	**1%**	**0%**	**-1%**	**-4%**	

Analysis shows that the total change in origins and destinations across all sectors for each time period are within ±5%, including within the City Centre (sector 7). Therefore, whilst some sector-to-sector changes exceed the 5% threshold, generally total sector changes are relatively minor. The biggest changes in individual sector to sector movements are observed across the City Centre as would be expected given the focus of the calibration process on this area. However, the largest percentage changes tend to affect movements with relatively low levels of trips – for example between the City Centre and sector 5 which only represents circa 5% of trips leaving and entering the City Centre in the post-ME assignment.

7.3. Model Convergence

Guidance requirements for in terms of model convergence are detailed in Chapter 6 (see **Table 6-3**).

A summary of the model convergence statistics are presented in **Table 7-9**. Full statistics are presented in Appendix G.

Table 7-9 Summary of BCCM Model Convergence

Time Period	Assignment Iterations	Delta	% Flow	% Gap
AM Peak	28	0.0027	98.4	0.0065
	29	0.0029	98.9	0.0084
	30	0.0038	98.8	0.0056
	31	0.0026	98.6	0.0087
	32	0.0027	98.5	0.0073
Inter-peak	15	0.0028	97.8	0.0056
	16	0.0021	98.9	0.0037
	17	0.0028	98.4	0.0021
	18	0.0018	98.8	0.0036
	19	0.0019	98.9	0.0020
PM Peak	32	0.0014	98.5	0.0050
	33	0.0014	98.5	0.0025
	34	0.0015	99.2	0.0047
	35	0.0021	98.7	0.0037
	36	0.0014	99.0	0.010

Table 7-9 demonstrates that all 3 base model assignments reach acceptable convergence levels, with flow changes of less than 1% for 4 consecutive iterations. Comparison of the extended convergence statistics in the appendices provides more practical interpretation of model convergence. The most notable of these is that there is negligible change in the number of vehicle hours and kilometres travelled in all 3 time periods for the penultimate and final assignment iterations.

8. Model Validation

Model validation is a comparison of model output data with observed data to assess the accuracy of the calibrated model and establish its suitability as a basis from which to prepare forecasts. There are guidelines set by TAG Unit M3.1 specifying the criteria that determine whether the calibrated model is considered to be a valid representation of reality or not. A summary of these guidelines has been provided in Chapter 6 of this report (see **Table 6-2**).

Validation of the BCCM has involved the following aspects:

- Link flow (including calibration counts and validation counts separately) and screenline validation;
- Journey time validation;
- Network Validation in terms of routeing based on comparison with an ANPR survey and origin-destination route checks; and
- Checks on car park utilisation vs. available capacity.

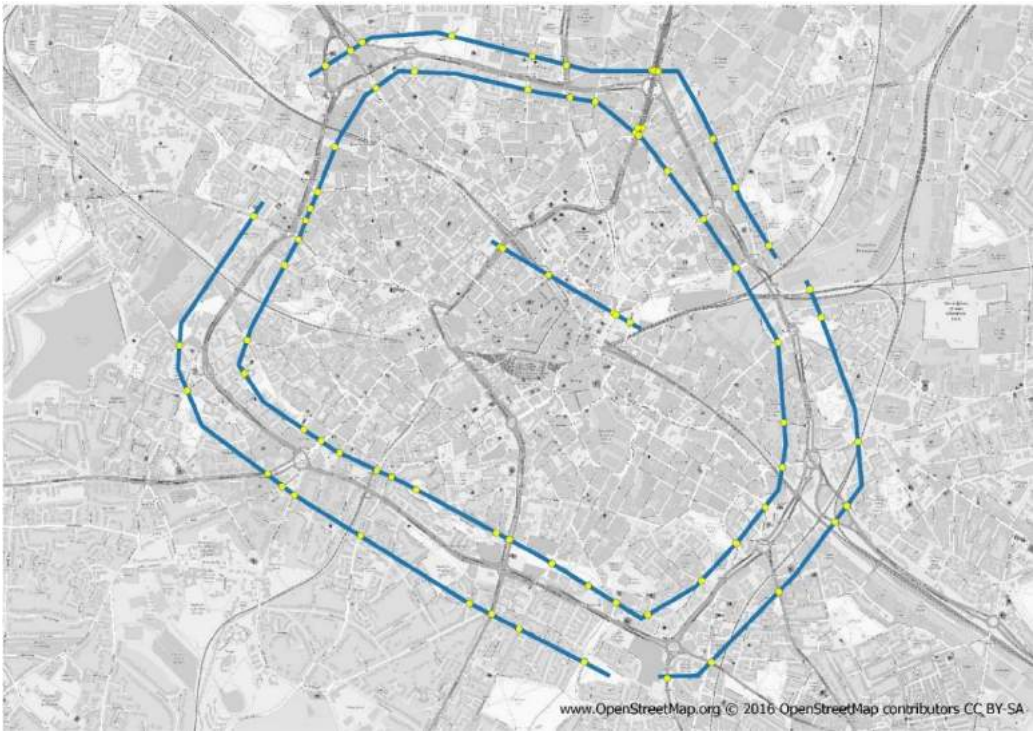
8.1. Screenline Validation

Five screenlines were selected for the validation of the model and are shown in **Figure 8-1**. These are as follows:

1. Outer North
2. Outer East
3. Outer South-West
4. Inner Ring Road Cordon
5. Inner Crossing

The first 3 screenlines encircle the outside of the A4540 Ring Road, monitoring the level of traffic using the Ring Road from the various radial routes. The inner ring road cordon, composed primarily of the biennial cordon survey sites was then used to ensure the correct amount of traffic was accessing and leaving the City Centre itself (as opposed to navigating around the ring road). Finally, the inner crossing screenline was used to ensure the right amount of traffic was then moving through the key corridors (including the A38 Queensway, Colmore Row, Moor Street and Park Street) within the City Centre both the north and south.

Figure 8-1 BCCM Model Screenlines



As detailed in Chapter 6, guidance requires that all or nearly all of model screenline flows are within ±5% of observed flows.

Table 8-1 shows the prior matrix validation for the five screenlines in terms of total vehicles for all three time periods both inbound/outbound or northbound/southbound. **Table 8-2** then shows the validation of the screenlines for total vehicles post matrix estimation.

Table 8-1 Prior Matrix Screenline Validation (Total Vehicles)

Screenlines	Dir	AM Peak			Inter Peak			PM Peak		
		Obs	Mod	% Diff	Obs	Mod	% Diff	Obs	Mod	% Diff
Outer North	In	11,388	11,428	0.4%	8,063	8,319	3.2%	7,962	8,064	1.3%
Outer North	Out	7,149	7,355	2.9%	7,812	8,042	2.9%	10,245	10,535	2.8%
Outer East	In	6,038	5,506	-8.8%	4,680	4,979	6.4%	4,223	4,250	0.6%
Outer East	Out	4,248	4,193	-1.3%	4,536	4,761	5.0%	4,663	4,777	2.4%
Outer South West	In	7,135	7,251	1.6%	5,569	5,101	-8.4%	6,063	5,432	-10.4%
Outer South West	Out	5,317	4,772	-10.2%	5,339	4,896	-8.3%	6,625	6,740	1.7%
Ring Road Cordon	In	18,366	17,631	-4.0%	11,771	11,888	1.0%	11,325	11,216	-1.0%
Ring Road Cordon	Out	10,403	9,599	-7.7%	11,231	11,162	-0.6%	14,675	15,137	3.2%
Internal North	NB	3,923	3,595	-8.4%	3,334	3,071	-7.9%	3,389	3,762	11.0%
Internal North	SB	4,682	4,643	-0.8%	4,077	3,511	-13.9%	4,345	3,921	-9.7%
5% Pass Rate		**60%**			**50%**			**70%**		

Table 8-1 demonstrates that the prior model assignments achieve close to the observed level of traffic across each of the screenlines following adjustments made as described in Chapter 5. At least half of the screenlines are within ±5% of observed flows for each time period. All outer screenlines are within approximately 10% of observed flows. For the Ring Road cordon, for the inter-peak and PM peak, both the inbound and outbound flows are very similar to observed flows, whilst in the AM peak, the inbound flows (which as expected represents the majority of flow across the cordon in this time period) are within 4% of the observed flows. This demonstrates that the prior assignments provide a suitable starting point prior to the application of matrix estimation in order to refine the accuracy of the model.

Table 8-2 Post-ME Screenline Validation (Total Vehicles)

Screenlines	Dir	AM Peak			Inter Peak			PM Peak		
		Obs	Mod	% Diff	Obs	Mod	% Diff	Obs	Mod	% Diff
Outer North	In	11,388	10,885	-4.4%	8,063	7,909	-1.9%	7,962	7,756	-2.6%
Outer North	Out	7,149	6,950	-2.8%	7,812	7,559	-3.2%	10,245	10,271	0.2%
Outer East	In	6,038	5,935	-1.7%	4,680	4,758	1.7%	4,223	4,528	7.2%
Outer East	Out	4,248	4,222	-0.6%	4,536	4,507	-0.6%	4,663	4,826	3.5%
Outer South West	In	7,135	7,161	0.4%	5,544	5,276	-4.8%	6,063	5,578	-8.0%

Screenlines	Dir	AM Peak			Inter Peak			PM Peak		
		Obs	Mod	% Diff	Obs	Mod	% Diff	Obs	Mod	% Diff
Outer South West	Out	5,317	5,200	-2.2%	5,339	5,158	-3.4%	6,625	6,480	-2.2%
Ring Road Cordon	In	18,366	17,584	-4.3%	11,771	11,644	-1.1%	11,325	11,309	-0.1%
Ring Road Cordon	Out	10,403	9,902	-4.8%	11,231	11,278	0.4%	14,675	15,071	2.7%
Internal North	NB	3,923	3,754	-4.3%	3,334	3,015	-9.6%	3,389	3,366	-0.7%
Internal North	SB	4,646	4,414	-5.0%	4,077	4,136	1.4%	4,345	4,205	-3.2%
5% Pass Rate		**100%**			90%			80%		

The post-matrix estimation assignments show a strong level of screenline validation. For the AM peak, all screenlines are within the ±5% criteria whilst for the inter-peak, only the internal north screenline does not fall within the criteria (although the difference between observed and model flow is only circa 300 vehicles). For the PM peak, 8 out of 10 screenlines fall within the criteria whilst combining the adjacent Outer East inbound screenline with the Outer South West inbound screenline would match very closely with the sum of the observed flows.

8.2. Link Flow Calibration and Validation

A summary of the flow validation for all 3 modelled time periods against the link validation criteria detailed in Chapter 6 of this report is presented in **Table 8-3**. This presents both counts used to inform matrix estimation as part of the calibration process as well as independent counts used for model validation. Results are presented for both total vehicles and light vehicles (rather than cars due to potential ambiguity in vehicle classification from automated traffic counts). Detailed link-by-link results for total vehicles are displayed in Appendix H and Appendix I for calibration and validation counts respectively.

Table 8-3 Overall Link Flow Calibration and Validation Results

Time Period	Cal/Val	No. of Counts	Total Veh Pass Rate	Light Veh Pass Rate
AM Peak	Calibration	290	85%	84%
	Validation	50	86%	90%
	Total	**340**	**85%**	**85%**
Inter-peak	Calibration	282	84%	84%
	Validation	50	96%	96%
	Total	**340**	**86%**	**86%**
PM Peak	Calibration	290	84%	84%
	Validation	50	86%	86%
	Total	**340**	**84%**	**85%**

All 3 model time periods show a good overall level of link validation for total vehicles with total pass rates of 85%, 86% and 84% for the AM peak, inter-peak and PM peak respectively. The pass rates for light vehicles are very similar, satisfying the thresholds in the TAG criteria for all 3 time periods.

Figures 8-2 to 8-4 show the locations of all calibration and validation links which either pass or fail the TAG criteria for each time period respectively.

Figure 8-2 Plot of AM Peak Period Link Calibration/Validation

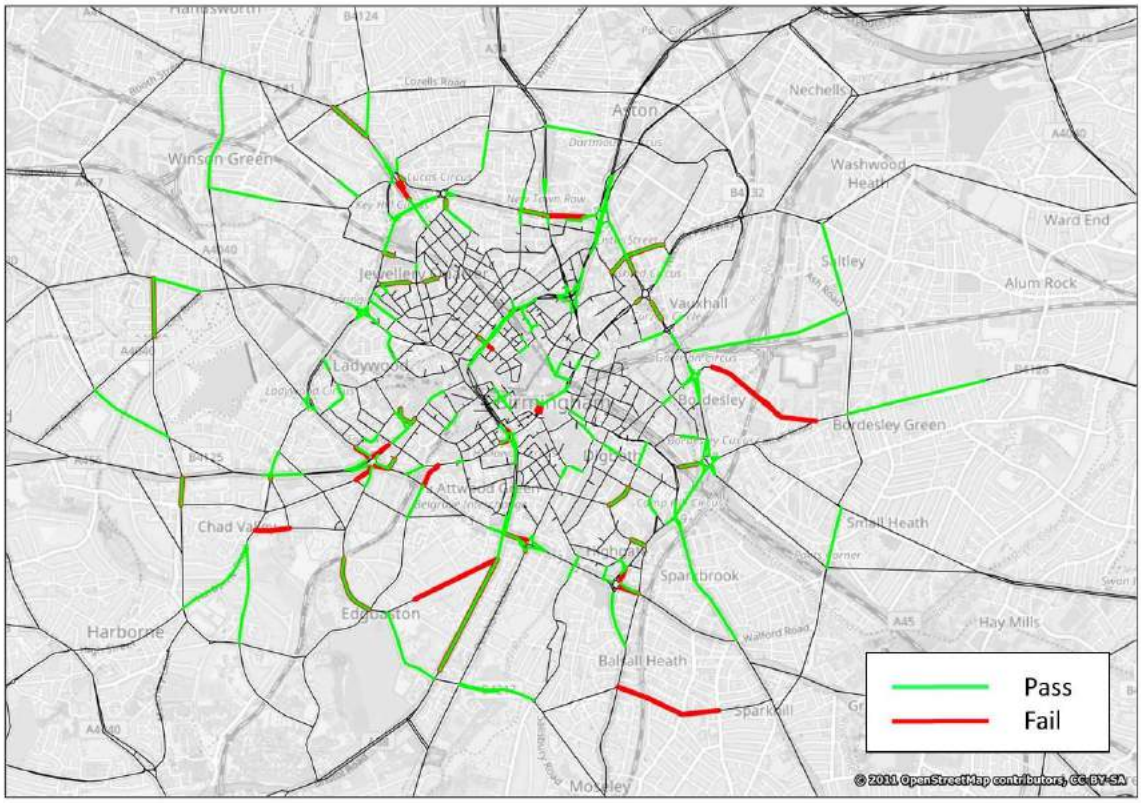
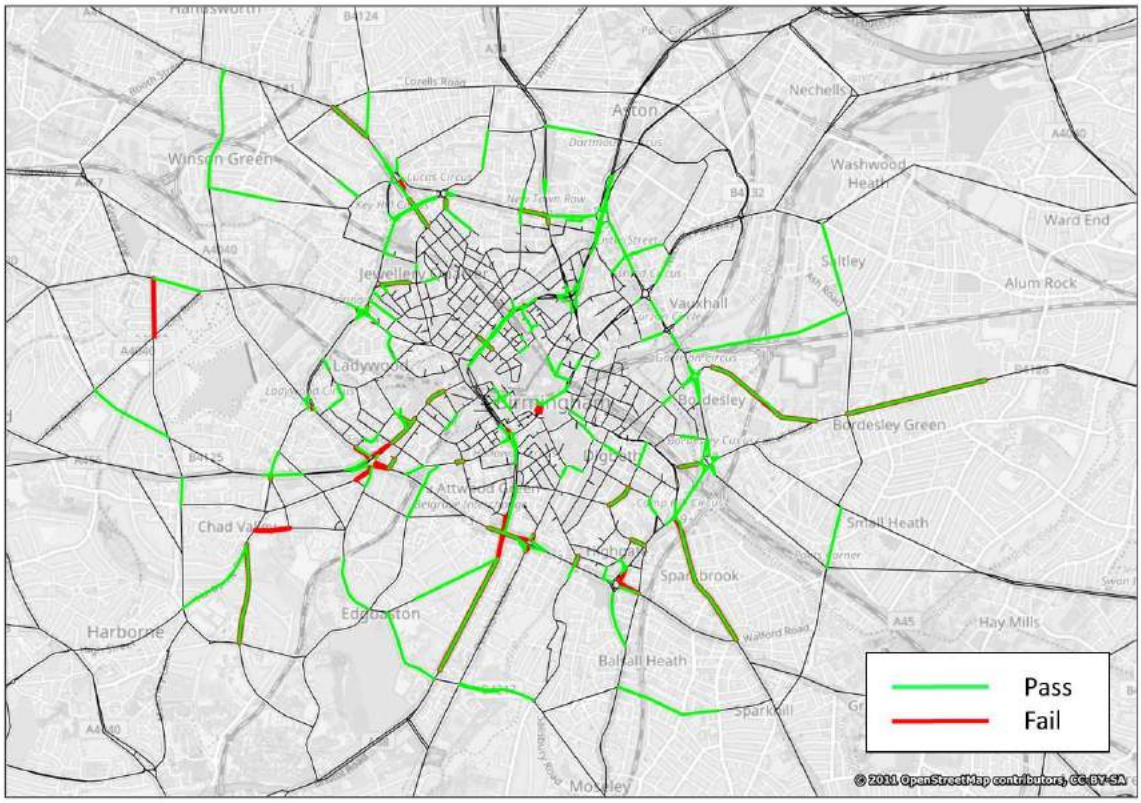


Figure 8-3 Plot of Inter-peak Period Link Calibration/Validation



Figure 8-4 Plot of PM Peak Period Link Calibration/Validation



Key Areas

Whilst a good level of validation is shown across the study area, it is important to ensure that key areas of the model within the City Centre likely to be the focus of future infrastructure changes are accurately modelled. Therefore, the link validation levels in the following areas have been analysed individually:

1. Moor Street/Curzon Street
2. Colmore Row and St. Chads Queensway
3. Broad Street
4. Bath Row/New Street Station Corridor via Holloway Circus

A summary of the total vehicle link validation levels in these areas is provided in **Table 8-4**. A breakdown of the Individual validation results for each area is provided in Appendix J.

Table 8-4 Key Area Link Validation

Area	AM Peak		Inter-peak		PM Peak	
	No. Counts	Pass Rate	No. Counts	Pass Rate	No. Counts	Pass Rate
Moor St./Curzon St.	13	92%	13	92%	13	100%
Colmore Row/St. Chads	22	85%	22	92%	22	85%
Broad Street	14	86%	14	86%	14	93%
Bath Row/New Street	18	93%	18	86%	18	86%

Analysis reveals that all 4 areas of the model generally perform well, with all pass rates at or above an 85% threshold. This provides added confidence regarding the robustness of the model and its future usage.

Key junctions

In addition to analysing individual links, flows have been analysed at 17 key junctions on the A4540 Ring Road to ensure the correct volumes and proportions of traffic are entering and leaving the junction from the respective approach and exits. This analysis has been presented in Appendix K. It has not been possible to analyse all individual turning movements as the majority of junctions are now "exploded", consisting of several nodes which would require a large number of select link analyses to be undertaken. However, key movements have been reviewed as part of the calibration and validation process.

The analysis demonstrates that approach and exit modelled proportions all closely match with the observed proportions with no difference in proportion greater than ±10% and the majority of differences within ±5% for all time periods. This provides added confidence that the model is replicating movements around these key junctions in a realistic manner.

8.3. Journey time validation

Journey time validation was undertaken to ensure that travel times and delays along links and at junctions across the study area are accurately represented in the model. The validation was based on a comparison of modelled and observed journey times along the 10 survey routes (in both directions) described in Chapter 3. As explained previously, the modelled journey times have been compared against the median journey times for each route rather than the average mean for the route due to the significant variation in journey times within the City Centre – with disruptions significantly skewing the average away from typical day-to-day conditions.

A summary of the journey time validation for each time period is presented in **Table 8-5.** A comparison of observed and modelled travel times have been plotted with intermediate survey timing points included for each route and are shown in Appendix L.

Table 8-5 Journey Time Validation

Route	Dir	AM Journey Time (secs)			IP Journey Time (secs)			PM Journey Time (secs)		
		Model	Route Median	% Diff	Model	Route Median	% Diff	Model	Route Median	% Diff
Route 1	ACW	815	771	5.7%	673	666	1.0%	715	796	-10.2%
Route 1	CW	802	907	-11.6%	728	819	-11.1%	890	1018	-12.6%
Route 2	CW	598	596	0.4%	607	567	7.1%	584	659	-11.3%
Route 2	ACW	512	567	-9.6%	548	552	-0.8%	521	606	-14.1%
Route 3	SB	390	387	0.8%	355	324	9.7%	366	521	-29.7%
Route 3	NB	384	361	6.2%	331	341	-2.8%	372	529	-29.7%
Route 4	SB	668	698	-4.3%	658	647	1.7%	661	766	-13.7%
Route 4	NB	768	871	-11.8%	724	850	-14.8%	763	990	-22.9%
Route 5	EB	285	333	-14.5%	260	265	-1.9%	259	316	-18.0%
Route 5	WB	234	275	-14.8%	257	275	-6.5%	285	431	-33.9%
Route 6	SB	251	291	-13.8%	234	250	-6.5%	249	299	-16.7%
Route 6	NB	192	212	-9.6%	194	205	-5.4%	197	235	-16.3%
Route 7	EB	116	128	-9.4%	100	91	9.7%	107	132	-18.9%
Route 7	WB	117	105	11.2%	114	104	9.6%	143	172	-17.0%
Route 8	SB	383	396	-3.2%	376	334	12.5%	370	342	8.3%
Route 8	NB	297	279	6.3%	296	299	-0.9%	301	316	-4.6%
Route 9	SB	224	218	2.9%	223	231	-3.4%	227	419	-45.8%
Route 9	NB	277	231	19.8%	258	202	28.0%	254	216	17.7%

Route	Dir	AM Journey Time (secs)			IP Journey Time (secs)			PM Journey Time (secs)		
		Model	Route Median	% Diff	Model	Route Median	% Diff	Model	Route Median	% Diff
Route 10	NB	180	181	-0.4%	177	193	-8.5%	184	203	-9.5%
Route 10	SB	148	151	-2.2%	145	121	20.3%	149	175	-14.9%
Proportion within ±15% (or within ± 1 minute)		100%			100%			75%		

Acceptability criteria states that modelled journey times over the whole survey route should be within ±15% of observed times (or ± one minute if higher) on 85 per cent of routes.

Table 8-5 demonstrates that both in the AM peak period and the Inter-peak period that all of the routes meet the above criteria. Further analysis shown in the appendices also demonstrates a good correlation between the various timing points.

For the PM peak, 75% of the routes meet the acceptability criteria. It is noted however, that whilst the routes which pass the criteria generally have a good correlation with the observed data, the modelled journey times are generally faster than observed. The 5 routes which do not pass the acceptability criteria (highlighted above) show observed journey times which far exceed the observed journey times for the other modelled time periods. This is reflective of the flow breakdown which occurs during the height of the PM peak period – with all 5 routes which fail carrying traffic out of the City Centre. It is also not possible to model the effect of potential outbound queues from the buffer network area of the model which extend back into the City Centre onto the routes concerned.

Table 8-6 presents analysis of the observed PM peak journey times for the routes which do not meet the acceptability criteria, comparing the weighted median journey time for the whole peak with the weighted median journey time with the peak hour (16:30 to 17:30) excluded. The modelled journey time is then compared with the alternative observed journey time (peak hour excluded) in terms of the acceptability criteria.

Table 8-6 PM Peak Alternative Journey Time Comparison

Route	Whole Period (secs)	Pk Hr Excluded (secs)	% Var	Model (secs)	Mod vs. Peak Excluded	Pass/Fail
3 SB - A38 Queensway	521	380	37%	366	-4%	✓
3 NB – A38 Queensway	529	374	41%	372	-1%	✓
4 NB – Camp Hill to Newtown Row	990	690	43%	763	11%	✓
5 WB – Broad Stree to Hagley Road	431	334	29%	285	-15%	✓
9 SB – Pershore St to Edbaston St.	406	287	41%	227	-21%	✓

Comparison of the observed journey times reveals the stark difference in journey time between the peak hour and the rest of the period, with between 29% and 43% variation in journey times on the 5 routes. Comparison of the modelled journey times against the alternative reveals that all of the routes actually pass against this criteria – although Route 5 westbound and Route 9 are still comparatively faster. This suggests therefore that the PM peak model provides a good representation of typical journey times for the average level of flow across the PM peak period.

8.4. Routeing Validation

To validate the routeing arrangements within the model, two forms of comparison have been adopted:

1. Comparison of trip patterns from select link analyse with results of the ANPR survey undertaken by BCC (detailed in Chapter 3).
2. Isolated analysis of model routes between selected origins and destinations – which focus on important strategic movements and key areas of the model.

ANPR Comparison

Results of the November 2016 ANPR survey have been compared with corresponding links within the model. This has been done for both a cordon inside the Ring Road and key internal areas along Moor Street Queensway and Great Charles Street Queensway. The exact locations of the cameras are detailed in Chapter 3 (section 3.7) shown in **Figure 3-5** as well as in Appendix M. Detailed results of the comparisons made are also shown in Appendix M.

Ring Road Cordon Analysis

On links where high volumes of traffic are seen, such as the A38 Aston Expressway (Camera 1), both the tables for from and to the link in question are seen to have very similar patterns for routeing. In general links that do not follow similar patterns are those with lower volumes of traffic and so are much more difficult to match, such as trips travelling to A47 Jennens Road (Camera 3) in the AM Peak period where the model has no trips travelling from another point on the cordon to this location. There are some cases where the ANPR survey has identified trips travelling in and back out of the city centre from the same location. The model would see this in practice as two separate trips and so will not replicate the ANPR results. An example of this would be at Camera 10 on the B4100 south of Key Hill where 40% of the trips to the location have been identified as coming from the same location.

Key Link Analysis

The tables illustrating routeing proportions for key links within the city show that the model matches the pattern of trips well particularly for those trips identified at Great Charles Street Queensway. Trips heading north on Moor Street Queensway are seen to closely match.

Considering both sets of results together it is considered that there is enough evidence to suggest that the model shows a good level of correlation with the ANPR survey and we can be confident from this that the routeing in the model is accurate and will be suitable in forecasting.

Origin-Destination Analysis

The validity of route choice was also checked in the model by examining modelled routes between selected origins and destinations which focus on important strategic movements or key areas in the model. These include routeing between:

1. A38 Aston Expressway to/from University of Birmingham
2. Alcester Road to A38 Aston Expressway
3. Great Hampton Street to Bristol Road
4. Hagley Road to/from Solihull
5. Smethwick to/from Star City
6. Pershore Road to Jewellery Quarter
7. Newtown Row to Birmingham Children's Hospital
8. Aston University to Highgate Park

Plots showing the routes between the above origin-destinations in the AM and PM Peaks are shown in Appendix N.

A38 Aston Expressway to/from University of Birmingham

The route represents the key movement between the A38 north of the city centre and out towards the University along Bristol Road. In line with expectations 100% of trips choose the route along the Queensway through the tunnels in both directions across both the AM and PM peak periods.

Alcester Road to A38 Aston Expressway

The route represents the key movement from the south of the city centre to the A38 Aston Expressway. In the AM peak period trips are shown to choose to route using the ring road to Dartmouth Circus, whereas in the PM peak period the route chosen is through the city along the Bristol Road and along the Queensway. There is little difference in journey times for the two routes and so both are considered to be valid.

Great Hampton Street to Bristol Road

This route examines trips travelling from Great Hampton Street in the north of the city centre towards the west of the city centre. In both peak periods journeys can be seen to travel along Great Hampton Street towards the Queensway and then following that to Bristol Road.

Hagley Road to/from Solihull

This route shows how trips using the major road coming in from the west of the city centre to the south of the city towards areas such as Solihull travel in towards the ring road and then leave the ring road at the appropriate point. This as opposed to using alternative routes which we would not expect to see using a more direct route away from the city centre. The same is also true in reverse.

Smethwick to/from Star City

The movement between the two areas show how trips make their way in towards the ring road, travel along the ring road and then make their way out to the respective areas. This in line with what would be expected. In the AM peak period, 46% of traffic uses an alternative route away from the ring road when travelling to Smethwick, due to the small differences between journey times for these two routes this is not unexpected.

Pershore Road to Jewellery Quarter

The route shows a key movement between from a radial route to the south-west of the city centre to an area within the north of the city centre. As expected trips travel in on Pershore Road, taking the ring road to Bristol Street before travelling along the Queensway, taking the exit at the B4100 towards the Jewellery Quarter.

Newtown Row to Birmingham Children's Hospital

This a key route from the north of the city into a significant location within the city centre. The plots in the Appendix show that in both time periods 100% of trips take the route that is in line with online journey planners taking the exit at Whittall Street and following the one way system to the major car park.

Aston University to Highgate Park

The movement is important to show trips using Park Street as a route choice as opposed to Moor Street Queensway as would be in line with what would be expected. This is seen to be true for both the AM and PM peak periods.

8.5. Car Park Capacity Checks

In addition to validating the model against TAG criteria, additional sense checking has also been undertaken in order to verify that zone origin and destination totals post-ME are suitable for the available parking capacity within the respective zone. This has been conducted for the car commuter and other user class (UC2) which represent the majority of trips likely to use public car parks in reality. These comparisons are shown in Appendix O.

Comparisons show that in general, sensible levels of trips are observed entering and leaving zones. The highest concentration of trips are generally seen to be using zones with a high number of spaces available but fill and exit rates are generally a fraction of the total number of spaces available as would be expected based on comparisons with occupancy rates. For zones with smaller numbers of public car park spaces available, some fill or exit rates are seen to be slightly in excess of available capacity. However, this can be accounted for given the availability of additional on-street facilities whilst these zones also still have lower numbers of trips compared to car park facilities.

9. Conclusion

This report has detailed the re-development of the Birmingham City Centre Model (BCCM) base model to represent a September 2016 base year. This has involved expanding the geographic coverage of the model in order to provide an understanding how changes within the City Centre will impact on the wider reassignment of traffic on routes outside of the Ring Road. The expanded network has been created by combining the existing BCCM network with the West Midlands Regional Traffic Model and then updating the coding to reflect the changes to network infrastructure which have occurred since the original model was developed.

Separate models have been developed to represent AM peak period (0730-0930), an average inter-peak hour (0930-1530) and PM peak period (1530-1900) traffic conditions. These time periods are consistent with those adopted for the PRISM model which has been used to provide initial prior matrices to inform demand.

2016 prior matrices were produced by adjusting the 2011 PRISM cordon matrices to take account of observed changes in traffic volumes before using the existing BCCM car park model and updated car park information to reflect the distribution of trips to car park sites within the City Centre. Matrix estimation was employed to refine the assignment, adjusting the prior trip matrices to observed traffic counts within the study area. This process was closely monitored to ensure that realistic trip matrices were created. The output matrices were analysed for changes in trip totals and all changes were concluded as being acceptable. Trip length was analysed, which demonstrated that the matrix estimation process had a small but acceptable impact on trip length in the model matrices. The model convergence achieves all of the required DMRB criteria.

The indicators of model performance set out within the report demonstrate that the models robustly represent base year 2016 (September) AM peak, inter-peak and PM peak hour traffic levels and patterns within the City Centre and surrounding areas. Flow validation was undertaken on an individual link basis as well as on a screenline basis. The model demonstrates a good level of link flow calibration and validation with circa 85% of counts satisfying the criteria in all three time periods. Additionally, the majority of screenlines fall within the ±5% threshold required in TAG criteria for all 3 time periods, which provides confidence that the overall level of demand across the core study area is accurately represented in each of the respective models.

Comparison of model journey times with observed data for key routes within the simulation area of the model demonstrates that the BCCM achieves excellent validation results for both the AM peak period and inter-peak period, with all routes satisfying the TAG criteria in both directions. For the PM peak, whilst 75% of routes satisfy the criteria, journey times are generally quicker than the overall weighted average due to the significant variation of journey times across the PM peak period – with a clear spike observed between 1630 and 1730. Routes which do not satisfy the criteria for observed journey times during the overall period, do satisfy the criteria if this hour is excluded from the sample, suggesting the model achieves a good level of validation for the level of flow in the assignment which represents an average of the PM peak period.

The validity of route choice in the models was first checked through comparison against an ANPR survey undertaken in November 2015. This reveals that for key movements with high flows within the City Centre and across the Ring Road, the model generally matches well against the observed data, allowing for distortions in trip proportions caused by return trips within the ANPR survey which would in effect be modelled as two separate trips within the models. Routeing checks have also been performed for a selection of routes within the study area. Route choices were found to be both logical and consistent with expectations.

It is the conclusion of this report, therefore, that the BCCM base year models yield a good representation of current traffic patterns in Birmingham City Centre. The models are deemed to form a robust basis upon which future year forecasts can be developed, and in particular, to provide an evidence base of the traffic impacts of the future highway schemes and local developments.

Appendix A. Traffic Signal Data

June 2015 Signal timing and staging data provided by BCC (August 2016)

Description	Max Green Time (Seconds)		
	AM	IP	PM
Constitution Hill + Old Snow Hill	20	20	20
Summer Ln + Old Snow Hill IGA (R/T)	4	4	4
Summer Ln + Old Snow Hill + Old Snow Hill IGA (R/T)	8	8	8
Bristol Road	37	28	34
Belgrave Middleway	21	16	22
Lee Bank Middleway	10	10	10
Smallbrook Queensway EB + WB	16	19	22
All Ped	5	5	5
Hill St	7	7	7
Hurst St	10	13	16
Colmore Row + Queensway	16	12	16
Bull St	12	10	12
Park St EB+ WB	30	20	30
All Ped	5	5	5
Car Park Exit left + exit ahead	20	20	20
Curzon St EB + WB	40	25	10
All Ped	5	5	5
New Canal St	20	16	20
Camp Hill NB + SB	20	20	20
All Ped	7	7	7
Stage 3 in spec is Dummy stage, do not code.	0	0	0
Bradford St R/T + L/T	7	7	7
Navigation St WB + EB	28	24	28
All Ped	9	9	9
Navigation St IGA (L/T) + Hill St NB	40	30	40
(Summer Hill Rd EB + IGA) + WB	31	30	26
Summer Hill Rd IGA (R/T)	12	12	10
Summer Hill EB + ICA (R/T) + EB internal S/L	7	7	5
Summer Hill St + Summer Hill Rd EB internal S/L	12	12	10
Summer Row	29	29	29
Paradise Circ	15	14	15
Circulatory Cwy	11	11	8
Suffolk St SB	51	51	43
-	0	0	0
Suffolk St S/B	11	11	8
Circulatory Cwy	51	51	43
Dale End SB + Albert St	30	20	12
Pedestrian Stage	5	5	5
Dale End N/B	10	10	8
Hurst St NW/bd	51	51	51
Bromsgrove St NE/bd and SW/bd	14	14	14
Hurst St SE/bd	15	15	15
Ladywood EB and WB	40	40	40
Ladywood WB and RTIGA	40	40	40
Friston Avenue + Ladywood Eastbound	10	10	10
Northern Arm EB and WB + New Street Station entry	30	20	25

Description	Max Green Time (Seconds)		
	AM	IP	PM
New St Station exit	30	20	25
Pedestrian Stage	5	5	5
Digbeth s/bd at Smithfield + Digbeth s/bd at Meriden	24	20	24
Meriden St	24	20	24
Meriden St + Digbeth s/bd at Meriden	24	20	24
Moor St. E/B, South side + North side	36	28	36
Priory Q'way N/B	24	16	24
Priory Q'way S/B	12	12	12
Snowhill LT + A38 Inner IB	31	31	33
Old Snowhill RT + LT + A38 Queensway OB LT	16	16	12
A38 Queensway OB	15	15	10
A38 Inner IB + Old Snowhill LT	15	15	10
A38 Queensway IB	26	26	28
Snowhill LT + A38 Inner OB	16	16	12
Snowhill LT + A38 Inner OB	23	23	18
Snowhill RT + A38 Queensway IB LT	15	15	10
Ladywood Mway OB	18	22	23
Gyratory IB	18	6	18
Gyratory IB	32	25	32
Ladywood Mway OB	27	25	25
Ladywood Mway Centre + IB	18	22	23
Ladywood Mway IB	18	6	18
Icknield Port Rd	32	25	32
Gyratory OB	27	25	25

Appendix B. Speed Flow Curves

Speed flow curves adopted for the BCCM update.

Road Type	Free Flow Speed	Speed at Capacity	Capacity	Power of Curve	Capacity Index
Strategic					
D4M	111	81	9320	2.8	501
D3M	111	81	6990	2.8	502
D2M	104	74	4659	2.85	503
D3AP	107	80	6298	2.75	504
D2AP	100	73	4199	2.8	505
S2 10m TD9/81	93	55	1686	2.15	506
S2 7.3m TD9/81	87	58	1328	1.99	507
S2 7.3m (Typical)	82	53	1328	2.04	508
Suburban					
Dual (slight development)	75	35	3540	2.56	509
Dual (typical development)	71	35	3540	1.42	510
Dual (heavy development)	58	35	3540	0.93	511
Single (light development)	65	25	1680	2.63	512
Single (typical development)	61	25	1680	1.58	513
Single (heavy development)	58	25	1680	1.03	514
Urban					
Non-central 50% development	37	30	896	2.22	515
Non-central 80% development	37	25	896	1.49	516
Non central 90% development	35	25	896	1.25	517
Central INT = 2	28	15	944	1.51	518
Central INT = 4.5	25	15	944	1.19	519
Central INT = 9	20	15	896	0.72	520
Small Town					
35% development	50	32	1344	2.91	521
60% development	45	30	1344	2.37	522
90% development	37	30	1344	1.27	523
Custom					
D2 Non-central 80% development	48	25	1800	1.49	524
Aston Expressway 3 lanes	75	58	6990	2.8	525
Queensway tunnels	64	32	4000	1.49	526
Queensway Central Non-tunnel	64	32	4000	1.49	527
Aston Expressway 3 lanes	64	36	4800	1.49	528
Aston Expressway 2 lanes	64	36	3800	1.49	529

.

Appendix C. Bus Route Frequency Data

Birmingham City Centre bus frequency data as provided by TfWM October 2016:

Service	Route	Operator	Peak Frequency	Inter-peak Frequency
2	Birmingham - Maypole via Billesley and Warstock	NXWM	3	3
3	Birmingham - Solihull via Yardley Wood, Shirley	NXWM	3	3
5	Birmingham - Solihull via Baldwins Lane, Shirley, Monkspath	NXWM	3	3
6/A	Birmingham - Solihull via Hall Green, Shirley	NXWM	7.5	7.5
7	Birmingham - Perry Common via Newtown, Witton	NXWM	6	6
9	Birmingham - Stourbridge via Bearwood, Halesowen	NXWM	7.5	7.5
10	Birmingham - Quinton via Augustus Road	IGO	2	0
10H	Birmingham - Quinton via Augustus Road via Harborne	IGO	0	2
14	Birmingham - Chelmsley Wood via Alum Rock	NXWM	7.5	7.5
16	Birmingham - Hamstead (Green Lane) via Hockley	NXWM	9	7.5
16	Birmingham - Hamstead (Green Lane) via Hockley	DIA	6	4
16A	Birmingham - Great Barr via Hockley (to Birmingham AM, from PM)	NXWM	4	0
16W	Birmingham - West Bromwich via Handsworth	DIA	3	3
17	Birmingham - Marston Green/Tile Cross via Yew Tree	NXWM	9	7.5
22	Birmingham - Kitwell via Harborne	NXWM	4	4
23	Birmingham - Woodgate via Harborne	NXWM	4	4
24	Birmingham - Woodgate Valley North via Harborne, Markets	NXWM	6	6
29	Birmingham - Northfield via Harborne	NXWM	3	4
31	Birmingham - Shirley via Acocks Green	NXWM	3	3
33	Birmingham - Pheasey via Perry Barr	NXWM	7.5	7.5
34	Birmingham - Kings Heath via Sparkbrook	DIA	0	1
35	Birmingham - Hawkesley via Kings Heath, Pool Farm	NXWM	6	6
37	Birmingham - Solihull via Acocks Green	NXWM	12	7.5

Service	Route	Operator	Peak Frequency	Inter-peak Frequency
45	Birmingham - West Heath via Pershore Road	NXWM	6	5
46	Birmingham - Perry Barr via Lozells	NXWM	4	4
47	Birmingham - Cofton Hackett via Pershore Road	NXWM	6	5
50	Birmingham - Druids Heath via Moseley	NXWM	12	12
50	Birmingham - Druids Heath via Moseley	DIA	4	6
50A	Birmingham - Wythall via Maypole (to Birmingham AM, from PM)	NXWM	2	0
51	Birmingham - Walsall via Great Barr	NXWM	6	6
52/A	Birmingham - Perry Beeches via Perry Barr	NXWM	4	6
55/A	Birmingham - Chelmsley Wood via Ward End and Shard End	NXWM	7.5	7.5
55	Birmingham - Chelmsley Wood via Ward End and Shard End	CLA	3	3
56	Birmingham - Kingshurst via Buckland End (Eves & Sun only)	NXWM	0	0
58	Birmingham - Solihull via Coventry Road	NXWM	2	2
59	Birmingham - Kingshurst, Fordbridge Road via Coventry Road, Lea Hall	NXWM	2	2
60	Birmingham - Cranes Park via Coventry Road	NXWM	4	4
63	Birmingham - Frankley via Bristol Road, Longbridge	NXWM	6	6
65	Birmingham - Perry Common via Short Heath	NXWM	6	6
66	Birmingham - Sutton Coldfield via Nechells	NXWM	3	3
67	Birmingham - Castle Vale via Tyburn Road	NXWM	6	6
70	Birmingham - Chelmsley Wood via Coleshill	NXWM	2	2
72	Birmingham - Solihull via Bromford Bridge, Chelmsley Wood, Sheldon	NXWM	2	2
73	Birmingham - Solihull via Heartlands Hospital, Yardley, Sheldon	NXWM	2	2
74	Birmingham - Dudley via West Bromwich	NXWM	6	6
80	Birmingham - West Bromwich via Five Ways, Smethwick	NXWM	4	3
82	Birmingham - Bearwood via Cape Hill	NXWM	6	6
83	Birmingham - West Bromwich via Smethwick	NXWM	2	2
87	Birmingham - Dudley via Smethwick, Oldbury	NXWM	6	6
89	Birmingham - Oldbury via Londonderry	NXWM	2	2

Service	Route	Operator	Peak Frequency	Inter-peak Frequency
94	Birmingham - Chelmsley Wood via Ward End	NXWM	7.5	7.5
94	Birmingham - Chelmsley Wood via Ward End	CLA	5	5
97	Birmingham - Chelmsley Wood via Meadway	NXWM	12	12
97A	Birmingham - Birmingham Airport via Chelmsley Wood	NXWM	2	2
98	Birmingham - Rubery via Northfield, Rednal	NXWM	3	3
99	Birmingham - Halesowen via QE Hospital, Markets	NXWM	3	3
101	Birmingham - Oxhill Road via Jewellery Quarter	NXWM	6	6
108	Birmingham - Newhall Estates via Tyburn Road (to Birmingham AM, from PM)	DIA	3	0
110	Birmingham - Tamworth via Sutton Coldfield	ARR	3	4
120	Birmingham - Dudley via Bearwood, Oldbury	NXWM	3	3
126	Birmingham - Wolverhampton via Bearwood, Dudley	NXWM	6	6
127	Birmingham - Dudley via Blackheath	NXWM	2	2
128	Birmingham - Oldbury via Warley	NXWM	2	2
129	Birmingham - Merry Hill via Smethwick, Oldbury	NXWM	2	2
140	Birmingham - Dudley via Bearwood, Blackheath	NXWM	2	2
144	Birmingham - Worcester via Bromsgrove	FMR	2	2
146	Birmingham - Reddtich via Alvechruch	DIA	1	1
150	Birmingham - Worcester via Wythall & Redditch	JON	1	1
424	Birmingham - Perry Beeches via Witton, Hamstead	IGO	1	1
907	Birmingham - Sutton Coldfield via Perry Barr, Express	NXWM	4	3
934	Birmingham - Queslett Asda via Kingstanding, Express	NXWM	2	2
935	Birmingham - Walsall via Kingstanding, Streetly, Express	NXWM	2	2
936	Birmingham - Brownhills via Perry Barr, Kingstanding, Express	NXWM	2	2
997	Birmingham - Walsall via Pheasey, Aldridge , Express	NXWM	6	6
937/A	Birmingham - Brownhills via Kingstanding, Aldridge, Express	NXWM	3	2
X1	Birmingham - Chester Road / Coventry via Airport	NXWM	2	2
X2	Birmingham - Solihull via Coventry Road, Old Lode Lane , Express	NXWM	4	4

Service	Route	Operator	Peak Frequency	Inter-peak Frequency
X3	Birmingham - Hill Hook via Sutton Coldfield, Express	NXWM	2	2
X4	Birmingham - Minworth via Erdington Sutton Coldfield, Express	NXWM	4	4
X5	Birmingham - Roughley via Sutton Coldfield, Express	NXWM	2	2
X10	Birmingham - Merry Hill Centre via Bearwood, Blackheath	NXWM	3	2
X14	Birmingham - Sutton Coldfield via Walmley	NXWM	3	3
X16	Birmingham - Tamworth via Stoneydelph	CEB	1	1
X20	Birmingham - Stratford-upon-Avon via Henley-in-Arden, Express	JON	1	1
X51	Birmingham - Cannock via Walsall , Express	NXWM	4	6
X61	Birmingham - Frankley via Bristol Road, Northfield	NXWM	6	6
X64	Birmingham - Woodgate via Selly Oak, Weoley Castle, Express	NXWM	2	3

Appendix D. Car Park Sector System and Adjustment Factors

D.1. AM and PM Adjustment Factors

Sector 1		Sector 2		Sector 3		Sector 4		Sector 5		Sector 6		Sector 7		Sector 8		Sector 9	
Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor
118	0.12	101	0.30	108	0.05	117	0.30	124	0.46	134	0.10	140	0.00	146	0.153	156	0.04
120	0.02	102	0.30	109	0.03	119	0.30	126	0.20	135	0.18	141	0.00	147	0.153	157	0.03
121	0.02	103	0.05	110	0.13	123	0.27	127	0.02	136	0.18	142	0.64	148	0.153	158	0.03
122	0.02	104	0.05	111	0.13	125	0.13	128	0.02	137	0.26	143	0.36	149	0.037	160	0.54
144	0.07	105	0.06	112	0.27			129	0.02	138	0.14			150	0.005	162	0.37
145	0.06	106	0.06	113	0.02			130	0.04	139	0.14			151	0.25		
159	0.08	107	0.18	114	0.02			131	0.04					152	0.02		
161	0.08			115	0.18			132	0.04					153	0.00		
163	0.01			116	0.18			133	0.17					154	0.199		
164	0.00													155	0.032		
165	0.10																
166	0.00																
167	0.05																
168	0.05																
169	0.04																
170	0.09																
171	0.09																
172	0.08																

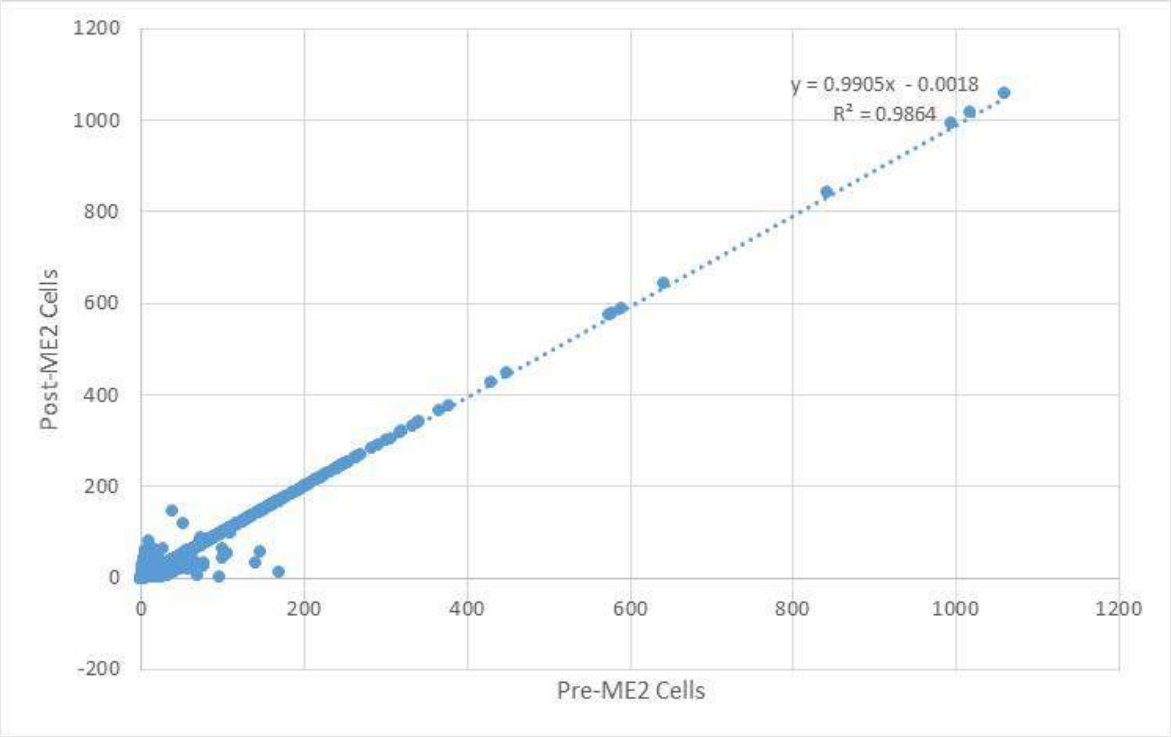
D.2. Inter-peak Adjustment Factors

Sector 1		Sector 2		Sector 3		Sector 4		Sector 5		Sector 6		Sector 7		Sector 8		Sector 9	
Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor	Zone	Factor
118	0.03	101	0.18	108	0.07	117	0.41	120	0.18	134	0.03	140	0.00	149	0.123	156	0.11
144	0.12	102	0.18	109	0.04	119	0.41	121	0.18	135	0.22	141	0.00	150	0.00	157	0.06
145	0.10	103	0.11	110	0.17	123	0.05	122	0.18	136	0.22	142	0.05	151	0.64	158	0.06
159	0.05	104	0.11	111	0.17	125	0.14	124	0.09	137	0.07	143	0.18	152	0.04	160	0.64
161	0.05	105	0.14	112	0.36			126	0.13	138	0.23	146	0.26	153	0.00	162	0.13
163	0.02	106	0.14	113	0.00			127	0.01	139	0.23	147	0.26	154	0.14		
164	0.00	107	0.14	114	0.00			128	0.01			148	0.26	155	0.056		
165	0.16			115	0.09			129	0.01								
166	0.00			116	0.09			130	0.03								
167	0.08							131	0.03								
168	0.08							132	0.03								
169	0.00							133	0.12								
170	0.14																
171	0.07																
172	0.10																

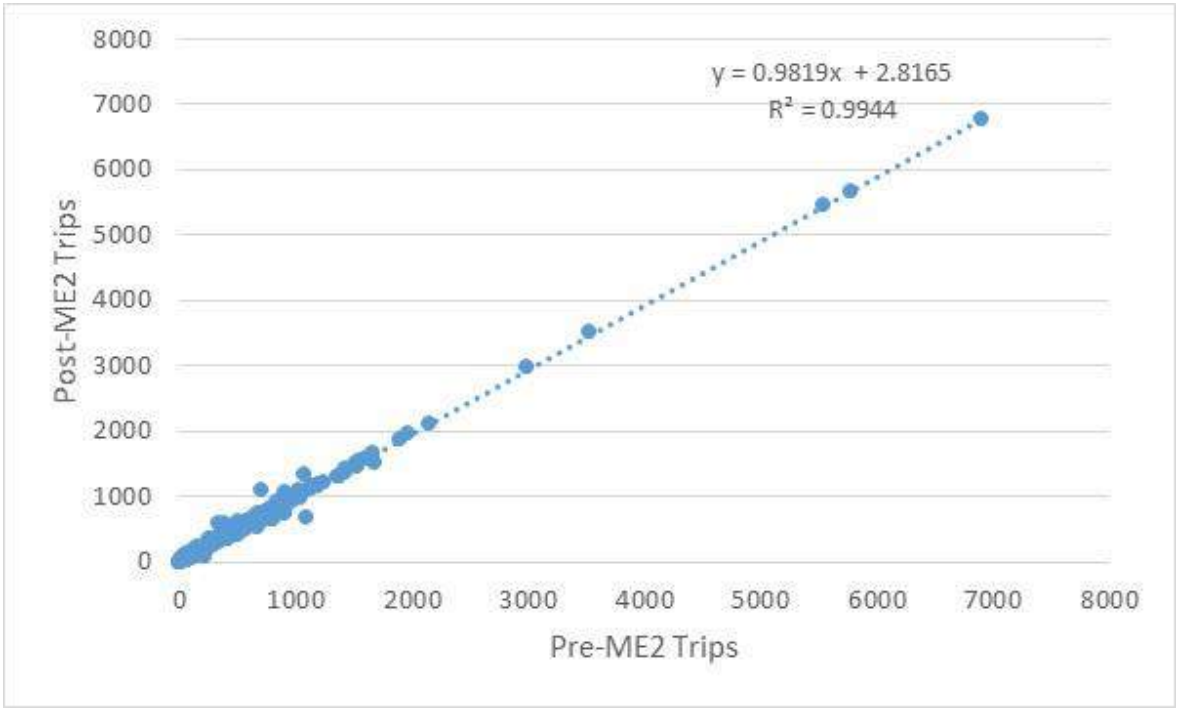
Appendix E. Regression Statistics

E.1. AM Peak

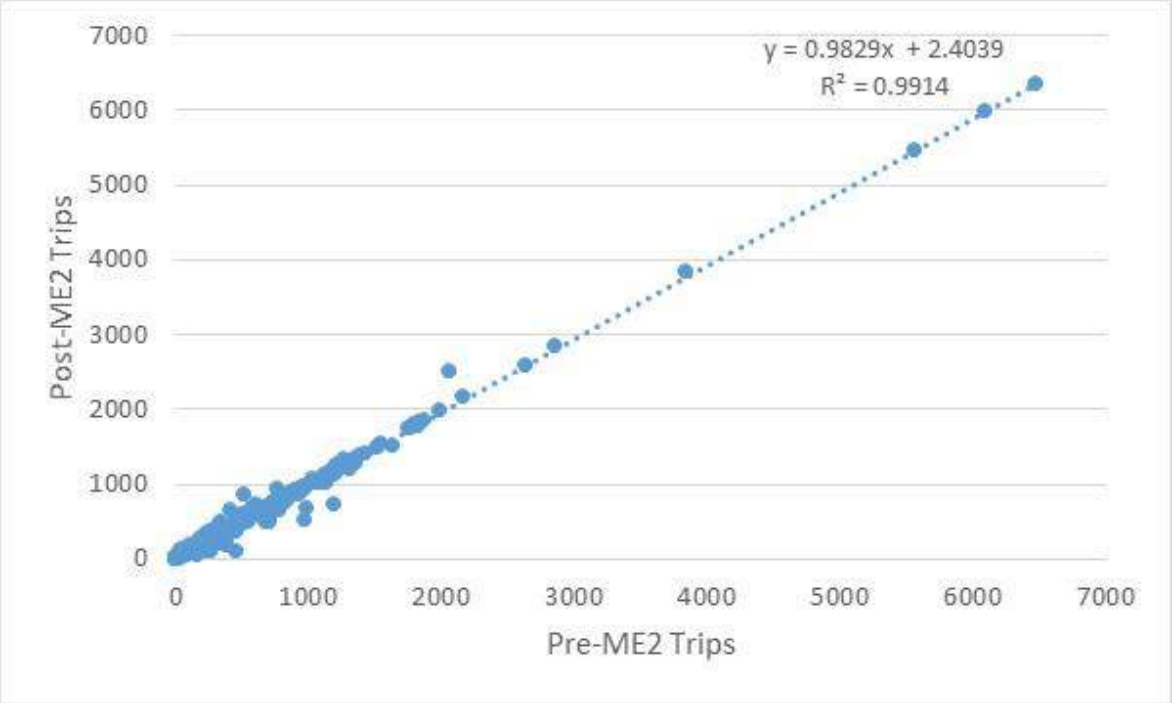
Zonal Cells



Trip Origins

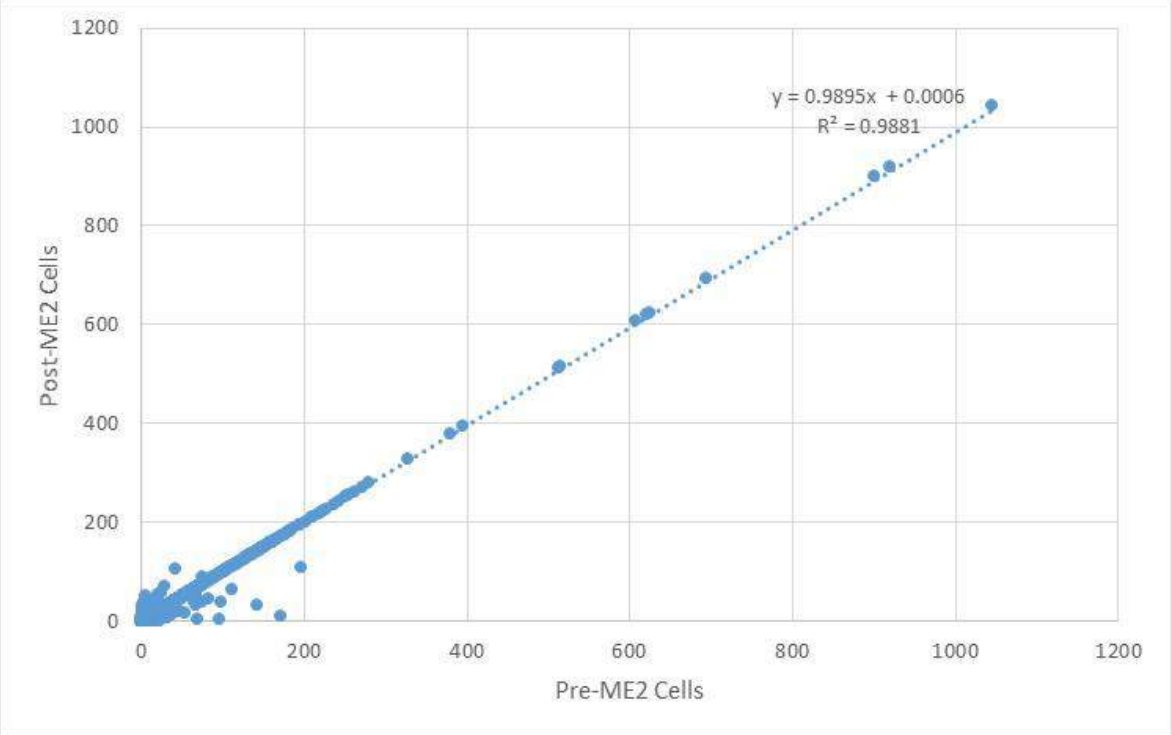


Trip Destinations



E.2. Inter-peak

Zonal Cells



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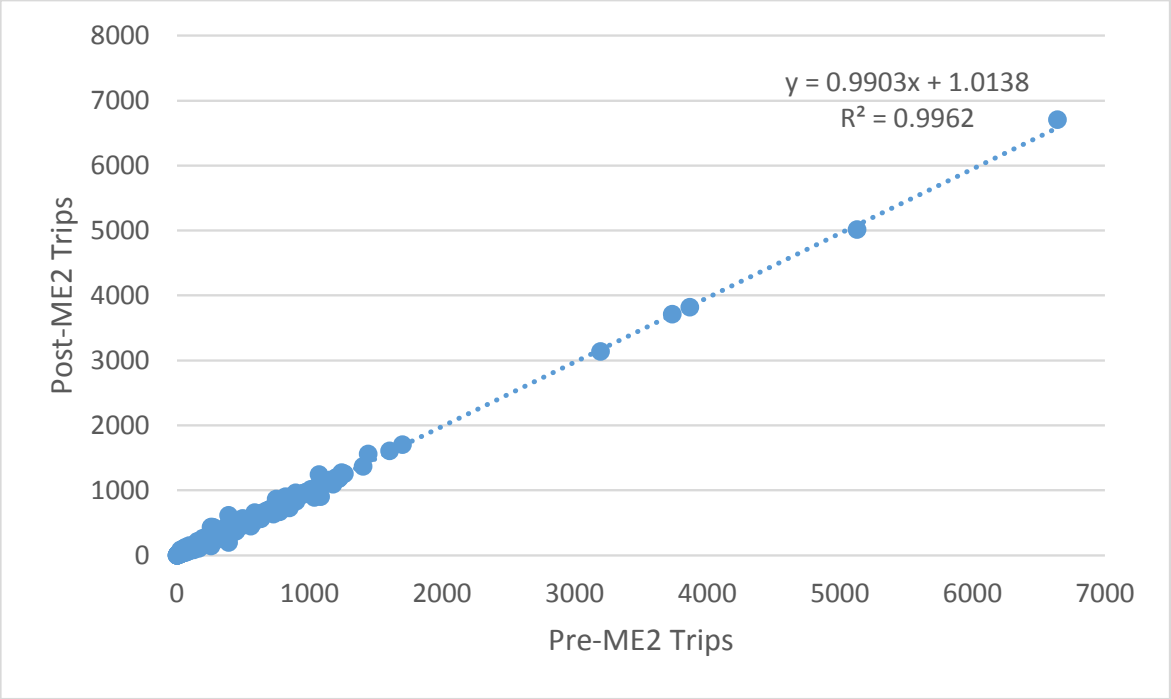

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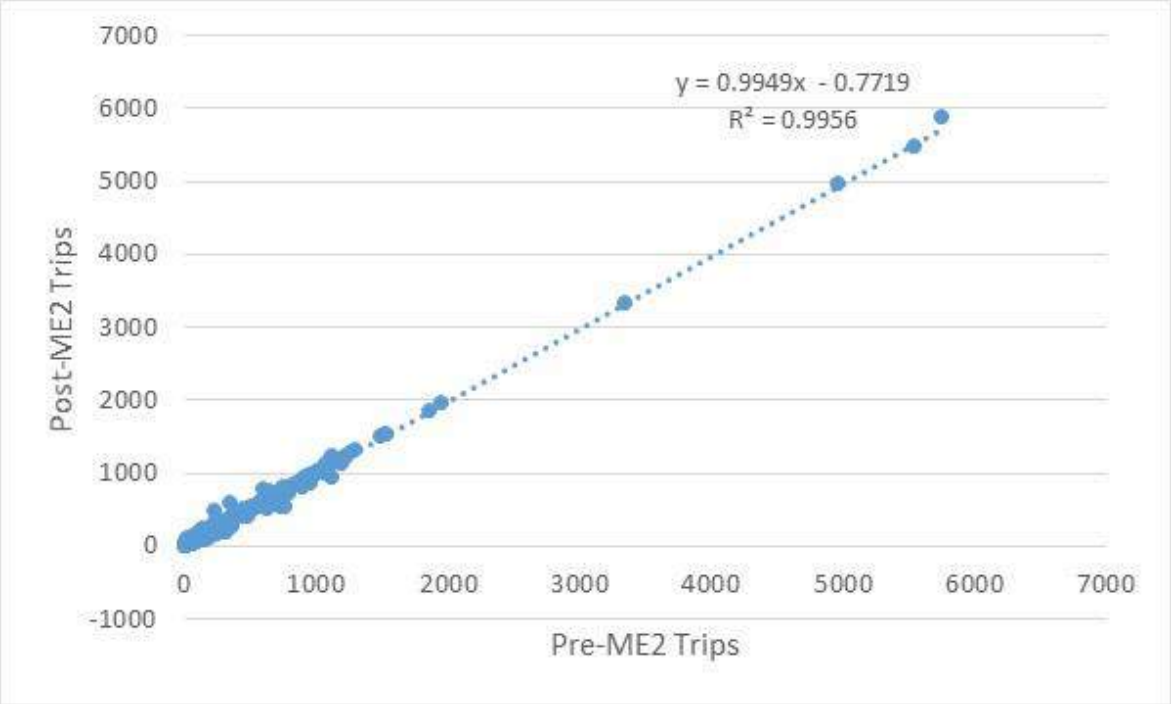
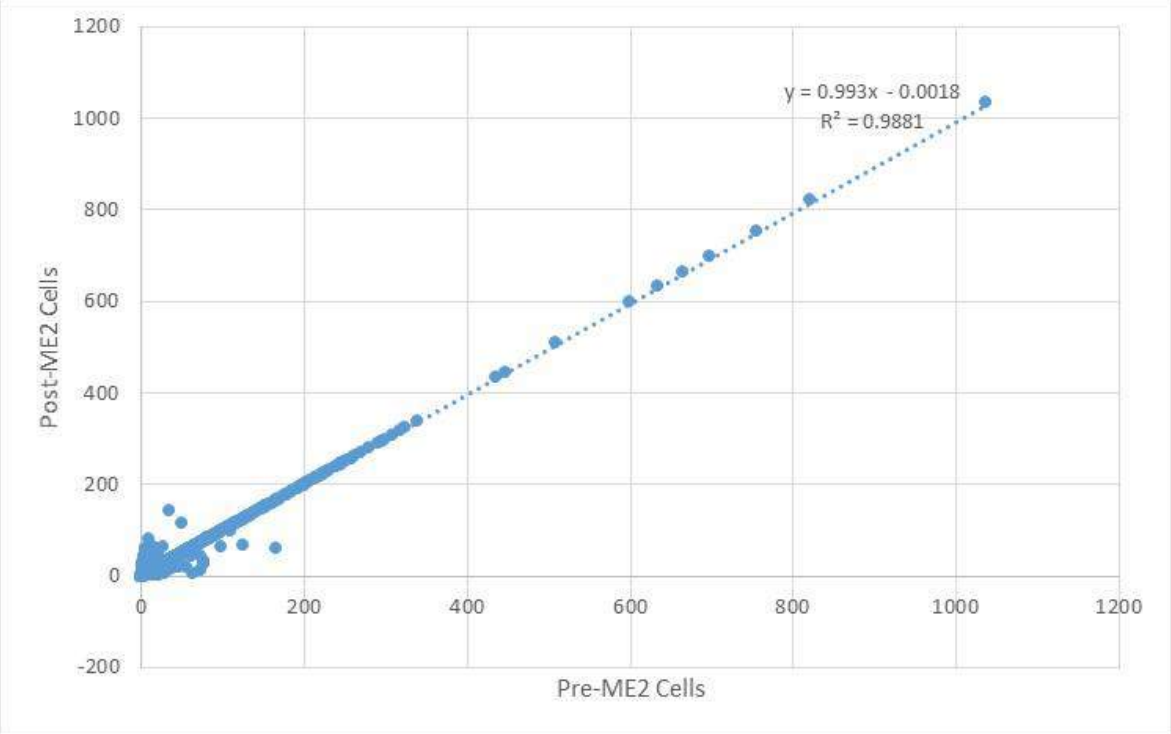
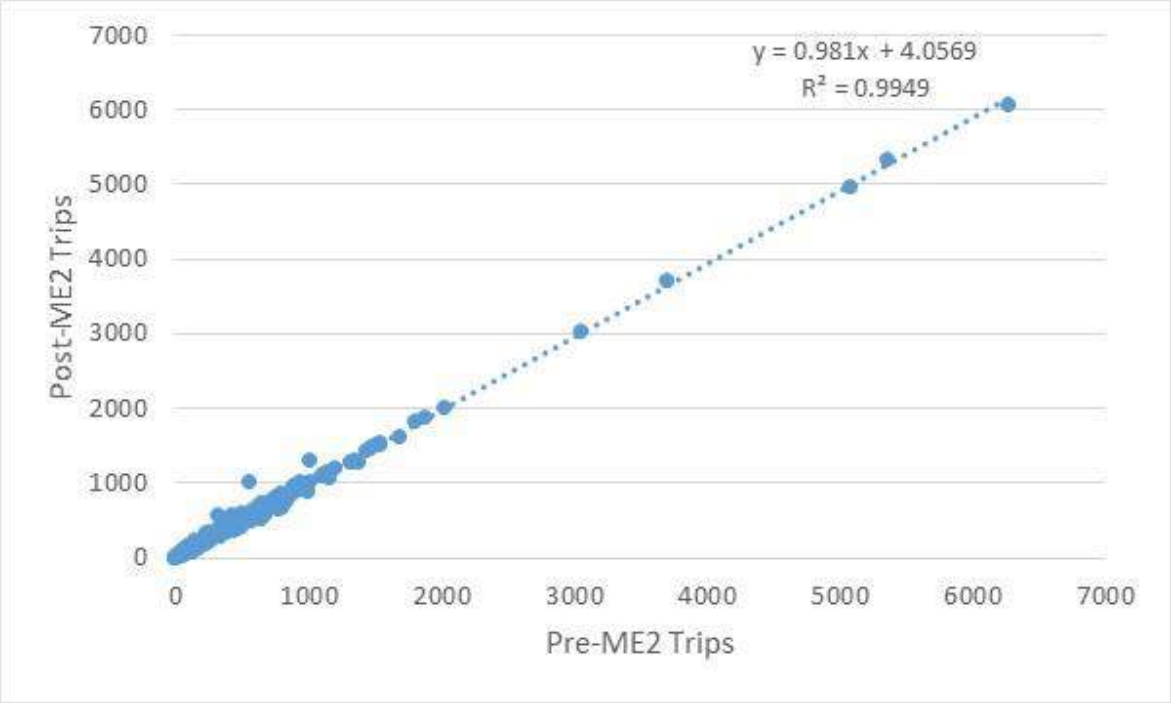


E.3. PM Peak

Zonal Cells



Trip Origins



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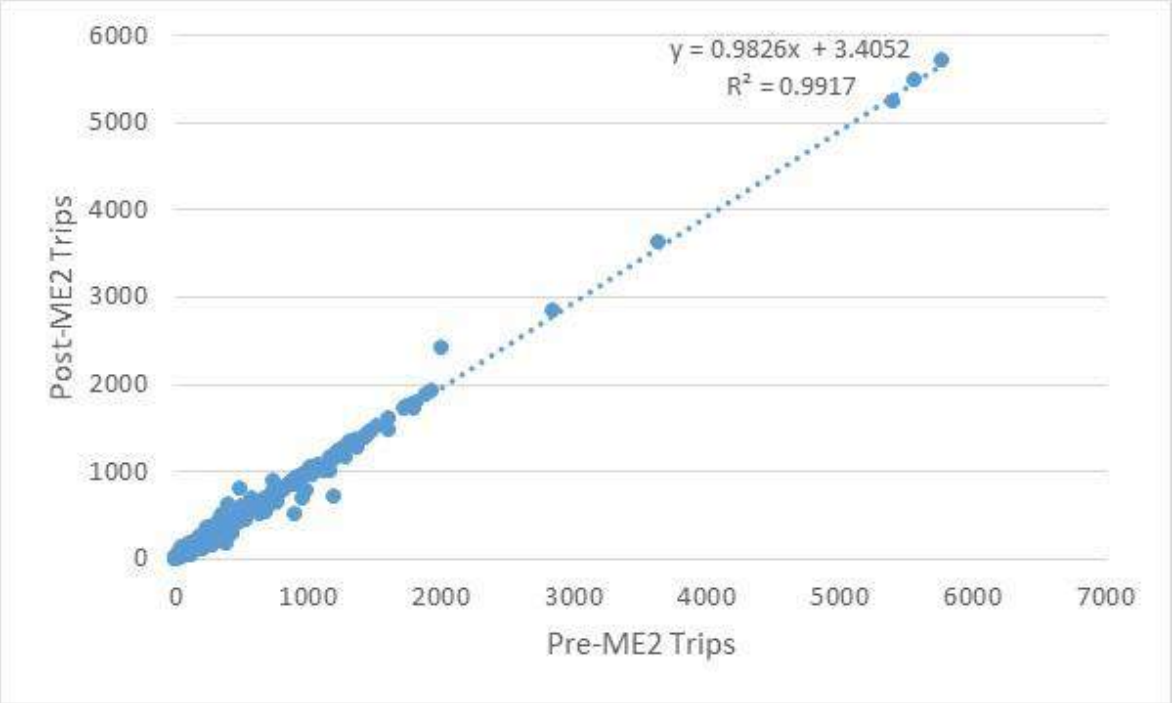


Appendix F. Matrix Estimation Sector Changes

F.1. AM Peak

Prior Assignment

Sector	1	2	3	4	5	6	7	Total
1	9,999	5,710	4,551	2,448	1,306	6,251	2,283	**32,547**
2	5,386	12,342	5,799	1,071	581	2,529	970	**28,678**
3	4,592	6,373	4,0060	10,261	1,883	2,428	2,538	**68,134**
4	2,455	1,600	11,114	18,004	5,888	3,797	2,772	**4,5630**
5	1,326	695	1,335	4,975	13,663	3,430	2,209	**27,634**
6	7,238	2,889	2,708	4,145	5,480	32,245	4,646	**59,351**
7	983	818	1,244	1,274	777	1,796	2,658	**9,549**
Total	**31,979**	**30,427**	**66,810**	**42,178**	**29,577**	**52,476**	**18,076**	

Post-ME Assignment

Sector	1	2	3	4	5	6	7	Total
1	9,804	5,646	4,731	2,381	1,026	6,122	1,886	**31,597**
2	5,116	11,971	5,834	999	520	2,514	1,029	**27,981**
3	4,362	6,264	39,847	9,719	2,058	2,411	2,403	**67,064**
4	2,326	1,430	10,492	17,772	5,814	4,092	2,834	**44,760**
5	985	726	1,319	5,065	13,845	3,577	1,690	**27,208**
6	7,276	2,919	2,880	4,501	5,267	32,303	4,905	**60,051**
7	885	738	1,327	1,406	565	1,946	3,113	**9,980**
Total	**30,754**	**29,694**	**66,430**	**41,843**	**29,094**	**52,966**	**17,860**	

% Change

Sector	1	2	3	4	5	6	7	Total
1	-2%	-1%	4%	-3%	-21%	-2%	-17%	**3%**
2	-5%	-3%	1%	-7%	-11%	-1%	6%	**2%**
3	-5%	-2%	-1%	-5%	9%	-1%	-5%	**2%**
4	-5%	-11%	-6%	-1%	-1%	8%	2%	**2%**
5	-26%	4%	-1%	2%	1%	4%	-23%	**2%**
6	1%	1%	6%	9%	-4%	0%	6%	**-1%**
7	-10%	-10%	7%	10%	-27%	8%	17%	**-5%**
Total	**4%**	**2%**	**1%**	**1%**	**2%**	**-1%**	**1%**	

F.2. Inter-peak

Prior Assignment

Sector	1	2	3	4	5	6	7	Total
1	9,403	4,972	3,279	2,137	1,092	6,529	1,238	**28,651**
2	5,043	11,683	5,488	924	599	2,677	974	**27,389**
3	3,832	5,179	38,486	8,491	1,502	2,599	1,865	**61,954**
4	2,070	948	8,933	16,362	5,209	3,389	1,470	**38,381**
5	1,351	549	1,300	4,554	15,358	4,067	1,388	**28,566**
6	6,105	2,275	2,703	3,270	4,528	31,896	2,793	**53,570**
7	989	1,066	1,721	1,464	1,066	2,557	2,707	**11,569**
Total	**28,792**	**26,672**	**61,910**	**37,202**	**29,354**	**53,714**	**12,435**	

Post-ME Assignment

Sector	1	2	3	4	5	6	7	Total
1	9,144	4,849	3,423	2,138	944	6,456	1,247	**28,201**
2	4,824	11,683	5,462	1,041	578	2,640	1,040	**27,268**
3	3,804	5,213	38,330	8,167	1,487	2,519	1,530	**61,051**
4	1,900	968	8,372	16,242	5,312	3,426	1,679	**37,900**
5	966	524	1,175	4,577	15,545	4,072	1,214	**28,074**
6	6,226	2,492	2,838	3,273	4,409	31,986	2,614	**53,837**
7	1,045	970	1,662	1,512	873	2,847	3,141	**12,051**
Total	**27,909**	**26700**	**61,263**	**36,951**	**29,148**	**53,946**	**12,464**	

% Change

Sector	1	2	3	4	5	6	7	Total
1	-3%	-2%	4%	0%	-14%	-1%	1%	**2%**
2	-4%	0%	0%	13%	-4%	-1%	7%	**0%**
3	-1%	1%	0%	-4%	-1%	-3%	-18%	**1%**
4	-8%	2%	-6%	-1%	2%	1%	14%	**1%**
5	-28%	-4%	-10%	1%	1%	0%	-13%	**2%**
6	2%	10%	5%	0%	-3%	0%	-6%	**0%**
7	6%	-9%	-3%	3%	-18%	11%	16%	**-4%**
Total	**3%**	**0%**	**1%**	**1%**	**1%**	**0%**	**0%**	

F.3. PM Peak

Prior Assignment

Sector	1	2	3	4	5	6	7	Total
1	10,276	5,907	4,215	2,008	1,153	7,175	1,144	**31,877**
2	6,354	13,540	7,298	1,426	685	3,183	750	**33,235**
3	4,515	6,125	46,278	11,253	1,688	2,849	1,635	**74,343**
4	2,177	778	10,578	18,453	5,830	3,863	1,200	**42,878**
5	1,359	491	1,702	5,949	14,620	5,412	1,253	**30,786**
6	5,176	2,655	2,818	3,956	4,010	39,359	2,161	**60,135**
7	1,380	1,208	2,455	2,302	1,295	3,675	2,654	**14,968**
Total	**31,236**	**30,705**	**75,342**	**45,346**	**29,281**	**65,516**	**10,797**	

Post-ME Assignment

Sector	1	2	3	4	5	6	7	Total
1	10,139	5,784	4,315	1,882	991	7,281	1,227	**31,619**
2	6,011	13,109	7,110	1,512	658	3,005	786	**32,192**
3	4,551	6,122	45,994	11,103	1,687	2,727	1,500	**73,685**
4	1,862	805	9,910	18,257	6,156	3,954	1,114	**42,058**
5	1,225	530	1,636	6,006	14,792	5,459	1,075	**30,721**
6	5,378	2,590	2,549	3,913	4,020	39,654	2,485	**60,588**
7	1,437	1,368	2,347	2,029	1,035	4,112	3,024	**15,352**
Total	**30,603**	**30,307**	**73,862**	**44,701**	**29,338**	**66,192**	**11,212**	

% Change

Sector	1	2	3	4	5	6	7	Total
1	-1%	-2%	2%	-6%	-14%	1%	7%	**1%**
2	-5%	-3%	-3%	6%	-4%	-6%	5%	**3%**
3	1%	0%	-1%	-1%	0%	-4%	-8%	**1%**
4	-14%	3%	-6%	-1%	6%	2%	-7%	**2%**
5	-10%	8%	-4%	1%	1%	1%	-14%	**0%**
6	4%	-2%	-10%	-1%	0%	1%	15%	**-1%**
7	4%	13%	-4%	-12%	-20%	12%	14%	**-3%**
Total	**2%**	**1%**	**2%**	**1%**	**0%**	**-1%**	**-4%**	

Appendix G. Convergence Statistics

G.1. AM Peak Model Convergence

Convergence Statistics

Loop	Ass.	Sim.	A/S Step	%Flows	%Delays	%V.I.	%Gap
23	0.0044/11	0.001/7	1.000/1	97.3	99.8	0.00005	0.015
24	0.0036/12	0.002/4	0.535/2	97.9	99.8	0.00034	0.011
25	0.0038/12	0.001/3	0.315/4	98.2	99.8	0.00000	0.0065
26	0.0031/13	0.001/7	1.000/1	98.5	99.8	0.00001	0.011
27	0.0031/14	0.002/4	0.656/2	98.0	99.8	0.00001	0.0085
28	0.0027/14	0.001/3	0.160/7	98.4	99.8	0.00035	0.0065
29	0.0029/14	0.001/3	0.277/6	98.9	99.8	0.00000	0.0084
30	0.0038/15	0.001/3	0.222/5	98.8	99.9	0.00001	0.0056
31	0.0026/15	0.001/3	0.546/3	98.6	99.8	0.00000	0.0087
32	0.0027/15	0.002/3	0.328/3	98.5	99.8	0.00027	0.0073

Where:

Ass. – Delta Function (%) / Number of Iterations
Sim. – Final Average ABS Change In Out CFP (PCU/HR) / Number of Iterations
A/S Step – Step Length used on Ass/Sim Loop/Simulation Iterations
%FLOWS – Link flows differing by <5%
%DELAYS – Turn delays differing by <5%
%V.I. – Variational Inequality – Should be >0
%GAP – Wardrop Equilibrium Gap Function Post-Simulation

Extended Convergence Statistics

Loop	Ass-Hrs	Change	Sim-Hr	Sim-Km	GEHAv	AAD	RAAD	XMSD	SAD	RSAD
23	48483.5	0.051	48419.7	2846614	0.015	0.324	0.043	0.144	0.031	0.858
24	48481.2	-0.005	48418.7	2846650	0.013	0.278	0.037	0.152	0.014	0.379
25	48461.1	-0.041	48399.5	2846675	0.011	0.239	0.032	0.125	0.018	0.489
26	48481.9	0.043	48419	2846642	0.009	0.173	0.023	0.082	0.021	0.578
27	48456.9	-0.052	48395.2	2846670	0.013	0.285	0.038	0.144	0.024	0.665
28	48458.2	0.003	48395.3	2846627	0.011	0.248	0.033	0.125	0.011	0.314
29	48478.8	0.042	48415.5	2846615	0.01	0.228	0.03	0.108	0.016	0.443
30	48459.8	-0.039	48397.8	2846658	0.009	0.21	0.028	0.111	0.021	0.587
31	48479.3	0.04	48416.3	2846623	0.01	0.217	0.029	0.105	0.019	0.535
32	48478	-0.003	48415.8	2846645	0.01	0.214	0.028	0.115	0.011	0.297

Where:

Ass-Hrs – Total PCU-HR/HR from the buffer and simulation networks
Change – % change in ASS-HRS
Sim-Hr – Total PCU-HR/HR from the simulation
Sim-Km – Total PCU-KM/HR from the simulation
GEHAv – Mean GEH Statistic, Link Demand Flows
AAD – Average Absolute Difference in Link Flow PCU/HR
RAAD – % Relative Average Absolute Difference in Link Flows

XMSD – % Relative Standard Deviation in Link Flows
SAD – Mean Absolute Difference in ASS/SIM Delays (seconds)
RSAD – % Relative Mean Absolute Difference in ASS/SIM Delays

G.2. Inter-peak Model Convergence

Convergence Statistics

Loop	Ass.	Sim.	A/S Step	%Flows	%Delays	%V.I.	%Gap
10	0.0060/16	0.003/ 7	1.000/ 1	93.6	99.8	0.0024	0.013
11	0.0107/ 6	0.003/ 7	1.000/ 1	97.5	99.8	0.00042	0.0077
12	0.0041/16	0.002/ 7	1.000/ 1	96.7	99.9	0.00092	0.0081
13	0.0054/ 8	0.002/ 7	1.000/ 1	97.5	99.9	0.00041	0.0052
14	0.0030/16	0.003/ 7	1.000/ 1	97.5	99.8	0.00055	0.0046
15	0.0028/15	0.001/ 7	1.000/ 1	97.8	99.9	0.00049	0.0056
16	0.0021/ 7	0.001/ 7	0.628/ 4	98.9	100.0	0.00017	0.0037
17	0.0028/10	0.001/ 7	1.000/ 1	98.5	99.9	0.00021	0.0021
18	0.0018/16	0.001/ 7	1.000/ 1	98.8	99.9	0.00016	0.0036
19	0.0019/16	0.001/ 7	1.000/ 1	98.9	99.9	0.00014	0.002

Where:

Ass. – Delta Function (%) / Number of Iterations
Sim. – Final Average ABS Change In Out CFP (PCU/HR) / Number of Iterations
A/S Step – Step Length used on Ass/Sim Loop/Simulation Iterations
%FLOWS – Link flows differing by <5%
%DELAYS – Turn delays differing by <5%
%V.I. – Variational Inequality – Should be >0
%GAP – Wardrop Equilibrium Gap Function Post-Simulation

Extended Convergence Statistics

Loop	Ass-Hrs	Change	Sim-Hr	Sim-Km	GEHAv	AAD	RAAD	XMSD	SAD	RSAD
10	41548.1	-0.023	41497.6	2466844	0.038	0.795	0.12	0.34	0.021	0.633
11	41552.6	0.011	41500.5	2466819	0.015	0.318	0.048	0.151	0.015	0.465
12	41548.6	-0.01	41497.4	2466860	0.02	0.396	0.06	0.16	0.008	0.252
13	41547.8	-0.002	41495.6	2466847	0.014	0.26	0.039	0.132	0.015	0.47
14	41547.1	-0.002	41495.6	2466876	0.016	0.288	0.043	0.122	0.015	0.457
15	41547.1	0	41495.1	2466872	0.013	0.221	0.033	0.1	0.012	0.354
16	41546.1	-0.002	41494.4	2466870	0.008	0.162	0.024	0.104	0.008	0.239
17	41545.4	-0.002	41493.4	2466865	0.009	0.164	0.025	0.077	0.01	0.303
18	41547	0.004	41494.8	2466862	0.008	0.139	0.021	0.068	0.01	0.298
19	41543.3	-0.009	41491.5	2466871	0.007	0.131	0.02	0.067	0.01	0.308

Where:

Ass-Hrs – Total PCU-HR/HR from the buffer and simulation networks
Change – % change in ASS-HRS
Sim-Hr – Total PCU-HR/HR from the simulation
Sim-Km – Total PCU-KM/HR from the simulation
GEHAv – Mean GEH Statistic, Link Demand Flows
AAD – Average Absolute Difference in Link Flow PCU/HR
RAAD – % Relative Average Absolute Difference in Link Flows
XMSD – % Relative Standard Deviation in Link Flows
SAD – Mean Absolute Difference in ASS/SIM Delays (seconds)
RSAD – % Relative Mean Absolute Difference in ASS/SIM Delays

G.3. PM Peak Model Convergence

Convergence Statistics

Loop	Ass.	Sim.	A/S Step	%Flows	%Delays	%V.I.	%Gap
27	0.0021/14	0.006/ 4	0.504/ 2	97.2	99.7	0.00015	0.006
28	0.0016/ 7	0.008/ 3	0.243/ 3	98.1	99.7	0.00004	0.0038
29	0.0017/ 7	0.003/ 3	0.037/ 9	98.9	99.8	0.00012	0.0031
30	0.0017/15	0.003/ 7	1.000/ 1	98.6	99.8	0.00002	0.0038
31	0.0014/10	0.003/ 4	0.413/ 2	99	99.9	0.00013	0.0029
32	0.0014/11	0.002/ 3	0.437/ 4	98.5	99.9	0	0.005
33	0.0014/10	0.002/ 3	0.231/ 6	98.5	99.9	0	0.0025
34	0.0015/14	0.001/ 3	0.485/ 3	99.2	99.8	0	0.0047
35	0.0021/12	0.002/ 3	0.202/ 6	98.7	99.9	0.00022	0.0037
36	0.0014/15	0.030/ 4	0.433/ 2	99	99.8	0.00002	0.01

Where:

Ass. – Delta Function (%) / Number of Iterations
Sim. – Final Average ABS Change In Out CFP (PCU/HR) / Number of Iterations
A/S Step – Step Length used on Ass/Sim Loop/Simulation Iterations
%FLOWS – Link flows differing by <5%
%DELAYS – Turn delays differing by <5%
%V.I. – Variational Inequality – Should be >0
%GAP – Wardrop Equilibrium Gap Function Post-Simulation

Extended Convergence Statistics

Loop	Ass-Hrs	Change	Sim-Hr	Sim-Km	GEHAv	AAD	RAAD	XMSD	SAD	RSAD
27	49212.9	0.035	49156.4	2847057	0.018	0.387	0.051	0.182	0.03	0.837
28	49199.7	-0.027	49143.1	2847047	0.013	0.274	0.036	0.136	0.024	0.689
29	49201.3	0.003	49143.7	2847009	0.008	0.175	0.023	0.082	0.013	0.375
30	49219.4	0.037	49161.9	2847026	0.01	0.199	0.026	0.085	0.018	0.51
31	49219.8	0.001	49162.7	2847040	0.008	0.176	0.023	0.08	0.011	0.298
32	49204.2	-0.032	49148.1	2847065	0.011	0.234	0.031	0.131	0.019	0.532
33	49219.5	0.031	49162.5	2847039	0.011	0.226	0.03	0.112	0.019	0.545
34	49203.8	-0.032	49147.8	2847069	0.006	0.125	0.016	0.059	0.018	0.499
35	49205.4	0.003	49149	2847059	0.009	0.182	0.024	0.095	0.012	0.329
36	49231.8	0.054	49173.4	2847027	0.007	0.144	0.019	0.072	0.027	0.762

Where:

Ass-Hrs – Total PCU-HR/HR from the buffer and simulation networks
Change – % change in ASS-HRS
Sim-Hr – Total PCU-HR/HR from the simulation
Sim-Km – Total PCU-KM/HR from the simulation
GEHAv – Mean GEH Statistic, Link Demand Flows
AAD – Average Absolute Difference in Link Flow PCU/HR
RAAD – % Relative Average Absolute Difference in Link Flows
XMSD – % Relative Standard Deviation in Link Flows
SAD – Mean Absolute Difference in ASS/SIM Delays (seconds)
RSAD – % Relative Mean Absolute Difference in ASS/SIM Delays

Appendix H. Link Calibration Results

H.1. AM Peak Model (Total Vehicles)

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
1	Summer Lane, Att - Direction sign, OSGR: SP 06959 88374	5303_5538_	NB	165	162	-1.5%	-3	0	PASS	PASS	PASS
2	Summer Lane, Att - Direction sign, OSGR: SP 06959 88374	5538_5303_	SB	616	534	-13.2%	-81	3	PASS	PASS	PASS
3	Wellington Road, Att - LC8, OSGR: SP 06517 85140	2100_1037_	NB	451	292	-35.3%	-159	8	FAIL	FAIL	FAIL
6	Bristol Road, Att - Railings, OSGR: SP 06739 85231	1037_53128_	SB	985	1075	9.1%	90	3	PASS	PASS	PASS
9	Summer Hill Street Left Turn, Att - Railings, OSGR: SP 05794 87181	5204_5306_5169	NB	286	273	-4.3%	-12	1	PASS	PASS	PASS
10	Summer Hill Road, Att - Traffic Signals, OSGR: SP 05789 87213	5169_5306_5149	EB	264	256	-3.3%	-9	1	PASS	PASS	PASS
11	Summer Hill Road, Att - Traffic Signals, OSGR: SP 05789 87213	5169_5306_5204	EB	448	444	-1.0%	-4	0	PASS	PASS	PASS
12	Colmore Row, Att - Parking post, OSGR: SP 06947 87080	6101_5101_	SB	385	416	8.0%	31	2	PASS	PASS	PASS
13	Park Street, Att - LC17, OSGR: SP 07560 86972	6108_6107_	SB	838	973	16.2%	135	5	FAIL	PASS	PASS
14	Great Lister Street, Att - Railings, OSGR: SP 07923 87935	6301_6195_	EB	155	138	-10.7%	-17	1	PASS	PASS	PASS
15	Great Lister Street, Att - Railings, OSGR: SP 07923 87935	6195_6301_	WB	371	264	-28.9%	-107	6	FAIL	FAIL	FAIL
16	Sherlock Street, Att - telepole, OSGR: SP 07337 86029	7326_7143_	NB	357	329	-7.8%	-28	2	PASS	PASS	PASS
17	Sherlock Street, Att - telepole, OSGR: SP 07337 86029	7143_7326_	SB	375	333	-11.3%	-42	2	PASS	PASS	PASS
18	Sherlock Stret, Att - LC6, OSGR: SP 07411 86058	7706_7613_	EB	294	383	30.3%	89	5	PASS	PASS	PASS
19	Sherlock Stret, Att - LC6, OSGR: SP 07411 86058	7613_7706_	WB	342	298	-12.8%	-44	2	PASS	PASS	PASS
20	Bradford Street, Att - Railings, OSGR: SP 07728 86232	7306_7182_	EB	264	214	-18.8%	-50	3	PASS	PASS	PASS
21	Bradford Street, Att - Railings, OSGR: SP 07728 86232	7182_7306_	WB	320	275	-14.3%	-46	3	PASS	PASS	PASS
24	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8406_8150_	EB	660	693	5.0%	33	1	PASS	PASS	PASS
25	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8150_8406_	WB	683	694	1.6%	11	0	PASS	PASS	PASS
26	Lodge Road, Att - Camera, OSGR: SP 04585 88510	1025_8217_	EB	655	585	-10.7%	-70	3	PASS	PASS	PASS
27	Lodge Road, Att - Camera, OSGR: SP 04585 88510	8217_1025_	WB	253	224	-11.4%	-29	2	PASS	PASS	PASS
28	Park Road, Att - LC2, OSGR: SP 05445 88482	8216_2107_	NB	160	165	3.4%	5	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
29	Park Road, Att - LC2, OSGR: SP 05445 88482	2107_8216_	SB	325	308	-5.1%	-17	1	PASS	PASS	PASS
34	Norfolk Road, Att - Information Sign, OSGR: SP 03960 85842	461_53171_	NB	365	449	23.1%	84	4	PASS	PASS	PASS
35	Norfolk Road, Att - Information Sign, OSGR: SP 03960 85842	53171_461_	SB	478	596	24.7%	118	5	FAIL	PASS	PASS
37	Wheeley's Road, Att - LC8, OSGR: SP 05991 85701	8305_8417_	SB	481	420	-12.7%	-61	3	PASS	PASS	PASS
39	NEW TOWN ROW North Of Pritchett Street	6303_6159_	SB	1351	1412	4.5%	61	2	PASS	PASS	PASS
40	SUMMER LANE North of Hatchett Street	7631_5303_	NB	172	83	-51.9%	-89	8	PASS	FAIL	PASS
41	SUMMER LANE North of Hatchett Street	5303_7631_	SB	659	663	0.6%	4	0	PASS	PASS	PASS
42	GREAT HAMPTON STREET South of Key Hill	5155_5144_	NB	797	854	7.2%	57	2	PASS	PASS	PASS
43	GREAT HAMPTON STREET South of Key Hill	5144_5155_	SB	436	398	-8.6%	-38	2	PASS	PASS	PASS
46	WARSTONE LANE West of Pemberton Street	5159_7654_	EB	454	366	-19.4%	-88	4	PASS	PASS	PASS
47	WARSTONE LANE West of Pemberton Street	7654_5159_	WB	225	133	-40.7%	-91	7	PASS	FAIL	PASS
48	CARVER STREET West of Moreton Street	5159_5152_	EB	118	39	-66.7%	-79	9	PASS	FAIL	PASS
57	BROAD STREET East of Bishopgate Street	8190_1195_	NB	903	843	-6.6%	-60	2	PASS	PASS	PASS
58	BROAD STREET East of Bishopgate Street	1195_8190_	SB	656	518	-21.0%	-138	6	FAIL	FAIL	FAIL
59	TENNANT STREET South of Moss House Close	7645_7698_	EB	191	322	69.2%	132	8	FAIL	FAIL	FAIL
60	TENNANT STREET South of Moss House Close	7698_7645_	WB	51	77	50.9%	26	3	PASS	PASS	PASS
68	BRISTOL STREET South Of Rickman Drive	8312_8407_	WB	3073	3352	9.1%	279	5	PASS	PASS	PASS
69	BRISTOL STREET South Of Rickman Drive	8157_8312_	SB	1806	1798	-0.5%	-8	0	PASS	PASS	PASS
75	HORTON SQUARE South of Highgate Street	7601_7312_	SB	89	47	-46.8%	-42	5	PASS	PASS	PASS
81	LEOPOLD STREET West of Highgate Middleway	7172_7607_	SB	268	115	-57.2%	-153	11	FAIL	FAIL	FAIL
83	MOSELEY ROAD South of Moseley Street	7164_7161_	WB	53	62	17.7%	9	1	PASS	PASS	PASS
84	CAMP HILL South of Bradford Street	7204_7294_	NB	805	758	-5.9%	-47	2	PASS	PASS	PASS
85	CAMP HILL South of Bradford Street	7294_7204_	SB	330	378	14.7%	48	3	PASS	PASS	PASS
86	COVENTRY ROAD East of Bowyer Street	7292_1100_	NB	270	284	5.4%	14	1	PASS	PASS	PASS
87	COVENTRY ROAD East of Bowyer Street	1100_7292_	SB	540	408	-24.4%	-132	6	FAIL	FAIL	FAIL
88	CURZON STREET East Of Penn Street	6179_1120_	EB	192	209	9.1%	17	1	PASS	PASS	PASS
89	CURZON STREET East Of Penn Street	1120_6179_	WB	326	310	-4.8%	-16	1	PASS	PASS	PASS
90	JENNENS ROAD South Of Lawley Street	6145_7142_	EB	375	247	-34.2%	-128	7	FAIL	FAIL	FAIL
91	JENNENS ROAD South Of Lawley Street	7142_6145_	WB	564	596	5.8%	33	1	PASS	PASS	PASS
92	LISTER STREET West of Venture Way	6173_6301_	NB	158	85	-46.2%	-73	7	PASS	FAIL	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
93	LISTER STREET West of Venture Way	6301_6173_	SB	359	190	-46.9%	-168	10	FAIL	FAIL	FAIL
94	NEWTOWN MIDDLEWAY Access to New John Street	6701_7754_	EB	58	72	24.7%	14	2	PASS	PASS	PASS
96	ADDERLEY STREET West of Glover Street	8921_2044_	WB	64	89	39.1%	25	3	PASS	PASS	PASS
97	GREAT BARR STREET South Of Glover Street	7171_8924_	EB	398	330	-17.1%	-68	4	PASS	PASS	PASS
98	GREAT BARR STREET South Of Glover Street	8924_7171_	WB	475	452	-4.9%	-23	1	PASS	PASS	PASS
104	UNETT STREET South of New John Street	1164_5175_	SB	527	307	-41.7%	-220	11	FAIL	FAIL	FAIL
105	ASTON ROAD Dartmouth Circus South Slips	6176_6169_	NB	741	759	2.6%	19	1	PASS	PASS	PASS
108	CAR21358 ALCESTER STREET South Of Green Street	7308_7307_	NB	344	263	-23.6%	-81	5	PASS	PASS	PASS
109	CAR21358 ALCESTER STREET South Of Green Street	7307_7308_	SB	161	135	-15.8%	-25	2	PASS	PASS	PASS
111	CAR11242 GARRISON LANE West Of Sydney Road	7541_58910_	SB	398	242	-39.3%	-156	9	FAIL	FAIL	FAIL
112	CAR11242 GARRISON LANE West Of Sydney Road	58910_7541_	EB	562	364	-35.1%	-198	9	FAIL	FAIL	FAIL
114	CAR21278 DARTMOUTH MIDDLEWAY North Of Jennens Road	6153_6301_	EB	1302	1091	-16.2%	-211	6	FAIL	FAIL	FAIL
115	CAR21279 DARTMOUTH MIDDLEWAY North Of Jennens Road	6301_6153_	WB	1135	1101	-3.0%	-34	1	PASS	PASS	PASS
116	CAR21280 NECHELLS PARKWAY East Of Dartmouth Middleway	1129_6302_	NB	438	419	-4.5%	-20	1	PASS	PASS	PASS
117	CAR21281 NECHELLS PARKWAY East Of Dartmouth Middleway	6302_1129_	SB	708	641	-9.5%	-67	3	PASS	PASS	PASS
119	CAR21283 LAWLEY MIDDLEWAY South Of Jennens Road	1122_1128_	WB	1424	1325	-6.9%	-99	3	PASS	PASS	PASS
125	CAR21288 VAUXHALL ROAD East Of Lawley Middleway	6529_1121_	NB	547	540	-1.3%	-7	0	PASS	PASS	PASS
129	CAR21305 BELGRAVE MIDDLEWAY West (Corrected) Of Highgate Middleway	7614_1075_	EB	1875	1888	0.7%	13	0	PASS	PASS	PASS
136	CAR21301 HIGHGATE MIDDLEWAY North Of Belgrave Middleway	7605_1078_	WB	1016	1369	34.8%	353	10	FAIL	FAIL	FAIL
137	CAR21303 HADEN WAY South of Belgrave Road	54234_7748_	EB	1028	1115	8.4%	87	3	PASS	PASS	PASS
138	CAR21303 HADEN WAY South of Belgrave Road	7748_54234_	SB	507	460	-9.2%	-47	2	PASS	PASS	PASS
147	Moor Street (between Carrs Lane & Swan Passage)	7113_10001_	WB	796	732	-7.9%	-63	2	PASS	PASS	PASS
149	Sherlock Street / Belgrave Middleway	1189_1108_	NB	571	561	-1.6%	-9	0	PASS	PASS	PASS
150	Sherlock Street / Belgrave Middleway	1110_1106_	SB	1166	784	-32.8%	-382	12	FAIL	FAIL	FAIL

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
151	Sherlock Street / Belgrave Middleway	7203_1110_	N/A	447	421	-5.7%	-25	1	PASS	PASS	PASS
152	Sherlock Street / Belgrave Middleway	7203_1104_	N/A	575	784	36.5%	210	8	FAIL	FAIL	FAIL
153	Sherlock Street / Belgrave Middleway	7169_1102_	N/A	1318	1384	5.0%	66	2	PASS	PASS	PASS
154	Sherlock Street / Belgrave Middleway	1109_7169_	N/A	682	699	2.6%	18	1	PASS	PASS	PASS
155	Sherlock Street / Belgrave Middleway	1103_7203_	N/A	896	815	-9.0%	-80	3	PASS	PASS	PASS
156	Sherlock Street / Belgrave Middleway	1105_1110_	N/A	1417	1378	-2.7%	-38	1	PASS	PASS	PASS
157	Sherlock Street / Belgrave Middleway	1107_1190_	N/A	635	621	-2.2%	-14	1	PASS	PASS	PASS
164	Key Hill Circus	5403_5154_	N/A	623	639	2.5%	16	1	PASS	PASS	PASS
165	Key Hill Circus	5174_5154_	N/A	1429	1440	0.8%	12	0	PASS	PASS	PASS
167	Key Hill Circus	1165_5154_	N/A	1414	1495	5.7%	81	2	PASS	PASS	PASS
168	Key Hill Circus	5154_1165_	N/A	1078	1061	-1.6%	-17	1	PASS	PASS	PASS
169	Key Hill Circus	5154_5174_	N/A	1907	1964	3.0%	58	1	PASS	PASS	PASS
170	Key Hill Circus	5154_5403_	N/A	482	548	13.8%	66	3	PASS	PASS	PASS
171	Hockley Circus	5536_1147_	N/A	684	576	-15.7%	-107	4	FAIL	PASS	PASS
172	Hockley Circus	5158_1141_	N/A	717	716	0.0%	0	0	PASS	PASS	PASS
174	Hockley Circus	5171_1139_	N/A	1021	904	-11.5%	-117	4	PASS	PASS	PASS
175	Hockley Circus	5155_1146_	N/A	162	33	-79.4%	-128	13	FAIL	FAIL	FAIL
176	Hockley Circus	1148_1144_	N/A	336	235	-30.1%	-101	6	FAIL	FAIL	FAIL
177	Hockley Circus	1147_5536_	N/A	465	464	-0.2%	-1	0	PASS	PASS	PASS
178	Hockley Circus	1140_1150_	N/A	643	597	-7.2%	-46	2	PASS	PASS	PASS
180	Hockley Circus	1138_5171_	N/A	650	639	-1.7%	-11	0	PASS	PASS	PASS
181	Hockley Circus	1145_1149_	N/A	364	229	-37.0%	-135	8	FAIL	FAIL	FAIL
182	Hockley Circus	1144_1148_	N/A	647	535	-17.3%	-112	5	FAIL	PASS	PASS
183	Lancaster Circus	6193_1182_	N/A	665	627	-5.8%	-38	2	PASS	PASS	PASS
184	Lancaster Circus	6136_1180_	N/A	1020	1063	4.2%	43	1	PASS	PASS	PASS
185	Lancaster Circus	6125_1178_	N/A	416	387	-6.8%	-28	1	PASS	PASS	PASS
186	Lancaster Circus	6141_1183_	N/A	598	600	0.3%	2	0	PASS	PASS	PASS
187	Lancaster Circus	1181_6193_	N/A	652	607	-6.9%	-45	2	PASS	PASS	PASS
188	Lancaster Circus	1179_1193_	N/A	693	755	9.0%	62	2	PASS	PASS	PASS
189	Lancaster Circus	1184_6130_	N/A	992	986	-0.6%	-6	0	PASS	PASS	PASS
190	Lancaster Circus	1185_6190_	N/A	362	329	-9.2%	-33	2	PASS	PASS	PASS
192	Holloway Circus	8145_8205_	N/A	728	720	-1.1%	-8	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
193	Holloway Circus	8154_8208_	N/A	621	608	-2.2%	-13	1	PASS	PASS	PASS
194	Holloway Circus	8139_8207_	N/A	224	221	-1.4%	-3	0	PASS	PASS	PASS
195	Holloway Circus	8205_8195_	N/A	732	745	1.8%	13	0	PASS	PASS	PASS
196	Holloway Circus	8208_8145_	N/A	937	680	-27.5%	-257	9	FAIL	FAIL	FAIL
197	Holloway Circus	8207_8192_	N/A	365	342	-6.3%	-23	1	PASS	PASS	PASS
198	Holloway Circus	8206_8139_	N/A	683	646	-5.5%	-37	1	PASS	PASS	PASS
199	Spring Hill Circus	1173_1172_1174	N/A	367	370	0.8%	3	0	PASS	PASS	PASS
200	Spring Hill Circus	1177_1175_1176	N/A	133	133	-0.3%	0	0	PASS	PASS	PASS
201	Spring Hill Circus	1173_1171_	N/A	1096	1239	13.1%	143	4	PASS	PASS	PASS
202	Spring Hill Circus	1176_1169_	N/A	927	895	-3.5%	-32	1	PASS	PASS	PASS
203	Spring Hill Circus	1177_1168_	N/A	1220	1087	-10.9%	-133	4	PASS	PASS	PASS
204	Spring Hill Circus	1174_1166_	N/A	577	593	2.8%	16	1	PASS	PASS	PASS
205	Spring Hill Circus	1170_1173_	N/A	1482	1506	1.6%	24	1	PASS	PASS	PASS
206	Spring Hill Circus	1168_1175_	N/A	403	371	-8.0%	-32	2	PASS	PASS	PASS
207	Spring Hill Circus	1167_2108_	N/A	1225	1305	6.6%	81	2	PASS	PASS	PASS
208	Spring Hill Circus	1171_1172_	N/A	710	622	-12.4%	-88	3	PASS	PASS	PASS
209	Ladywood Circus	8802_8804_8807	N/A	409	393	-3.8%	-16	1	PASS	PASS	PASS
210	Ladywood Circus	8809_8807_	N/A	1143	1175	2.8%	32	1	PASS	PASS	PASS
211	Ladywood Circus	8811_8806_	N/A	659	636	-3.5%	-23	1	PASS	PASS	PASS
212	Ladywood Circus	8812_8805_	N/A	946	990	4.7%	44	1	PASS	PASS	PASS
213	Ladywood Circus	8802_8804_	N/A	861	896	4.2%	36	1	PASS	PASS	PASS
214	Ladywood Circus	8806_8809_	N/A	843	958	13.7%	116	4	PASS	PASS	PASS
215	Ladywood Circus	8805_8811_	N/A	475	440	-7.4%	-35	2	PASS	PASS	PASS
216	Ladywood Circus	8805_8812_	N/A	538	661	22.8%	123	5	FAIL	PASS	PASS
217	Ladywood Circus	8803_8801_	N/A	1343	1245	-7.3%	-98	3	PASS	PASS	PASS
218	Five Ways	8187_1065_	N/A	1267	1341	5.9%	74	2	PASS	PASS	PASS
219	Five Ways	1071_1063_	N/A	1055	1192	13.0%	137	4	PASS	PASS	PASS
220	Five Ways	8181_1061_	N/A	632	323	-48.8%	-308	14	FAIL	FAIL	FAIL
221	Five Ways	7645_1069_	N/A	1916	1420	-25.9%	-496	12	FAIL	FAIL	FAIL
222	Five Ways	8429_1067_	N/A	282	252	-10.4%	-29	2	PASS	PASS	PASS
223	Five Ways	1064_8187_	N/A	1163	972	-16.4%	-190	6	FAIL	FAIL	FAIL
224	Five Ways	1062_1074_	N/A	658	583	-11.4%	-75	3	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
225	Five Ways	1060_8182_	N/A	736	697	-5.2%	-38	1	PASS	PASS	PASS
226	Five Ways	1068_7645_	N/A	2222	2198	-1.1%	-24	1	PASS	PASS	PASS
227	Five Ways	1066_1072_	N/A	373	77	-79.3%	-295	20	FAIL	FAIL	FAIL
228	Dartmouth Circus	6194_6166_	N/A	1690	1668	-1.3%	-22	1	PASS	PASS	PASS
229	Dartmouth Circus	6701_6168_	N/A	1304	1229	-5.7%	-74	2	PASS	PASS	PASS
231	Dartmouth Circus	6301_6165_	N/A	1493	1414	-5.3%	-79	2	PASS	PASS	PASS
232	Dartmouth Circus	6167_8213_	N/A	1577	1532	-2.8%	-45	1	PASS	PASS	PASS
233	Dartmouth Circus	6168_6701_	N/A	1344	1379	2.6%	35	1	PASS	PASS	PASS
235	Dartmouth Circus	6165_6301_	N/A	1470	1404	-4.4%	-65	2	PASS	PASS	PASS
236	Garrison Circus	7750_1112_	N/A	1958	1848	-5.6%	-110	3	PASS	PASS	PASS
237	Garrison Circus	7188_1118_	N/A	243	278	14.3%	35	2	PASS	PASS	PASS
238	Garrison Circus	8926_1116_	N/A	1542	1524	-1.1%	-18	0	PASS	PASS	PASS
239	Garrison Circus	7751_1114_	N/A	658	621	-5.6%	-37	1	PASS	PASS	PASS
240	Garrison Circus	1119_7750_	N/A	1890	1887	-0.1%	-2	0	PASS	PASS	PASS
241	Garrison Circus	1117_7188_	N/A	537	499	-7.1%	-38	2	PASS	PASS	PASS
242	Garrison Circus	1115_8926_	N/A	1555	1481	-4.7%	-74	2	PASS	PASS	PASS
243	Garrison Circus	1113_7751_	N/A	421	406	-3.5%	-15	1	PASS	PASS	PASS
245	Camp Hill Circus	1088_7204_	N/A	1453	1431	-1.5%	-22	1	PASS	PASS	PASS
249	Camp Hill Circus	7204_1088_	N/A	1622	1403	-13.5%	-219	6	PASS	FAIL	PASS
250	Camp Hill Circus	7204_55347_	N/A	548	532	-2.9%	-16	1	PASS	PASS	PASS
251	Camp Hill Circus	7204_1101_	N/A	1723	1746	1.4%	23	1	PASS	PASS	PASS
252	Bordesley Circus	1089_1090_1094	N/A	705	681	-3.4%	-24	1	PASS	PASS	PASS
253	Bordesley Circus	7152_1095_	N/A	1544	1481	-4.1%	-63	2	PASS	PASS	PASS
254	Bordesley Circus	1100_1093_	N/A	231	284	23.2%	53	3	PASS	PASS	PASS
255	Bordesley Circus	1101_1092_	N/A	1763	1746	-0.9%	-16	0	PASS	PASS	PASS
256	Bordesley Circus	1089_1090_	N/A	1661	1587	-4.4%	-74	2	PASS	PASS	PASS
257	Bordesley Circus	1099_1097_	N/A	522	513	-1.6%	-9	0	PASS	PASS	PASS
258	Bordesley Circus	1094_7152_	N/A	1595	1595	0.0%	0	0	PASS	PASS	PASS
259	Bordesley Circus	1092_1100_	N/A	422	408	-3.3%	-14	1	PASS	PASS	PASS
260	Bordesley Circus	1091_1101_	N/A	1612	1528	-5.2%	-84	2	PASS	PASS	PASS
262	Bordesley Circus	1096_1099_	N/A	754	752	-0.2%	-2	0	PASS	PASS	PASS
263	St Chads Queensway / Snow Hill Queensway	5111_5106_	N/A	985	998	1.4%	14	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
264	St Chads Queensway / Snow Hill Queensway	5112_5106_	N/A	612	461	-24.6%	-150	6	FAIL	FAIL	FAIL
265	St Chads Queensway / Snow Hill Queensway	6147_5107_	N/A	254	254	0.3%	1	0	PASS	PASS	PASS
266	St Chads Queensway / Snow Hill Queensway	7803_5107_	N/A	889	979	10.1%	90	3	PASS	PASS	PASS
267	St Chads Queensway / Snow Hill Queensway	5106_5111_	N/A	777	808	4.0%	31	1	PASS	PASS	PASS
268	St Chads Queensway / Snow Hill Queensway	7801_5105_	N/A	1221	1182	-3.2%	-39	1	PASS	PASS	PASS
269	St Chads Queensway / Snow Hill Queensway	5107_6147_	N/A	268	268	-0.1%	0	0	PASS	PASS	PASS
270	St Chads Queensway / Snow Hill Queensway	5107_5108_	N/A	473	413	-12.7%	-60	3	PASS	PASS	PASS
273	Great Charles Street Queensway / Newhall Street	5164_5102_	N/A	351	169	-51.9%	-182	11	FAIL	FAIL	FAIL
274	Great Charles Street Queensway / Newhall Street	5103_5102_	N/A	418	358	-14.4%	-60	3	PASS	PASS	PASS
275	Great Charles Street Queensway / Newhall Street	5102_5187_	N/A	518	314	-39.4%	-204	10	FAIL	FAIL	FAIL
276	Great Charles Street Queensway / Newhall Street	5102_5127_	N/A	335	357	6.7%	22	1	PASS	PASS	PASS
277	Great Charles Street Queensway / Newhall Street	5102_5164_	N/A	365	206	-43.4%	-158	9	FAIL	FAIL	FAIL
278	Great Charles Street Queensway / Newhall Street	5102_5116_	N/A	473	438	-7.3%	-35	2	PASS	PASS	PASS
279	Snow Hill Queensway / Colmore Circus	6147_6120_	N/A	265	268	1.2%	3	0	PASS	PASS	PASS
280	Snow Hill Queensway / Colmore Circus	7908_6120_	N/A	192	209	8.6%	17	1	PASS	PASS	PASS
281	Snow Hill Queensway / Colmore Circus	6121_6120_	N/A	179	129	-27.9%	-50	4	PASS	PASS	PASS
282	Snow Hill Queensway / Colmore Circus	6120_6147_	N/A	226	254	12.5%	28	2	PASS	PASS	PASS
283	Snow Hill Queensway / Colmore Circus	6120_7908_	N/A	202	185	-8.2%	-17	1	PASS	PASS	PASS
284	Snow Hill Queensway / Colmore Circus	6120_6121_	N/A	214	165	-22.6%	-48	4	PASS	PASS	PASS
286	High Street / Dale End	6424_6708_	N/A	133	131	-1.1%	-2	0	PASS	PASS	PASS
287	High Street / Dale End	6103_6708_	N/A	22	10	-53.5%	-12	3	PASS	PASS	PASS
288	High Street / Dale End	6708_6102_	N/A	66	63	-4.5%	-3	0	PASS	PASS	PASS
290	High Street / Dale End	6708_6103_	N/A	80	58	-27.5%	-22	3	PASS	PASS	PASS
292	Navigation Street / Hill Street	8333_8304_	N/A	137	180	31.0%	43	3	PASS	PASS	PASS
293	Navigation Street / Hill Street	8199_8304_	N/A	94	55	-40.9%	-38	4	PASS	PASS	PASS
294	Navigation Street / Hill Street	8116_8304_	N/A	224	230	3.0%	7	0	PASS	PASS	PASS
295	Navigation Street / Hill Street	8304_8700_	N/A	72	68	-5.1%	-4	0	PASS	PASS	PASS
296	Navigation Street / Hill Street	8304_8333_	N/A	250	189	-24.5%	-61	4	PASS	PASS	PASS
298	Navigation Street / Hill Street	8304_8116_	N/A	132	81	-39.0%	-51	5	PASS	PASS	PASS
299	Smallbrook Queensway / New Street Station Access	7113_7118_	N/A	138	93	-32.6%	-45	4	PASS	PASS	PASS
301	Smallbrook Queensway / New Street Station Access	2114_7118_	N/A	210	114	-45.7%	-96	8	PASS	FAIL	PASS
302	Smallbrook Queensway / New Street Station Access	7118_7113_	N/A	71	42	-40.4%	-29	4	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
304	Smallbrook Queensway / New Street Station Access	7118_2115_	N/A	272	69	-74.6%	-203	16	FAIL	FAIL	FAIL
306	Hagley Road / Monument Road	8540_8310_	N/A	1888	1898	0.5%	10	0	PASS	PASS	PASS
307	Hagley Road / Monument Road	8539_8310_	N/A	972	1038	6.8%	66	2	PASS	PASS	PASS
308	Hagley Road / Monument Road	8308_8310_	N/A	1601	1421	-11.2%	-180	5	PASS	PASS	PASS
309	Hagley Road / Monument Road	8310_8178_	N/A	1115	1125	0.9%	10	0	PASS	PASS	PASS
310	Hagley Road / Monument Road	8310_8540_	N/A	1218	1333	9.5%	115	3	PASS	PASS	PASS
311	Hagley Road / Monument Road	8310_8539_	N/A	355	86	-75.7%	-269	18	FAIL	FAIL	FAIL
312	Hagley Road / Monument Road	8310_8308_	N/A	1772	1812	2.3%	40	1	PASS	PASS	PASS
313	1 - Sheepcote Street / Brindley Place / Essington Street	2065_8196_	N/A	111	212	90.9%	101	8	FAIL	FAIL	FAIL
314	1 - Sheepcote Street / Brindley Place / Essington Street	8313_8196_	N/A	292	155	-46.8%	-137	9	FAIL	FAIL	FAIL
315	1 - Sheepcote Street / Brindley Place / Essington Street	1195_8196_	N/A	312	300	-4.0%	-12	1	PASS	PASS	PASS
316	1 - Sheepcote Street / Brindley Place / Essington Street	8189_8196_	N/A	525	557	6.1%	32	1	PASS	PASS	PASS
317	1 - Sheepcote Street / Brindley Place / Essington Street	8196_2065_	N/A	365	361	-1.2%	-4	0	PASS	PASS	PASS
318	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8313_	N/A	490	535	9.1%	45	2	PASS	PASS	PASS
319	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8189_	N/A	342	328	-4.0%	-14	1	PASS	PASS	PASS
320	2 - Broad Street / Sheepcote Street near Novotel	8315_8313_	N/A	314	436	38.9%	122	6	FAIL	FAIL	FAIL
321	2 - Broad Street / Sheepcote Street near Novotel	1195_8313_	N/A	654	543	-16.9%	-110	5	FAIL	PASS	PASS
323	2 - Broad Street / Sheepcote Street near Novotel	8313_8315_	N/A	697	841	20.6%	144	5	FAIL	PASS	PASS
324	2 - Broad Street / Sheepcote Street near Novotel	8313_1195_	N/A	459	518	12.9%	59	3	PASS	PASS	PASS
326	Livery Street, (Between Snow Hill car park & Barwick Street)	5124_5197_	N/A	511	491	-3.8%	-20	1	PASS	PASS	PASS
327	Aston Expressway Beneath Dartmouth Circus	6163_6171_	N/A	1618	1554	-3.9%	-63	2	PASS	PASS	PASS
328	Aston Expressway Beneath Dartmouth Circus	6170_6161_	N/A	2799	2707	-3.3%	-92	2	PASS	PASS	PASS
329	A34 NEWTOWN ROW SOUTH OF PHILLIPS STREET	6532_54329_	N/A	857	897	4.6%	40	1	PASS	PASS	PASS
330	A34 NEWTOWN ROW SOUTH OF PHILLIPS STREET	54332_6532_	NB	1733	1737	0.2%	3	0	PASS	PASS	PASS
331	WHEELER STREET SOUTH OF MARKFORD WALK	5537_1047_	SB	568	544	-4.3%	-24	1	PASS	PASS	PASS
332	WHEELER STREET SOUTH OF MARKFORD WALK	1047_5537_	NB	857	767	-10.5%	-90	3	PASS	PASS	PASS
333	LANDOR STREET WEST OF MIDLANDS STREET	6531_1043_	SB	128	105	-18.1%	-23	2	PASS	PASS	PASS
334	LANDOR STREET WEST OF MIDLANDS STREET	1043_6531_	NB	310	280	-9.6%	-30	2	PASS	PASS	PASS
335	LONGMORE STREET North Of Balsall Heath Road	7536_7312_	SB	76	86	12.1%	9	1	PASS	PASS	PASS
336	LONGMORE STREET North Of Balsall Heath Road	7312_7536_	EB	13	6	-52.3%	-7	2	PASS	PASS	PASS
337	B4144 PARK LANE EAST OF SUTTON STREET	54335_2099_	WB	653	590	-9.6%	-63	3	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
338	B4144 PARK LANE EAST OF SUTTON STREET	2099_54335_	NB	373	384	3.0%	11	1	PASS	PASS	PASS
341	B4124 HAMSTEAD ROAD NORTH OF CHARLEVILLE ROAD	53272_53274_	SB	290	357	23.3%	68	4	PASS	PASS	PASS
342	B4124 HAMSTEAD ROAD NORTH OF CHARLEVILLE ROAD	53274_53272_	EB	601	610	1.6%	10	0	PASS	PASS	PASS
343	A41 SOHO HILL NORTH OF HAMSTEAD ROAD	53272_53273_	WB	426	605	42.1%	179	8	FAIL	FAIL	FAIL
344	A41 SOHO HILL NORTH OF HAMSTEAD ROAD	53273_53272_	NB	647	731	13.0%	84	3	PASS	PASS	PASS
345	A4040 HANDSWORTH NEW ROAD NORTH OF LODGE ROAD	1025_53315_	SB	158	160	1.3%	2	0	PASS	PASS	PASS
346	A4040 HANDSWORTH NEW ROAD NORTH OF LODGE ROAD	53315_1025_	NB	253	254	0.5%	1	0	PASS	PASS	PASS
349	A457 DUDLEY ROAD EAST OF ALGERNON ROAD	53250_53251_	SB	761	629	-17.3%	-131	5	FAIL	PASS	PASS
350	A457 DUDLEY ROAD EAST OF ALGERNON ROAD	53251_53250_	NB	419	364	-13.0%	-55	3	PASS	PASS	PASS
351	A4040 CITY ROAD SOUTH OF WIMBOURNE ROAD	53249_53250_	SB	468	254	-45.7%	-214	11	FAIL	FAIL	FAIL
352	A4040 CITY ROAD SOUTH OF WIMBOURNE ROAD	53250_53249_	EB	387	338	-12.6%	-49	3	PASS	PASS	PASS
353	B4125 PORTLAND ROAD WEST OF GILLOTT ROAD	53161_1026_	WB	649	618	-4.9%	-32	1	PASS	PASS	PASS
354	B4125 PORTLAND ROAD WEST OF GILLOTT ROAD	1026_53161_	EB	269	314	16.5%	44	3	PASS	PASS	PASS
355	B4124 HARBORNE ROAD NORTH OF YATELEY ROAD	1027_5610_	WB	768	762	-0.8%	-6	0	PASS	PASS	PASS
356	B4124 HARBORNE ROAD NORTH OF YATELEY ROAD	5610_1027_	EB	258	258	0.1%	0	0	PASS	PASS	PASS
357	RICHMOND HILL ROAD NORTH OF PETERSHAM PLACE	1032_5610_	WB	270	292	8.2%	22	1	PASS	PASS	PASS
358	RICHMOND HILL ROAD NORTH OF PETERSHAM PLACE	5610_1032_	EB	184	180	-1.9%	-4	0	PASS	PASS	PASS
359	WESTBOURNE ROAD WEST OF VICARAGE ROAD	5604_5605_	WB	1000	561	-43.9%	-439	16	FAIL	FAIL	FAIL
360	B4217 CHURCH ROAD NORTH OF ARTHURS ROAD	1033_8542_	NB	420	443	5.4%	23	1	PASS	PASS	PASS
361	B4217 CHURCH ROAD NORTH OF ARTHURS ROAD	8542_1033_	SB	295	547	85.3%	252	12	FAIL	FAIL	FAIL
362	B4217 PRIORY ROAD SOUTH OF PRIORY PLACE	54872_1036_	WB	818	876	7.0%	58	2	PASS	PASS	PASS
363	B4217 PRIORY ROAD SOUTH OF PRIORY PLACE	1036_54872_	NB	602	605	0.5%	3	0	PASS	PASS	PASS
364	B4217 EDGBASTON ROAD EAST OF PERSHORE ROAD	1038_1039_	SB	673	715	6.2%	42	2	PASS	PASS	PASS
365	B4217 EDGBASTON ROAD EAST OF PERSHORE ROAD	1039_1038_	NB	857	859	0.2%	2	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
366	BRIGHTON ROAD WEST OF PEMBROKE ROAD	1051_1040_	SB	214	710	232.4%	496	23	FAIL	FAIL	FAIL
367	GOLDEN HILLOCK ROAD NORTH OF LLOYD STREET	54268_54278_	EB	247	249	0.8%	2	0	PASS	PASS	PASS
368	GOLDEN HILLOCK ROAD NORTH OF LLOYD STREET	54278_54268_	WB	192	191	-0.4%	-1	0	PASS	PASS	PASS
369	BORDESLEY GREEN EAST OF PIKEWATER ROAD	54281_2101_	WB	502	533	6.1%	31	1	PASS	PASS	PASS
370	BORDESLEY GREEN EAST OF PIKEWATER ROAD	2101_54281_	NB	708	728	2.8%	20	1	PASS	PASS	PASS
371	B4145 ASH ROAD NORTH OF HALL ROAD	2102_54361_	SB	332	333	0.1%	0	0	PASS	PASS	PASS
372	B4145 ASH ROAD NORTH OF HALL ROAD	54361_2102_	EB	298	330	11.0%	33	2	PASS	PASS	PASS
375	Vyse Street South of Pitsford Street	5191_5157_	SB	289	291	0.7%	2	0	PASS	PASS	PASS
376	Vyse Street South of Pitsford Street	5157_5191_	NB	532	491	-7.7%	-41	2	PASS	PASS	PASS
377	WARSTONE LANE WEST OF AUGUSTA STREET	5189_5195_	SB	228	248	8.9%	20	1	PASS	PASS	PASS
378	WARSTONE LANE WEST OF AUGUSTA STREET	5195_5189_	NB	212	126	-40.6%	-86	7	PASS	FAIL	PASS
379	GREAT HAMPTON ROW SOUTH OF MOSBOROUGH CRESCENT	5175_5126_	SB	48	88	81.7%	39	5	PASS	PASS	PASS
380	GREAT HAMPTON ROW SOUTH OF MOSBOROUGH CRESCENT	5126_5175_	EB	43	46	8.6%	4	1	PASS	PASS	PASS
381	DIGBETH SOUTH OF PARK STREET	7123_7199_	WB	1312	1351	2.9%	38	1	PASS	PASS	PASS
382	MOAT LANE NORTH OF BRADFORD STREET	7127_7125_	EB	1274	1329	4.3%	54	2	PASS	PASS	PASS
385	ALCESTER STREET SOUTH OF MOSELEY STREET	7184_7101_	WB	300	160	-46.6%	-140	9	FAIL	FAIL	FAIL
386	ALCESTER STREET SOUTH OF MOSELEY STREET	7101_7184_	SB	191	163	-14.6%	-28	2	PASS	PASS	PASS
388	Bristol Road	1110_8312_	NB	1733	1800	3.8%	66	2	PASS	PASS	PASS
389	Bristol Road	1037_8312_	NB	2029	1781	-12.2%	-248	6	PASS	FAIL	PASS
390	Bristol Road	8185_8312_	SB	230	153	-33.5%	-77	6	PASS	FAIL	PASS
392	Bristol Road	8312_1110_	N/A	1187	784	-34.0%	-404	13	FAIL	FAIL	FAIL
393	Bristol Road	8312_1037_	N/A	1214	1075	-11.4%	-138	4	PASS	PASS	PASS
394	Bristol Road	8312_8185_	N/A	406	301	-25.9%	-105	6	FAIL	FAIL	FAIL
396	Curzon Circle	8925_1123_	N/A	1923	1887	-1.9%	-36	1	PASS	PASS	PASS
400	Curzon Circle	1123_8925_	N/A	1828	1673	-8.5%	-155	4	PASS	PASS	PASS
404	Boulton Circus	1163_1155_	N/A	1100	1184	7.6%	84	2	PASS	PASS	PASS
409	Boulton Circus	1154_1163_	N/A	1061	1115	5.1%	54	2	PASS	PASS	PASS
413	Newtown Row	6701_6303_	N/A	1568	1307	-16.7%	-261	7	FAIL	FAIL	FAIL
415	Newtown Row	5303_6303_	N/A	648	1001	54.5%	353	12	FAIL	FAIL	FAIL

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
417	Newtown Row	6303_6701_	N/A	809	1229	52.0%	420	13	FAIL	FAIL	FAIL
419	Newtown Row	6303_5303_	N/A	1276	1277	0.1%	2	0	PASS	PASS	PASS

H.2. Inter-peak Model

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
1	Summer Lane, Att - Direction sign, OSGR: SP 06959 88374	5303_5538_	NB	235	199	-15.7%	-37	3	PASS	PASS	PASS
2	Summer Lane, Att - Direction sign, OSGR: SP 06959 88374	5538_5303_	SB	278	252	-9.4%	-26	2	PASS	PASS	PASS
3	Wellington Road, Att - LC8, OSGR: SP 06517 85140	2100_1037_	NB	253	260	2.7%	7	0	PASS	PASS	PASS
6	Bristol Road, Att - Railings, OSGR: SP 06739 85231	1037_53128_	SB	1024	1042	1.8%	18	1	PASS	PASS	PASS
9	Summer Hill Street Left Turn, Att - Railings, OSGR: SP 05794 87181	5204_5306_5169	NB	226	224	-0.6%	-1	0	PASS	PASS	PASS
10	Summer Hill Road, Att - Traffic Signals, OSGR: SP 05789 87213	5169_5306_5149	EB	222	230	3.4%	8	1	PASS	PASS	PASS
11	Summer Hill Road, Att - Traffic Signals, OSGR: SP 05789 87213	5169_5306_5204	EB	185	176	-5.0%	-9	1	PASS	PASS	PASS
12	Colmore Row, Att - Parking post, OSGR: SP 06947 87080	6101_5101_	SB	362	435	20.2%	73	4	PASS	PASS	PASS
13	Park Street, Att - LC17, OSGR: SP 07560 86972	6108_6107_	SB	891	1047	17.5%	156	5	FAIL	PASS	PASS
14	Great Lister Street, Att - Railings, OSGR: SP 07923 87935	6301_6195_	EB	152	175	15.3%	23	2	PASS	PASS	PASS
15	Great Lister Street, Att - Railings, OSGR: SP 07923 87935	6195_6301_	WB	276	250	-9.4%	-26	2	PASS	PASS	PASS
16	Sherlock Street, Att - telepole, OSGR: SP 07337 86029	7326_7143_	NB	330	259	-21.6%	-71	4	PASS	PASS	PASS
17	Sherlock Street, Att - telepole, OSGR: SP 07337 86029	7143_7326_	SB	462	456	-1.2%	-6	0	PASS	PASS	PASS
18	Sherlock Stret, Att - LC6, OSGR: SP 07411 86058	7706_7613_	EB	319	303	-4.9%	-16	1	PASS	PASS	PASS
19	Sherlock Stret, Att - LC6, OSGR: SP 07411 86058	7613_7706_	WB	307	292	-4.8%	-15	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
20	Bradford Street, Att - Railings, OSGR: SP 07728 86232	7306_7182_	EB	273	278	1.6%	4	0	PASS	PASS	PASS
21	Bradford Street, Att - Railings, OSGR: SP 07728 86232	7182_7306_	WB	232	205	-11.4%	-26	2	PASS	PASS	PASS
24	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8406_8150_	EB	601	604	0.5%	3	0	PASS	PASS	PASS
25	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8150_8406_	WB	592	451	-23.8%	-141	6	FAIL	FAIL	FAIL
26	Lodge Road, Att - Camera, OSGR: SP 04585 88510	1025_8217_	EB	317	292	-7.8%	-25	1	PASS	PASS	PASS
27	Lodge Road, Att - Camera, OSGR: SP 04585 88510	8217_1025_	WB	317	296	-6.6%	-21	1	PASS	PASS	PASS
28	Park Road, Att - LC2, OSGR: SP 05445 88482	8216_2107_	NB	217	233	7.3%	16	1	PASS	PASS	PASS
29	Park Road, Att - LC2, OSGR: SP 05445 88482	2107_8216_	SB	203	217	6.7%	14	1	PASS	PASS	PASS
34	Norfolk Road, Att - Information Sign, OSGR: SP 03960 85842	461_53171_	NB	219	317	44.5%	98	6	PASS	FAIL	PASS
35	Norfolk Road, Att - Information Sign, OSGR: SP 03960 85842	53171_461_	SB	353	369	4.6%	16	1	PASS	PASS	PASS
37	Wheeley's Road, Att - LC8, OSGR: SP 05991 85701	8305_8417_	SB	351	365	4.0%	14	1	PASS	PASS	PASS
39	NEW TOWN ROW North Of Pritchett Street	6303_6159_	SB	755	813	7.7%	58	2	PASS	PASS	PASS
40	SUMMER LANE North of Hatchett Street	7631_5303_	NB	246	235	-4.4%	-11	1	PASS	PASS	PASS
41	SUMMER LANE North of Hatchett Street	5303_7631_	SB	285	281	-1.6%	-5	0	PASS	PASS	PASS
42	GREAT HAMPTON STREET South of Key Hill	5155_5144_	NB	540	571	5.7%	31	1	PASS	PASS	PASS
43	GREAT HAMPTON STREET South of Key Hill	5144_5155_	SB	525	548	4.3%	22	1	PASS	PASS	PASS
46	WARSTONE LANE West of Pemberton Street	5159_7654_	EB	283	249	-11.9%	-34	2	PASS	PASS	PASS
47	WARSTONE LANE West of Pemberton Street	7654_5159_	WB	288	290	0.8%	2	0	PASS	PASS	PASS
48	CARVER STREET West of Moreton Street	5159_5152_	EB	78	64	-18.1%	-14	2	PASS	PASS	PASS
57	BROAD STREET East of Bishopgate Street	8190_1195_	NB	543	536	-1.3%	-7	0	PASS	PASS	PASS
58	BROAD STREET East of Bishopgate Street	1195_8190_	SB	765	736	-3.8%	-29	1	PASS	PASS	PASS
59	TENNANT STREET South of Moss House Close	7645_7698_	EB	108	169	56.3%	61	5	PASS	PASS	PASS
60	TENNANT STREET South of Moss House Close	7698_7645_	WB	52	49	-6.3%	-3	0	PASS	PASS	PASS
68	BRISTOL STREET South Of Rickman Drive	8312_8407_	WB	1816	2004	10.3%	188	4	PASS	PASS	PASS
69	BRISTOL STREET South Of Rickman Drive	8157_8312_	SB	1696	1812	6.8%	116	3	PASS	PASS	PASS
75	HORTON SQUARE South of Highgate Street	7601_7312_	SB	132	19	-86.0%	-114	13	FAIL	FAIL	FAIL
81	LEOPOLD STREET West of Highgate Middleway	7172_7607_	SB	187	105	-43.8%	-82	7	PASS	FAIL	PASS
83	MOSELEY ROAD South of Moseley Street	7164_7161_	WB	66	36	-45.5%	-30	4	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
84	CAMP HILL South of Bradford Street	7204_7294_	NB	442	446	0.9%	4	0	PASS	PASS	PASS
85	CAMP HILL South of Bradford Street	7294_7204_	SB	515	660	28.1%	145	6	FAIL	FAIL	FAIL
86	COVENTRY ROAD East of Bowyer Street	7292_1100_	NB	334	377	13.1%	44	2	PASS	PASS	PASS
87	COVENTRY ROAD East of Bowyer Street	1100_7292_	SB	411	360	-12.5%	-51	3	PASS	PASS	PASS
88	CURZON STREET East Of Penn Street	6179_1120_	EB	305	319	4.5%	14	1	PASS	PASS	PASS
89	CURZON STREET East Of Penn Street	1120_6179_	WB	227	203	-10.7%	-24	2	PASS	PASS	PASS
90	JENNENS ROAD South Of Lawley Street	6145_7142_	EB	413	389	-5.7%	-23	1	PASS	PASS	PASS
91	JENNENS ROAD South Of Lawley Street	7142_6145_	WB	361	531	47.1%	170	8	FAIL	FAIL	FAIL
92	LISTER STREET West of Venture Way	6173_6301_	NB	153	147	-3.7%	-6	0	PASS	PASS	PASS
93	LISTER STREET West of Venture Way	6301_6173_	SB	170	100	-41.1%	-70	6	PASS	FAIL	PASS
94	NEWTOWN MIDDLEWAY Access to New John Street	6701_7754_	EB	83	85	2.7%	2	0	PASS	PASS	PASS
96	ADDERLEY STREET West of Glover Street	8921_2044_	WB	91	93	1.5%	1	0	PASS	PASS	PASS
97	GREAT BARR STREET South Of Glover Street	7171_8924_	EB	420	409	-2.4%	-10	0	PASS	PASS	PASS
98	GREAT BARR STREET South Of Glover Street	8924_7171_	WB	367	317	-13.5%	-50	3	PASS	PASS	PASS
104	UNETT STREET South of New John Street	1164_5175_	SB	283	163	-42.2%	-119	8	FAIL	FAIL	FAIL
105	ASTON ROAD Dartmouth Circus South Slips	6176_6169_	NB	574	674	17.5%	101	4	FAIL	PASS	PASS
108	CAR21358 ALCESTER STREET South Of Green Street	7308_7307_	NB	335	178	-46.9%	-157	10	FAIL	FAIL	FAIL
109	CAR21358 ALCESTER STREET South Of Green Street	7307_7308_	SB	134	99	-26.3%	-35	3	PASS	PASS	PASS
111	CAR11242 GARRISON LANE West Of Sydney Road	7541_58910_	SB	412	293	-28.9%	-119	6	FAIL	FAIL	FAIL
112	CAR11242 GARRISON LANE West Of Sydney Road	58910_7541_	EB	485	301	-38.1%	-185	9	FAIL	FAIL	FAIL
114	CAR21278 DARTMOUTH MIDDLEWAY North Of Jennens Road	6153_6301_	EB	1234	1215	-1.6%	-19	1	PASS	PASS	PASS
115	CAR21279 DARTMOUTH MIDDLEWAY North Of Jennens Road	6301_6153_	WB	1195	1177	-1.5%	-17	1	PASS	PASS	PASS
116	CAR21280 NECHELLS PARKWAY East Of Dartmouth Middleway	1129_6302_	NB	446	461	3.3%	15	1	PASS	PASS	PASS
117	CAR21281 NECHELLS PARKWAY East Of Dartmouth Middleway	6302_1129_	SB	448	455	1.5%	7	0	PASS	PASS	PASS
119	CAR21283 LAWLEY MIDDLEWAY South Of Jennens Road	1122_1128_	WB	1397	1367	-2.2%	-31	1	PASS	PASS	PASS
125	CAR21288 VAUXHALL ROAD East Of Lawley Middleway	6529_1121_	NB	511	518	1.5%	7	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
129	CAR21305 BELGRAVE MIDDLEWAY West (Corrected) Of Highgate Middleway	7614_1075_	EB	1440	1602	11.2%	162	4	PASS	PASS	PASS
136	CAR21301 HIGHGATE MIDDLEWAY North Of Belgrave Middleway	7605_1078_	WB	874	1316	50.6%	442	13	FAIL	FAIL	FAIL
137	CAR21303 HADEN WAY South of Belgrave Road	54234_7748_	EB	608	662	8.8%	53	2	PASS	PASS	PASS
138	CAR21303 HADEN WAY South of Belgrave Road	7748_54234_	SB	479	454	-5.4%	-26	1	PASS	PASS	PASS
147	Moor Street (between Carrs Lane & Swan Passage)	7113_10001_	WB	755	651	-13.8%	-104	4	PASS	PASS	PASS
149	Sherlock Street / Belgrave Middleway	1189_1108_	NB	662	626	-5.5%	-37	1	PASS	PASS	PASS
150	Sherlock Street / Belgrave Middleway	1110_1106_	SB	1161	686	-40.9%	-475	16	FAIL	FAIL	FAIL
151	Sherlock Street / Belgrave Middleway	7203_1110_	N/A	427	392	-8.3%	-35	2	PASS	PASS	PASS
152	Sherlock Street / Belgrave Middleway	7203_1104_	N/A	512	648	26.5%	136	6	FAIL	FAIL	FAIL
153	Sherlock Street / Belgrave Middleway	7169_1102_	N/A	928	833	-10.2%	-95	3	PASS	PASS	PASS
154	Sherlock Street / Belgrave Middleway	1109_7169_	N/A	777	728	-6.4%	-49	2	PASS	PASS	PASS
155	Sherlock Street / Belgrave Middleway	1103_7203_	N/A	953	909	-4.6%	-44	1	PASS	PASS	PASS
156	Sherlock Street / Belgrave Middleway	1105_1110_	N/A	1032	658	-36.2%	-374	13	FAIL	FAIL	FAIL
157	Sherlock Street / Belgrave Middleway	1107_1190_	N/A	502	498	-0.7%	-4	0	PASS	PASS	PASS
164	Key Hill Circus	5403_5154_	N/A	400	381	-4.7%	-19	1	PASS	PASS	PASS
165	Key Hill Circus	5174_5154_	N/A	1270	884	-30.4%	-386	12	FAIL	FAIL	FAIL
167	Key Hill Circus	1165_5154_	N/A	1053	1052	0.0%	0	0	PASS	PASS	PASS
168	Key Hill Circus	5154_1165_	N/A	923	647	-29.9%	-276	10	FAIL	FAIL	FAIL
169	Key Hill Circus	5154_5174_	N/A	1290	1177	-8.8%	-113	3	PASS	PASS	PASS
170	Key Hill Circus	5154_5403_	N/A	509	493	-3.2%	-16	1	PASS	PASS	PASS
171	Hockley Circus	5536_1147_	N/A	374	408	9.1%	34	2	PASS	PASS	PASS
172	Hockley Circus	5158_1141_	N/A	478	503	5.2%	25	1	PASS	PASS	PASS
174	Hockley Circus	5171_1139_	N/A	777	688	-11.4%	-89	3	PASS	PASS	PASS
175	Hockley Circus	5155_1146_	N/A	224	50	-77.6%	-174	15	FAIL	FAIL	FAIL
176	Hockley Circus	1148_1144_	N/A	436	426	-2.2%	-10	0	PASS	PASS	PASS
177	Hockley Circus	1147_5536_	N/A	427	368	-13.8%	-59	3	PASS	PASS	PASS
178	Hockley Circus	1140_1150_	N/A	719	684	-4.9%	-35	1	PASS	PASS	PASS
180	Hockley Circus	1138_5171_	N/A	399	381	-4.4%	-17	1	PASS	PASS	PASS
181	Hockley Circus	1145_1149_	N/A	231	111	-52.2%	-121	9	FAIL	FAIL	FAIL
182	Hockley Circus	1144_1148_	N/A	515	532	3.3%	17	1	PASS	PASS	PASS
183	Lancaster Circus	6193_1182_	N/A	570	473	-17.0%	-97	4	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
184	Lancaster Circus	6136_1180_	N/A	790	822	4.1%	32	1	PASS	PASS	PASS
185	Lancaster Circus	6125_1178_	N/A	574	527	-8.2%	-47	2	PASS	PASS	PASS
186	Lancaster Circus	6141_1183_	N/A	576	545	-5.4%	-31	1	PASS	PASS	PASS
187	Lancaster Circus	1181_6193_	N/A	577	543	-5.9%	-34	1	PASS	PASS	PASS
188	Lancaster Circus	1179_1193_	N/A	590	562	-4.8%	-29	1	PASS	PASS	PASS
189	Lancaster Circus	1184_6130_	N/A	903	850	-5.9%	-53	2	PASS	PASS	PASS
190	Lancaster Circus	1185_6190_	N/A	439	412	-6.1%	-27	1	PASS	PASS	PASS
192	Holloway Circus	8145_8205_	N/A	719	706	-1.9%	-14	1	PASS	PASS	PASS
193	Holloway Circus	8154_8208_	N/A	578	557	-3.5%	-20	1	PASS	PASS	PASS
194	Holloway Circus	8139_8207_	N/A	366	388	6.1%	22	1	PASS	PASS	PASS
195	Holloway Circus	8205_8195_	N/A	689	693	0.5%	4	0	PASS	PASS	PASS
196	Holloway Circus	8208_8145_	N/A	745	717	-3.7%	-28	1	PASS	PASS	PASS
197	Holloway Circus	8207_8192_	N/A	459	444	-3.1%	-14	1	PASS	PASS	PASS
198	Holloway Circus	8206_8139_	N/A	836	816	-2.4%	-20	1	PASS	PASS	PASS
199	Spring Hill Circus	1173_1172_1174	N/A	143	148	3.3%	5	0	PASS	PASS	PASS
200	Spring Hill Circus	1177_1175_1176	N/A	123	125	1.9%	2	0	PASS	PASS	PASS
201	Spring Hill Circus	1173_1171_	N/A	982	1105	12.6%	123	4	PASS	PASS	PASS
202	Spring Hill Circus	1176_1169_	N/A	671	650	-3.1%	-21	1	PASS	PASS	PASS
203	Spring Hill Circus	1177_1168_	N/A	872	842	-3.5%	-30	1	PASS	PASS	PASS
204	Spring Hill Circus	1174_1166_	N/A	558	525	-5.9%	-33	1	PASS	PASS	PASS
205	Spring Hill Circus	1170_1173_	N/A	1229	1226	-0.3%	-3	0	PASS	PASS	PASS
206	Spring Hill Circus	1168_1175_	N/A	506	547	8.0%	41	2	PASS	PASS	PASS
207	Spring Hill Circus	1167_2108_	N/A	999	1012	1.3%	13	0	PASS	PASS	PASS
208	Spring Hill Circus	1171_1172_	N/A	348	340	-2.1%	-7	0	PASS	PASS	PASS
209	Ladywood Circus	8802_8804_8807	N/A	381	188	-50.7%	-193	11	FAIL	FAIL	FAIL
210	Ladywood Circus	8809_8807_	N/A	946	935	-1.2%	-11	0	PASS	PASS	PASS
211	Ladywood Circus	8811_8806_	N/A	509	441	-13.4%	-68	3	PASS	PASS	PASS
212	Ladywood Circus	8812_8805_	N/A	649	806	24.2%	157	6	FAIL	FAIL	FAIL
213	Ladywood Circus	8802_8804_	N/A	836	727	-13.1%	-109	4	PASS	PASS	PASS
214	Ladywood Circus	8806_8809_	N/A	563	748	33.0%	185	7	FAIL	FAIL	FAIL
215	Ladywood Circus	8805_8811_	N/A	492	468	-4.8%	-24	1	PASS	PASS	PASS
216	Ladywood Circus	8805_8812_	N/A	510	538	5.5%	28	1	PASS	PASS	PASS
217	Ladywood Circus	8803_8801_	N/A	994	966	-2.9%	-28	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
218	Five Ways	8187_1065_	N/A	1045	1008	-3.5%	-37	1	PASS	PASS	PASS
219	Five Ways	1071_1063_	N/A	911	735	-19.4%	-176	6	FAIL	FAIL	FAIL
220	Five Ways	8181_1061_	N/A	608	344	-43.4%	-264	12	FAIL	FAIL	FAIL
221	Five Ways	7645_1069_	N/A	1677	1317	-21.5%	-360	9	FAIL	FAIL	FAIL
222	Five Ways	8429_1067_	N/A	329	254	-22.6%	-74	4	PASS	PASS	PASS
223	Five Ways	1064_8187_	N/A	936	780	-16.6%	-155	5	FAIL	PASS	PASS
224	Five Ways	1062_1074_	N/A	806	691	-14.2%	-115	4	PASS	PASS	PASS
225	Five Ways	1060_8182_	N/A	519	494	-4.9%	-26	1	PASS	PASS	PASS
226	Five Ways	1068_7645_	N/A	2016	1640	-18.7%	-376	9	FAIL	FAIL	FAIL
227	Five Ways	1066_1072_	N/A	319	54	-83.0%	-265	19	FAIL	FAIL	FAIL
228	Dartmouth Circus	6194_6166_	N/A	1578	1529	-3.1%	-48	1	PASS	PASS	PASS
229	Dartmouth Circus	6701_6168_	N/A	1214	1051	-13.4%	-163	5	PASS	PASS	PASS
231	Dartmouth Circus	6301_6165_	N/A	1658	1516	-8.5%	-142	4	PASS	PASS	PASS
232	Dartmouth Circus	6167_8213_	N/A	1783	1631	-8.5%	-152	4	PASS	PASS	PASS
233	Dartmouth Circus	6168_6701_	N/A	1316	1202	-8.7%	-114	3	PASS	PASS	PASS
235	Dartmouth Circus	6165_6301_	N/A	1406	1356	-3.6%	-50	1	PASS	PASS	PASS
236	Garrison Circus	7750_1112_	N/A	1697	1767	4.2%	71	2	PASS	PASS	PASS
237	Garrison Circus	7188_1118_	N/A	342	337	-1.6%	-5	0	PASS	PASS	PASS
238	Garrison Circus	8926_1116_	N/A	1488	1473	-1.0%	-14	0	PASS	PASS	PASS
239	Garrison Circus	7751_1114_	N/A	501	506	1.0%	5	0	PASS	PASS	PASS
240	Garrison Circus	1119_7750_	N/A	1726	1764	2.2%	38	1	PASS	PASS	PASS
241	Garrison Circus	1117_7188_	N/A	378	379	0.1%	0	0	PASS	PASS	PASS
242	Garrison Circus	1115_8926_	N/A	1443	1430	-0.9%	-13	0	PASS	PASS	PASS
243	Garrison Circus	1113_7751_	N/A	480	511	6.4%	31	1	PASS	PASS	PASS
245	Camp Hill Circus	1088_7204_	N/A	1427	1299	-9.0%	-128	3	PASS	PASS	PASS
249	Camp Hill Circus	7204_1088_	N/A	1333	1326	-0.5%	-6	0	PASS	PASS	PASS
250	Camp Hill Circus	7204_55347_	N/A	705	675	-4.3%	-30	1	PASS	PASS	PASS
251	Camp Hill Circus	7204_1101_	N/A	1538	1530	-0.5%	-8	0	PASS	PASS	PASS
252	Bordesley Circus	1089_1090_1094	N/A	615	556	-9.5%	-59	2	PASS	PASS	PASS
253	Bordesley Circus	7152_1095_	N/A	1439	1430	-0.6%	-9	0	PASS	PASS	PASS
254	Bordesley Circus	1100_1093_	N/A	384	377	-1.6%	-6	0	PASS	PASS	PASS
255	Bordesley Circus	1101_1092_	N/A	1547	1530	-1.1%	-17	0	PASS	PASS	PASS
256	Bordesley Circus	1089_1090_	N/A	1500	1458	-2.8%	-42	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
257	Bordesley Circus	1099_1097_	N/A	527	550	4.2%	22	1	PASS	PASS	PASS
258	Bordesley Circus	1094_7152_	N/A	1471	1477	0.5%	7	0	PASS	PASS	PASS
259	Bordesley Circus	1092_1100_	N/A	369	360	-2.3%	-8	0	PASS	PASS	PASS
260	Bordesley Circus	1091_1101_	N/A	1348	1324	-1.8%	-24	1	PASS	PASS	PASS
262	Bordesley Circus	1096_1099_	N/A	777	783	0.8%	6	0	PASS	PASS	PASS
263	St Chads Queensway / Snow Hill Queensway	5111_5106_	N/A	818	759	-7.2%	-59	2	PASS	PASS	PASS
264	St Chads Queensway / Snow Hill Queensway	5112_5106_	N/A	483	440	-9.0%	-44	2	PASS	PASS	PASS
265	St Chads Queensway / Snow Hill Queensway	6147_5107_	N/A	298	323	8.5%	25	1	PASS	PASS	PASS
266	St Chads Queensway / Snow Hill Queensway	7803_5107_	N/A	668	664	-0.6%	-4	0	PASS	PASS	PASS
267	St Chads Queensway / Snow Hill Queensway	5106_5111_	N/A	625	665	6.4%	40	2	PASS	PASS	PASS
268	St Chads Queensway / Snow Hill Queensway	7801_5105_	N/A	910	822	-9.6%	-87	3	PASS	PASS	PASS
269	St Chads Queensway / Snow Hill Queensway	5107_6147_	N/A	177	203	14.9%	26	2	PASS	PASS	PASS
270	St Chads Queensway / Snow Hill Queensway	5107_5108_	N/A	557	477	-14.4%	-80	4	PASS	PASS	PASS
273	Great Charles Street Queensway / Newhall Street	5164_5102_	N/A	348	190	-45.4%	-158	10	FAIL	FAIL	FAIL
274	Great Charles Street Queensway / Newhall Street	5103_5102_	N/A	411	340	-17.3%	-71	4	PASS	PASS	PASS
275	Great Charles Street Queensway / Newhall Street	5102_5187_	N/A	418	239	-42.9%	-180	10	FAIL	FAIL	FAIL
276	Great Charles Street Queensway / Newhall Street	5102_5127_	N/A	359	340	-5.5%	-20	1	PASS	PASS	PASS
277	Great Charles Street Queensway / Newhall Street	5102_5164_	N/A	277	196	-29.0%	-80	5	PASS	PASS	PASS
278	Great Charles Street Queensway / Newhall Street	5102_5116_	N/A	402	494	22.8%	92	4	PASS	PASS	PASS
279	Snow Hill Queensway / Colmore Circus	6147_6120_	N/A	165	203	22.9%	38	3	PASS	PASS	PASS
280	Snow Hill Queensway / Colmore Circus	7908_6120_	N/A	230	301	30.6%	70	4	PASS	PASS	PASS
281	Snow Hill Queensway / Colmore Circus	6121_6120_	N/A	173	104	-39.9%	-69	6	PASS	FAIL	PASS
282	Snow Hill Queensway / Colmore Circus	6120_6147_	N/A	281	323	15.2%	43	2	PASS	PASS	PASS
283	Snow Hill Queensway / Colmore Circus	6120_7908_	N/A	164	167	1.8%	3	0	PASS	PASS	PASS
284	Snow Hill Queensway / Colmore Circus	6120_6121_	N/A	131	118	-10.5%	-14	1	PASS	PASS	PASS
286	High Street / Dale End	6424_6708_	N/A	141	122	-13.4%	-19	2	PASS	PASS	PASS
287	High Street / Dale End	6103_6708_	N/A	23	10	-56.2%	-13	3	PASS	PASS	PASS
288	High Street / Dale End	6708_6102_	N/A	73	65	-10.6%	-8	1	PASS	PASS	PASS
290	High Street / Dale End	6708_6103_	N/A	91	51	-43.6%	-40	5	PASS	PASS	PASS
292	Navigation Street / Hill Street	8333_8304_	N/A	114	114	-0.6%	-1	0	PASS	PASS	PASS
293	Navigation Street / Hill Street	8199_8304_	N/A	120	25	-79.0%	-95	11	PASS	FAIL	PASS
294	Navigation Street / Hill Street	8116_8304_	N/A	221	238	7.6%	17	1	PASS	PASS	PASS
295	Navigation Street / Hill Street	8304_8700_	N/A	101	2	-98.4%	-100	14	PASS	FAIL	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
296	Navigation Street / Hill Street	8304_8333_	N/A	264	204	-22.7%	-60	4	PASS	PASS	PASS
298	Navigation Street / Hill Street	8304_8116_	N/A	91	82	-8.9%	-8	1	PASS	PASS	PASS
299	Smallbrook Queensway / New Street Station Access	7113_7118_	N/A	141	101	-28.1%	-40	4	PASS	PASS	PASS
301	Smallbrook Queensway / New Street Station Access	2114_7118_	N/A	290	146	-49.6%	-144	10	FAIL	FAIL	FAIL
302	Smallbrook Queensway / New Street Station Access	7118_7113_	N/A	76	39	-48.5%	-37	5	PASS	PASS	PASS
304	Smallbrook Queensway / New Street Station Access	7118_2115_	N/A	355	59	-83.4%	-296	21	FAIL	FAIL	FAIL
306	Hagley Road / Monument Road	8540_8310_	N/A	1267	1236	-2.5%	-31	1	PASS	PASS	PASS
307	Hagley Road / Monument Road	8539_8310_	N/A	504	557	10.4%	52	2	PASS	PASS	PASS
308	Hagley Road / Monument Road	8308_8310_	N/A	1655	1645	-0.6%	-10	0	PASS	PASS	PASS
309	Hagley Road / Monument Road	8310_8178_	N/A	747	722	-3.4%	-25	1	PASS	PASS	PASS
310	Hagley Road / Monument Road	8310_8540_	N/A	1401	1606	14.7%	206	5	PASS	PASS	PASS
311	Hagley Road / Monument Road	8310_8539_	N/A	217	39	-82.1%	-178	16	FAIL	FAIL	FAIL
312	Hagley Road / Monument Road	8310_8308_	N/A	1063	1071	0.8%	9	0	PASS	PASS	PASS
313	1 - Sheepcote Street / Brindley Place / Essington Street	2065_8196_	N/A	142	224	57.1%	81	6	PASS	FAIL	PASS
314	1 - Sheepcote Street / Brindley Place / Essington Street	8313_8196_	N/A	238	190	-20.2%	-48	3	PASS	PASS	PASS
315	1 - Sheepcote Street / Brindley Place / Essington Street	1195_8196_	N/A	94	154	63.8%	60	5	PASS	PASS	PASS
316	1 - Sheepcote Street / Brindley Place / Essington Street	8189_8196_	N/A	336	433	28.9%	97	5	PASS	PASS	PASS
317	1 - Sheepcote Street / Brindley Place / Essington Street	8196_2065_	N/A	151	482	220.3%	332	19	FAIL	FAIL	FAIL
318	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8313_	N/A	415	350	-15.5%	-64	3	PASS	PASS	PASS
319	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8189_	N/A	231	168	-27.5%	-64	5	PASS	PASS	PASS
320	2 - Broad Street / Sheepcote Street near Novotel	8315_8313_	N/A	259	683	163.6%	424	20	FAIL	FAIL	FAIL
321	2 - Broad Street / Sheepcote Street near Novotel	1195_8313_	N/A	424	382	-9.9%	-42	2	PASS	PASS	PASS
323	2 - Broad Street / Sheepcote Street near Novotel	8313_8315_	N/A	462	489	5.9%	27	1	PASS	PASS	PASS
324	2 - Broad Street / Sheepcote Street near Novotel	8313_1195_	N/A	394	736	86.9%	342	14	FAIL	FAIL	FAIL
326	Livery Street, (Between Snow Hill car park & Barwick Street)	5124_5197_	N/A	535	620	16.0%	85	4	PASS	PASS	PASS
327	Aston Expressway Beneath Dartmouth Circus	6163_6171_	N/A	1779	1684	-5.3%	-95	2	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
328	Aston Expressway Beneath Dartmouth Circus	6170_6161_	N/A	1987	1914	-3.7%	-73	2	PASS	PASS	PASS
329	A34 NEWTOWN ROW SOUTH OF PHILLIPS STREET	6532_54329_	N/A	930	899	-3.3%	-31	1	PASS	PASS	PASS
330	A34 NEWTOWN ROW SOUTH OF PHILLIPS STREET	54332_6532_	NB	1065	1037	-2.7%	-29	1	PASS	PASS	PASS
331	WHEELER STREET SOUTH OF MARKFORD WALK	5537_1047_	SB	482	486	0.8%	4	0	PASS	PASS	PASS
332	WHEELER STREET SOUTH OF MARKFORD WALK	1047_5537_	NB	465	469	0.8%	4	0	PASS	PASS	PASS
333	LANDOR STREET WEST OF MIDLANDS STREET	6531_1043_	SB	158	104	-34.5%	-55	5	PASS	PASS	PASS
334	LANDOR STREET WEST OF MIDLANDS STREET	1043_6531_	NB	231	230	-0.2%	0	0	PASS	PASS	PASS
335	LONGMORE STREET North Of Balsall Heath Road	7536_7312_	SB	12	39	219.8%	27	5	PASS	PASS	PASS
336	LONGMORE STREET North Of Balsall Heath Road	7312_7536_	EB	38	6	-84.2%	-32	7	PASS	FAIL	PASS
337	B4144 PARK LANE EAST OF SUTTON STREET	54335_2099_	WB	492	490	-0.4%	-2	0	PASS	PASS	PASS
338	B4144 PARK LANE EAST OF SUTTON STREET	2099_54335_	NB	506	518	2.4%	12	1	PASS	PASS	PASS
341	B4124 HAMSTEAD ROAD NORTH OF CHARLEVILLE ROAD	53272_53274_	SB	330	296	-10.3%	-34	2	PASS	PASS	PASS
342	B4124 HAMSTEAD ROAD NORTH OF CHARLEVILLE ROAD	53274_53272_	EB	389	321	-17.5%	-68	4	PASS	PASS	PASS
343	A41 SOHO HILL NORTH OF HAMSTEAD ROAD	53272_53273_	WB	518	885	71.1%	368	14	FAIL	FAIL	FAIL
344	A41 SOHO HILL NORTH OF HAMSTEAD ROAD	53273_53272_	NB	465	643	38.2%	178	8	FAIL	FAIL	FAIL
345	A4040 HANDSWORTH NEW ROAD NORTH OF LODGE ROAD	1025_53315_	SB	261	423	62.4%	163	9	FAIL	FAIL	FAIL
346	A4040 HANDSWORTH NEW ROAD NORTH OF LODGE ROAD	53315_1025_	NB	257	270	5.2%	13	1	PASS	PASS	PASS
349	A457 DUDLEY ROAD EAST OF ALGERNON ROAD	53250_53251_	SB	493	394	-20.1%	-99	5	PASS	PASS	PASS
350	A457 DUDLEY ROAD EAST OF ALGERNON ROAD	53251_53250_	NB	418	322	-22.9%	-95	5	PASS	PASS	PASS
351	A4040 CITY ROAD SOUTH OF WIMBOURNE ROAD	53249_53250_	SB	335	252	-24.8%	-83	5	PASS	PASS	PASS
352	A4040 CITY ROAD SOUTH OF WIMBOURNE ROAD	53250_53249_	EB	325	138	-57.7%	-187	12	FAIL	FAIL	FAIL
353	B4125 PORTLAND ROAD WEST OF GILLOTT ROAD	53161_1026_	WB	220	226	2.4%	5	0	PASS	PASS	PASS
354	B4125 PORTLAND ROAD WEST OF GILLOTT ROAD	1026_53161_	EB	229	300	31.0%	71	4	PASS	PASS	PASS
355	B4124 HARBORNE ROAD NORTH OF YATELEY ROAD	1027_5610_	WB	486	496	2.1%	10	0	PASS	PASS	PASS
356	B4124 HARBORNE ROAD NORTH OF YATELEY ROAD	5610_1027_	EB	380	387	1.8%	7	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
357	RICHMOND HILL ROAD NORTH OF PETERSHAM PLACE	1032_5610_	WB	103	215	108.9%	112	9	FAIL	FAIL	FAIL
358	RICHMOND HILL ROAD NORTH OF PETERSHAM PLACE	5610_1032_	EB	105	106	0.5%	1	0	PASS	PASS	PASS
359	WESTBOURNE ROAD WEST OF VICARAGE ROAD	5604_5605_	WB	803	589	-26.6%	-214	8	FAIL	FAIL	FAIL
360	B4217 CHURCH ROAD NORTH OF ARTHURS ROAD	1033_8542_	NB	338	344	1.7%	6	0	PASS	PASS	PASS
361	B4217 CHURCH ROAD NORTH OF ARTHURS ROAD	8542_1033_	SB	313	306	-2.1%	-7	0	PASS	PASS	PASS
362	B4217 PRIORY ROAD SOUTH OF PRIORY PLACE	54872_1036_	WB	531	546	2.8%	15	1	PASS	PASS	PASS
363	B4217 PRIORY ROAD SOUTH OF PRIORY PLACE	1036_54872_	NB	557	559	0.4%	2	0	PASS	PASS	PASS
364	B4217 EDGBASTON ROAD EAST OF PERSHORE ROAD	1038_1039_	SB	907	907	0.1%	1	0	PASS	PASS	PASS
365	B4217 EDGBASTON ROAD EAST OF PERSHORE ROAD	1039_1038_	NB	847	852	0.6%	5	0	PASS	PASS	PASS
366	BRIGHTON ROAD WEST OF PEMBROKE ROAD	1051_1040_	SB	458	525	14.9%	68	3	PASS	PASS	PASS
367	GOLDEN HILLOCK ROAD NORTH OF LLOYD STREET	54268_54278_	EB	247	256	3.6%	9	1	PASS	PASS	PASS
368	GOLDEN HILLOCK ROAD NORTH OF LLOYD STREET	54278_54268_	WB	258	259	0.6%	1	0	PASS	PASS	PASS
369	BORDESLEY GREEN EAST OF PIKEWATER ROAD	54281_2101_	WB	533	837	57.1%	304	12	FAIL	FAIL	FAIL
370	BORDESLEY GREEN EAST OF PIKEWATER ROAD	2101_54281_	NB	629	813	29.2%	184	7	FAIL	FAIL	FAIL
371	B4145 ASH ROAD NORTH OF HALL ROAD	2102_54361_	SB	252	275	8.9%	22	1	PASS	PASS	PASS
372	B4145 ASH ROAD NORTH OF HALL ROAD	54361_2102_	EB	307	340	10.8%	33	2	PASS	PASS	PASS
375	Vyse Street South of Pitsford Street	5191_5157_	SB	357	343	-4.0%	-14	1	PASS	PASS	PASS
376	Vyse Street South of Pitsford Street	5157_5191_	NB	329	231	-29.9%	-98	6	PASS	FAIL	PASS
377	WARSTONE LANE WEST OF AUGUSTA STREET	5189_5195_	SB	224	279	24.7%	55	3	PASS	PASS	PASS
378	WARSTONE LANE WEST OF AUGUSTA STREET	5195_5189_	NB	264	280	6.2%	16	1	PASS	PASS	PASS
379	GREAT HAMPTON ROW SOUTH OF MOSBOROUGH CRESCENT	5175_5126_	SB	57	83	44.3%	25	3	PASS	PASS	PASS
380	GREAT HAMPTON ROW SOUTH OF MOSBOROUGH CRESCENT	5126_5175_	EB	45	96	112.4%	51	6	PASS	FAIL	PASS
381	DIGBETH SOUTH OF PARK STREET	7123_7199_	WB	1438	1398	-2.8%	-40	1	PASS	PASS	PASS
382	MOAT LANE NORTH OF BRADFORD STREET	7127_7125_	EB	1249	997	-20.1%	-251	7	FAIL	FAIL	FAIL
385	ALCESTER STREET SOUTH OF MOSELEY STREET	7184_7101_	WB	245	98	-60.2%	-147	11	FAIL	FAIL	FAIL

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
386	ALCESTER STREET SOUTH OF MOSELEY STREET	7101_7184_	SB	198	173	-12.7%	-25	2	PASS	PASS	PASS
396	Curzon Circle	8925_1123_	N/A	1747	1764	0.9%	16	0	PASS	PASS	PASS
400	Curzon Circle	1123_8925_	N/A	1592	1641	3.1%	49	1	PASS	PASS	PASS
413	Newtown Row	6701_6303_	N/A	1051	1117	6.3%	66	2	PASS	PASS	PASS
415	Newtown Row	5303_6303_	N/A	662	776	17.1%	113	4	FAIL	PASS	PASS
417	Newtown Row	6303_6701_	N/A	874	1051	20.3%	178	6	FAIL	FAIL	FAIL
419	Newtown Row	6303_5303_	N/A	759	980	29.2%	221	8	FAIL	FAIL	FAIL

H.3. PM Peak Model

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
1	Summer Lane, Att - Direction sign, OSGR: SP 06959 88374	5303_5538_	NB	374	337	-9.7%	-36	2	PASS	PASS	PASS
2	Summer Lane, Att - Direction sign, OSGR: SP 06959 88374	5538_5303_	SB	285	230	-19.1%	-54	3	PASS	PASS	PASS
3	Wellington Road, Att - LC8, OSGR: SP 06517 85140	2100_1037_	NB	304	323	6.4%	19	1	PASS	PASS	PASS
6	Bristol Road, Att - Railings, OSGR: SP 06739 85231	1037_53128_	SB	1308	1279	-2.2%	-29	1	PASS	PASS	PASS
9	Summer Hill Street Left Turn, Att - Railings, OSGR: SP 05794 87181	5204_5306_5169	NB	497	447	-10.1%	-50	2	PASS	PASS	PASS
10	Summer Hill Road, Att - Traffic Signals, OSGR: SP 05789 87213	5169_5306_5149	EB	161	156	-3.3%	-5	0	PASS	PASS	PASS
11	Summer Hill Road, Att - Traffic Signals, OSGR: SP 05789 87213	5169_5306_5204	EB	280	292	4.6%	13	1	PASS	PASS	PASS
12	Colmore Row, Att - Parking post, OSGR: SP 06947 87080	6101_5101_	SB	340	270	-20.7%	-70	4	PASS	PASS	PASS
13	Park Street, Att - LC17, OSGR: SP 07560 86972	6108_6107_	SB	932	1060	13.8%	128	4	PASS	PASS	PASS
14	Great Lister Street, Att - Railings, OSGR: SP 07923 87935	6301_6195_	EB	205	211	2.8%	6	0	PASS	PASS	PASS
15	Great Lister Street, Att - Railings, OSGR: SP 07923 87935	6195_6301_	WB	265	258	-2.6%	-7	0	PASS	PASS	PASS
16	Sherlock Street, Att - telepole, OSGR: SP 07337 86029	7326_7143_	NB	232	229	-1.2%	-3	0	PASS	PASS	PASS
17	Sherlock Street, Att - telepole, OSGR: SP 07337 86029	7143_7326_	SB	390	414	6.2%	24	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
18	Sherlock Stret, Att - LC6, OSGR: SP 07411 86058	7706_7613_	EB	338	381	12.6%	43	2	PASS	PASS	PASS
19	Sherlock Stret, Att - LC6, OSGR: SP 07411 86058	7613_7706_	WB	339	299	-12.0%	-41	2	PASS	PASS	PASS
20	Bradford Street, Att - Railings, OSGR: SP 07728 86232	7306_7182_	EB	313	255	-18.6%	-58	3	PASS	PASS	PASS
21	Bradford Street, Att - Railings, OSGR: SP 07728 86232	7182_7306_	WB	240	197	-17.9%	-43	3	PASS	PASS	PASS
24	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8406_8150_	EB	575	553	-3.8%	-22	1	PASS	PASS	PASS
25	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8150_8406_	WB	756	543	-28.2%	-213	8	FAIL	FAIL	FAIL
26	Lodge Road, Att - Camera, OSGR: SP 04585 88510	1025_8217_	EB	311	280	-9.8%	-31	2	PASS	PASS	PASS
27	Lodge Road, Att - Camera, OSGR: SP 04585 88510	8217_1025_	WB	556	460	-17.2%	-96	4	PASS	PASS	PASS
28	Park Road, Att - LC2, OSGR: SP 05445 88482	8216_2107_	NB	367	356	-3.2%	-12	1	PASS	PASS	PASS
29	Park Road, Att - LC2, OSGR: SP 05445 88482	2107_8216_	SB	195	199	2.1%	4	0	PASS	PASS	PASS
34	Norfolk Road, Att - Information Sign, OSGR: SP 03960 85842	461_53171_	NB	346	402	16.0%	55	3	PASS	PASS	PASS
35	Norfolk Road, Att - Information Sign, OSGR: SP 03960 85842	53171_461_	SB	468	466	-0.5%	-2	0	PASS	PASS	PASS
37	Wheeley's Road, Att - LC8, OSGR: SP 05991 85701	8305_8417_	SB	592	542	-8.5%	-50	2	PASS	PASS	PASS
39	NEW TOWN ROW North Of Pritchett Street	6303_6159_	SB	723	781	8.1%	59	2	PASS	PASS	PASS
40	SUMMER LANE North of Hatchett Street	7631_5303_	NB	407	394	-3.1%	-13	1	PASS	PASS	PASS
41	SUMMER LANE North of Hatchett Street	5303_7631_	SB	215	220	2.2%	5	0	PASS	PASS	PASS
42	GREAT HAMPTON STREET South of Key Hill	5155_5144_	SB	497	649	30.5%	152	6	FAIL	FAIL	FAIL
43	GREAT HAMPTON STREET South of Key Hill	5144_5155_	NB	738	772	4.6%	34	1	PASS	PASS	PASS
46	WARSTONE LANE West of Pemberton Street	5159_7654_	EB	246	90	-63.5%	-156	12	FAIL	FAIL	FAIL
47	WARSTONE LANE West of Pemberton Street	7654_5159_	WB	440	401	-8.9%	-39	2	PASS	PASS	PASS
48	CARVER STREET West of Moreton Street	5159_5152_	EB	73	18	-75.4%	-55	8	PASS	FAIL	PASS
57	BROAD STREET East of Bishopgate Street	8190_1195_	EB	589	472	-20.0%	-118	5	FAIL	PASS	PASS
58	BROAD STREET East of Bishopgate Street	1195_8190_	WB	884	678	-23.3%	-206	7	FAIL	FAIL	FAIL
59	TENNANT STREET South of Moss House Close	7645_7698_	NB	110	290	163.3%	180	13	FAIL	FAIL	FAIL
60	TENNANT STREET South of Moss House Close	7698_7645_	SB	155	156	0.3%	1	0	PASS	PASS	PASS
68	BRISTOL STREET South Of Rickman Drive	8312_8407_	NB	1756	2149	22.4%	393	9	FAIL	FAIL	FAIL
69	BRISTOL STREET South Of Rickman Drive	8157_8312_	SB	1849	2188	18.3%	338	8	FAIL	FAIL	FAIL
75	HORTON SQUARE South of Highgate Street	7601_7312_	SB	331	13	-96.1%	-318	24	FAIL	FAIL	FAIL
81	LEOPOLD STREET West of Highgate Middleway	7172_7607_	WB	143	135	-5.7%	-8	1	PASS	PASS	PASS
83	MOSELEY ROAD South of Moseley Street	7164_7161_	SB	158	165	4.6%	7	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
84	CAMP HILL South of Bradford Street	7204_7294_	NB	412	517	25.5%	105	5	FAIL	PASS	PASS
85	CAMP HILL South of Bradford Street	7294_7204_	SB	568	598	5.4%	30	1	PASS	PASS	PASS
86	COVENTRY ROAD East of Bowyer Street	7292_1100_	EB	318	535	67.9%	216	10	FAIL	FAIL	FAIL
87	COVENTRY ROAD East of Bowyer Street	1100_7292_	WB	406	355	-12.4%	-50	3	PASS	PASS	PASS
88	CURZON STREET East Of Penn Street	6179_1120_	EB	384	409	6.5%	25	1	PASS	PASS	PASS
89	CURZON STREET East Of Penn Street	1120_6179_	WB	253	254	0.3%	1	0	PASS	PASS	PASS
90	JENNENS ROAD South Of Lawley Street	6145_7142_	NB	486	484	-0.4%	-2	0	PASS	PASS	PASS
91	JENNENS ROAD South Of Lawley Street	7142_6145_	SB	334	360	7.6%	25	1	PASS	PASS	PASS
92	LISTER STREET West of Venture Way	6173_6301_	EB	267	277	3.6%	10	1	PASS	PASS	PASS
93	LISTER STREET West of Venture Way	6301_6173_	WB	179	179	0.5%	1	0	PASS	PASS	PASS
94	NEWTOWN MIDDLEWAY Access to New John Street	6701_7754_	WB	50	63	24.2%	12	2	PASS	PASS	PASS
96	ADDERLEY STREET West of Glover Street	8921_2044_	WB	92	93	1.6%	1	0	PASS	PASS	PASS
97	GREAT BARR STREET South Of Glover Street	7171_8924_	NB	484	475	-1.8%	-9	0	PASS	PASS	PASS
98	GREAT BARR STREET South Of Glover Street	8924_7171_	SB	374	376	0.5%	2	0	PASS	PASS	PASS
104	UNETT STREET South of New John Street	1164_5175_	SB	263	69	-73.8%	-194	15	FAIL	FAIL	FAIL
105	ASTON ROAD Dartmouth Circus South Slips	6176_6169_	NB	604	642	6.2%	37	2	PASS	PASS	PASS
108	CAR21358 ALCESTER STREET South Of Green Street	7308_7307_	NB	399	339	-14.9%	-59	3	PASS	PASS	PASS
109	CAR21358 ALCESTER STREET South Of Green Street	7307_7308_	SB	173	158	-8.6%	-15	1	PASS	PASS	PASS
111	CAR11242 GARRISON LANE West Of Sydney Road	7541_58910_	EB	425	328	-22.8%	-97	5	PASS	PASS	PASS
112	CAR11242 GARRISON LANE West Of Sydney Road	58910_7541_	WB	495	361	-27.0%	-134	6	FAIL	FAIL	FAIL
114	CAR21278 DARTMOUTH MIDDLEWAY North Of Jennens Road	6153_6301_	NB	1111	1182	6.3%	71	2	PASS	PASS	PASS
115	CAR21279 DARTMOUTH MIDDLEWAY North Of Jennens Road	6301_6153_	SB	945	935	-1.1%	-11	0	PASS	PASS	PASS
116	CAR21280 NECHELLS PARKWAY East Of Dartmouth Middleway	1129_6302_	EB	499	465	-6.9%	-35	2	PASS	PASS	PASS
117	CAR21281 NECHELLS PARKWAY East Of Dartmouth Middleway	6302_1129_	WB	445	418	-6.0%	-27	1	PASS	PASS	PASS
119	CAR21283 LAWLEY MIDDLEWAY South Of Jennens Road	1122_1128_	NB	1330	1376	3.4%	46	1	PASS	PASS	PASS
125	CAR21288 VAUXHALL ROAD East Of Lawley Middleway	6529_1121_	WB	528	535	1.3%	7	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
129	CAR21305 BELGRAVE MIDDLEWAY West (Corrected) Of Highgate Middleway	7614_1075_	EB	1675	1701	1.5%	26	1	PASS	PASS	PASS
136	CAR21301 HIGHGATE MIDDLEWAY North Of Belgrave Middleway	7605_1078_	SB	770	1296	68.2%	525	16	FAIL	FAIL	FAIL
137	CAR21303 HADEN WAY South of Belgrave Road	54234_7748_	NB	478	591	23.8%	114	5	FAIL	PASS	PASS
138	CAR21303 HADEN WAY South of Belgrave Road	7748_54234_	SB	349	396	13.3%	46	2	PASS	PASS	PASS
147	Moor Street (between Carrs Lane & Swan Passage)	7113_10001_	NB	847	810	-4.5%	-38	1	PASS	PASS	PASS
149	Sherlock Street / Belgrave Middleway	1189_1108_	N/A	552	703	27.5%	152	6	FAIL	FAIL	FAIL
150	Sherlock Street / Belgrave Middleway	1110_1106_	N/A	1327	964	-27.4%	-364	11	FAIL	FAIL	FAIL
151	Sherlock Street / Belgrave Middleway	7203_1110_	N/A	471	437	-7.3%	-34	2	PASS	PASS	PASS
152	Sherlock Street / Belgrave Middleway	7203_1104_	N/A	529	510	-3.7%	-20	1	PASS	PASS	PASS
153	Sherlock Street / Belgrave Middleway	7169_1102_	N/A	820	873	6.5%	53	2	PASS	PASS	PASS
154	Sherlock Street / Belgrave Middleway	1109_7169_	N/A	740	705	-4.7%	-35	1	PASS	PASS	PASS
155	Sherlock Street / Belgrave Middleway	1103_7203_	N/A	1140	949	-16.8%	-191	6	FAIL	FAIL	FAIL
156	Sherlock Street / Belgrave Middleway	1105_1110_	N/A	879	937	6.5%	57	2	PASS	PASS	PASS
157	Sherlock Street / Belgrave Middleway	1107_1190_	N/A	469	460	-1.8%	-9	0	PASS	PASS	PASS
164	Key Hill Circus	5403_5154_	N/A	408	401	-1.6%	-7	0	PASS	PASS	PASS
165	Key Hill Circus	5174_5154_	N/A	1872	1733	-7.4%	-139	3	PASS	PASS	PASS
167	Key Hill Circus	1165_5154_	N/A	1266	1334	5.4%	68	2	PASS	PASS	PASS
168	Key Hill Circus	5154_1165_	N/A	1212	1190	-1.8%	-22	1	PASS	PASS	PASS
169	Key Hill Circus	5154_5174_	N/A	1426	1431	0.4%	5	0	PASS	PASS	PASS
170	Key Hill Circus	5154_5403_	N/A	906	847	-6.5%	-59	2	PASS	PASS	PASS
171	Hockley Circus	5536_1147_	N/A	484	422	-12.8%	-62	3	PASS	PASS	PASS
172	Hockley Circus	5158_1141_	N/A	491	486	-0.9%	-4	0	PASS	PASS	PASS
174	Hockley Circus	5171_1139_	N/A	1024	975	-4.8%	-49	2	PASS	PASS	PASS
175	Hockley Circus	5155_1146_	N/A	297	257	-13.4%	-40	2	PASS	PASS	PASS
176	Hockley Circus	1148_1144_	N/A	572	556	-2.9%	-16	1	PASS	PASS	PASS
177	Hockley Circus	1147_5536_	N/A	784	780	-0.5%	-4	0	PASS	PASS	PASS
178	Hockley Circus	1140_1150_	N/A	1004	971	-3.3%	-33	1	PASS	PASS	PASS
180	Hockley Circus	1138_5171_	N/A	407	401	-1.5%	-6	0	PASS	PASS	PASS
181	Hockley Circus	1145_1149_	N/A	201	96	-52.3%	-105	9	FAIL	FAIL	FAIL
182	Hockley Circus	1144_1148_	N/A	472	448	-5.0%	-24	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
183	Lancaster Circus	6193_1182_	N/A	602	557	-7.5%	-45	2	PASS	PASS	PASS
184	Lancaster Circus	6136_1180_	N/A	946	921	-2.7%	-26	1	PASS	PASS	PASS
185	Lancaster Circus	6125_1178_	N/A	841	805	-4.3%	-36	1	PASS	PASS	PASS
186	Lancaster Circus	6141_1183_	N/A	649	629	-3.1%	-20	1	PASS	PASS	PASS
187	Lancaster Circus	1181_6193_	N/A	715	736	2.8%	20	1	PASS	PASS	PASS
188	Lancaster Circus	1179_1193_	N/A	709	671	-5.4%	-38	1	PASS	PASS	PASS
189	Lancaster Circus	1184_6130_	N/A	771	735	-4.7%	-36	1	PASS	PASS	PASS
190	Lancaster Circus	1185_6190_	N/A	842	770	-8.5%	-72	3	PASS	PASS	PASS
192	Holloway Circus	8145_8205_	N/A	778	770	-1.0%	-8	0	PASS	PASS	PASS
193	Holloway Circus	8154_8208_	N/A	583	570	-2.2%	-13	1	PASS	PASS	PASS
194	Holloway Circus	8139_8207_	N/A	385	405	5.1%	20	1	PASS	PASS	PASS
195	Holloway Circus	8205_8195_	N/A	803	772	-3.8%	-30	1	PASS	PASS	PASS
196	Holloway Circus	8208_8145_	N/A	835	745	-10.8%	-90	3	PASS	PASS	PASS
197	Holloway Circus	8207_8192_	N/A	532	478	-10.2%	-54	2	PASS	PASS	PASS
198	Holloway Circus	8206_8139_	N/A	725	673	-7.2%	-52	2	PASS	PASS	PASS
199	Spring Hill Circus	1173_1172_1174	N/A	176	155	-12.0%	-21	2	PASS	PASS	PASS
200	Spring Hill Circus	1177_1175_1176	N/A	89	104	16.6%	15	2	PASS	PASS	PASS
201	Spring Hill Circus	1173_1171_	N/A	1265	1469	16.1%	204	6	FAIL	FAIL	FAIL
202	Spring Hill Circus	1176_1169_	N/A	699	661	-5.4%	-38	1	PASS	PASS	PASS
203	Spring Hill Circus	1177_1168_	N/A	1148	1155	0.5%	6	0	PASS	PASS	PASS
204	Spring Hill Circus	1174_1166_	N/A	1014	924	-8.9%	-90	3	PASS	PASS	PASS
205	Spring Hill Circus	1170_1173_	N/A	1709	1798	5.2%	89	2	PASS	PASS	PASS
206	Spring Hill Circus	1168_1175_	N/A	677	865	27.9%	189	7	FAIL	FAIL	FAIL
207	Spring Hill Circus	1167_2108_	N/A	1419	1290	-9.1%	-129	3	PASS	PASS	PASS
208	Spring Hill Circus	1171_1172_	N/A	323	257	-20.5%	-66	4	PASS	PASS	PASS
209	Ladywood Circus	8802_8804_8807	N/A	507	189	-62.7%	-318	17	FAIL	FAIL	FAIL
210	Ladywood Circus	8809_8807_	N/A	1429	1268	-11.3%	-161	4	PASS	PASS	PASS
211	Ladywood Circus	8811_8806_	N/A	543	530	-2.6%	-14	1	PASS	PASS	PASS
212	Ladywood Circus	8812_8805_	N/A	857	970	13.2%	113	4	PASS	PASS	PASS
213	Ladywood Circus	8802_8804_	N/A	1111	803	-27.7%	-308	10	FAIL	FAIL	FAIL
214	Ladywood Circus	8806_8809_	N/A	741	868	17.1%	127	4	FAIL	PASS	PASS
215	Ladywood Circus	8805_8811_	N/A	705	619	-12.1%	-85	3	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
216	Ladywood Circus	8805_8812_	N/A	696	663	-4.7%	-33	1	PASS	PASS	PASS
217	Ladywood Circus	8803_8801_	N/A	1292	1231	-4.8%	-61	2	PASS	PASS	PASS
218	Five Ways	8187_1065_	N/A	1481	1408	-4.9%	-73	2	PASS	PASS	PASS
219	Five Ways	1071_1063_	N/A	913	865	-5.2%	-47	2	PASS	PASS	PASS
220	Five Ways	8181_1061_	N/A	610	416	-31.8%	-194	9	FAIL	FAIL	FAIL
221	Five Ways	7645_1069_	N/A	1865	1194	-36.0%	-671	17	FAIL	FAIL	FAIL
222	Five Ways	8429_1067_	N/A	308	243	-21.1%	-65	4	PASS	PASS	PASS
223	Five Ways	1064_8187_	N/A	1132	804	-29.0%	-328	11	FAIL	FAIL	FAIL
224	Five Ways	1062_1074_	N/A	774	763	-1.4%	-11	0	PASS	PASS	PASS
225	Five Ways	1060_8182_	N/A	780	780	-0.1%	-1	0	PASS	PASS	PASS
226	Five Ways	1068_7645_	N/A	2193	1744	-20.5%	-449	10	FAIL	FAIL	FAIL
227	Five Ways	1066_1072_	N/A	297	33	-89.0%	-265	21	FAIL	FAIL	FAIL
228	Dartmouth Circus	6194_6166_	N/A	1175	1168	-0.6%	-7	0	PASS	PASS	PASS
229	Dartmouth Circus	6701_6168_	N/A	1185	1319	11.3%	134	4	PASS	PASS	PASS
231	Dartmouth Circus	6301_6165_	N/A	1687	1573	-6.8%	-114	3	PASS	PASS	PASS
232	Dartmouth Circus	6167_8213_	N/A	1859	1861	0.1%	3	0	PASS	PASS	PASS
233	Dartmouth Circus	6168_6701_	N/A	1260	1263	0.2%	2	0	PASS	PASS	PASS
235	Dartmouth Circus	6165_6301_	N/A	1101	1182	7.4%	81	2	PASS	PASS	PASS
236	Garrison Circus	7750_1112_	N/A	1687	1681	-0.3%	-6	0	PASS	PASS	PASS
237	Garrison Circus	7188_1118_	N/A	404	414	2.6%	10	1	PASS	PASS	PASS
238	Garrison Circus	8926_1116_	N/A	1311	1294	-1.3%	-17	0	PASS	PASS	PASS
239	Garrison Circus	7751_1114_	N/A	532	525	-1.2%	-6	0	PASS	PASS	PASS
240	Garrison Circus	1119_7750_	N/A	1641	1682	2.5%	41	1	PASS	PASS	PASS
241	Garrison Circus	1117_7188_	N/A	381	356	-6.4%	-24	1	PASS	PASS	PASS
242	Garrison Circus	1115_8926_	N/A	1456	1417	-2.7%	-39	1	PASS	PASS	PASS
243	Garrison Circus	1113_7751_	N/A	456	459	0.7%	3	0	PASS	PASS	PASS
245	Camp Hill Circus	1088_7204_	N/A	1562	1444	-7.5%	-118	3	PASS	PASS	PASS
249	Camp Hill Circus	7204_1088_	N/A	1461	1428	-2.3%	-34	1	PASS	PASS	PASS
250	Camp Hill Circus	7204_55347_	N/A	871	876	0.6%	6	0	PASS	PASS	PASS
251	Camp Hill Circus	7204_1101_	N/A	1605	1580	-1.6%	-26	1	PASS	PASS	PASS
252	Bordesley Circus	1089_1090_1094	N/A	522	512	-1.9%	-10	0	PASS	PASS	PASS
253	Bordesley Circus	7152_1095_	N/A	1493	1417	-5.1%	-76	2	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
254	Bordesley Circus	1100_1093_	N/A	548	535	-2.4%	-13	1	PASS	PASS	PASS
255	Bordesley Circus	1101_1092_	N/A	1610	1580	-1.9%	-30	1	PASS	PASS	PASS
256	Bordesley Circus	1089_1090_	N/A	1482	1445	-2.5%	-37	1	PASS	PASS	PASS
257	Bordesley Circus	1099_1097_	N/A	445	495	11.1%	50	2	PASS	PASS	PASS
258	Bordesley Circus	1094_7152_	N/A	1260	1266	0.4%	5	0	PASS	PASS	PASS
259	Bordesley Circus	1092_1100_	N/A	365	355	-2.5%	-9	0	PASS	PASS	PASS
260	Bordesley Circus	1091_1101_	N/A	1603	1440	-10.1%	-162	4	PASS	PASS	PASS
262	Bordesley Circus	1096_1099_	N/A	689	687	-0.3%	-2	0	PASS	PASS	PASS
263	St Chads Queensway / Snow Hill Queensway	5111_5106_	N/A	1007	932	-7.5%	-75	2	PASS	PASS	PASS
264	St Chads Queensway / Snow Hill Queensway	5112_5106_	N/A	581	430	-26.0%	-151	7	FAIL	FAIL	FAIL
265	St Chads Queensway / Snow Hill Queensway	6147_5107_	N/A	419	414	-1.1%	-5	0	PASS	PASS	PASS
266	St Chads Queensway / Snow Hill Queensway	7803_5107_	N/A	713	692	-2.9%	-21	1	PASS	PASS	PASS
267	St Chads Queensway / Snow Hill Queensway	5106_5111_	N/A	703	828	17.9%	126	5	FAIL	PASS	PASS
268	St Chads Queensway / Snow Hill Queensway	7801_5105_	N/A	879	812	-7.7%	-68	2	PASS	PASS	PASS
269	St Chads Queensway / Snow Hill Queensway	5107_6147_	N/A	150	114	-23.8%	-36	3	PASS	PASS	PASS
270	St Chads Queensway / Snow Hill Queensway	5107_5108_	N/A	987	696	-29.5%	-291	10	FAIL	FAIL	FAIL
273	Great Charles Street Queensway / Newhall Street	5164_5102_	N/A	375	207	-44.7%	-168	10	FAIL	FAIL	FAIL
274	Great Charles Street Queensway / Newhall Street	5103_5102_	N/A	546	497	-9.0%	-49	2	PASS	PASS	PASS
275	Great Charles Street Queensway / Newhall Street	5102_5187_	N/A	429	238	-44.5%	-191	10	FAIL	FAIL	FAIL
276	Great Charles Street Queensway / Newhall Street	5102_5127_	N/A	517	497	-4.0%	-21	1	PASS	PASS	PASS
277	Great Charles Street Queensway / Newhall Street	5102_5164_	N/A	286	200	-30.0%	-86	6	PASS	FAIL	PASS
278	Great Charles Street Queensway / Newhall Street	5102_5116_	N/A	549	541	-1.3%	-7	0	PASS	PASS	PASS
279	Snow Hill Queensway / Colmore Circus	6147_6120_	N/A	135	114	-15.1%	-20	2	PASS	PASS	PASS
280	Snow Hill Queensway / Colmore Circus	7908_6120_	N/A	296	360	21.5%	64	4	PASS	PASS	PASS
281	Snow Hill Queensway / Colmore Circus	6121_6120_	N/A	159	138	-13.5%	-22	2	PASS	PASS	PASS
282	Snow Hill Queensway / Colmore Circus	6120_6147_	N/A	353	414	17.3%	61	3	PASS	PASS	PASS
283	Snow Hill Queensway / Colmore Circus	6120_7908_	N/A	145	75	-48.4%	-70	7	PASS	FAIL	PASS
284	Snow Hill Queensway / Colmore Circus	6120_6121_	N/A	122	123	0.5%	1	0	PASS	PASS	PASS
286	High Street / Dale End	6424_6708_	N/A	139	153	10.0%	14	1	PASS	PASS	PASS
287	High Street / Dale End	6103_6708_	N/A	19	10	-48.5%	-9	2	PASS	PASS	PASS
288	High Street / Dale End	6708_6102_	N/A	70	63	-9.6%	-7	1	PASS	PASS	PASS
290	High Street / Dale End	6708_6103_	N/A	93	80	-13.8%	-13	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
292	Navigation Street / Hill Street	8333_8304_	N/A	132	201	52.7%	69	5	PASS	PASS	PASS
293	Navigation Street / Hill Street	8199_8304_	N/A	113	110	-2.2%	-2	0	PASS	PASS	PASS
294	Navigation Street / Hill Street	8116_8304_	N/A	231	243	5.1%	12	1	PASS	PASS	PASS
295	Navigation Street / Hill Street	8304_8700_	N/A	143	126	-11.6%	-17	1	PASS	PASS	PASS
296	Navigation Street / Hill Street	8304_8333_	N/A	250	217	-13.0%	-33	2	PASS	PASS	PASS
298	Navigation Street / Hill Street	8304_8116_	N/A	83	51	-38.7%	-32	4	PASS	PASS	PASS
299	Smallbrook Queensway / New Street Station Access	7113_7118_	N/A	131	95	-27.7%	-36	3	PASS	PASS	PASS
301	Smallbrook Queensway / New Street Station Access	2114_7118_	N/A	289	147	-49.2%	-142	10	FAIL	FAIL	FAIL
302	Smallbrook Queensway / New Street Station Access	7118_7113_	N/A	70	111	58.6%	41	4	PASS	PASS	PASS
304	Smallbrook Queensway / New Street Station Access	7118_2115_	N/A	352	139	-60.5%	-213	14	FAIL	FAIL	FAIL
306	Hagley Road / Monument Road	8540_8310_	N/A	1311	1278	-2.5%	-33	1	PASS	PASS	PASS
307	Hagley Road / Monument Road	8539_8310_	N/A	700	682	-2.6%	-18	1	PASS	PASS	PASS
308	Hagley Road / Monument Road	8308_8310_	N/A	2257	1990	-11.8%	-267	6	PASS	FAIL	PASS
309	Hagley Road / Monument Road	8310_8178_	N/A	902	852	-5.5%	-50	2	PASS	PASS	PASS
310	Hagley Road / Monument Road	8310_8540_	N/A	1928	1908	-1.0%	-20	0	PASS	PASS	PASS
311	Hagley Road / Monument Road	8310_8539_	N/A	318	81	-74.4%	-237	17	FAIL	FAIL	FAIL
312	Hagley Road / Monument Road	8310_8308_	N/A	1119	1107	-1.1%	-12	0	PASS	PASS	PASS
313	1 - Sheepcote Street / Brindley Place / Essington Street	2065_8196_	N/A	280	376	34.2%	96	5	PASS	PASS	PASS
314	1 - Sheepcote Street / Brindley Place / Essington Street	8313_8196_	N/A	451	196	-56.5%	-255	14	FAIL	FAIL	FAIL
315	1 - Sheepcote Street / Brindley Place / Essington Street	1195_8196_	N/A	154	118	-23.6%	-36	3	PASS	PASS	PASS
316	1 - Sheepcote Street / Brindley Place / Essington Street	8189_8196_	N/A	504	493	-2.0%	-10	0	PASS	PASS	PASS
317	1 - Sheepcote Street / Brindley Place / Essington Street	8196_2065_	N/A	265	265	0.2%	1	0	PASS	PASS	PASS
318	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8313_	N/A	622	539	-13.3%	-83	3	PASS	PASS	PASS
319	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8189_	N/A	484	379	-21.7%	-105	5	FAIL	PASS	PASS
320	2 - Broad Street / Sheepcote Street near Novotel	8315_8313_	N/A	399	621	55.8%	223	10	FAIL	FAIL	FAIL
321	2 - Broad Street / Sheepcote Street near Novotel	1195_8313_	N/A	611	354	-42.0%	-257	12	FAIL	FAIL	FAIL
323	2 - Broad Street / Sheepcote Street near Novotel	8313_8315_	N/A	553	639	15.7%	87	4	PASS	PASS	PASS
324	2 - Broad Street / Sheepcote Street near Novotel	8313_1195_	N/A	624	678	8.7%	54	2	PASS	PASS	PASS
326	Livery Street, (Between Snow Hill car park & Barwick Street)	5124_5197_	N/A	560	641	14.6%	81	3	PASS	PASS	PASS
327	Aston Expressway Beneath Dartmouth Circus	6163_6171_	NB	2491	2461	-1.2%	-30	1	PASS	PASS	PASS
328	Aston Expressway Beneath Dartmouth Circus	6170_6161_	SB	2010	1967	-2.1%	-43	1	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
329	A34 NEWTOWN ROW SOUTH OF PHILLIPS STREET	6532_54329_	NB	1333	1337	0.3%	4	0	PASS	PASS	PASS
330	A34 NEWTOWN ROW SOUTH OF PHILLIPS STREET	54332_6532_	SB	1162	1015	-12.7%	-147	4	PASS	PASS	PASS
331	WHEELER STREET SOUTH OF MARKFORD WALK	5537_1047_	NB	674	733	8.8%	59	2	PASS	PASS	PASS
332	WHEELER STREET SOUTH OF MARKFORD WALK	1047_5537_	SB	716	667	-6.9%	-49	2	PASS	PASS	PASS
333	LANDOR STREET WEST OF MIDLANDS STREET	6531_1043_	EB	171	84	-50.8%	-87	8	PASS	FAIL	PASS
334	LANDOR STREET WEST OF MIDLANDS STREET	1043_6531_	WB	259	235	-9.3%	-24	2	PASS	PASS	PASS
335	LONGMORE STREET North Of Balsall Heath Road	7536_7312_	NB	7	40	449.7%	33	7	PASS	FAIL	PASS
336	LONGMORE STREET North Of Balsall Heath Road	7312_7536_	SB	25	6	-75.9%	-19	5	PASS	PASS	PASS
337	B4144 PARK LANE EAST OF SUTTON STREET	54335_2099_	EB	624	581	-6.9%	-43	2	PASS	PASS	PASS
338	B4144 PARK LANE EAST OF SUTTON STREET	2099_54335_	WB	816	801	-1.8%	-15	1	PASS	PASS	PASS
341	B4124 HAMSTEAD ROAD NORTH OF CHARLEVILLE ROAD	53272_53274_	NB	523	540	3.3%	17	1	PASS	PASS	PASS
342	B4124 HAMSTEAD ROAD NORTH OF CHARLEVILLE ROAD	53274_53272_	SB	535	442	-17.3%	-93	4	PASS	PASS	PASS
343	A41 SOHO HILL NORTH OF HAMSTEAD ROAD	53272_53273_	NB	667	946	41.8%	279	10	FAIL	FAIL	FAIL
344	A41 SOHO HILL NORTH OF HAMSTEAD ROAD	53273_53272_	SB	584	597	2.2%	13	1	PASS	PASS	PASS
345	A4040 HANDSWORTH NEW ROAD NORTH OF LODGE ROAD	1025_53315_	NB	307	301	-1.7%	-5	0	PASS	PASS	PASS
346	A4040 HANDSWORTH NEW ROAD NORTH OF LODGE ROAD	53315_1025_	SB	377	378	0.4%	2	0	PASS	PASS	PASS
349	A457 DUDLEY ROAD EAST OF ALGERNON ROAD	53250_53251_	EB	556	447	-19.5%	-109	5	FAIL	PASS	PASS
350	A457 DUDLEY ROAD EAST OF ALGERNON ROAD	53251_53250_	WB	603	489	-18.9%	-114	5	FAIL	PASS	PASS
351	A4040 CITY ROAD SOUTH OF WIMBOURNE ROAD	53249_53250_	EB	388	254	-34.6%	-134	7	FAIL	FAIL	FAIL
352	A4040 CITY ROAD SOUTH OF WIMBOURNE ROAD	53250_53249_	WB	536	356	-33.6%	-180	9	FAIL	FAIL	FAIL
353	B4125 PORTLAND ROAD WEST OF GILLOTT ROAD	53161_1026_	EB	282	291	3.2%	9	1	PASS	PASS	PASS
354	B4125 PORTLAND ROAD WEST OF GILLOTT ROAD	1026_53161_	WB	457	497	8.8%	40	2	PASS	PASS	PASS
355	B4124 HARBORNE ROAD NORTH OF YATELEY ROAD	1027_5610_	EB	491	468	-4.8%	-24	1	PASS	PASS	PASS
356	B4124 HARBORNE ROAD NORTH OF YATELEY ROAD	5610_1027_	WB	682	667	-2.1%	-14	1	PASS	PASS	PASS
357	RICHMOND HILL ROAD NORTH OF PETERSHAM PLACE	1032_5610_	NB	145	276	89.8%	131	9	FAIL	FAIL	FAIL
358	RICHMOND HILL ROAD NORTH OF PETERSHAM PLACE	5610_1032_	SB	169	169	0.0%	0	0	PASS	PASS	PASS

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
359	WESTBOURNE ROAD WEST OF VICARAGE ROAD	5604_5605_	WB	1638	911	-44.4%	-727	20	FAIL	FAIL	FAIL
360	B4217 CHURCH ROAD NORTH OF ARTHURS ROAD	1033_8542_	NB	407	459	12.8%	52	3	PASS	PASS	PASS
361	B4217 CHURCH ROAD NORTH OF ARTHURS ROAD	8542_1033_	SB	501	504	0.7%	4	0	PASS	PASS	PASS
362	B4217 PRIORY ROAD SOUTH OF PRIORY PLACE	54872_1036_	NB	621	655	5.5%	34	1	PASS	PASS	PASS
363	B4217 PRIORY ROAD SOUTH OF PRIORY PLACE	1036_54872_	SB	919	907	-1.3%	-12	0	PASS	PASS	PASS
364	B4217 EDGBASTON ROAD EAST OF PERSHORE ROAD	1038_1039_	EB	1223	1220	-0.2%	-3	0	PASS	PASS	PASS
365	B4217 EDGBASTON ROAD EAST OF PERSHORE ROAD	1039_1038_	WB	1002	976	-2.6%	-26	1	PASS	PASS	PASS
366	BRIGHTON ROAD WEST OF PEMBROKE ROAD	1051_1040_	WB	598	635	6.3%	37	2	PASS	PASS	PASS
367	GOLDEN HILLOCK ROAD NORTH OF LLOYD STREET	54268_54278_	NB	209	209	0.0%	0	0	PASS	PASS	PASS
368	GOLDEN HILLOCK ROAD NORTH OF LLOYD STREET	54278_54268_	SB	206	207	0.4%	1	0	PASS	PASS	PASS
369	BORDESLEY GREEN EAST OF PIKEWATER ROAD	54281_2101_	EB	562	718	27.7%	156	6	FAIL	FAIL	FAIL
370	BORDESLEY GREEN EAST OF PIKEWATER ROAD	2101_54281_	WB	623	611	-1.9%	-12	0	PASS	PASS	PASS
371	B4145 ASH ROAD NORTH OF HALL ROAD	2102_54361_	NB	298	316	6.2%	19	1	PASS	PASS	PASS
372	B4145 ASH ROAD NORTH OF HALL ROAD	54361_2102_	SB	429	423	-1.2%	-5	0	PASS	PASS	PASS
375	Vyse Street South of Pitsford Street	5191_5157_	NB	407	374	-8.1%	-33	2	PASS	PASS	PASS
376	Vyse Street South of Pitsford Street	5157_5191_	SB	296	252	-14.9%	-44	3	PASS	PASS	PASS
377	WARSTONE LANE WEST OF AUGUSTA STREET	5189_5195_	EB	201	186	-7.1%	-14	1	PASS	PASS	PASS
378	WARSTONE LANE WEST OF AUGUSTA STREET	5195_5189_	WB	302	298	-1.2%	-4	0	PASS	PASS	PASS
379	GREAT HAMPTON ROW SOUTH OF MOSBOROUGH CRESCENT	5175_5126_	EB	61	31	-49.8%	-31	4	PASS	PASS	PASS
380	GREAT HAMPTON ROW SOUTH OF MOSBOROUGH CRESCENT	5126_5175_	WB	42	53	25.0%	11	2	PASS	PASS	PASS
381	DIGBETH SOUTH OF PARK STREET	7123_7199_	SB	1378	1392	1.0%	13	0	PASS	PASS	PASS
382	MOAT LANE NORTH OF BRADFORD STREET	7127_7125_	NB	1011	1047	3.5%	35	1	PASS	PASS	PASS
385	ALCESTER STREET SOUTH OF MOSELEY STREET	7184_7101_	NB	222	103	-53.4%	-119	9	FAIL	FAIL	FAIL
386	ALCESTER STREET SOUTH OF MOSELEY STREET	7101_7184_	SB	258	241	-6.8%	-17	1	PASS	PASS	PASS
388	Bristol Road	1110_8312_	N/A	1268	1373	8.3%	105	3	PASS	PASS	PASS
389	Bristol Road	1037_8312_	N/A	1254	1060	-15.5%	-194	6	FAIL	FAIL	FAIL
390	Bristol Road	8185_8312_	N/A	432	235	-45.6%	-197	11	FAIL	FAIL	FAIL

Unique ID	Description	Saturn link	Dir	Obs	Mod	% Diff	Diff	GEH	DMRB	GEH	Overall
392	Bristol Road	8312_1110_	N/A	1338	964	-27.9%	-374	11	FAIL	FAIL	FAIL
393	Bristol Road	8312_1037_	N/A	1593	1279	-19.7%	-315	8	FAIL	FAIL	FAIL
394	Bristol Road	8312_8185_	N/A	539	442	-17.9%	-96	4	PASS	PASS	PASS
396	Curzon Circle	8925_1123_	N/A	1823	1682	-7.7%	-141	3	PASS	PASS	PASS
400	Curzon Circle	1123_8925_	N/A	1408	1530	8.6%	122	3	PASS	PASS	PASS
404	Boulton Circus	1163_1155_	N/A	1195	1234	3.3%	40	1	PASS	PASS	PASS
409	Boulton Circus	1154_1163_	N/A	1089	1104	1.3%	14	0	PASS	PASS	PASS
413	Newtown Row	6701_6303_	N/A	1135	1200	5.7%	65	2	PASS	PASS	PASS
415	Newtown Row	5303_6303_	N/A	1021	1065	4.3%	44	1	PASS	PASS	PASS
417	Newtown Row	6303_6701_	N/A	1239	1319	6.4%	80	2	PASS	PASS	PASS
419	Newtown Row	6303_5303_	N/A	811	1128	39.1%	317	10	FAIL	FAIL	FAIL

Appendix I. Link Validation Results

I.1. AM Peak Model

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Diff	Total GEH	DMRB criteria	GEH critera	Overall criteria
5	Bristol Road, Att - Railings, OSGR: SP 06739 85231	53128_1037_	NB	1299	1508	16.1%	209	6	FAIL	FAIL	FAIL
7	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8103_8126_	NB	147	100	-32.1%	-47	4	PASS	PASS	PASS
8	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8126_8103_	SB	178	98	-44.9%	-80	7	PASS	FAIL	PASS
22	Broad Street, Att - LC19, OSGR: SP 06167 86669	8314_8127_	NB	403	525	30.1%	121	6	FAIL	FAIL	FAIL
23	Broad Street, Att - LC19, OSGR: SP 06167 86669	8127_8314_	SB	148	83	-44.3%	-66	6	PASS	FAIL	PASS
36	Wheeley's Road, Att - LC8, OSGR: SP 05991 85701	8417_8305_	NB	71	35	-50.6%	-36	5	PASS	PASS	PASS
38	NEW TOWN ROW North Of Pritchett Street	6159_6303_	NB	654	771	17.9%	117	4	FAIL	PASS	PASS
44	PITSFORD STREET West of Vyse Street	5174_2004_	SB	84	197	136.3%	114	10	FAIL	FAIL	FAIL
45	PITSFORD STREET West of Vyse Street	2004_5174_	NB	23	3	-88.1%	-20	6	PASS	FAIL	PASS
49	POPE STREET West of Moreton Street	5160_5161_	WB	43	0	-99.6%	-43	9	PASS	FAIL	PASS
50	CAMDEN STREET East of Icknield Street	5156_5412_	EB	54	43	-20.4%	-11	2	PASS	PASS	PASS
51	SUMMER HILL ROAD West of Goodman Street	1174_2088_	WB	1024	991	-3.1%	-32	1	PASS	PASS	PASS
52	SUMMER HILL ROAD West of Goodman Street	2088_1174_	EB	607	593	-2.3%	-14	1	PASS	PASS	PASS
55	LEDSAM STREET North of Rodney Close	2066_5148_	EB	49	0	-100.0%	-49	10	PASS	FAIL	PASS
56	LEDSAM STREET North of Rodney Close	5148_2066_	WB	92	22	-76.5%	-70	9	PASS	FAIL	PASS
61	BATH ROW West of Bishopgate Street	8164_8163_	NB	721	679	-5.7%	-41	2	PASS	PASS	PASS
62	BATH ROW West of Bishopgate Street	8163_8164_	SB	54	51	-5.1%	-3	0	PASS	PASS	PASS
63	WHEELEYS LANE South of Bath Row	8162_8305_	EB	179	323	81.2%	145	9	FAIL	FAIL	FAIL
74	HORTON SQUARE South of Highgate Street	7312_7601_	NB	160	106	-33.9%	-54	5	PASS	PASS	PASS
76	FRANK STREET South of Highgate Street	7614_7603_	NB	37	0	-100.0%	-37	9	PASS	FAIL	PASS
77	FRANK STREET South of Highgate Street	7603_7614_	SB	80	41	-48.4%	-38	5	PASS	PASS	PASS
78	UPPER CONYBERE STREET South of Highgate Middleway	7605_7604_	NB	1	0	-100.0%	-1	1	PASS	PASS	PASS
79	UPPER CONYBERE STREET South of Highgate Middleway	7604_7605_	SB	11	18	73.8%	8	2	PASS	PASS	PASS
80	LEOPOLD STREET West of Highgate Middleway	7607_7172_	NB	116	178	53.9%	62	5	PASS	PASS	PASS

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Diff	Total GEH	DMRB criteria	GEH critera	Overall criteria
82	MOSELEY ROAD South of Moseley Street	7161_7164_	EB	220	157	-28.7%	-63	5	PASS	PASS	PASS
95	ADDERLEY STREET West of Glover Street	2044_8921_	WB	54	44	-18.2%	-10	1	PASS	PASS	PASS
99	ST VINCENT STREET WEST West of Ledsam Street	8414_8168_	NB	109	39	-64.3%	-70	8	PASS	FAIL	PASS
100	ST VINCENT STREET WEST West of Ledsam Street	8168_8414_	SB	45	16	-63.3%	-29	5	PASS	PASS	PASS
101	GROSVENOR STREET WEST South of Ryland Street	8425_8413_	EB	68	118	74.0%	50	5	PASS	PASS	PASS
102	GROSVENOR STREET WEST South of Ryland Street	8413_8425_	WB	146	189	29.5%	43	3	PASS	PASS	PASS
103	UNETT STREET South of New John Street	5175_1164_	NB	208	150	-27.9%	-58	4	PASS	PASS	PASS
106	ASTON ROAD Dartmouth Circus South Slips	6164_6162_	SB	835	756	-9.5%	-79	3	PASS	PASS	PASS
110	CAR1391 BRADFORD STREET South Of Moat Lane	7127_7147_	NB	247	302	22.5%	56	3	PASS	PASS	PASS
118	CAR21282 LAWLEY MIDDLEWAY South Of Jennens Road	1128_1122_	EB	1508	1226	-18.7%	-282	8	FAIL	FAIL	FAIL
124	CAR21288 VAUXHALL ROAD East Of Lawley Middleway	1121_6529_	SB	517	522	0.9%	5	0	PASS	PASS	PASS
140	CAR21302 BELGRAVE ROAD East Of Highgate Middleway	1079_1042_	SB	577	639	10.7%	62	3	PASS	PASS	PASS
141	CAR21302 BELGRAVE ROAD East Of Highgate Middleway	1042_1080_	WB	896	717	-19.9%	-179	6	FAIL	FAIL	FAIL
142	CAR21300A HIGHGATE MIDDLEWAY North Of Belgrave Middleway	1084_7605_	EB	1440	1445	0.3%	5	0	PASS	PASS	PASS
148	Moor Street (between Carrs Lane & Swan Passage)	10000_7113_	NB	200	220	10.1%	20	1	PASS	PASS	PASS
191	Holloway Circus	8603_8206_	N/A	1144	885	-22.6%	-259	8	FAIL	FAIL	FAIL
246	Camp Hill Circus	55347_7204_	N/A	1060	1101	3.9%	41	1	PASS	PASS	PASS
261	Bordesley Circus	1098_1089_	N/A	1337	1329	-0.6%	-8	0	PASS	PASS	PASS
271	Great Charles Street Queensway / Newhall Street	5187_5102_	N/A	283	206	-27.3%	-77	5	PASS	PASS	PASS
272	Great Charles Street Queensway / Newhall Street	5118_5102_	N/A	638	591	-7.3%	-47	2	PASS	PASS	PASS
300	Smallbrook Queensway / New Street Station Access	7729_7118_	N/A	94	93	-1.1%	-1	0	PASS	PASS	PASS
303	Smallbrook Queensway / New Street Station Access	7118_7729_	N/A	100	75	-25.0%	-25	3	PASS	PASS	PASS
143	A4400 Queensway between Ludgate Hill and Livery Street	1_2_	N/A	3337	3238	-3.0%	-99	2	PASS	PASS	PASS
144	A4400 Queensway between Ludgate Hill and Livery Street	3_4_	N/A	3290	2936	-10.8%	-354	6	PASS	FAIL	PASS
145	Moor Street Queensway between Masshouse Lane and Albert Street	5_6_	N/A	586	516	-11.9%	-70	3	PASS	PASS	PASS

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Diff	Total GEH	DMRB criteria	GEH critera	Overall criteria
146	Moor Street Queensway between Masshouse Lane and Albert Street	1016_7133_	N/A	133	89	-32.9%	-44	4	PASS	PASS	PASS

I.2. Inter-peak Model

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Diff	Total GEH	DMRB criteria	GEH critera	Overall criteria
5	Bristol Road, Att - Railings, OSGR: SP 06739 85231	53128_1037_	NB	955	891	-6.7%	-64	2	PASS	PASS	PASS
7	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8103_8126_	NB	141	115	-18.0%	-25	2	PASS	PASS	PASS
8	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8126_8103_	SB	129	48	-62.6%	-81	9	PASS	FAIL	PASS
22	Broad Street, Att - LC19, OSGR: SP 06167 86669	8314_8127_	NB	316	381	20.8%	66	4	PASS	PASS	PASS
23	Broad Street, Att - LC19, OSGR: SP 06167 86669	8127_8314_	SB	141	169	20.0%	28	2	PASS	PASS	PASS
36	Wheeley's Road, Att - LC8, OSGR: SP 05991 85701	8417_8305_	NB	54	44	-19.5%	-11	2	PASS	PASS	PASS
38	NEW TOWN ROW North Of Pritchett Street	6159_6303_	NB	635	814	28.2%	179	7	FAIL	FAIL	FAIL
44	PITSFORD STREET West of Vyse Street	5174_2004_	SB	50	109	119.1%	59	7	PASS	FAIL	PASS
45	PITSFORD STREET West of Vyse Street	2004_5174_	NB	43	34	-21.0%	-9	1	PASS	PASS	PASS
49	POPE STREET West of Moreton Street	5160_5161_	WB	45	26	-42.3%	-19	3	PASS	PASS	PASS
50	CAMDEN STREET East of Icknield Street	5156_5412_	EB	31	31	-1.6%	0	0	PASS	PASS	PASS
51	SUMMER HILL ROAD West of Goodman Street	1174_2088_	WB	520	488	-6.2%	-32	1	PASS	PASS	PASS
52	SUMMER HILL ROAD West of Goodman Street	2088_1174_	EB	606	525	-13.4%	-81	3	PASS	PASS	PASS
55	LEDSAM STREET North of Rodney Close	2066_5148_	EB	56	0	-100.0%	-56	11	PASS	FAIL	PASS
56	LEDSAM STREET North of Rodney Close	5148_2066_	WB	64	57	-10.6%	-7	1	PASS	PASS	PASS
61	BATH ROW West of Bishopgate Street	8164_8163_	NB	619	588	-5.0%	-31	1	PASS	PASS	PASS
62	BATH ROW West of Bishopgate Street	8163_8164_	SB	74	0	-100.0%	-74	12	PASS	FAIL	PASS
63	WHEELEYS LANE South of Bath Row	8162_8305_	EB	147	190	29.5%	43	3	PASS	PASS	PASS
74	HORTON SQUARE South of Highgate Street	7312_7601_	NB	105	102	-3.6%	-4	0	PASS	PASS	PASS
76	FRANK STREET South of Highgate Street	7614_7603_	NB	34	0	-100.0%	-34	8	PASS	FAIL	PASS
77	FRANK STREET South of Highgate Street	7603_7614_	SB	111	65	-42.1%	-47	5	PASS	PASS	PASS
78	UPPER CONYBERE STREET South of Highgate Middleway	7605_7604_	NB	2	0	-100.0%	-2	2	PASS	PASS	PASS
79	UPPER CONYBERE STREET South of Highgate Middleway	7604_7605_	SB	19	18	-6.5%	-1	0	PASS	PASS	PASS
80	LEOPOLD STREET West of Highgate Middleway	7607_7172_	NB	134	175	31.1%	42	3	PASS	PASS	PASS

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Diff	Total GEH	DMRB criteria	GEH critera	Overall criteria
82	MOSELEY ROAD South of Moseley Street	7161_7164_	EB	113	85	-24.9%	-28	3	PASS	PASS	PASS
95	ADDERLEY STREET West of Glover Street	2044_8921_	WB	54	20	-62.3%	-34	6	PASS	FAIL	PASS
99	ST VINCENT STREET WEST West of Ledsam Street	8414_8168_	NB	88	65	-26.5%	-23	3	PASS	PASS	PASS
100	ST VINCENT STREET WEST West of Ledsam Street	8168_8414_	SB	44	34	-23.9%	-11	2	PASS	PASS	PASS
101	GROSVENOR STREET WEST South of Ryland Street	8425_8413_	EB	41	43	5.5%	2	0	PASS	PASS	PASS
102	GROSVENOR STREET WEST South of Ryland Street	8413_8425_	WB	85	100	18.2%	15	2	PASS	PASS	PASS
103	UNETT STREET South of New John Street	5175_1164_	NB	254	268	5.2%	13	1	PASS	PASS	PASS
106	ASTON ROAD Dartmouth Circus South Slips	6164_6162_	SB	584	574	-1.8%	-11	0	PASS	PASS	PASS
110	CAR1391 BRADFORD STREET South Of Moat Lane	7127_7147_	NB	219	326	48.5%	106	6	FAIL	FAIL	FAIL
118	CAR21282 LAWLEY MIDDLEWAY South Of Jennens Road	1128_1122_	EB	1283	1213	-5.5%	-70	2	PASS	PASS	PASS
124	CAR21288 VAUXHALL ROAD East Of Lawley Middleway	1121_6529_	SB	535	557	4.3%	23	1	PASS	PASS	PASS
140	CAR21302 BELGRAVE ROAD East Of Highgate Middleway	1079_1042_	SB	572	580	1.4%	8	0	PASS	PASS	PASS
141	CAR21302 BELGRAVE ROAD East Of Highgate Middleway	1042_1080_	WB	672	658	-2.1%	-14	1	PASS	PASS	PASS
142	CAR21300A HIGHGATE MIDDLEWAY North Of Belgrave Middleway	1084_7605_	EB	1128	1262	11.9%	134	4	PASS	PASS	PASS
148	Moor Street (between Carrs Lane & Swan Passage)	10000_7113_	NB	218	251	15.3%	33	2	PASS	PASS	PASS
191	Holloway Circus	8603_8206_	N/A	1066	1029	-3.4%	-37	1	PASS	PASS	PASS
246	Camp Hill Circus	55347_7204_	N/A	656	695	6.0%	39	2	PASS	PASS	PASS
261	Bordesley Circus	1098_1089_	N/A	1433	1401	-2.3%	-32	1	PASS	PASS	PASS
271	Great Charles Street Queensway / Newhall Street	5187_5102_	N/A	227	196	-13.4%	-30	2	PASS	PASS	PASS
272	Great Charles Street Queensway / Newhall Street	5118_5102_	N/A	471	558	18.5%	87	4	PASS	PASS	PASS
300	Smallbrook Queensway / New Street Station Access	7729_7118_	N/A	96	96	0.3%	0	0	PASS	PASS	PASS
303	Smallbrook Queensway / New Street Station Access	7118_7729_	N/A	95	93	-2.3%	-2	0	PASS	PASS	PASS
143	A4400 Queensway between Ludgate Hill and Livery Street	QueenswayN	N/A	2678	2471	-7.7%	-207	4	PASS	PASS	PASS
144	A4400 Queensway between Ludgate Hill and Livery Street	QueenswayS	N/A	2662	2548	-4.3%	-114	2	PASS	PASS	PASS
145	Moor Street Queensway between Masshouse Lane and Albert Street	MoorStN	N/A	657	544	-17.2%	-113	5	FAIL	PASS	PASS

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Diff	Total GEH	DMRB criteria	GEH critera	Overall criteria
146	Moor Street Queensway between Masshouse Lane and Albert Street	1016_7133_	N/A	162	106	-34.8%	-57	5	PASS	PASS	PASS

I.3. PM Peak Model

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Dif	Total GEH	DMRB criteria	GEH critera	Overall criteria
5	Bristol Road, Att - Railings, OSGR: SP 06739 85231	53128_1037_	NB	374	337	-9.7%	-36	2	PASS	PASS	PASS
7	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8103_8126_	NB	285	230	-19.1%	-54	3	PASS	PASS	PASS
8	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8126_8103_	SB	304	323	6.4%	19	1	PASS	PASS	PASS
22	Broad Street, Att - LC19, OSGR: SP 06167 86669	8314_8127_	NB	1308	1279	-2.2%	-29	1	PASS	PASS	PASS
23	Broad Street, Att - LC19, OSGR: SP 06167 86669	8127_8314_	SB	497	447	-10.1%	-50	2	PASS	PASS	PASS
36	Wheeley's Road, Att - LC8, OSGR: SP 05991 85701	8417_8305_	NB	161	156	-3.3%	-5	0	PASS	PASS	PASS
38	NEW TOWN ROW North Of Pritchett Street	6159_6303_	NB	280	292	4.6%	13	1	PASS	PASS	PASS
44	PITSFORD STREET West of Vyse Street	5174_2004_	EB	340	270	-20.7%	-70	4	PASS	PASS	PASS
45	PITSFORD STREET West of Vyse Street	2004_5174_	WB	932	1060	13.8%	128	4	PASS	PASS	PASS
49	POPE STREET West of Moreton Street	5160_5161_	WB	205	211	2.8%	6	0	PASS	PASS	PASS
50	CAMDEN STREET East of Icknield Street	5156_5412_	EB	265	258	-2.6%	-7	0	PASS	PASS	PASS
51	SUMMER HILL ROAD West of Goodman Street	1174_2088_	EB	232	229	-1.2%	-3	0	PASS	PASS	PASS
52	SUMMER HILL ROAD West of Goodman Street	2088_1174_	WB	390	414	6.2%	24	1	PASS	PASS	PASS
55	LEDSAM STREET North of Rodney Close	2066_5148_	NB	338	381	12.6%	43	2	PASS	PASS	PASS
56	LEDSAM STREET North of Rodney Close	5148_2066_	SB	339	299	-12.0%	-41	2	PASS	PASS	PASS
61	BATH ROW West of Bishopgate Street	8164_8163_	EB	313	255	-18.6%	-58	3	PASS	PASS	PASS
62	BATH ROW West of Bishopgate Street	8163_8164_	WB	240	197	-17.9%	-43	3	PASS	PASS	PASS
63	WHEELEYS LANE South of Bath Row	8162_8305_	SB	575	553	-3.8%	-22	1	PASS	PASS	PASS
74	HORTON SQUARE South of Highgate Street	7312_7601_	NB	756	543	-28.2%	-213	8	FAIL	FAIL	FAIL
76	FRANK STREET South of Highgate Street	7614_7603_	NB	311	280	-9.8%	-31	2	PASS	PASS	PASS
77	FRANK STREET South of Highgate Street	7603_7614_	SB	556	460	-17.2%	-96	4	PASS	PASS	PASS
78	UPPER CONYBERE STREET South of Highgate Middleway	7605_7604_	NB	367	356	-3.2%	-12	1	PASS	PASS	PASS
79	UPPER CONYBERE STREET South of Highgate Middleway	7604_7605_	SB	195	199	2.1%	4	0	PASS	PASS	PASS
80	LEOPOLD STREET West of Highgate Middleway	7607_7172_	EB	346	402	16.0%	55	3	PASS	PASS	PASS

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Dif	Total GEH	DMRB criteria	GEH critera	Overall criteria
82	MOSELEY ROAD South of Moseley Street	7161_7164_	NB	468	466	-0.5%	-2	0	PASS	PASS	PASS
95	ADDERLEY STREET West of Glover Street	2044_8921_	EB	592	542	-8.5%	-50	2	PASS	PASS	PASS
99	ST VINCENT STREET WEST West of Ledsam Street	8414_8168_	EB	723	781	8.1%	59	2	PASS	PASS	PASS
100	ST VINCENT STREET WEST West of Ledsam Street	8168_8414_	WB	407	394	-3.1%	-13	1	PASS	PASS	PASS
101	GROSVENOR STREET WEST South of Ryland Street	8425_8413_	NB	215	220	2.2%	5	0	PASS	PASS	PASS
102	GROSVENOR STREET WEST South of Ryland Street	8413_8425_	SB	497	649	30.5%	152	6	FAIL	FAIL	FAIL
103	UNETT STREET South of New John Street	5175_1164_	NB	738	772	4.6%	34	1	PASS	PASS	PASS
106	ASTON ROAD Dartmouth Circus South Slips	6164_6162_	SB	246	90	-63.5%	-156	12	FAIL	FAIL	FAIL
110	CAR1391 BRADFORD STREET South Of Moat Lane	7127_7147_	EB	440	401	-8.9%	-39	2	PASS	PASS	PASS
118	CAR21282 LAWLEY MIDDLEWAY South Of Jennens Road	1128_1122_	SB	73	18	-75.4%	-55	8	PASS	FAIL	PASS
124	CAR21288 VAUXHALL ROAD East Of Lawley Middleway	1121_6529_	EB	589	472	-20.0%	-118	5	FAIL	PASS	PASS
140	CAR21302 BELGRAVE ROAD East Of Highgate Middleway	1079_1042_	EB	884	678	-23.3%	-206	7	FAIL	FAIL	FAIL
141	CAR21302 BELGRAVE ROAD East Of Highgate Middleway	1042_1080_	WB	110	290	163.3%	180	13	FAIL	FAIL	FAIL
142	CAR21300A HIGHGATE MIDDLEWAY North Of Belgrave Middleway	1084_7605_	NB	155	156	0.3%	1	0	PASS	PASS	PASS
148	Moor Street (between Carrs Lane & Swan Passage)	10000_7113_	SB	1756	2149	22.4%	393	9	FAIL	FAIL	FAIL
191	Holloway Circus	8603_8206_	N/A	1849	2188	18.3%	338	8	FAIL	FAIL	FAIL
246	Camp Hill Circus	55347_7204_	N/A	331	13	-96.1%	-318	24	FAIL	FAIL	FAIL
261	Bordesley Circus	1098_1089_	N/A	143	135	-5.7%	-8	1	PASS	PASS	PASS
271	Great Charles Street Queensway / Newhall Street	5187_5102_	N/A	158	165	4.6%	7	1	PASS	PASS	PASS
272	Great Charles Street Queensway / Newhall Street	5118_5102_	N/A	412	517	25.5%	105	5	FAIL	PASS	PASS
300	Smallbrook Queensway / New Street Station Access	7729_7118_	N/A	568	598	5.4%	30	1	PASS	PASS	PASS
303	Smallbrook Queensway / New Street Station Access	7118_7729_	N/A	318	535	67.9%	216	10	FAIL	FAIL	FAIL
143	A4400 Queensway between Ludgate Hill and Livery Street	QueenswayN	N/A	406	355	-12.4%	-50	3	PASS	PASS	PASS
144	A4400 Queensway between Ludgate Hill and Livery Street	QueenswayS	N/A	384	409	6.5%	25	1	PASS	PASS	PASS
145	Moor Street Queensway between Masshouse Lane and Albert Street	MoorStN	N/A	253	254	0.3%	1	0	PASS	PASS	PASS

Unique ID	Description	Saturn_link	Dir	Obs	Mod	% Diff	Dif	Total GEH	DMRB criteria	GEH critera	Overall criteria
146	Moor Street Queensway between Masshouse Lane and Albert Street	1016_7133_	N/A	486	484	-0.4%	-2	0	**PASS**	**PASS**	**PASS**

Appendix J. Key Link Validation

J.1. AM Peak Model

Moor Street/Curzon Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
88	CURZON STREET East Of Penn Street	6179_1120_	192	209	9%	1.2	PASS
89	CURZON STREET East Of Penn Street	1120_6179_	326	310	-5%	0.9	PASS
90	JENNENS ROAD South Of Lawley Street	6145_7142_	375	247	-34%	7.3	FAIL
91	JENNENS ROAD South Of Lawley Street	7142_6145_	564	596	6%	1.4	PASS
147	Moor Street (between Carrs Lane & Swan Passage)	7113_10001_	796	732	-8%	2.3	PASS
148	Moor Street (between Carrs Lane & Swan Passage)	10000_7113_	200	220	10%	1.4	PASS
145	Moor Street Queensway between Masshouse Lane and Albert Street	5_6_	586	516	-12%	3.0	PASS
146	Moor Street Queensway between Masshouse Lane and Albert Street	1016_7133_	133	89	-33%	4.1	PASS
13	Park Street, Att - LC17, OSGR: SP 07560 86972	6108_6107_	838	973	16%	4.5	PASS
286	High Street / Dale End	6424_6708_	133	131	-1%	0.1	PASS
287	High Street / Dale End	6103_6708_	22	10	-53%	2.9	PASS
288	High Street / Dale End	6708_6102_	66	63	-5%	0.4	PASS
290	High Street / Dale End	6708_6103_	80	58	-28%	2.6	PASS

Colmore Row/Queensway

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
12	Colmore Row, Att - Parking post, OSGR: SP 06947 87080	6101_5101_	385	416	8%	1.5	PASS
279	Snow Hill Queensway / Colmore Circus	6147_6120_	265	268	1%	0.2	PASS
280	Snow Hill Queensway / Colmore Circus	7908_6120_	192	209	9%	1.2	PASS
281	Snow Hill Queensway / Colmore Circus	6121_6120_	179	129	-28%	4.0	PASS
282	Snow Hill Queensway / Colmore Circus	6120_6147_	226	254	13%	1.8	PASS
283	Snow Hill Queensway / Colmore Circus	6120_7908_	202	185	-8%	1.2	PASS
284	Snow Hill Queensway / Colmore Circus	6120_6121_	214	165	-23%	3.5	PASS
326	Livery Street, (Between Snow Hill car park & Barwick Street)	5124_5197_	511	491	-4%	0.9	PASS
263	St Chads Queensway / Snow Hill Queensway	5111_5106_	985	998	1%	0.4	PASS
264	St Chads Queensway / Snow Hill Queensway	5112_5106_	612	461	-25%	6.5	FAIL
265	St Chads Queensway / Snow Hill Queensway	6147_5107_	254	254	0%	0.0	PASS
266	St Chads Queensway / Snow Hill Queensway	7803_5107_	889	979	10%	2.9	PASS
267	St Chads Queensway / Snow Hill Queensway	5106_5111_	777	808	4%	1.1	PASS
268	St Chads Queensway / Snow Hill Queensway	7801_5105_	1221	1182	-3%	1.1	PASS

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
269	St Chads Queensway / Snow Hill Queensway	5107_6147_	268	268	0%	0.0	PASS
270	St Chads Queensway / Snow Hill Queensway	5107_5108_	473	413	-13%	2.9	PASS
271	Great Charles Street Queensway / Newhall Street	5187_5102_	283	206	-27%	4.9	PASS
272	Great Charles Street Queensway / Newhall Street	5118_5102_	638	591	-7%	1.9	PASS
273	Great Charles Street Queensway / Newhall Street	5164_5102_	351	169	-52%	11.3	FAIL
274	Great Charles Street Queensway / Newhall Street	5103_5102_	418	358	-14%	3.1	PASS
275	Great Charles Street Queensway / Newhall Street	5102_5187_	518	314	-39%	10.0	FAIL
276	Great Charles Street Queensway / Newhall Street	5102_5127_	335	357	7%	1.2	PASS
277	Great Charles Street Queensway / Newhall Street	5102_5164_	365	206	-43%	9.4	FAIL
278	Great Charles Street Queensway / Newhall Street	5102_5116_	473	438	-7%	1.6	PASS
143	A4400 Queensway between Ludgate Hill and Livery Street	1_2_	3337	3238	-3%	1.7	PASS
144	A4400 Queensway between Ludgate Hill and Livery Street	3_4_	3290	2936	-11%	6.3	PASS

Broad Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
22	Broad Street, Att - LC19, OSGR: SP 06167 86669	8314_8127_	403	525	30%	5.6	FAIL
23	Broad Street, Att - LC19, OSGR: SP 06167 86669	8127_8314_	148	83	-44%	6.1	PASS
57	BROAD STREET East of Bishopgate Street	8190_1195_	903	843	-7%	2.0	PASS
7	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8103_8126_	147	100	-32%	4.2	PASS
8	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8126_8103_	178	98	-45%	6.8	PASS
313	1 - Sheepcote Street / Brindley Place / Essington Street	2065_8196_	111	212	91%	7.9	FAIL
315	1 - Sheepcote Street / Brindley Place / Essington Street	1195_8196_	312	300	-4%	0.7	PASS
316	1 - Sheepcote Street / Brindley Place / Essington Street	8189_8196_	525	557	6%	1.4	PASS
317	1 - Sheepcote Street / Brindley Place / Essington Street	8196_2065_	365	361	-1%	0.2	PASS
318	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8313_	490	535	9%	2.0	PASS
319	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8189_	342	328	-4%	0.7	PASS
321	2 - Broad Street / Sheepcote Street near Novotel	1195_8313_	654	543	-17%	4.5	PASS
323	2 - Broad Street / Sheepcote Street near Novotel	8313_8315_	697	841	21%	5.2	PASS
324	2 - Broad Street / Sheepcote Street near Novotel	8313_1195_	459	518	13%	2.7	PASS

Bath Row/New Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
24	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8406_8150_	660	693	5%	1.3	PASS
25	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8150_8406_	683	694	2%	0.4	PASS
61	BATH ROW West of Bishopgate Street	8164_8163_	721	679	-6%	1.6	PASS
62	BATH ROW West of Bishopgate Street	8163_8164_	54	51	-5%	0.4	PASS
191	Holloway Circus	8603_8206_	1144	885	-23%	8.1	FAIL
192	Holloway Circus	8145_8205_	728	720	-1%	0.3	PASS
193	Holloway Circus	8154_8208_	621	608	-2%	0.5	PASS
194	Holloway Circus	8139_8207_	224	221	-1%	0.2	PASS
195	Holloway Circus	8205_8195_	732	745	2%	0.5	PASS
196	Holloway Circus	8208_8145_	937	680	-27%	9.0	FAIL
197	Holloway Circus	8207_8192_	365	342	-6%	1.2	PASS
198	Holloway Circus	8206_8139_	683	646	-5%	1.5	PASS
299	Smallbrook Queensway / New Street Station Access	7113_7118_	138	93	-33%	4.2	PASS
300	Smallbrook Queensway / New Street Station Access	7729_7118_	94	93	-1%	0.1	PASS
301	Smallbrook Queensway / New Street Station Access	2114_7118_	210	114	-46%	7.5	PASS
302	Smallbrook Queensway / New Street Station Access	7118_7113_	71	42	-40%	3.8	PASS
303	Smallbrook Queensway / New Street Station Access	7118_7729_	100	75	-25%	2.7	PASS
304	Smallbrook Queensway / New Street Station Access	7118_2115_	272	186	-31%	5.7	PASS

J.2. Inter-peak Model

Moor Street/Curzon Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
88	CURZON STREET East Of Penn Street	6179_1120_	305	319	4%	0.8	PASS
89	CURZON STREET East Of Penn Street	1120_6179_	227	203	-11%	1.7	PASS
90	JENNENS ROAD South Of Lawley Street	6145_7142_	413	389	-6%	1.2	PASS
91	JENNENS ROAD South Of Lawley Street	7142_6145_	361	531	47%	8.0	FAIL
147	Moor Street (between Carrs Lane & Swan Passage)	7113_10001_	755	651	-14%	3.9	PASS
148	Moor Street (between Carrs Lane & Swan Passage)	10000_7113_	218	251	15%	2.2	PASS
145	Moor Street Queensway between Masshouse Lane and Albert Street	5_6_	657	544	-17%	4.6	PASS
146	Moor Street Queensway between Masshouse Lane and Albert Street	1016_7133_	162	106	-35%	4.9	PASS
13	Park Street, Att - LC17, OSGR: SP 07560 86972	6108_6107_	891	1047	18%	5.0	PASS
286	High Street / Dale End	6424_6708_	141	122	-13%	1.6	PASS
287	High Street / Dale End	6103_6708_	23	10	-56%	3.2	PASS
288	High Street / Dale End	6708_6102_	73	65	-11%	0.9	PASS
290	High Street / Dale End	6708_6103_	91	51	-44%	4.7	PASS

Colmore Row/Queensway

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
12	Colmore Row, Att - Parking post, OSGR: SP 06947 87080	6101_5101_	362	435	20%	3.7	PASS
279	Snow Hill Queensway / Colmore Circus	6147_6120_	165	203	23%	2.8	PASS
280	Snow Hill Queensway / Colmore Circus	7908_6120_	230	301	31%	4.3	PASS
281	Snow Hill Queensway / Colmore Circus	6121_6120_	173	104	-40%	5.9	PASS
282	Snow Hill Queensway / Colmore Circus	6120_6147_	281	323	15%	2.5	PASS
283	Snow Hill Queensway / Colmore Circus	6120_7908_	164	167	2%	0.2	PASS
284	Snow Hill Queensway / Colmore Circus	6120_6121_	131	118	-11%	1.2	PASS
326	Livery Street, (Between Snow Hill car park & Barwick Street)	5124_5197_	535	620	16%	3.6	PASS
263	St Chads Queensway / Snow Hill Queensway	5111_5106_	818	759	-7%	2.1	PASS
264	St Chads Queensway / Snow Hill Queensway	5112_5106_	483	440	-9%	2.0	PASS
265	St Chads Queensway / Snow Hill Queensway	6147_5107_	298	323	9%	1.4	PASS
266	St Chads Queensway / Snow Hill Queensway	7803_5107_	668	664	-1%	0.2	PASS
267	St Chads Queensway / Snow Hill Queensway	5106_5111_	625	665	6%	1.6	PASS
268	St Chads Queensway / Snow Hill Queensway	7801_5105_	910	822	-10%	3.0	PASS
269	St Chads Queensway / Snow Hill Queensway	5107_6147_	177	203	15%	1.9	PASS
270	St Chads Queensway / Snow Hill Queensway	5107_5108_	557	477	-14%	3.5	PASS
271	Great Charles Street Queensway / Newhall Street	5187_5102_	227	196	-13%	2.1	PASS
272	Great Charles Street Queensway / Newhall Street	5118_5102_	471	558	18%	3.8	PASS
273	Great Charles Street Queensway / Newhall Street	5164_5102_	348	190	-45%	9.6	FAIL
274	Great Charles Street Queensway / Newhall Street	5103_5102_	411	340	-17%	3.7	PASS
275	Great Charles Street Queensway / Newhall Street	5102_5187_	418	239	-43%	9.9	FAIL
276	Great Charles Street Queensway / Newhall Street	5102_5127_	359	340	-6%	1.1	PASS
277	Great Charles Street Queensway / Newhall Street	5102_5164_	277	196	-29%	5.2	PASS
278	Great Charles Street Queensway / Newhall Street	5102_5116_	402	494	23%	4.3	PASS
143	A4400 Queensway between Ludgate Hill and Livery Street	1_2_	2678	2471	-8%	4.1	PASS
144	A4400 Queensway between Ludgate Hill and Livery Street	3_4_	2662	2548	-4%	2.2	PASS

Broad Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
22	Broad Street, Att - LC19, OSGR: SP 06167 86669	8314_8127_	316	381	21%	3.5	PASS
23	Broad Street, Att - LC19, OSGR: SP 06167 86669	8127_8314_	141	169	20%	2.3	PASS
57	BROAD STREET East of Bishopgate Street	8190_1195_	543	536	-1%	0.3	PASS
7	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8103_8126_	141	115	-18%	2.2	PASS
8	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8126_8103_	129	48	-63%	8.6	PASS
313	1 - Sheepcote Street / Brindley Place / Essington Street	2065_8196_	142	224	57%	6.0	PASS
315	1 - Sheepcote Street / Brindley Place / Essington Street	1195_8196_	94	154	64%	5.4	PASS
316	1 - Sheepcote Street / Brindley Place / Essington Street	8189_8196_	336	433	29%	4.9	PASS
317	1 - Sheepcote Street / Brindley Place / Essington Street	8196_2065_	151	482	220%	18.6	FAIL
318	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8313_	415	350	-16%	3.3	PASS
319	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8189_	231	168	-28%	4.5	PASS
321	2 - Broad Street / Sheepcote Street near Novotel	1195_8313_	424	382	-10%	2.1	PASS
323	2 - Broad Street / Sheepcote Street near Novotel	8313_8315_	462	489	6%	1.3	PASS
324	2 - Broad Street / Sheepcote Street near Novotel	8313_1195_	394	736	87%	14.4	FAIL

Bath Row/New Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
24	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8406_8150_	601	604	1%	0.1	PASS
25	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8150_8406_	592	451	-24%	6.2	FAIL
61	BATH ROW West of Bishopgate Street	8164_8163_	619	588	-5%	1.3	PASS
62	BATH ROW West of Bishopgate Street	8163_8164_	74	0	-100%	12.2	PASS
191	Holloway Circus	8603_8206_	1066	1029	-3%	1.1	PASS
192	Holloway Circus	8145_8205_	719	706	-2%	0.5	PASS
193	Holloway Circus	8154_8208_	578	557	-4%	0.8	PASS
194	Holloway Circus	8139_8207_	366	388	6%	1.2	PASS
195	Holloway Circus	8205_8195_	689	693	1%	0.1	PASS
196	Holloway Circus	8208_8145_	745	717	-4%	1.0	PASS
197	Holloway Circus	8207_8192_	459	444	-3%	0.7	PASS
198	Holloway Circus	8206_8139_	836	816	-2%	0.7	PASS
299	Smallbrook Queensway / New Street Station Access	7113_7118_	141	101	-28%	3.6	PASS
300	Smallbrook Queensway / New Street Station Access	7729_7118_	96	96	0%	0.0	PASS
301	Smallbrook Queensway / New Street Station Access	2114_7118_	290	146	-50%	9.7	FAIL
302	Smallbrook Queensway / New Street Station Access	7118_7113_	76	39	-48%	4.8	PASS

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
303	Smallbrook Queensway / New Street Station Access	7118_7729_	95	93	-2%	0.2	PASS
304	Smallbrook Queensway / New Street Station Access	7118_2115_	355	211	-41%	8.6	PASS

J.3. PM Peak Model

Moor Street/Curzon Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
88	CURZON STREET East Of Penn Street	6179_1120_	384	409	7%	1.3	PASS
89	CURZON STREET East Of Penn Street	1120_6179_	253	254	0%	0.0	PASS
90	JENNENS ROAD South Of Lawley Street	6145_7142_	486	484	0%	0.1	PASS
91	JENNENS ROAD South Of Lawley Street	7142_6145_	334	360	8%	1.4	PASS
147	Moor Street (between Carrs Lane & Swan Passage)	7113_10001_	847	810	-4%	1.3	PASS
148	Moor Street (between Carrs Lane & Swan Passage)	10000_7113_	237	281	19%	2.7	PASS
145	Moor Street Queensway between Masshouse Lane and Albert Street	5_6_	757	746	-1%	0.4	PASS
146	Moor Street Queensway between Masshouse Lane and Albert Street	1016_7133_	157	94	-40%	5.7	PASS
13	Park Street, Att - LC17, OSGR: SP 07560 86972	6108_6107_	932	1060	14%	4.1	PASS
286	High Street / Dale End	6424_6708_	139	153	10%	1.1	PASS
287	High Street / Dale End	6103_6708_	19	10	-49%	2.5	PASS
288	High Street / Dale End	6708_6102_	70	63	-10%	0.8	PASS
290	High Street / Dale End	6708_6103_	93	80	-14%	1.4	PASS

Colmore Row/Queensway

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
12	Colmore Row, Att - Parking post, OSGR: SP 06947 87080	6101_5101_	340	270	-21%	4.0	PASS
279	Snow Hill Queensway / Colmore Circus	6147_6120_	135	114	-15%	1.8	PASS
280	Snow Hill Queensway / Colmore Circus	7908_6120_	296	360	22%	3.5	PASS
281	Snow Hill Queensway / Colmore Circus	6121_6120_	159	138	-13%	1.8	PASS
282	Snow Hill Queensway / Colmore Circus	6120_6147_	353	414	17%	3.1	PASS
283	Snow Hill Queensway / Colmore Circus	6120_7908_	145	75	-48%	6.7	PASS
284	Snow Hill Queensway / Colmore Circus	6120_6121_	122	123	0%	0.1	PASS
326	Livery Street, (Between Snow Hill car park & Barwick Street)	5124_5197_	560	641	15%	3.3	PASS
263	St Chads Queensway / Snow Hill Queensway	5111_5106_	1007	932	-7%	2.4	PASS
264	St Chads Queensway / Snow Hill Queensway	5112_5106_	581	430	-26%	6.7	FAIL

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
265	St Chads Queensway / Snow Hill Queensway	6147_5107_	419	414	-1%	0.2	PASS
266	St Chads Queensway / Snow Hill Queensway	7803_5107_	713	692	-3%	0.8	PASS
267	St Chads Queensway / Snow Hill Queensway	5106_5111_	703	828	18%	4.5	PASS
268	St Chads Queensway / Snow Hill Queensway	7801_5105_	879	812	-8%	2.3	PASS
269	St Chads Queensway / Snow Hill Queensway	5107_6147_	150	114	-24%	3.1	PASS
270	St Chads Queensway / Snow Hill Queensway	5107_5108_	987	696	-29%	10.0	FAIL
271	Great Charles Street Queensway / Newhall Street	5187_5102_	261	200	-23%	4.0	PASS
272	Great Charles Street Queensway / Newhall Street	5118_5102_	599	602	0%	0.1	PASS
273	Great Charles Street Queensway / Newhall Street	5164_5102_	375	207	-45%	9.8	FAIL
274	Great Charles Street Queensway / Newhall Street	5103_5102_	546	497	-9%	2.2	PASS
275	Great Charles Street Queensway / Newhall Street	5102_5187_	429	238	-45%	10.5	FAIL
276	Great Charles Street Queensway / Newhall Street	5102_5127_	517	497	-4%	0.9	PASS
277	Great Charles Street Queensway / Newhall Street	5102_5164_	286	200	-30%	5.5	PASS
278	Great Charles Street Queensway / Newhall Street	5102_5116_	549	541	-1%	0.3	PASS
143	A4400 Queensway between Ludgate Hill and Livery Street	1_2_	2632	2620	0%	0.2	PASS
144	A4400 Queensway between Ludgate Hill and Livery Street	3_4_	2915	2782	-5%	2.5	PASS

Broad Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	PM
22	Broad Street, Att - LC19, OSGR: SP 06167 86669	8314_8127_	327	370	13%	2.3	PASS
23	Broad Street, Att - LC19, OSGR: SP 06167 86669	8127_8314_	162	99	-39%	5.5	PASS
57	BROAD STREET East of Bishopgate Street	8190_1195_	589	472	-20%	5.1	PASS
7	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8103_8126_	174	203	17%	2.1	PASS
8	Holliday Street, Att - Signpost, OSGR: SP 06335 86450	8126_8103_	166	133	-20%	2.7	PASS
313	1 - Sheepcote Street / Brindley Place / Essington Street	2065_8196_	280	376	34%	5.3	PASS
315	1 - Sheepcote Street / Brindley Place / Essington Street	1195_8196_	154	118	-24%	3.1	PASS
316	1 - Sheepcote Street / Brindley Place / Essington Street	8189_8196_	504	493	-2%	0.5	PASS
317	1 - Sheepcote Street / Brindley Place / Essington Street	8196_2065_	265	265	0%	0.0	PASS
318	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8313_	622	539	-13%	3.4	PASS
319	1 - Sheepcote Street / Brindley Place / Essington Street	8196_8189_	484	379	-22%	5.1	PASS

Ref	Link	Link	Obs	Mod	% Diff	GEH	PM
321	2 - Broad Street / Sheepcote Street near Novotel	1195_8313_	611	354	-42%	11.7	FAIL
323	2 - Broad Street / Sheepcote Street near Novotel	8313_8315_	553	639	16%	3.6	PASS
324	2 - Broad Street / Sheepcote Street near Novotel	8313_1195_	624	678	9%	2.1	PASS

Bath Row/New Street

Ref	Link	Link	Obs	Mod	% Diff	GEH	Criteria
24	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8406_8150_	575	553	-4%	0.9	PASS
25	Bath Row, Att - Crossing sign, OSGR: SP 06388 86100	8150_8406_	756	543	-28%	8.4	FAIL
61	BATH ROW West of Bishopgate Street	8164_8163_	598	529	-12%	2.9	PASS
62	BATH ROW West of Bishopgate Street	8163_8164_	149	116	-22%	2.9	PASS
191	Holloway Circus	8603_8206_	1149	941	-18%	6.4	FAIL
192	Holloway Circus	8145_8205_	778	770	-1%	0.3	PASS
193	Holloway Circus	8154_8208_	583	570	-2%	0.5	PASS
194	Holloway Circus	8139_8207_	385	405	5%	1.0	PASS
195	Holloway Circus	8205_8195_	803	772	-4%	1.1	PASS
196	Holloway Circus	8208_8145_	835	745	-11%	3.2	PASS
197	Holloway Circus	8207_8192_	532	478	-10%	2.4	PASS
198	Holloway Circus	8206_8139_	725	673	-7%	2.0	PASS
299	Smallbrook Queensway / New Street Station Access	7113_7118_	131	95	-28%	3.4	PASS
300	Smallbrook Queensway / New Street Station Access	7729_7118_	79	93	18%	1.5	PASS
301	Smallbrook Queensway / New Street Station Access	2114_7118_	289	147	-49%	9.6	FAIL
302	Smallbrook Queensway / New Street Station Access	7118_7113_	70	111	59%	4.3	PASS
303	Smallbrook Queensway / New Street Station Access	7118_7729_	78	66	-15%	1.4	PASS
304	Smallbrook Queensway / New Street Station Access	7118_2115_	352	179	-49%	10.6	FAIL

Appendix K. Junction Proportion Analysis

K.1. AM Peak Model

Junction	Junction Arm	AM				
		Count	Model	Percentage Comparison		
		AM Peak	Total	Counts	Model	Diff
Dartmouth Circus	**Approach**					
	Aston Road North	1690	1668	32%	33%	1%
	Dartmouth Middleway	1493	1414	29%	28%	-1%
	Corporation Street	741	759	21%	15%	-6%
	Newtown Middleway	1304	1229	25%	24%	-1%
	Exit					
	Aston Road North	1577	1532	30%	30%	0%
	Dartmouth Middleway	1470	1404	28%	28%	0%
	Corporation Street	835	756	16%	15%	-1%
	Newtown Middleway	1344	1379	26%	27%	1%
Dartmouth Middleway / Great Lister St	**Approach**					
	Great Lister St	371	264	11%	9%	-2%
	Dartmouth Middleway South	1302	1091	39%	38%	-1%
	Lister St	158	85	5%	3%	-2%
	Dartmouth Middleway North	1470	1404	45%	49%	5%
	Exit					
	Great Lister St	155	138	5%	5%	0%
	Dartmouth Middleway South	1135	1101	36%	39%	3%
	Lister St	359	190	11%	7%	-5%
	Dartmouth Middleway North	1493	1414	48%	50%	2%
Ashted Circus Roundabout	**Approach**					
	Nechells Parkway	708	641	19%	20%	1%
	Lawley Middleway	1508	1226	40%	38%	-2%
	Jennens Rd	375	247	10%	8%	-2%
	Dartmouth Middleway	1135	1101	30%	34%	4%
	Exit					
	Nechells Parkway	438	419	12%	12%	0%
	Lawley Middleway	1424	1325	38%	39%	0%
	Jennens Rd	564	596	15%	17%	2%
	Dartmouth Middleway	1302	1091	35%	32%	-3%
Curzon Circle Roundabout	**Approach**					
	Vauxhall Rd	547	540	13%	14%	1%
	Lawley Middleway S	1923	1887	46%	49%	3%
	Curzon St	192	209	5%	5%	1%

Junction	Junction Arm	AM				
		Count	Model	Percentage Comparison		
		AM Peak	Total	Counts	Model	Diff
	Lawley Middleway N	1508	1226	36%	32%	-4%
	Exit					
	Vauxhall Rd	517	522	13%	14%	1%
	Lawley Middleway S	1828	1673	44%	44%	0%
	Curzon St	326	310	8%	8%	0%
	Lawley Middleway N	1424	1325	34%	35%	0%
Garrison Circus Roundabout	**Approach**					
	Garrison Lane	658	621	15%	15%	0%
	Watery Lane Middleway	1542	1524	35%	36%	1%
	Great Barr St	243	278	6%	7%	1%
	Lawley Middleway	1958	1848	44%	43%	-1%
	Exit					
	Garrison Lane	421	406	10%	9%	0%
	Watery Lane Middleway	1555	1481	35%	35%	-1%
	Great Barr St	537	499	12%	12%	-1%
	Lawley Middleway	1890	1887	43%	44%	1%
Bordesley Circus Roundabout	**Approach**					
	Watery Lane Middleway	1544	1481	27%	26%	-1%
	Coventry Rd E	522	513	9%	9%	0%
	Small Heath Highway	1661	1587	29%	28%	-1%
	Bordesley Middleway	1763	1746	31%	31%	0%
	Coventry Road W	231	284	4%	5%	1%
	Exit					
	Watery Lane Middleway	1595	1595	28%	28%	1%
	Coventry Rd E	754	752	13%	13%	0%
	Small Heath Highway	1337	1329	23%	24%	0%
	Bordesley Middleway	1612	1528	28%	27%	-1%
	Coventry Road W	422	408	7%	7%	0%
Camp Hill Circus Roundabout	**Approach**					
	Camp Hill	330	378	7%	9%	1%
	Bordesley Middleway	1612	1528	36%	34%	-2%
	Stratford Rd	1060	1101	24%	25%	1%
	Highgate Middleway	1453	1431	33%	32%	0%
	Exit					
	Camp Hill	805	758	17%	17%	0%
	Bordesley Middleway	1723	1746	37%	39%	3%
	Stratford Rd	548	532	12%	12%	0%
	Highgate Middleway	1622	1403	35%	32%	-3%
Haden Circus Roundabout	**Approach**					
	Highgate Middleway	1016	1369	24%	31%	7%

Junction	Junction Arm	AM				
		Count	Model	Percentage Comparison		
		AM Peak	Total	Counts	Model	Diff
	Belgrave Rd	896	717	21%	16%	-5%
	Haden Way	507	460	12%	10%	-1%
	Belgrave Middleway	1875	1888	44%	43%	-1%
	Exit					
	Highgate Middleway	1440	1445	57%	57%	0%
	Belgrave Rd	577	639	23%	25%	2%
	Haden Way	507	460	20%	18%	-2%
	Belgrave Middleway	Unavailable				
Sherlock St / Belgrave Middleway / Pershore Rd Roundabout	**Approach**					
	Sherlock St	571	561	14%	14%	0%
	Belgrave Middleway E	1318	1384	32%	35%	3%
	Pershore Rd	575	784	14%	20%	6%
	Pershore Road	447	421	11%	11%	0%
	Belgrave Middleway W	1166	784	29%	20%	-9%
	Exit					
	Sherlock St	635	621	18%	18%	0%
	Belgrave Middleway E	682	699	19%	20%	1%
	Pershore Rd	896	815	25%	23%	-1%
	Belgrave Middleway W	1417	1378	39%	39%	0%
Bristol Road	**Approach**					
	Bristol St	1806	1798	31%	33%	1%
	Belgrave Middleway	1733	1800	30%	33%	3%
	Bristol Rd	2029	1781	35%	32%	-3%
	Lee Bank Middleway	230	153	4%	3%	-1%
	Exit					
	Bristol St	3073	3352	52%	61%	9%
	Belgrave Middleway	1187	784	20%	14%	-6%
	Bristol Rd	1214	1075	21%	20%	-1%
	Lee Bank Middleway	406	301	7%	5%	-1%
Five Ways Island Roundabout	**Approach**					
	Broad St	282	252	5%	6%	0%
	Islington Row	1916	1420	37%	31%	-6%
	Harborne Rd / Calthorpe Road	632	323	12%	7%	-5%
	Hagley Rd	1055	1192	20%	26%	6%
	Ladywood Middleway	1267	1341	25%	30%	5%
	Exit					
	Broad St	282	252	6%	5%	0%
	Islington Row	2222	2198	44%	47%	3%
	Harborne Rd / Calthorpe Road	736	697	15%	15%	0%
	Hagley Rd	658	583	13%	12%	-1%

Junction	Junction Arm	AM				
		Count	Model	Percentage Comparison		
		AM Peak	Total	Counts	Model	Diff
	Ladywood Middleway	1163	972	23%	21%	-2%
Wood Street / Alston Street / Ladywood Middleway	**Approach**					
	Ladywood Middleway N	1143	1175	32%	32%	0%
	Ladywood Middleway SE	861	896	24%	24%	0%
	Alston Street	946	990	26%	27%	1%
	Wood Street	659	636	18%	17%	-1%
	Exit					
	Ladywood Middleway N	843	958	26%	29%	3%
	Ladywood Middleway SE	1343	1245	42%	38%	-4%
	Alston Street	538	661	17%	20%	3%
	Wood Street	475	440	15%	13%	-2%
Icknield St / Spring Hill / Ladywood Middleway Roundabout	**Approach**					
	Icknield St	1096	1239	26%	30%	3%
	Icknield Street to Summer Hill Road	367	370	9%	9%	0%
	Summer Hill Road	577	593	14%	14%	0%
	Ladywood Middleway	1220	1087	29%	26%	-3%
	Spring Hill	927	895	22%	21%	-1%
	Exit					
	Icknield St	1482	1506	39%	40%	1%
	Summer Hill Road	710	622	19%	16%	-2%
	Ladywood Middleway	1225	1305	32%	34%	2%
	Spring Hill	403	371	11%	10%	-1%
Boulton Middleway / Heaton St / Icknield St Roundabout	**Approach**					
	Boulton Middleway	1414	1495	41%	42%	1%
	Icknield St	1429	1440	41%	40%	-1%
	Heaton St	623	639	18%	18%	0%
	Exit					
	Boulton Middleway	1078	1061	31%	30%	-1%
	Icknield St	1907	1964	55%	55%	0%
	Heaton St	482	548	14%	15%	1%
Boulton Circus Roundabout	**Approach**					
	Great King St	857	767	22%	21%	-1%
	New John St	1100	1184	28%	32%	4%
	Unnett St	208	150	5%	4%	-1%
	Boulton Middleway	1078	1061	28%	29%	1%
	New John St West	647	535	17%	14%	-2%
	Exit					
	Great King St	568	544	15%	15%	0%
	New John St	1061	1115	27%	30%	3%
	Unnett St	527	307	13%	8%	-5%

Junction	Junction Arm	AM				
		Count	Model	Percentage Comparison		
		AM Peak	Total	Counts	Model	Diff
	Boulton Middleway	1414	1495	36%	40%	4%
	New John St West	336	235	9%	6%	-2%
New John St / Summer Lane	**Approach**					
	Summer Lane North	616	534	20%	18%	-2%
	New John St	1276	1277	41%	42%	2%
	Summer Lane South	172	83	6%	3%	-3%
	New John St West	1061	1115	34%	37%	3%
	Exit					
	Summer Lane North	165	162	6%	5%	-1%
	New John St	648	1001	25%	33%	8%
	Summer Lane South	659	663	26%	22%	-4%
	New John St West	1100	1184	43%	39%	-3%
New Town Row / New John St / New Town Middleway	**Approach**					
	New Town Middleway	1568	1307	34%	27%	-7%
	New Town Row S	654	771	14%	16%	2%
	New John Street West	648	1001	14%	21%	7%
	New Town Row N	1733	1737	38%	36%	-2%
	Exit					
	New Town Middleway	809	1229	19%	26%	7%
	New Town Row S	1351	1412	31%	29%	-2%
	New John Street West	1276	1277	30%	27%	-3%
	New Town Row N	857	897	20%	19%	-1%

K.2. Inter-peak Model

Junction	Junction Arm	IP				
		Count	Model	Percentage Comparison		
		Interpeak	Total	Counts	Model	Diff
Dartmouth Circus	**Approach**					
	Aston Road North	1578	1529	31%	32%	1%
	Dartmouth Middleway	1658	1516	33%	32%	-1%
	Corporation Street	574	674	17%	14%	-3%
	Newtown Middleway	1214	1051	24%	22%	-2%
	Exit					
	Aston Road North	1783	1631	35%	34%	-1%
	Dartmouth Middleway	1406	1356	28%	28%	1%
	Corporation Street	584	574	11%	12%	1%
	Newtown Middleway	1316	1202	26%	25%	-1%
	Approach					
	Great Lister St	276	250	9%	8%	-1%

Junction	Junction Arm	IP				
		Count	Model	Percentage Comparison		
		Interpeak	Total	Counts	Model	Diff
Dartmouth Middleway / Great Lister St	Dartmouth Middleway South	1233	1215	40%	41%	1%
	Lister St	153	147	5%	5%	0%
	Dartmouth Middleway North	1406	1356	46%	46%	0%
	Exit					
	Great Lister St	152	175	5%	6%	1%
	Dartmouth Middleway South	1194	1177	38%	40%	2%
	Lister St	170	100	5%	3%	-2%
	Dartmouth Middleway North	1658	1516	52%	51%	-1%
Ashted Circus Roundabout	**Approach**					
	Nechells Parkway	448	455	13%	14%	1%
	Lawley Middleway	1281	1213	38%	37%	-1%
	Jennens Rd	413	389	12%	12%	0%
	Dartmouth Middleway	1194	1177	36%	36%	1%
	Exit					
	Nechells Parkway	446	461	13%	13%	0%
	Lawley Middleway	1395	1367	41%	38%	-2%
	Jennens Rd	361	531	11%	15%	4%
	Dartmouth Middleway	1233	1215	36%	34%	-2%
Curzon Circle Roundabout	**Approach**					
	Vauxhall Rd	511	518	13%	14%	0%
	Lawley Middleway S	1747	1764	45%	46%	1%
	Curzon St	305	319	8%	8%	0%
	Lawley Middleway N	1281	1213	33%	32%	-2%
	Exit					
	Vauxhall Rd	535	557	14%	15%	1%
	Lawley Middleway S	1591	1641	41%	44%	2%
	Curzon St	227	203	6%	5%	-1%
	Lawley Middleway N	1395	1367	36%	36%	0%
Garrison Circus Roundabout	**Approach**					
	Garrison Lane	501	506	12%	12%	0%
	Watery Lane Middleway	1488	1473	37%	36%	-1%
	Great Barr St	342	337	8%	8%	0%
	Lawley Middleway	1697	1767	42%	43%	1%
	Exit					
	Garrison Lane	480	511	12%	13%	1%
	Watery Lane Middleway	1443	1430	36%	35%	-1%
	Great Barr St	378	379	9%	9%	0%
	Lawley Middleway	1726	1764	43%	43%	0%
	Approach					
	Watery Lane Middleway	1439	1430	27%	27%	0%

Junction	Junction Arm	IP				
		Count	Model	Percentage Comparison		
		Interpeak	Total	Counts	Model	Diff
Bordesley Circus Roundabout	Coventry Rd E	527	550	10%	10%	1%
	Small Heath Highway	1500	1458	28%	27%	-1%
	Bordesley Middleway	1547	1530	29%	29%	0%
	Coventry Road W	384	377	7%	7%	0%
	Exit					
	Watery Lane Middleway	1471	1477	27%	28%	0%
	Coventry Rd E	777	783	14%	15%	0%
	Small Heath Highway	1433	1401	27%	26%	0%
	Bordesley Middleway	1348	1324	25%	25%	0%
	Coventry Road W	369	360	7%	7%	0%
Camp Hill Circus Roundabout	**Approach**					
	Camp Hill	515	660	13%	17%	4%
	Bordesley Middleway	1348	1324	34%	33%	-1%
	Stratford Rd	656	695	17%	17%	1%
	Highgate Middleway	1427	1299	36%	33%	-4%
	Exit					
	Camp Hill	442	446	11%	11%	0%
	Bordesley Middleway	1538	1530	38%	38%	0%
	Stratford Rd	705	675	18%	17%	-1%
	Highgate Middleway	1333	1326	33%	33%	0%
Haden Circus Roundabout	**Approach**					
	Highgate Middleway	874	1316	25%	33%	7%
	Belgrave Rd	671	658	19%	16%	-3%
	Haden Way	479	454	14%	11%	-3%
	Belgrave Middleway	1440	1602	42%	40%	-2%
	Exit					
	Highgate Middleway	1128	1262	52%	55%	3%
	Belgrave Rd	571	580	26%	25%	-1%
	Haden Way	479	454	22%	20%	-2%
	Belgrave Middleway	Unavailable				
Sherlock St / Belgrave Middleway / Pershore Rd Roundabout	**Approach**					
	Sherlock St	662	626	18%	20%	2%
	Belgrave Middleway E	928	833	25%	26%	1%
	Pershore Rd	512	648	14%	20%	6%
	Pershore Road	427	392	12%	12%	1%
	Belgrave Middleway W	1161	686	31%	22%	-10%
	Exit					
	Sherlock St	502	498	15%	18%	2%
	Belgrave Middleway E	777	728	24%	26%	2%
	Pershore Rd	953	909	29%	33%	3%

Junction	Junction Arm	IP				
		Count	Model	Percentage Comparison		
		Interpeak	Total	Counts	Model	Diff
	Belgrave Middleway W	1032	658	32%	24%	-8%
Bristol Road	**Approach**					
	Bristol St					0%
	Belgrave Middleway					0%
	Bristol Rd					0%
	Lee Bank Middleway					0%
	Exit					
	Bristol St					0%
	Belgrave Middleway					0%
	Bristol Rd					0%
	Lee Bank Middleway					0%
Five Ways Island Roundabout	**Approach**					
	Broad St	329	254	7%	7%	0%
	Islington Row	1677	1317	37%	36%	-1%
	Harborne Rd / Calthorpe Road	608	344	13%	9%	-4%
	Hagley Rd	911	735	20%	20%	0%
	Ladywood Middleway	1045	1008	23%	28%	5%
	Exit					
	Broad St	329	254	7%	7%	-1%
	Islington Row	2016	1640	44%	42%	-1%
	Harborne Rd / Calthorpe Road	519	494	11%	13%	2%
	Hagley Rd	806	691	17%	18%	0%
	Ladywood Middleway	936	780	20%	20%	0%
Wood Street / Alston Street / Ladywood Middleway	**Approach**					
	Ladywood Middleway N	946	935	32%	32%	0%
	Ladywood Middleway SE	836	727	28%	25%	-3%
	Alston Street	649	806	22%	28%	6%
	Wood Street	509	441	17%	15%	-2%
	Exit					
	Ladywood Middleway N	563	748	22%	27%	6%
	Ladywood Middleway SE	994	966	39%	36%	-3%
	Alston Street	510	538	20%	20%	0%
	Wood Street	492	468	19%	17%	-2%
Icknield St / Spring Hill / Ladywood Middleway Roundabout	**Approach**					
	Icknield St	982	1105	30%	34%	3%
	Icknield Street to Summer Hill Road	143	148	4%	5%	0%
	Summer Hill Road	558	525	17%	16%	-1%
	Ladywood Middleway	872	842	27%	26%	-1%
	Spring Hill	671	650	21%	20%	-1%
	Exit					

Junction	Junction Arm	IP				
		Count	Model	Percentage Comparison		
		Interpeak	Total	Counts	Model	Diff
	Icknield St	1229	1226	40%	39%	-1%
	Summer Hill Road	348	340	11%	11%	0%
	Ladywood Middleway	999	1012	32%	32%	0%
	Spring Hill	506	547	16%	18%	1%
Boulton Middleway / Heaton St / Icknield St Roundabout	**Approach**					
	Boulton Middleway	1053	1052	39%	45%	7%
	Icknield St	1270	884	47%	38%	-9%
	Heaton St	400	381	15%	16%	2%
	Exit					
	Boulton Middleway	923	647	34%	28%	-6%
	Icknield St	1290	1177	47%	51%	3%
	Heaton St	509	493	19%	21%	3%
Boulton Circus Roundabout	**Approach**					
	Great King St	465	469	22%	24%	3%
	New John St	Unavailable				0%
	Unnett St	254	268	12%	14%	2%
	Boulton Middleway	923	647	43%	34%	-9%
	New John St West	515	532	24%	28%	4%
	Exit					
	Great King St	482	486	21%	23%	1%
	New John St	Unavailable				0%
	Unnett St	283	163	13%	8%	-5%
	Boulton Middleway	1053	1052	47%	49%	3%
	New John St West	436	426	19%	20%	1%
New John St / Summer Lane	**Approach**					
	Summer Lane North	278	252	22%	17%	-5%
	New John St	759	980	59%	67%	8%
	Summer Lane South	246	235	19%	16%	-3%
	New John St West	Unavailable				0%
	Exit					
	Summer Lane North	235	199	20%	16%	-4%
	New John St	662	776	56%	62%	6%
	Summer Lane South	285	281	24%	22%	-2%
	New John St West	Unavailable				0%
New Town Row / New John St / New Town Middleway	**Approach**					
	New Town Middleway	1051	1117	31%	30%	-1%
	New Town Row S	635	814	19%	22%	3%
	New John Street West	662	776	19%	21%	1%
	New Town Row N	1065	1037	31%	28%	-4%
	Exit					

Junction	Junction Arm	IP				
		Count	Model	Percentage Comparison		
		Interpeak	Total	Counts	Model	Diff
	New Town Middleway	874	1051	26%	28%	2%
	New Town Row S	755	813	23%	22%	-1%
	New John Street West	759	980	23%	26%	3%
	New Town Row N	930	899	28%	24%	-4%

K.3. PM Peak Model

Junction	Junction Arm	PM				
		Count		Percentage Comparison		
		PM Peak	Total	Counts	Model	Diff
Dartmouth Circus	**Approach**					
	Aston Road North	1175	1168	25%	25%	0%
	Dartmouth Middleway	1687	1573	36%	33%	-3%
	Corporation Street	604	642	17%	14%	-4%
	Newtown Middleway	1185	1319	25%	28%	3%
	Exit					
	Aston Road North	1859	1861	40%	40%	0%
	Dartmouth Middleway	1101	1182	24%	25%	1%
	Corporation Street	428	396	9%	8%	-1%
	Newtown Middleway	1260	1263	27%	27%	0%
Dartmouth Middleway / Great Lister St	**Approach**					
	Great Lister St	265	258	10%	9%	-1%
	Dartmouth Middleway South	1111	1182	41%	41%	0%
	Lister St	267	277	10%	10%	0%
	Dartmouth Middleway North	1101	1182	40%	41%	1%
	Exit					
	Great Lister St	205	211	7%	7%	0%
	Dartmouth Middleway South	945	935	31%	32%	1%
	Lister St	179	179	6%	6%	0%
	Dartmouth Middleway North	1687	1573	56%	54%	-2%
Ashted Circus Roundabout	**Approach**					
	Nechells Parkway	445	418	15%	14%	-1%
	Lawley Middleway	1072	1224	36%	40%	4%
	Jennens Rd	486	484	17%	16%	-1%
	Dartmouth Middleway	945	935	32%	31%	-2%
	Exit					
	Nechells Parkway	499	465	15%	14%	-2%
	Lawley Middleway	1330	1376	41%	41%	0%
	Jennens Rd	334	360	10%	11%	0%
	Dartmouth Middleway	1111	1182	34%	35%	1%

Junction	Junction Arm	PM				
		Count		Percentage Comparison		
		PM Peak	Total	Counts	Model	Diff
Curzon Circle Roundabout	**Approach**					
	Vauxhall Rd	528	535	14%	14%	0%
	Lawley Middleway S	1823	1682	48%	44%	-4%
	Curzon St	384	409	10%	11%	1%
	Lawley Middleway N	1072	1224	28%	32%	4%
	Exit					
	Vauxhall Rd	594	691	17%	18%	1%
	Lawley Middleway S	1408	1530	37%	40%	3%
	Curzon St	253	254	7%	7%	0%
	Lawley Middleway N	1330	1376	35%	36%	1%
Garrison Circus Roundabout	**Approach**					
	Garrison Lane	532	525	14%	13%	0%
	Watery Lane Middleway	1311	1294	33%	33%	0%
	Great Barr St	404	414	10%	11%	0%
	Lawley Middleway	1687	1681	43%	43%	0%
	Exit					
	Garrison Lane	456	459	12%	12%	0%
	Watery Lane Middleway	1456	1417	37%	36%	-1%
	Great Barr St	381	356	10%	9%	-1%
	Lawley Middleway	1641	1682	42%	43%	1%
Bordesley Circus Roundabout	**Approach**					
	Watery Lane Middleway	1493	1417	27%	26%	-1%
	Coventry Rd E	445	495	8%	9%	1%
	Small Heath Highway	1482	1445	27%	26%	0%
	Bordesley Middleway	1610	1580	29%	29%	0%
	Coventry Road W	548	535	10%	10%	0%
	Exit					
	Watery Lane Middleway	1260	1266	23%	23%	1%
	Coventry Rd E	689	687	12%	13%	0%
	Small Heath Highway	1661	1706	30%	31%	1%
	Bordesley Middleway	1603	1440	29%	26%	-2%
	Coventry Road W	365	355	7%	7%	0%
Camp Hill Circus Roundabout	**Approach**					
	Camp Hill	568	598	13%	14%	1%
	Bordesley Middleway	1603	1440	37%	33%	-4%
	Stratford Rd	619	918	14%	21%	7%
	Highgate Middleway	1562	1444	36%	33%	-3%
	Exit					
	Camp Hill	412	517	9%	12%	2%
	Bordesley Middleway	1605	1580	37%	36%	-1%

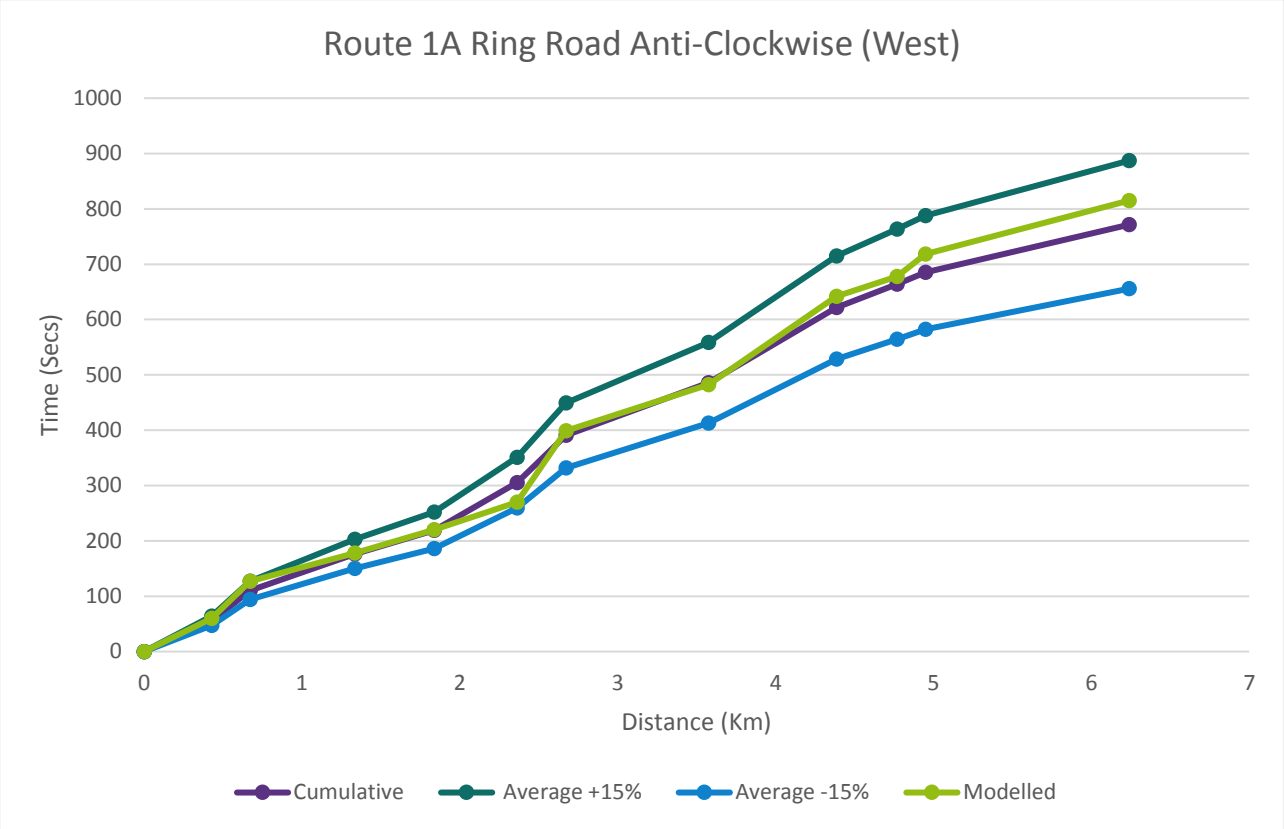
Junction	Junction Arm	PM				
		Count		Percentage Comparison		
		PM Peak	Total	Counts	Model	Diff
	Stratford Rd	871	876	20%	20%	0%
	Highgate Middleway	1461	1428	34%	32%	-1%
Haden Circus Roundabout	**Approach**					
	Highgate Middleway	770	1296	22%	32%	10%
	Belgrave Rd	704	717	20%	17%	-3%
	Haden Way	349	396	10%	10%	0%
	Belgrave Middleway	1675	1701	48%	41%	-6%
	Exit					
	Highgate Middleway	1056	1120	51%	48%	-3%
	Belgrave Rd	668	833	32%	35%	3%
	Haden Way	349	396	17%	17%	0%
	Belgrave Middleway	Unavailable				
Sherlock St / Belgrave Middleway / Pershore Rd Roundabout	**Approach**					
	Sherlock St	552	703	15%	20%	5%
	Belgrave Middleway E	820	873	22%	25%	3%
	Pershore Rd	529	510	14%	15%	0%
	Pershore Road	471	437	13%	13%	0%
	Belgrave Middleway W	1327	964	36%	28%	-8%
	Exit					
	Sherlock St	469	460	15%	15%	1%
	Belgrave Middleway E	740	705	23%	23%	0%
	Pershore Rd	1140	949	35%	31%	-4%
	Belgrave Middleway W	879	937	27%	31%	3%
Bristol Road	**Approach**					
	Bristol St	1849	2188	39%	45%	7%
	Belgrave Middleway	1268	1373	26%	28%	2%
	Bristol Rd	1254	1060	26%	22%	-4%
	Lee Bank Middleway	432	235	9%	5%	-4%
	Exit					
	Bristol St	1756	2149	34%	44%	11%
	Belgrave Middleway	1338	964	26%	20%	-6%
	Bristol Rd	1593	1279	30%	26%	-4%
	Lee Bank Middleway	539	442	10%	9%	-1%
Five Ways Island Roundabout	**Approach**					
	Broad St	308	243	6%	6%	0%
	Islington Row	1865	1194	36%	29%	-7%
	Harborne Rd / Calthorpe Road	610	416	12%	10%	-2%
	Hagley Rd	913	865	18%	21%	3%
	Ladywood Middleway	1481	1408	29%	34%	6%
	Exit					

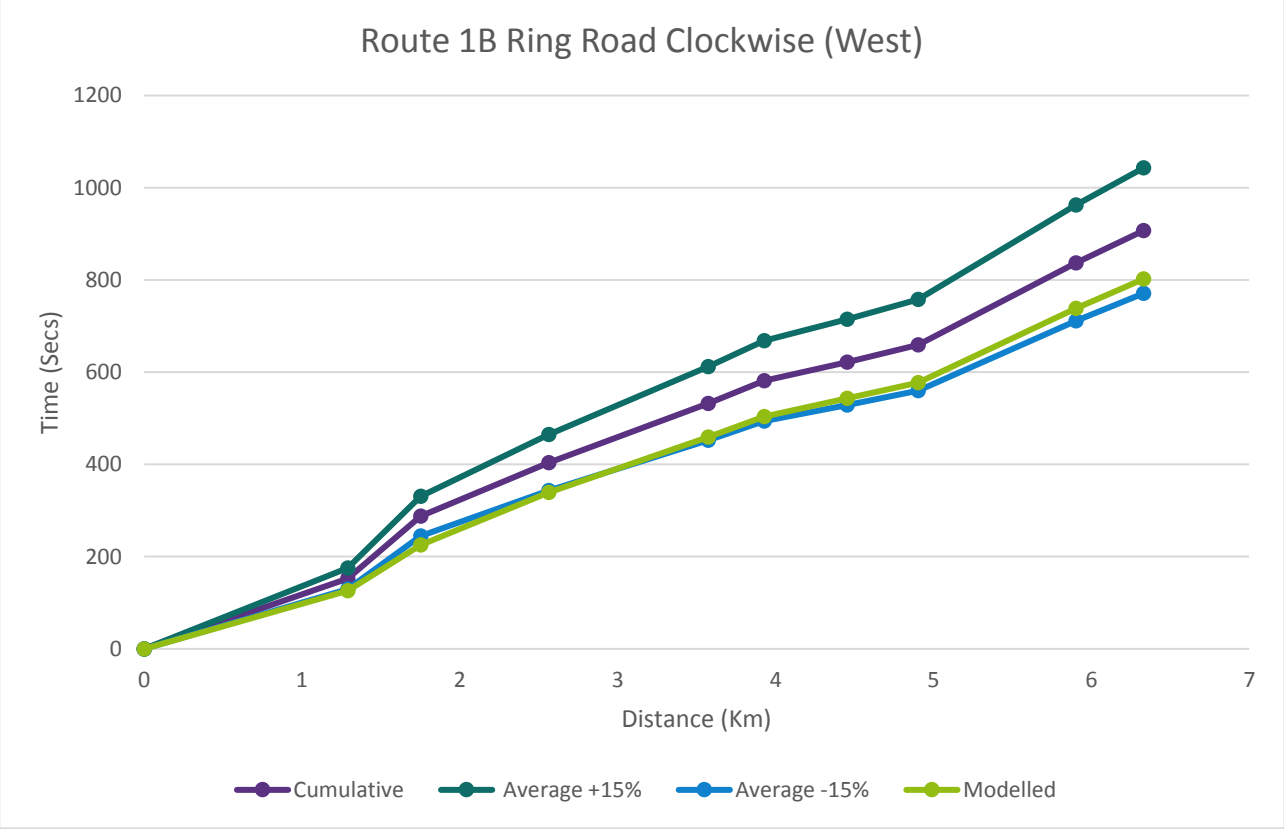
Junction	Junction Arm	PM				
		Count		Percentage Comparison		
		PM Peak	Total	Counts	Model	Diff
	Broad St	308	243	6%	6%	0%
	Islington Row	2193	1744	42%	40%	-2%
	Harborne Rd / Calthorpe Road	780	780	15%	18%	3%
	Hagley Rd	774	763	15%	18%	3%
	Ladywood Middleway	1132	804	22%	19%	-3%
Wood Street / Alston Street / Ladywood Middleway	**Approach**					
	Ladywood Middleway N	1429	1268	36%	36%	-1%
	Ladywood Middleway SE	1111	803	28%	22%	-6%
	Alston Street	857	970	22%	27%	5%
	Wood Street	543	530	14%	15%	1%
	Exit					
	Ladywood Middleway N	741	868	22%	26%	4%
	Ladywood Middleway SE	1292	1231	38%	36%	-1%
	Alston Street	696	663	20%	20%	-1%
	Wood Street	705	619	21%	18%	-2%
Icknield St / Spring Hill / Ladywood Middleway Roundabout	**Approach**					
	Icknield St	1265	1469	29%	34%	4%
	Icknield Street to Summer Hill Road	176	155	4%	4%	-1%
	Summer Hill Road	1014	924	24%	21%	-2%
	Ladywood Middleway	1148	1155	27%	26%	0%
	Spring Hill	699	661	16%	15%	-1%
	Exit					
	Icknield St	1709	1798	41%	43%	1%
	Summer Hill Road	323	257	8%	6%	-2%
	Ladywood Middleway	1419	1290	34%	31%	-4%
	Spring Hill	677	865	16%	21%	4%
Boulton Middleway / Heaton St / Icknield St Roundabout	**Approach**					
	Boulton Middleway	1266	1334	36%	38%	3%
	Icknield St	1872	1733	53%	50%	-3%
	Heaton St	408	401	12%	12%	0%
	Exit					
	Boulton Middleway	1212	1190	34%	34%	0%
	Icknield St	1426	1431	40%	41%	1%
	Heaton St	906	847	26%	24%	-1%
Boulton Circus Roundabout	**Approach**					
	Great King St	716	667	18%	18%	-1%
	New John St	1195	1234	30%	33%	2%
	Unnett St	348	256	9%	7%	-2%
	Boulton Middleway	1212	1190	31%	31%	1%
	New John St West	472	448	12%	12%	0%

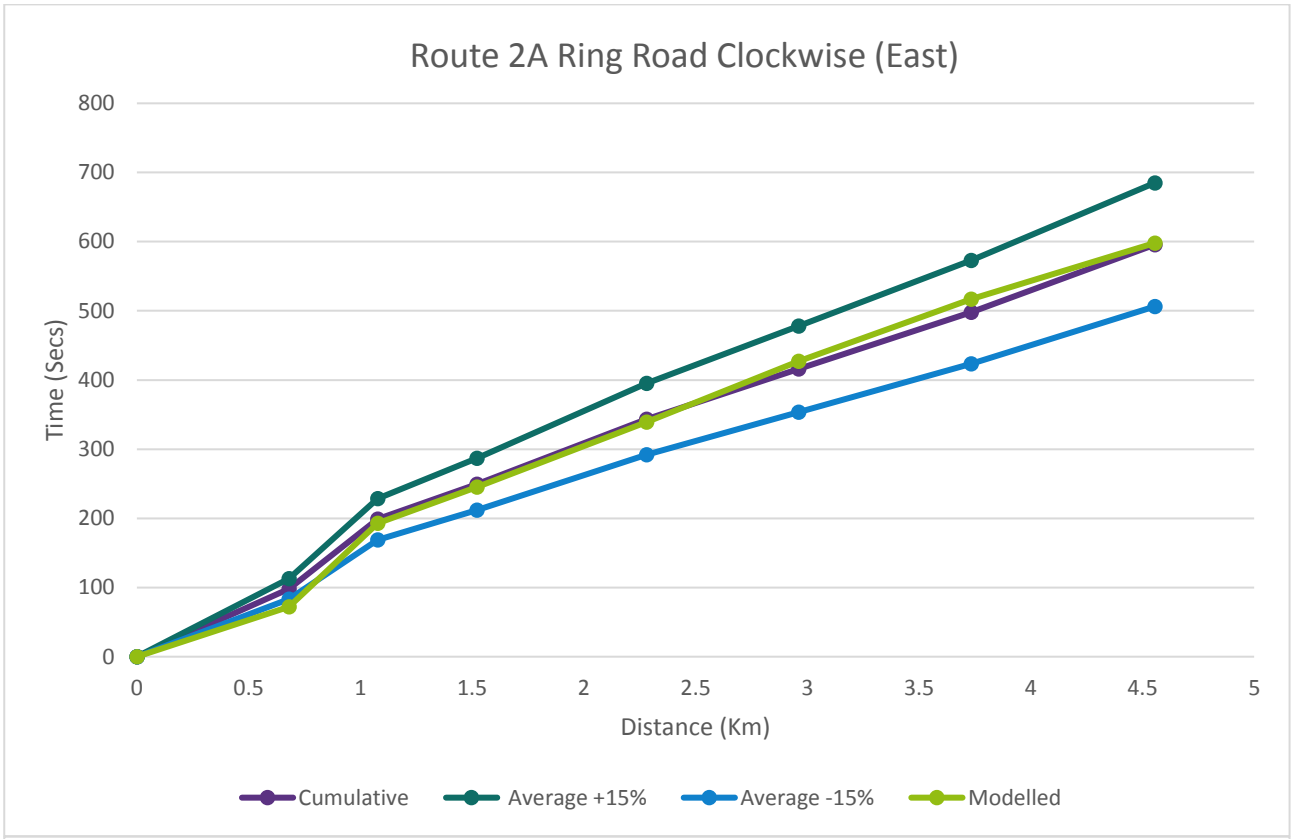
Junction	Junction Arm	PM				
		Count		Percentage Comparison		
		PM Peak	Total	Counts	Model	Diff
	Exit					
	Great King St	674	733	17%	19%	2%
	New John St	1089	1104	28%	29%	1%
	Unnett St	263	69	7%	2%	-5%
	Boulton Middleway	1266	1334	33%	35%	2%
	New John St West	572	556	15%	15%	0%
New John St / Summer Lane	**Approach**					
	Summer Lane North	285	230	11%	8%	-3%
	New John St	811	1128	31%	39%	8%
	Summer Lane South	407	394	16%	14%	-2%
	New John St West	1089	1104	42%	39%	-3%
	Exit					
	Summer Lane North	374	337	13%	12%	-2%
	New John St	1021	1065	36%	37%	1%
	Summer Lane South	215	220	8%	8%	0%
	New John St West	1195	1234	43%	43%	1%
New Town Row / New John St / New Town Middleway	**Approach**					
	New Town Middleway	1135	1200	27%	26%	0%
	New Town Row S	945	1289	22%	28%	6%
	New John Street West	1021	1065	24%	23%	-1%
	New Town Row N	1162	1015	27%	22%	-5%
	Exit					
	New Town Middleway	1239	1319	30%	29%	-1%
	New Town Row S	723	781	18%	17%	0%
	New John Street West	811	1128	20%	25%	5%
	New Town Row N	1333	1337	32%	29%	-3%

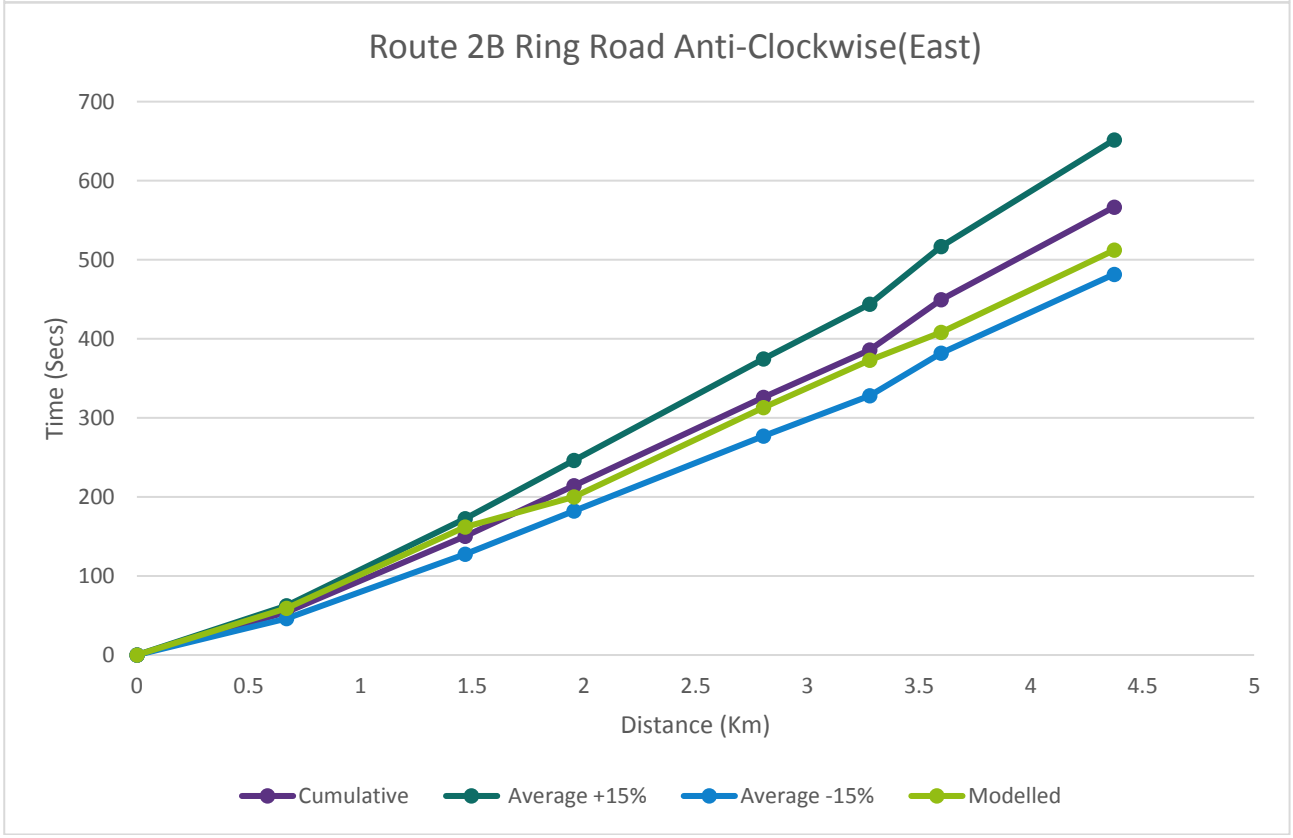
Appendix L. Journey Time Validation

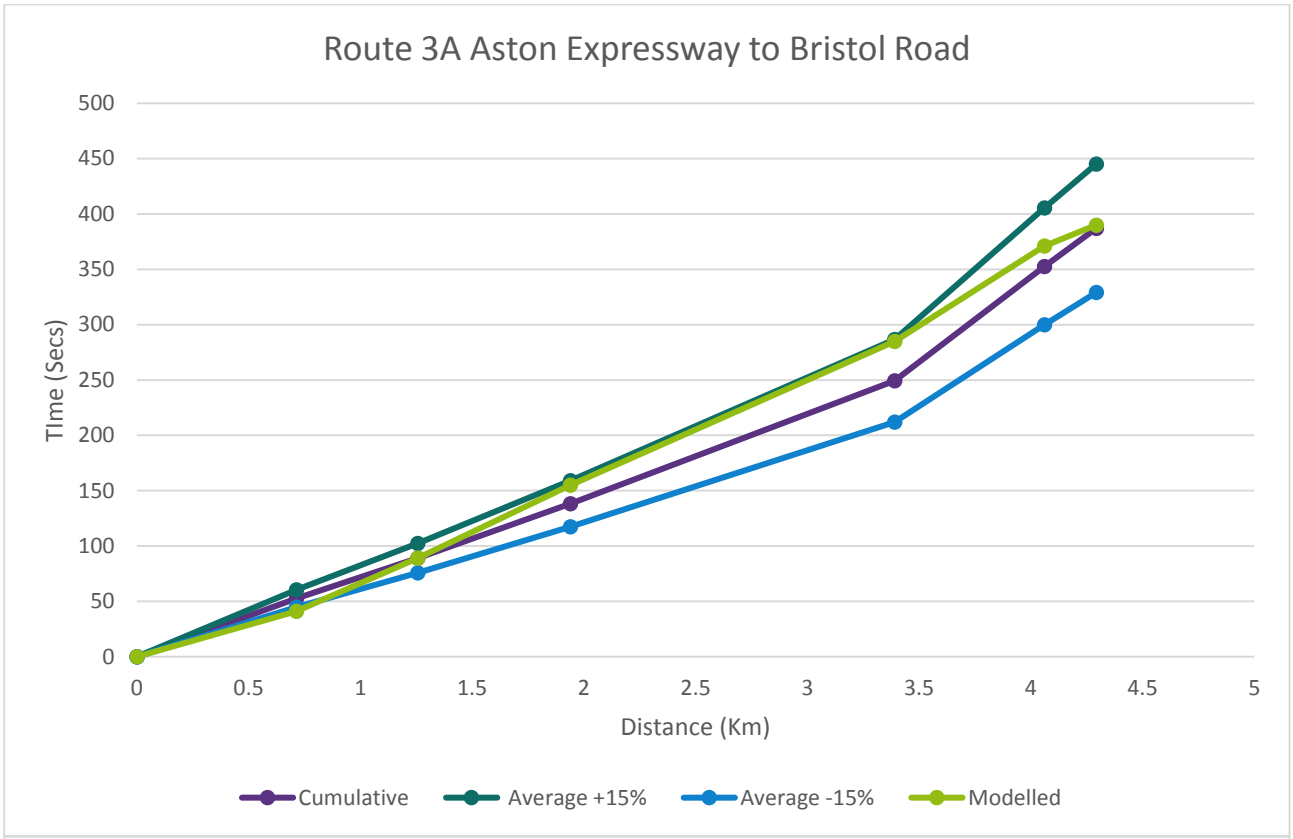
L.1. AM Peak

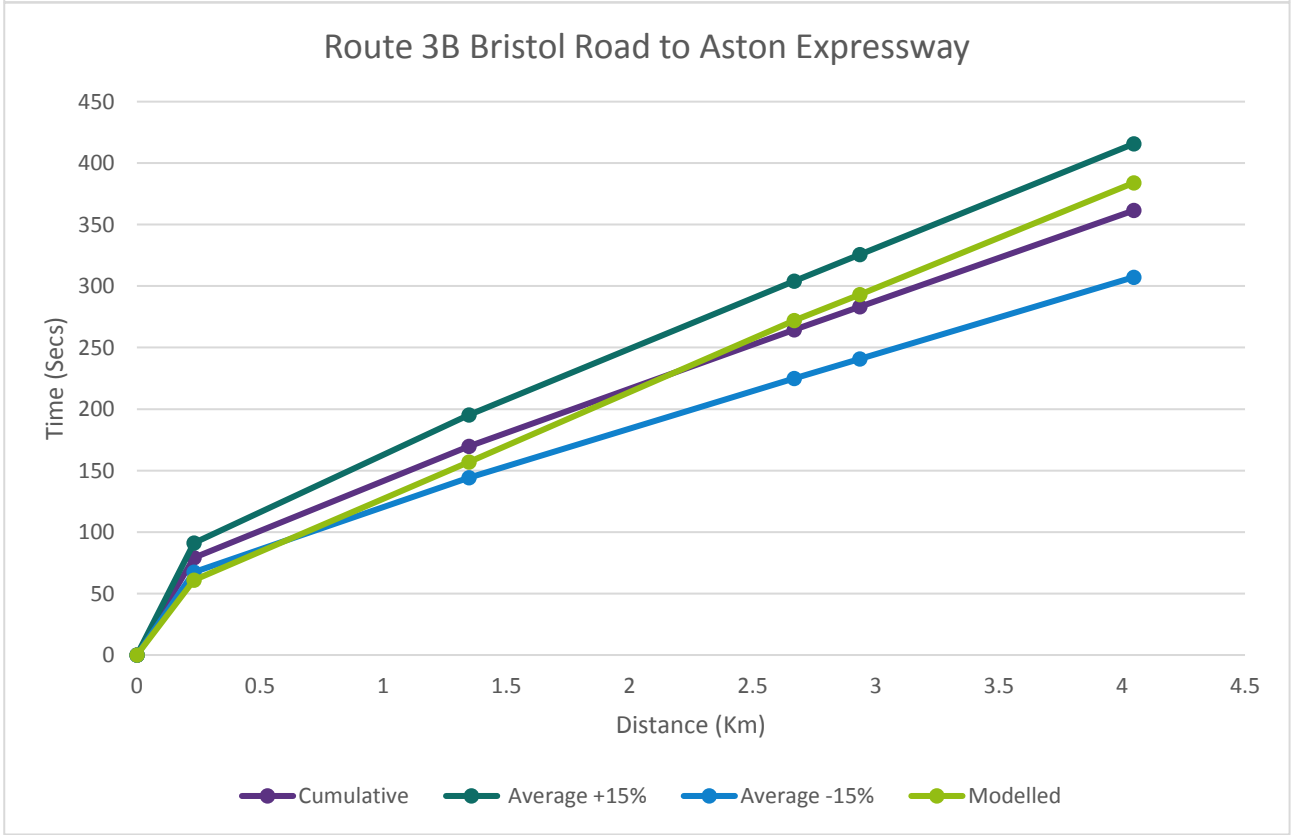


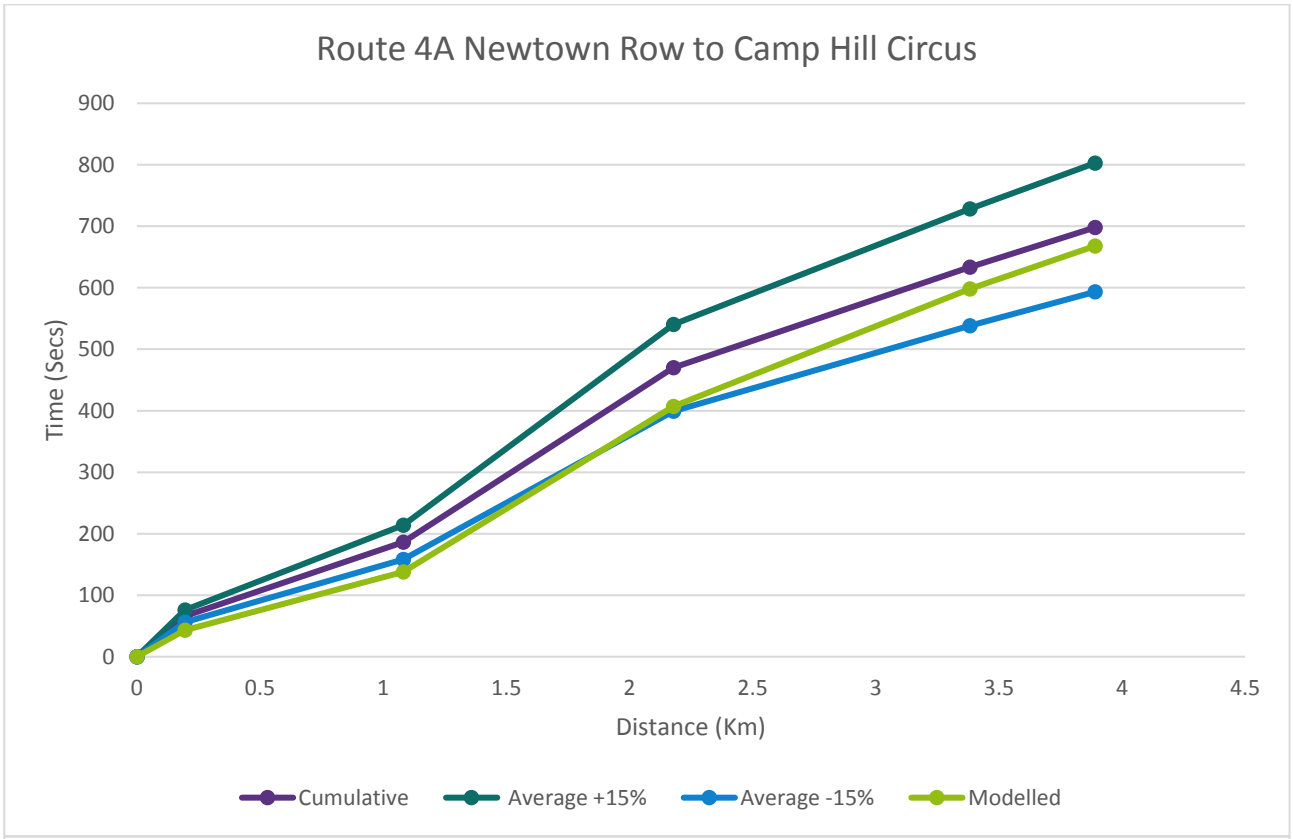


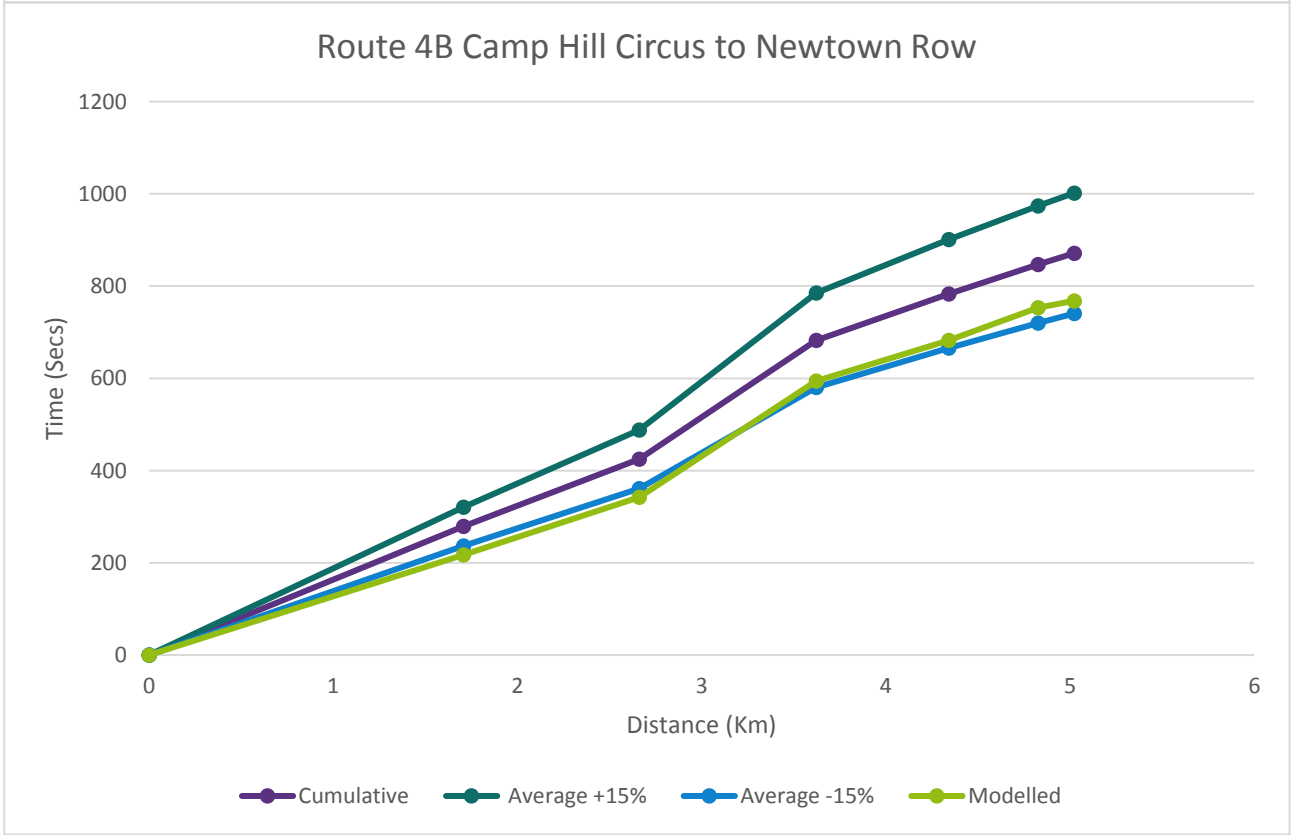

Route 2A Ring Road Clockwise (East)
Time (Secs)
800
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

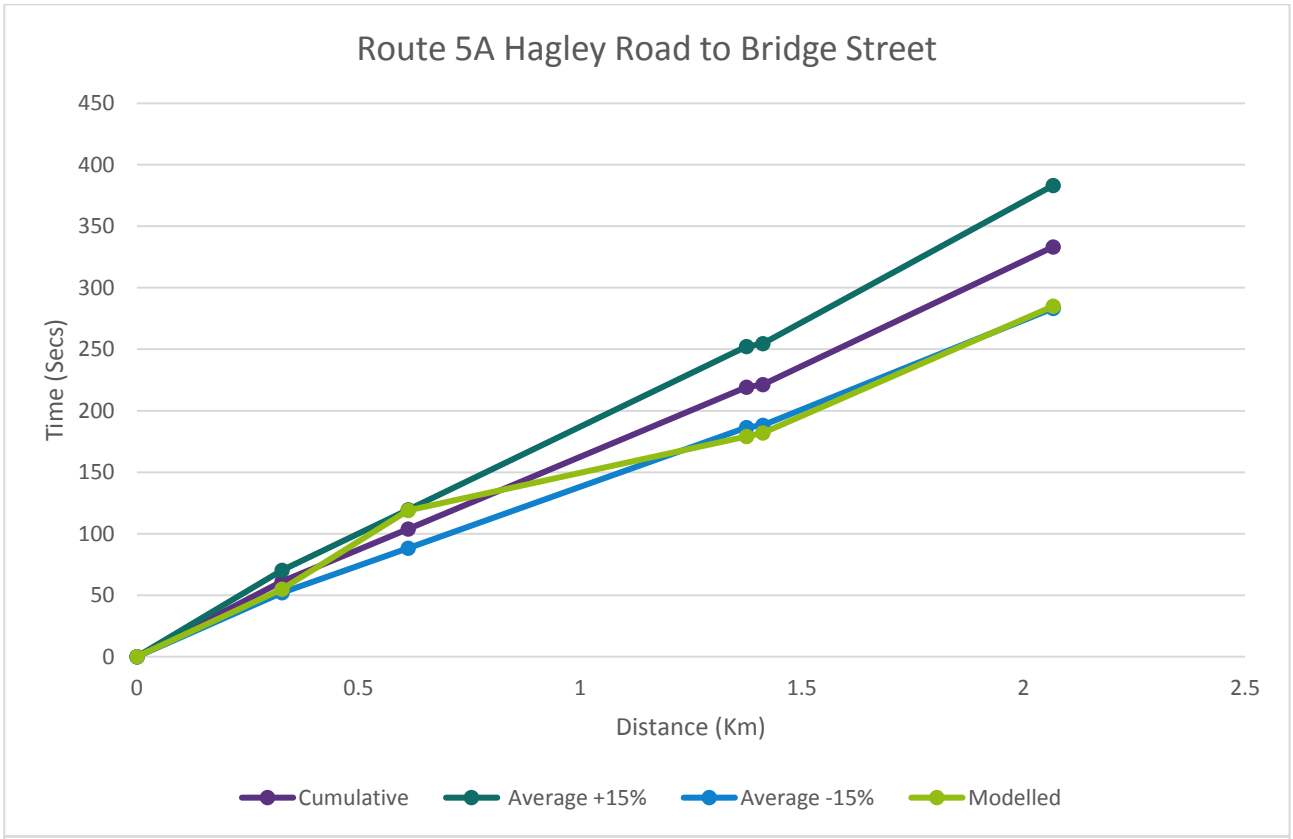

Route 2B Ring Road Anti-Clockwise(East)
Time (Secs)
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

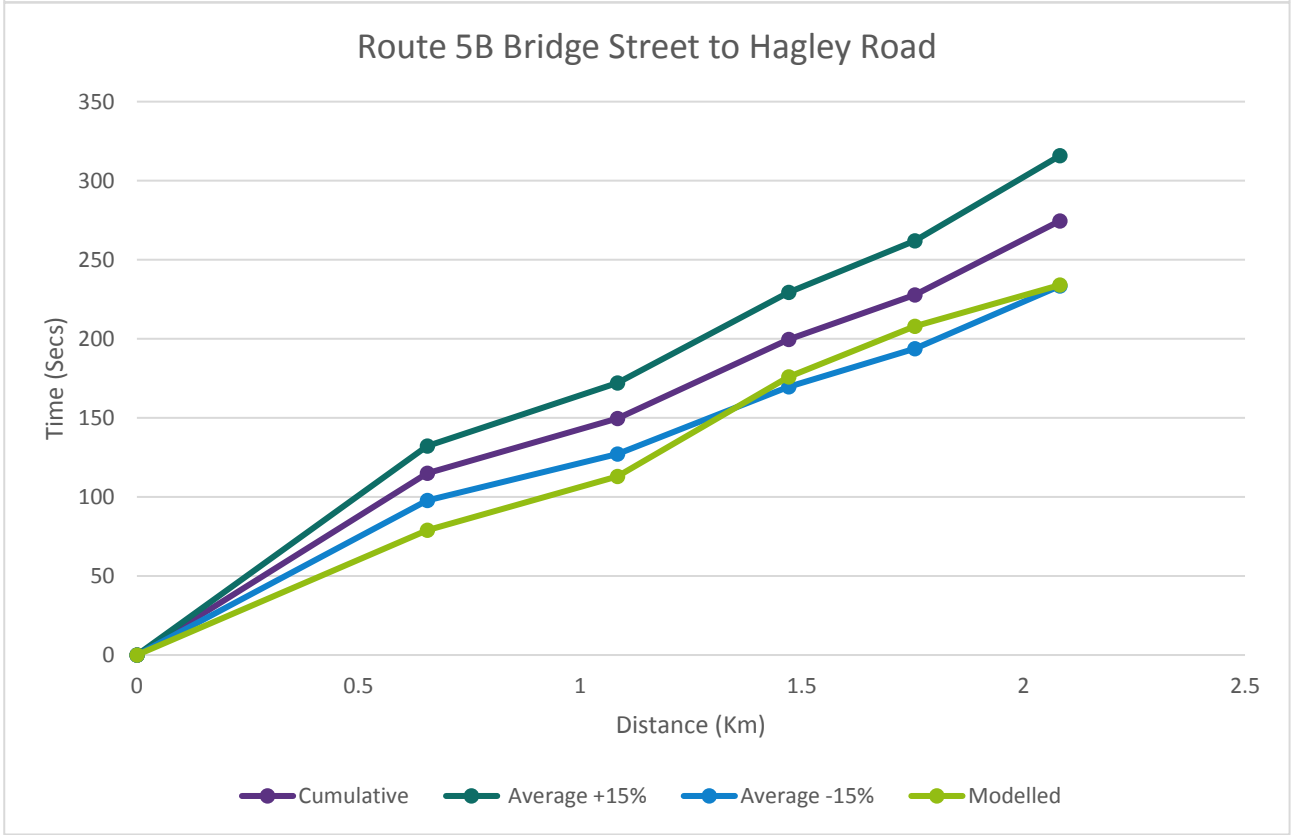

Route 3A Aston Expressway to Bristol Road
TIme (Secs)
500
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

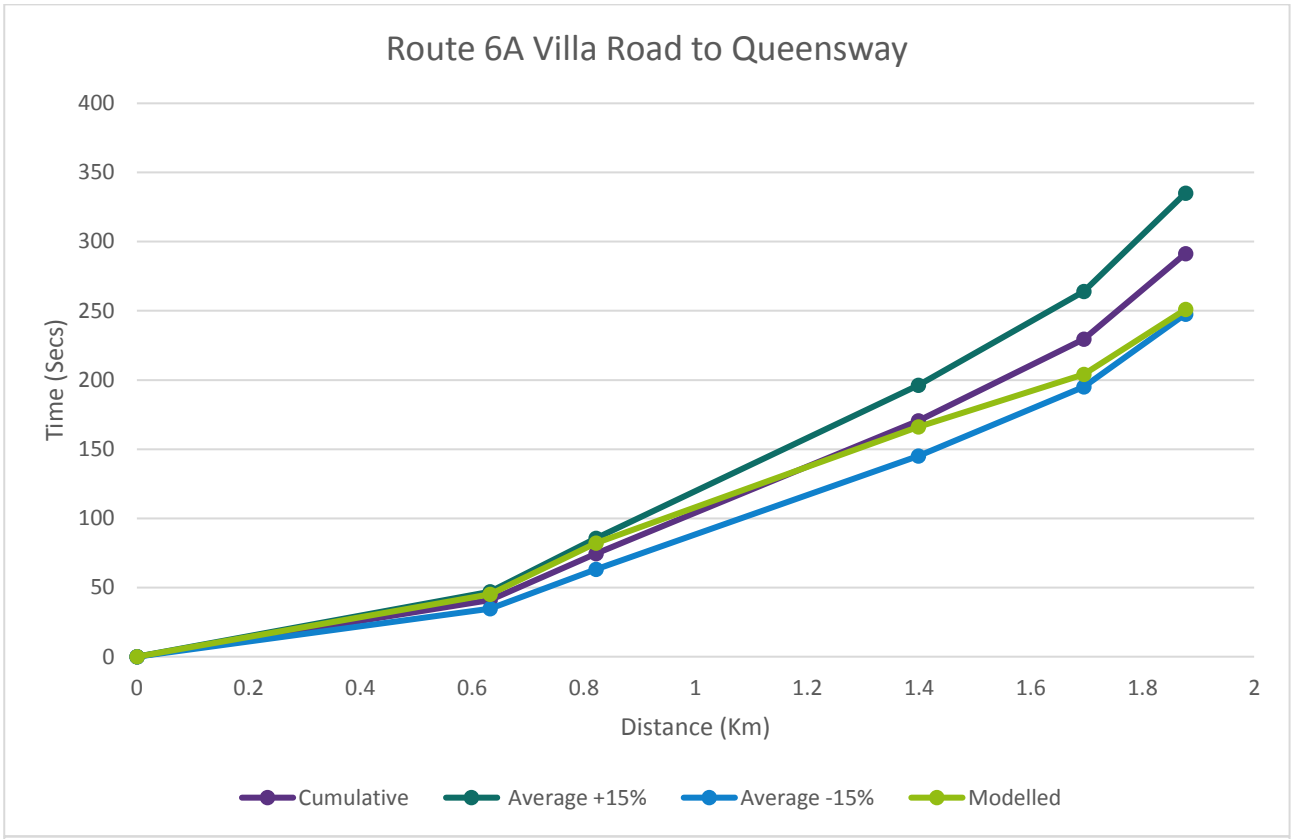

Route 3B Bristol Road to Aston Expressway
Time (Secs)
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

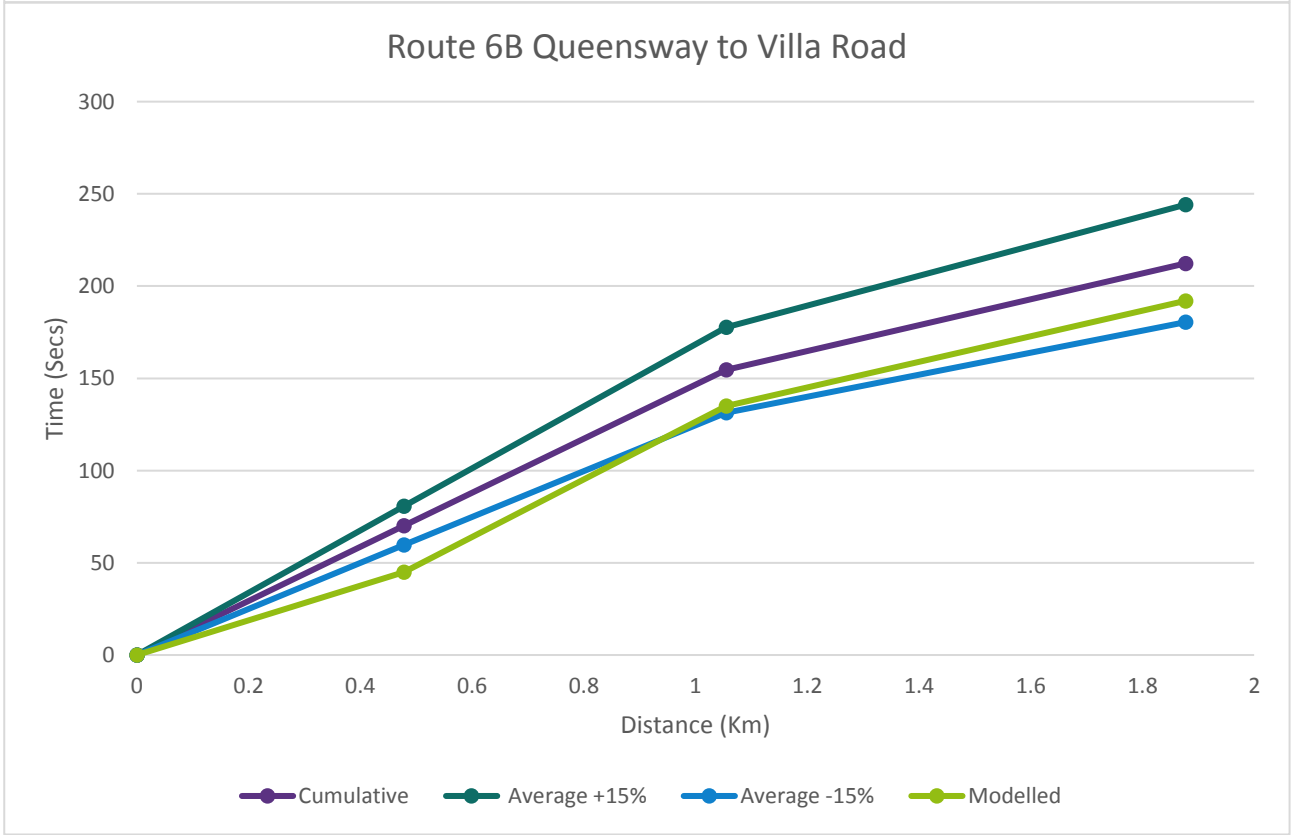

Route 4A Newtown Row to Camp Hill Circus
900
800
700
600
500
400
300
200
100
0
Time (Secs)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

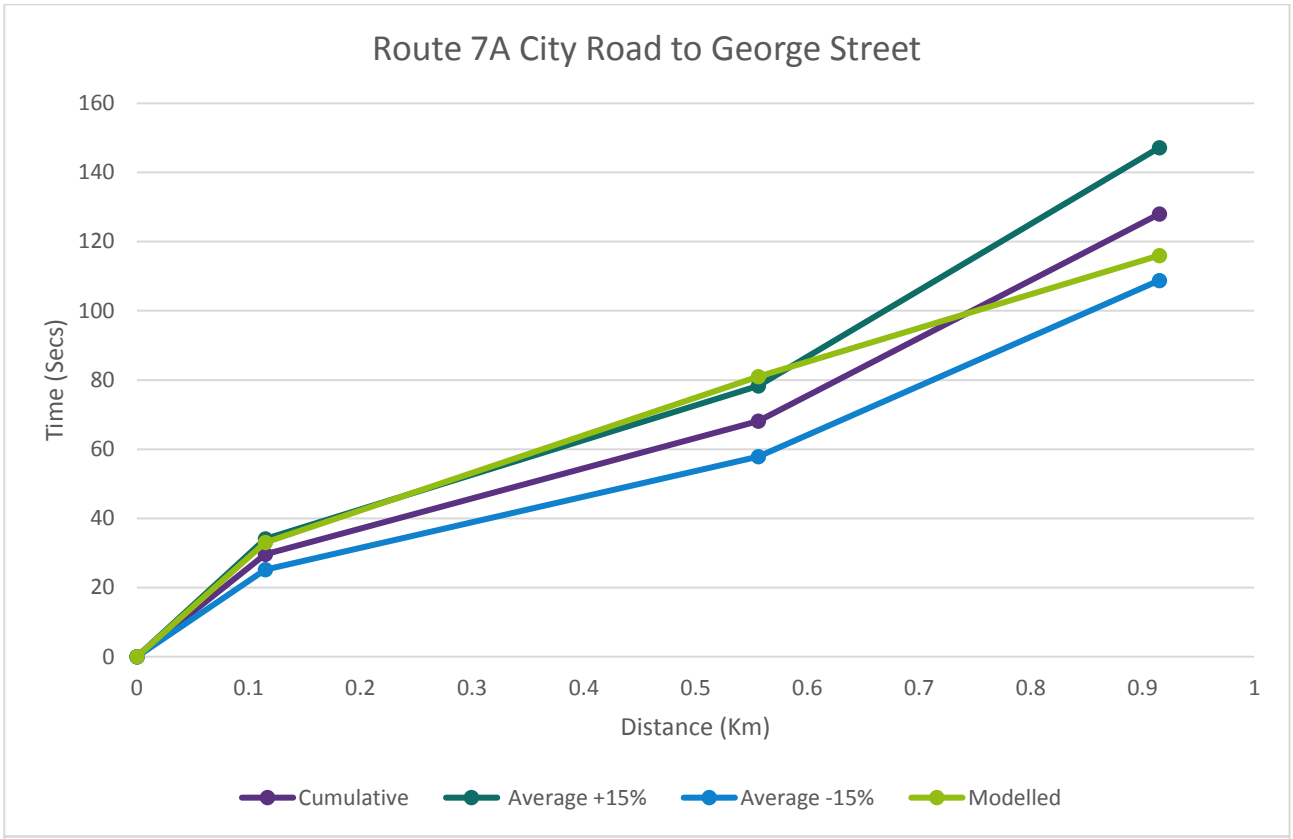

Route 4B Camp Hill Circus to Newtown Row
1200
1000
800
600
400
200
0
Time (Secs)
0
1
2
3
4
5
6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

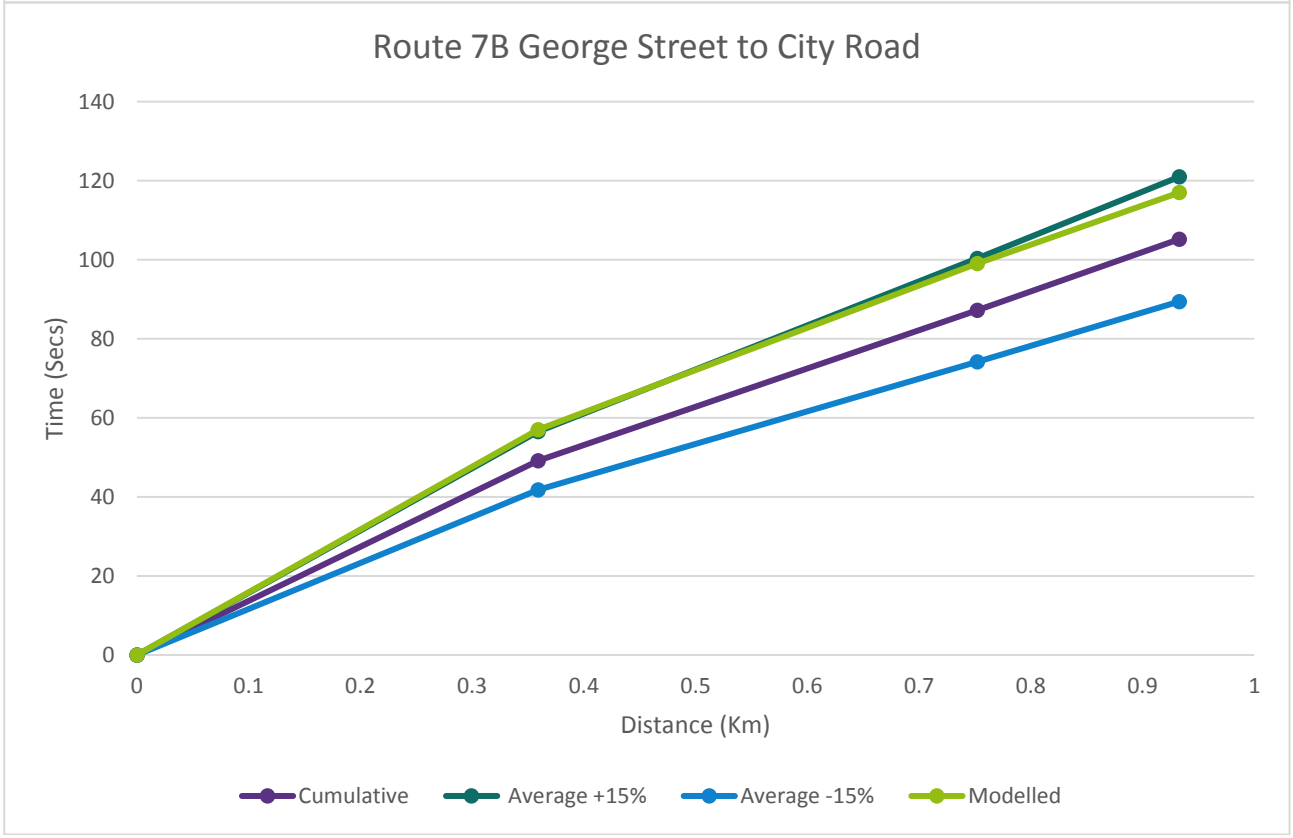

Route 5A Hagley Road to Bridge Street
Time (Secs)
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

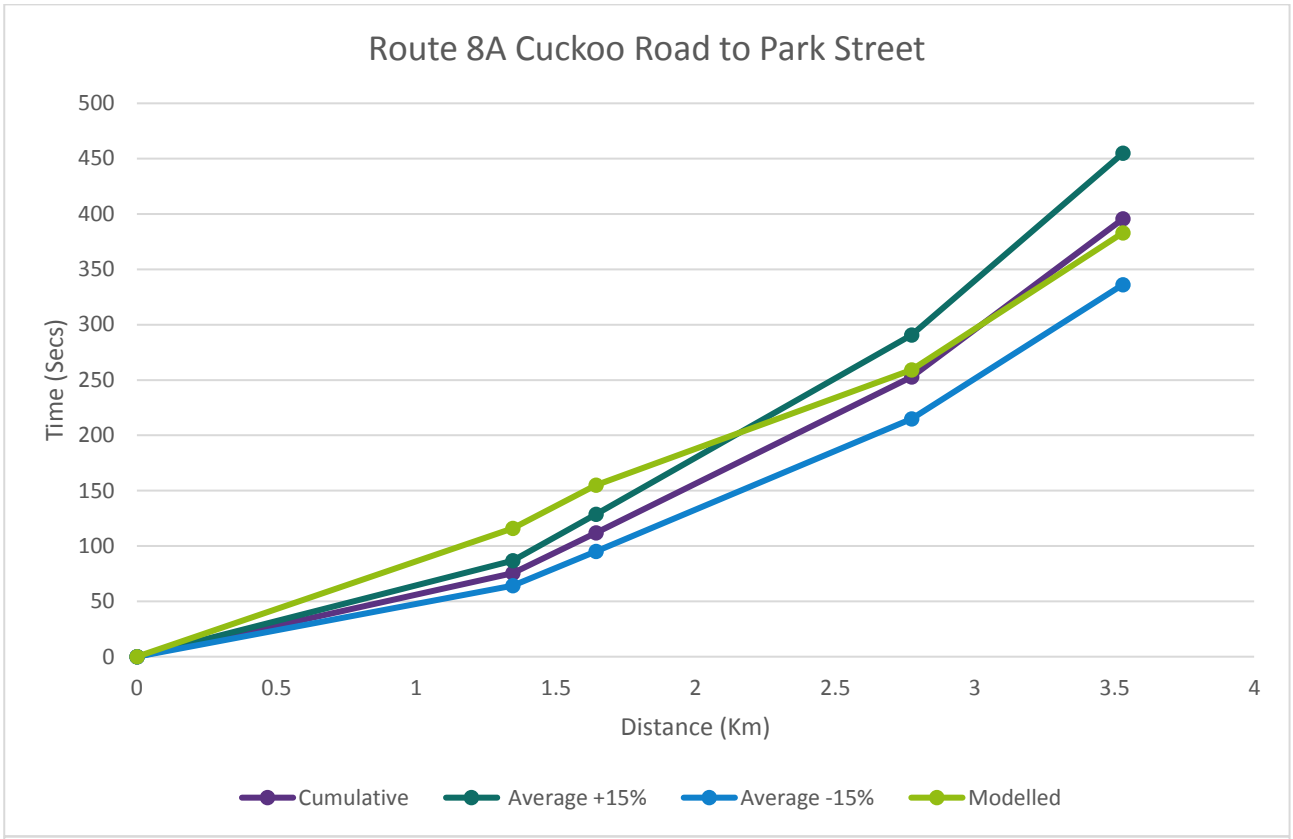

Route 5B Bridge Street to Hagley Road
Time (Secs)
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

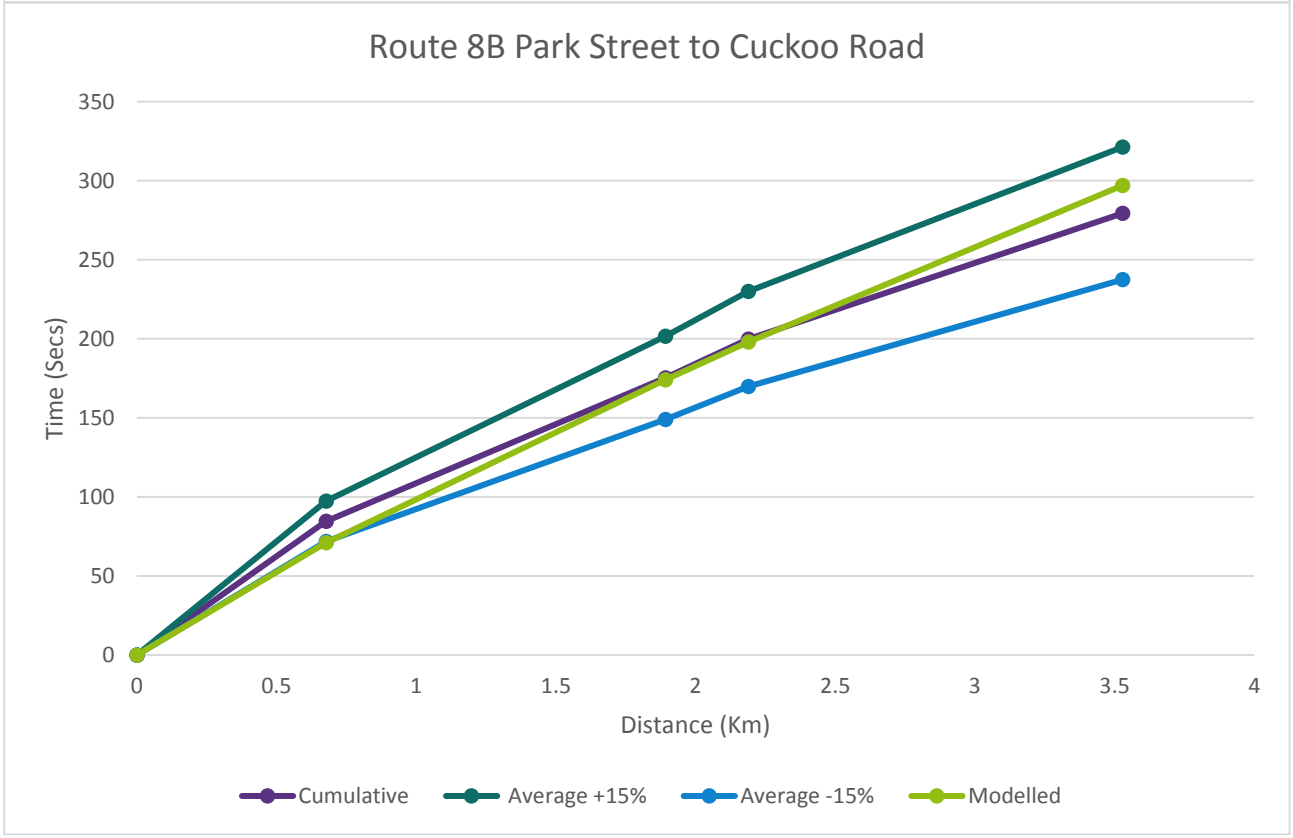

Route 6A Villa Road to Queensway
Time (Secs)
400
350
300
250
200
150
100
50
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

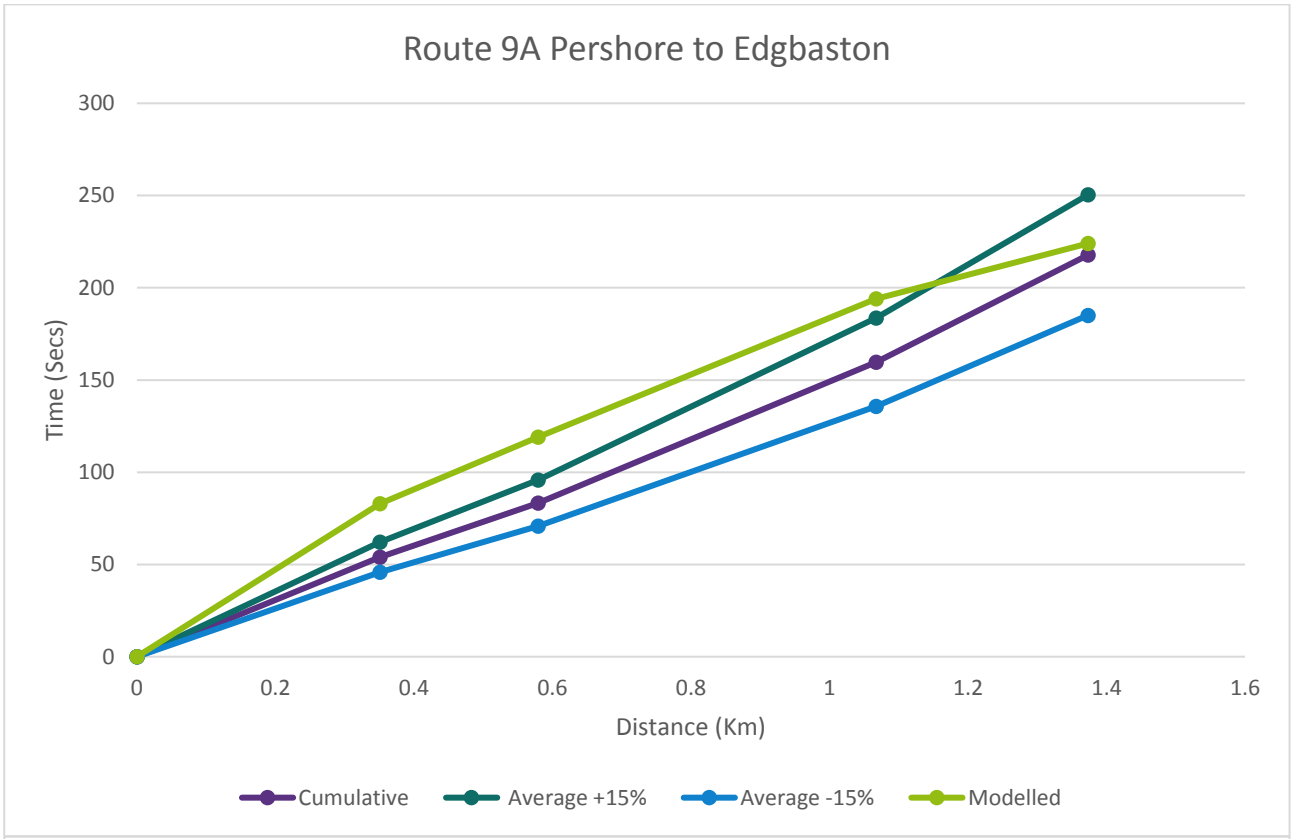

Route 6B Queensway to Villa Road
Time (Secs)
300
250
200
150
100
50
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

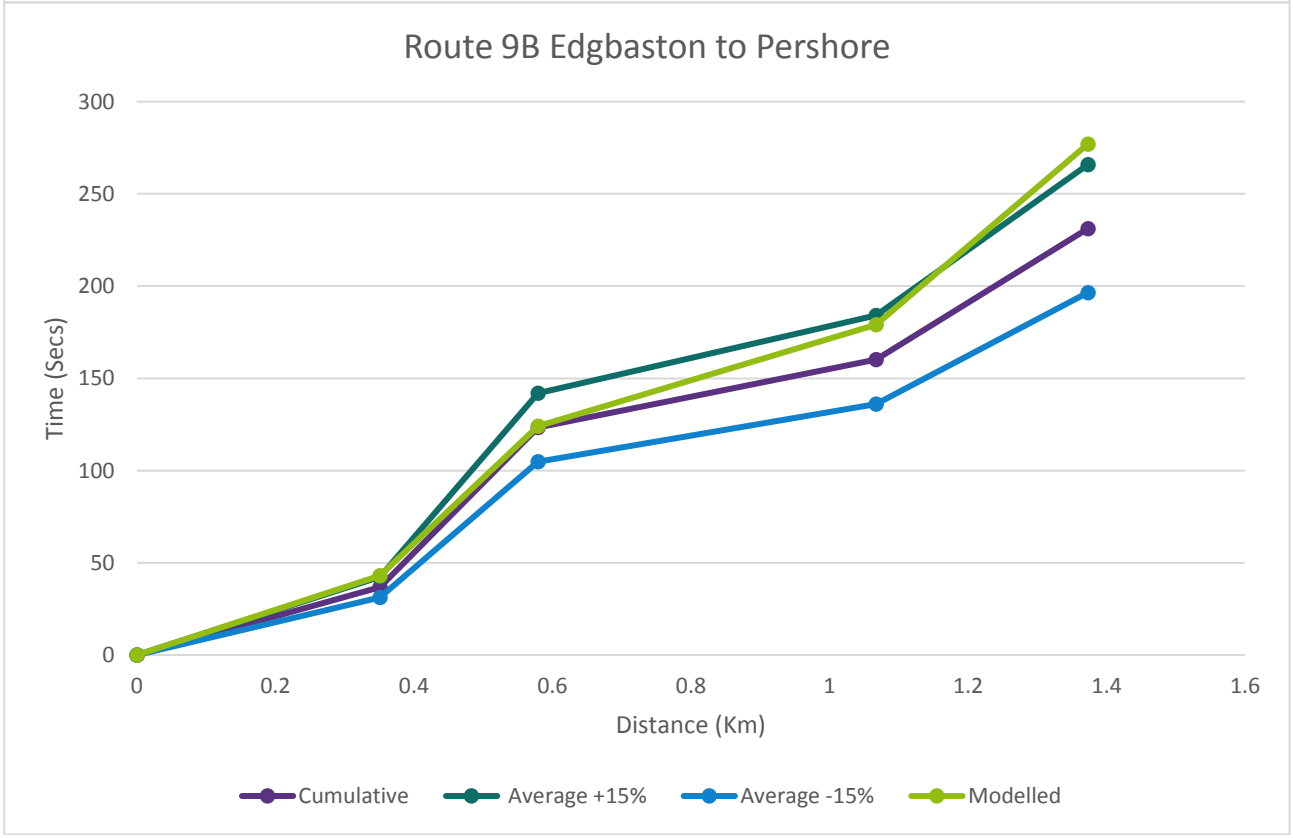

Route 7A City Road to George Street
160
140
120
100
80
60
40
20
0
Time (Secs)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

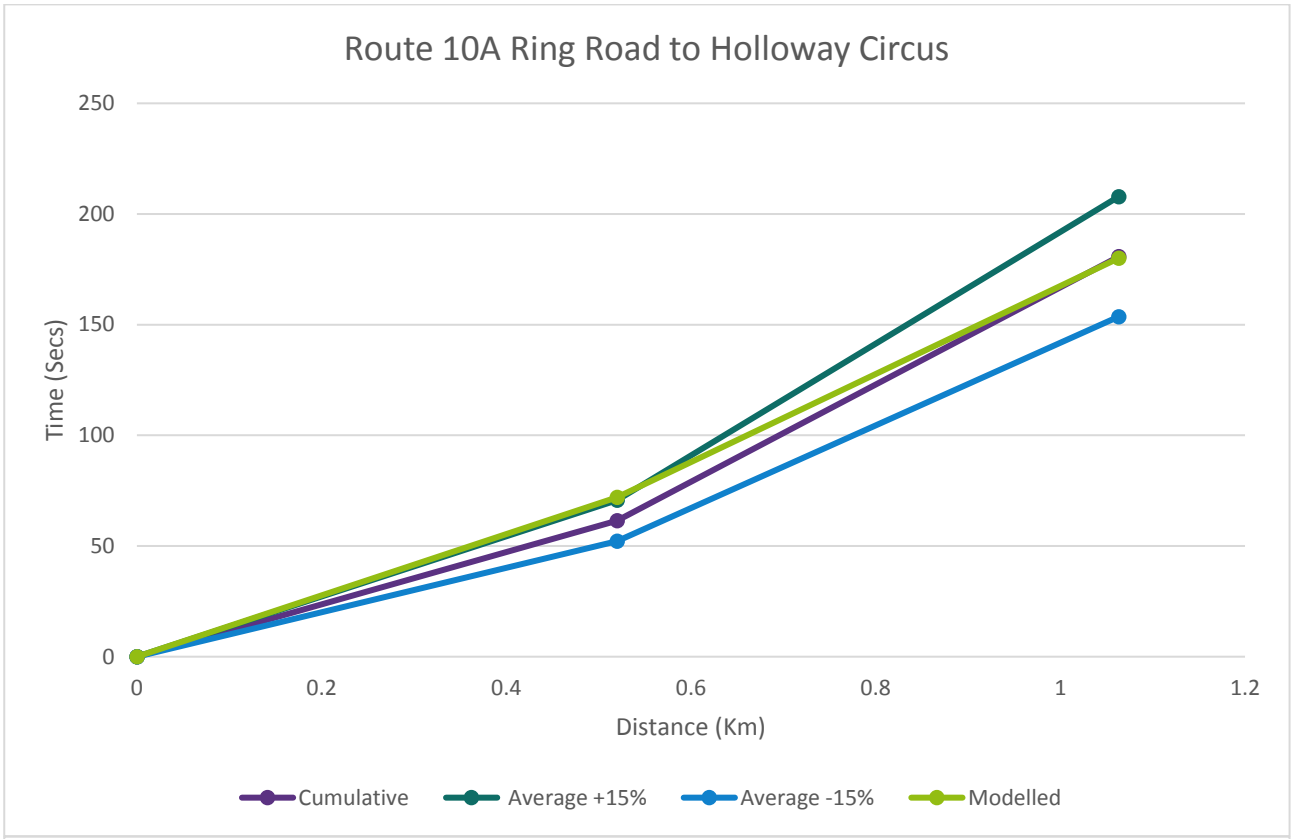

Route 7B George Street to City Road
140
120
100
80
60
40
20
0
Time (Secs)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

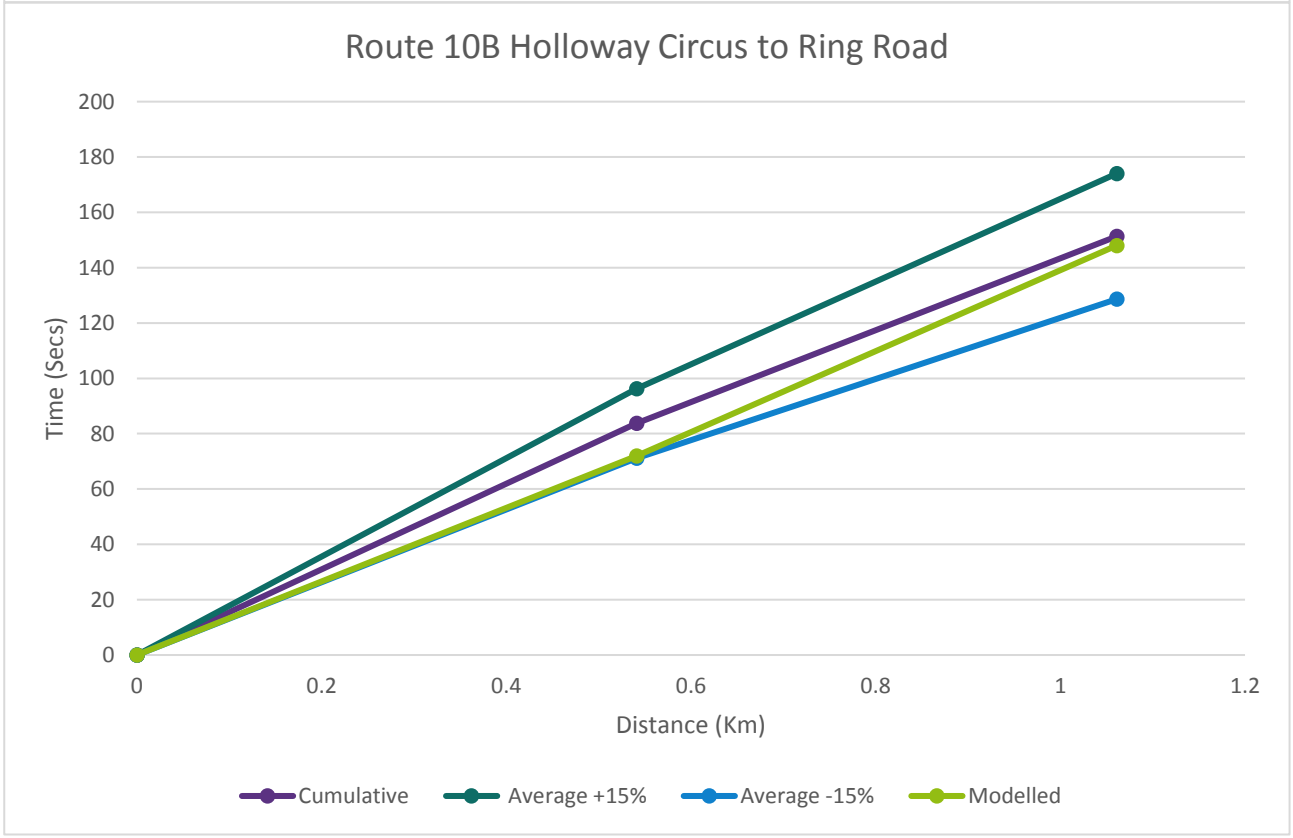

Route 8A Cuckoo Road to Park Street
Time (Secs)
500
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled


Route 8B Park Street to Cuckoo Road
Time (Secs)
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

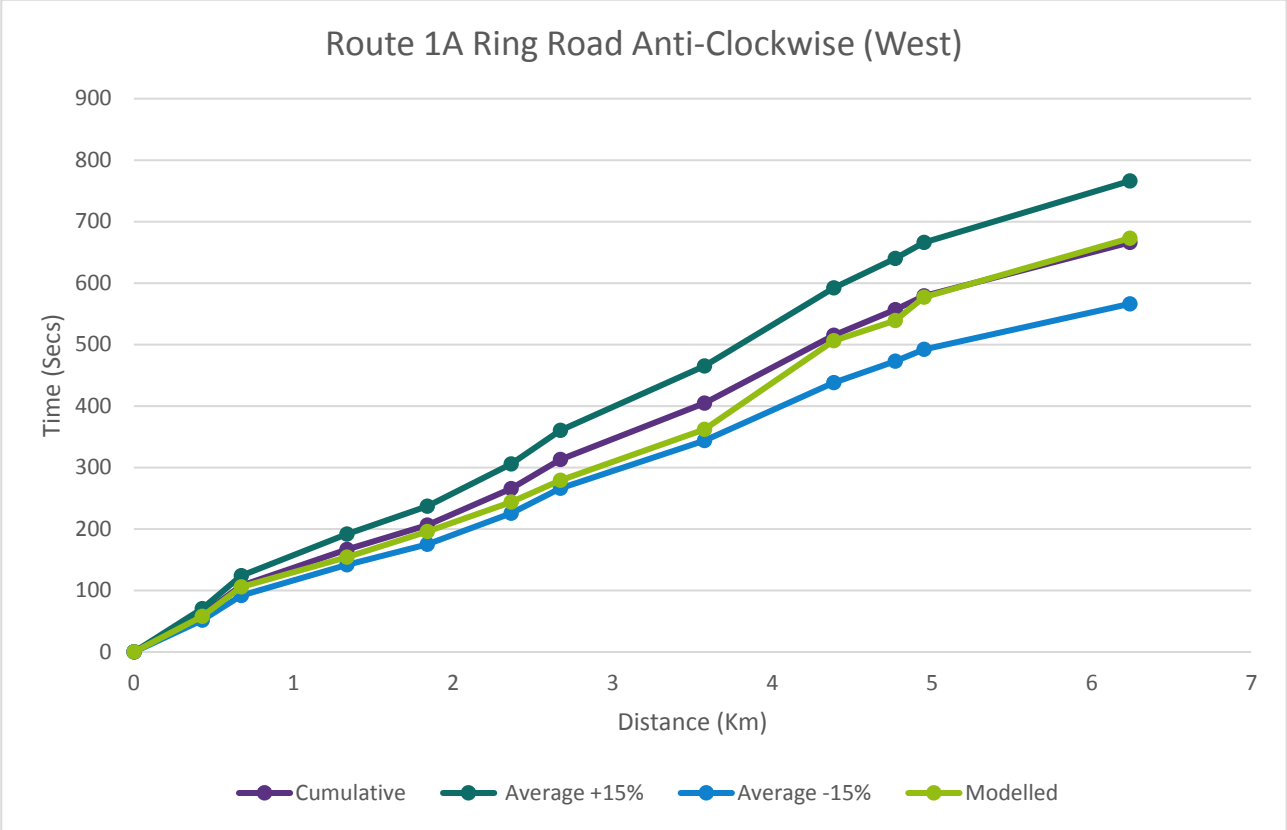

Route 9A Pershore to Edgbaston
300
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

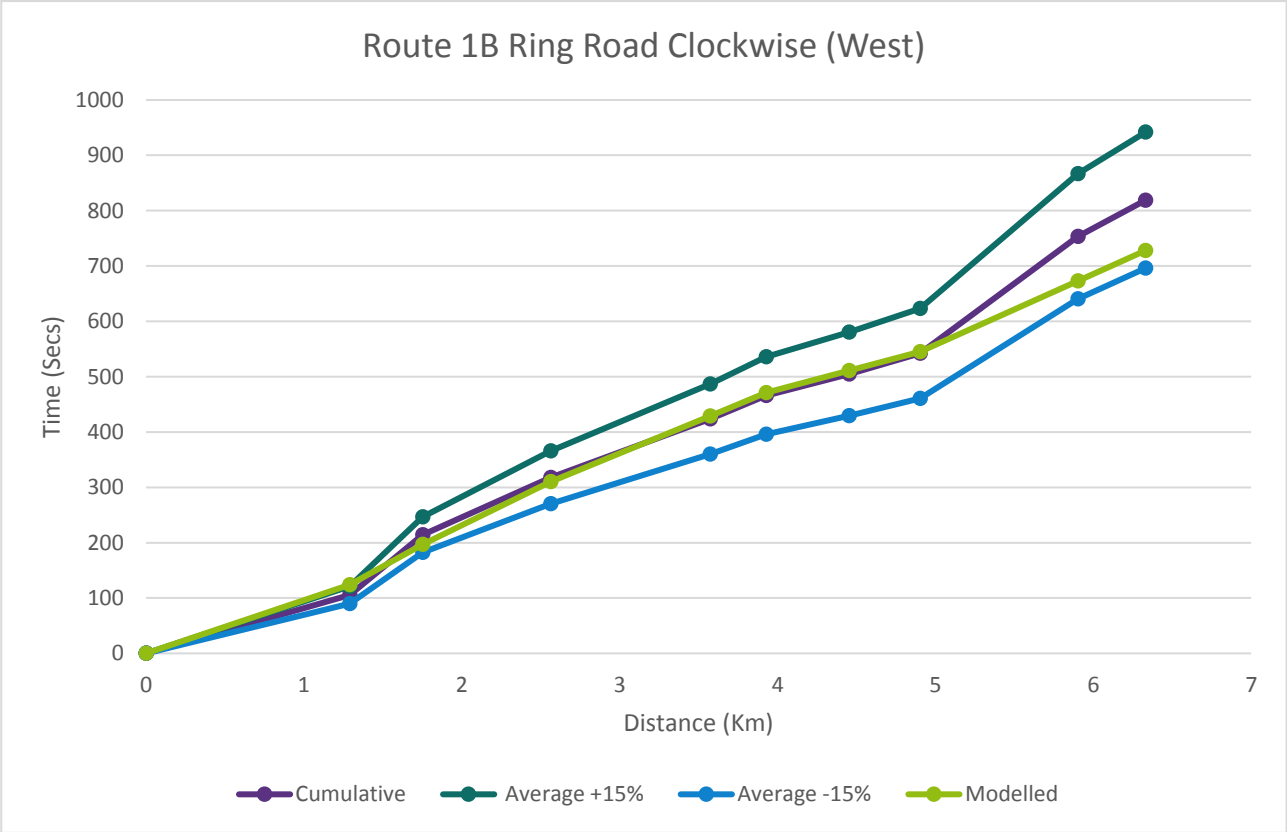

Route 9B Edgbaston to Pershore
300
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

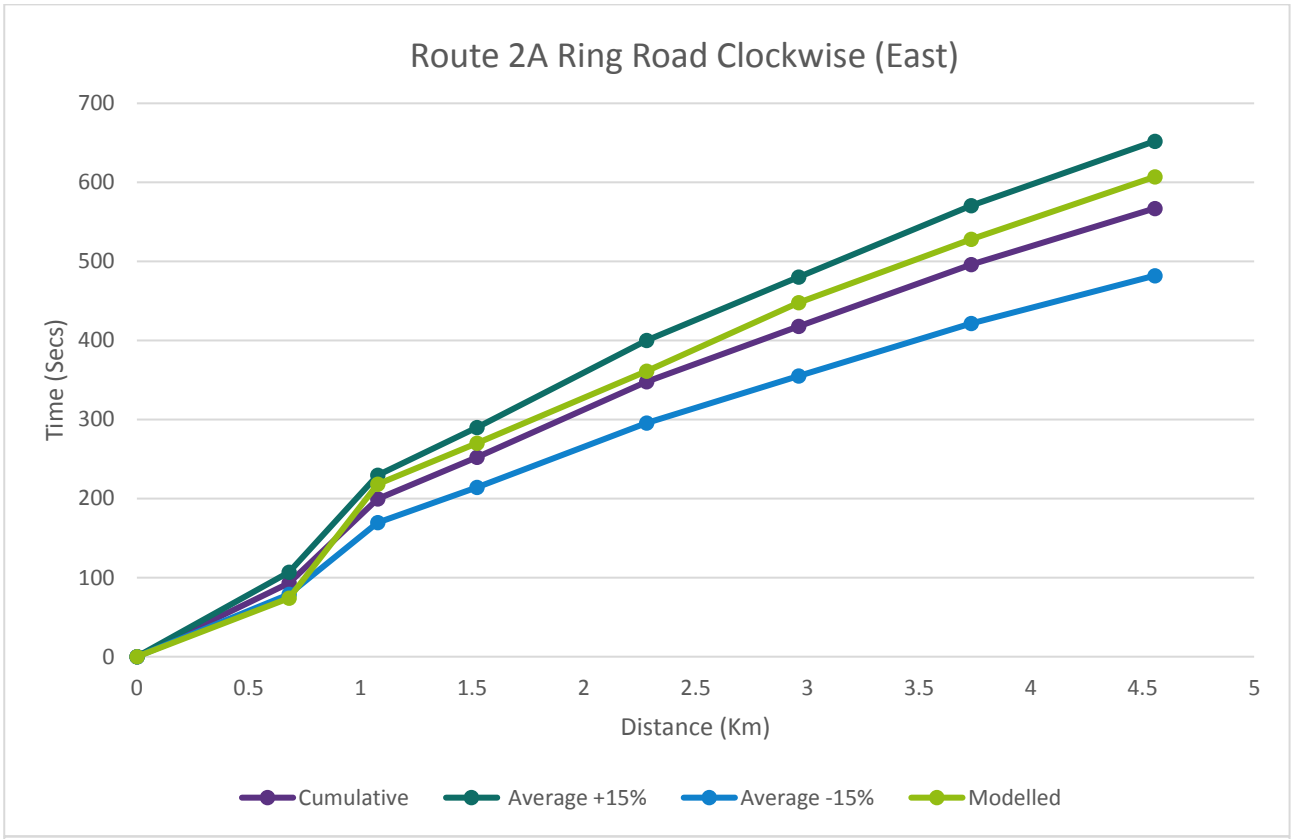

Route 10A Ring Road to Holloway Circus
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

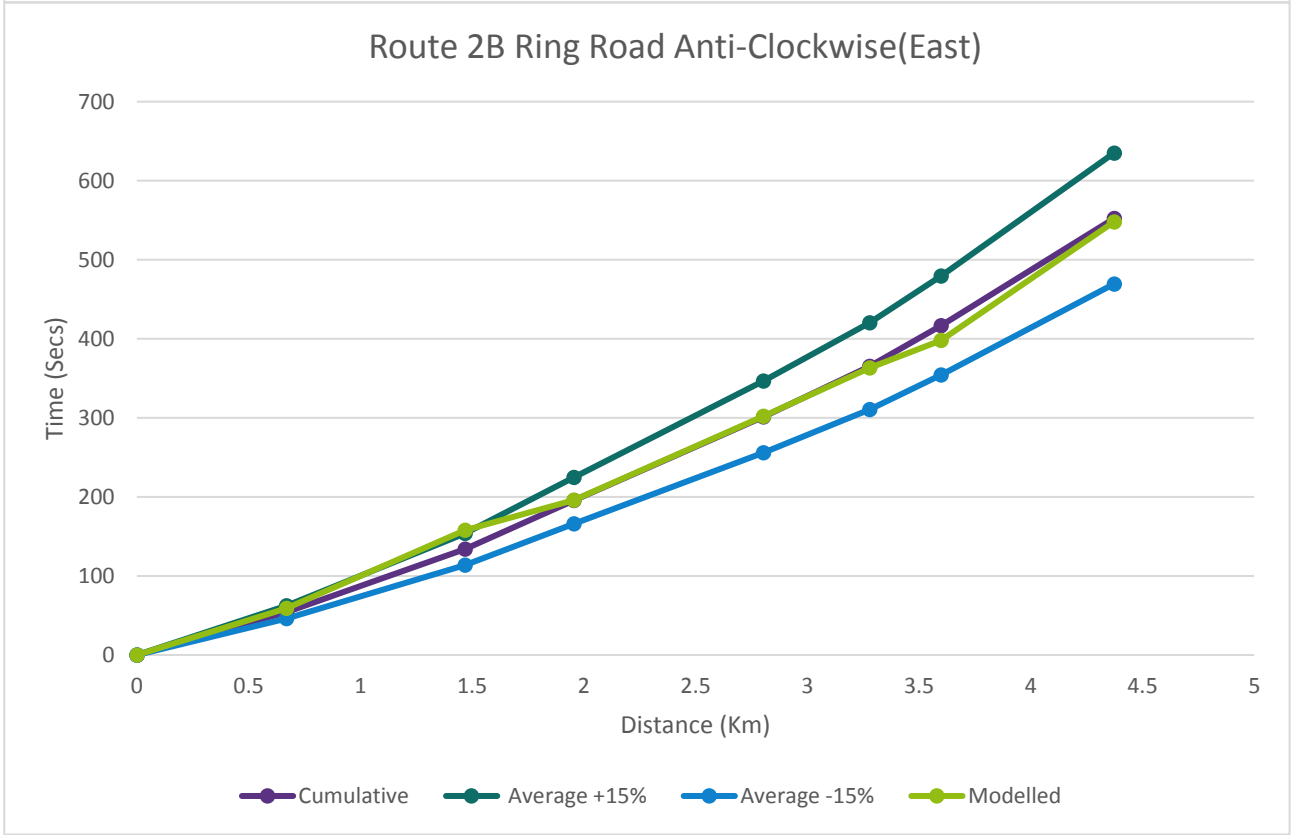

Route 10B Holloway Circus to Ring Road
200
180
160
140
120
100
80
60
40
20
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

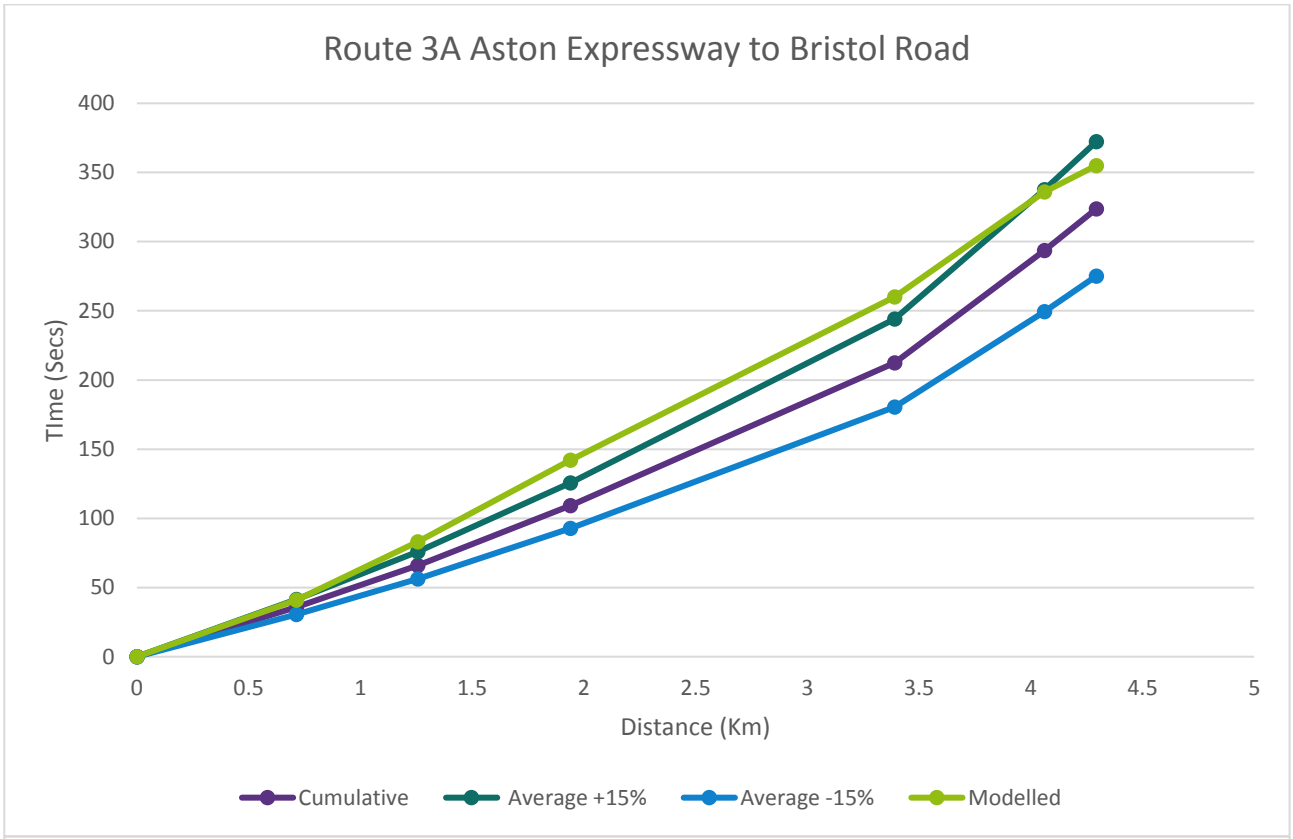
L.2. Inter-peak

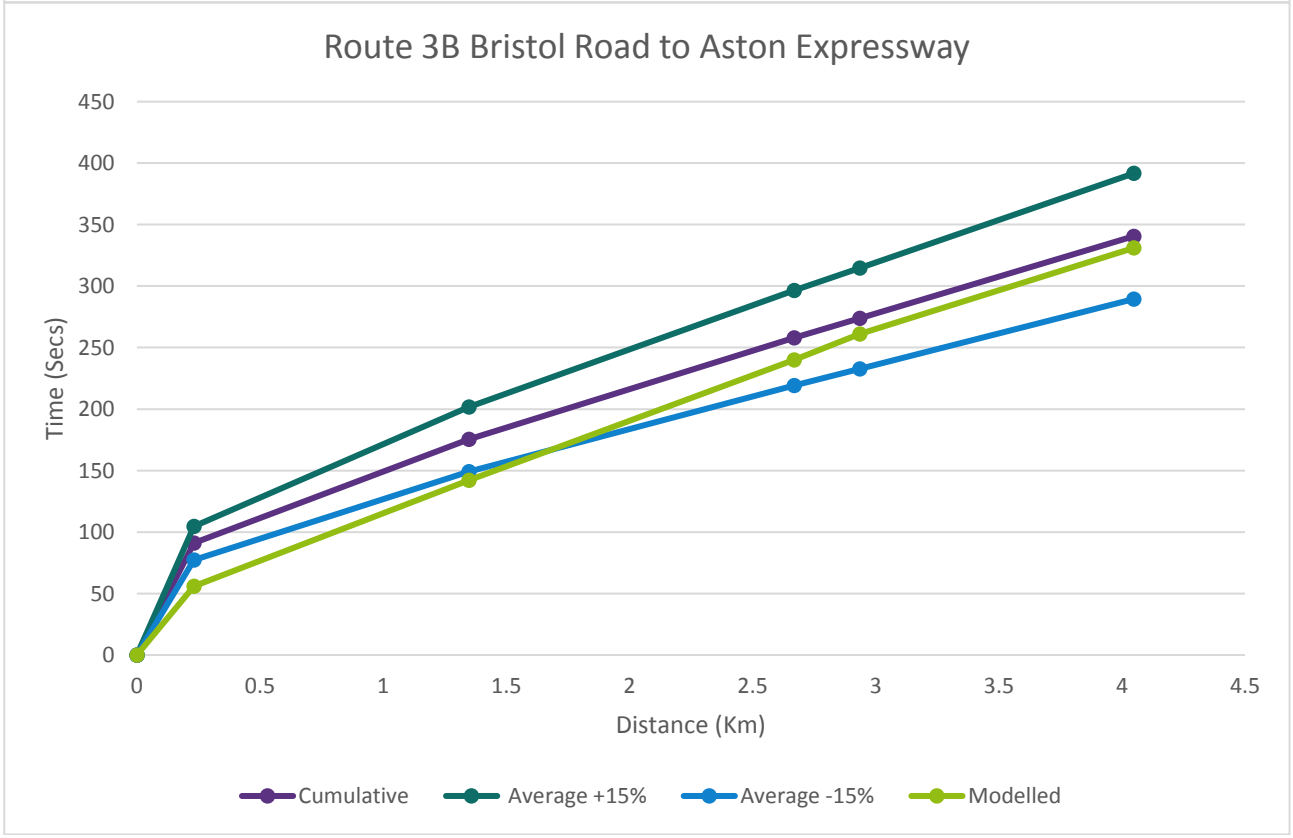


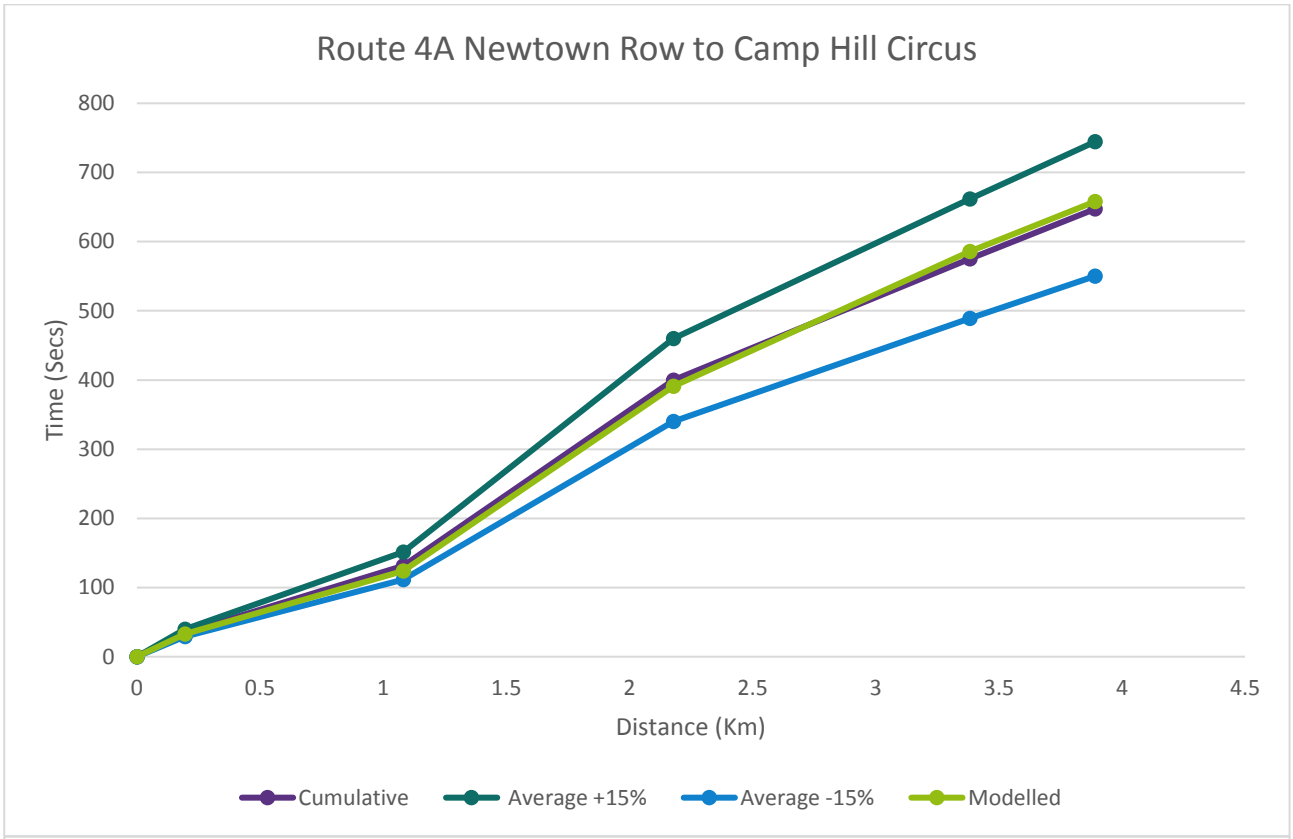


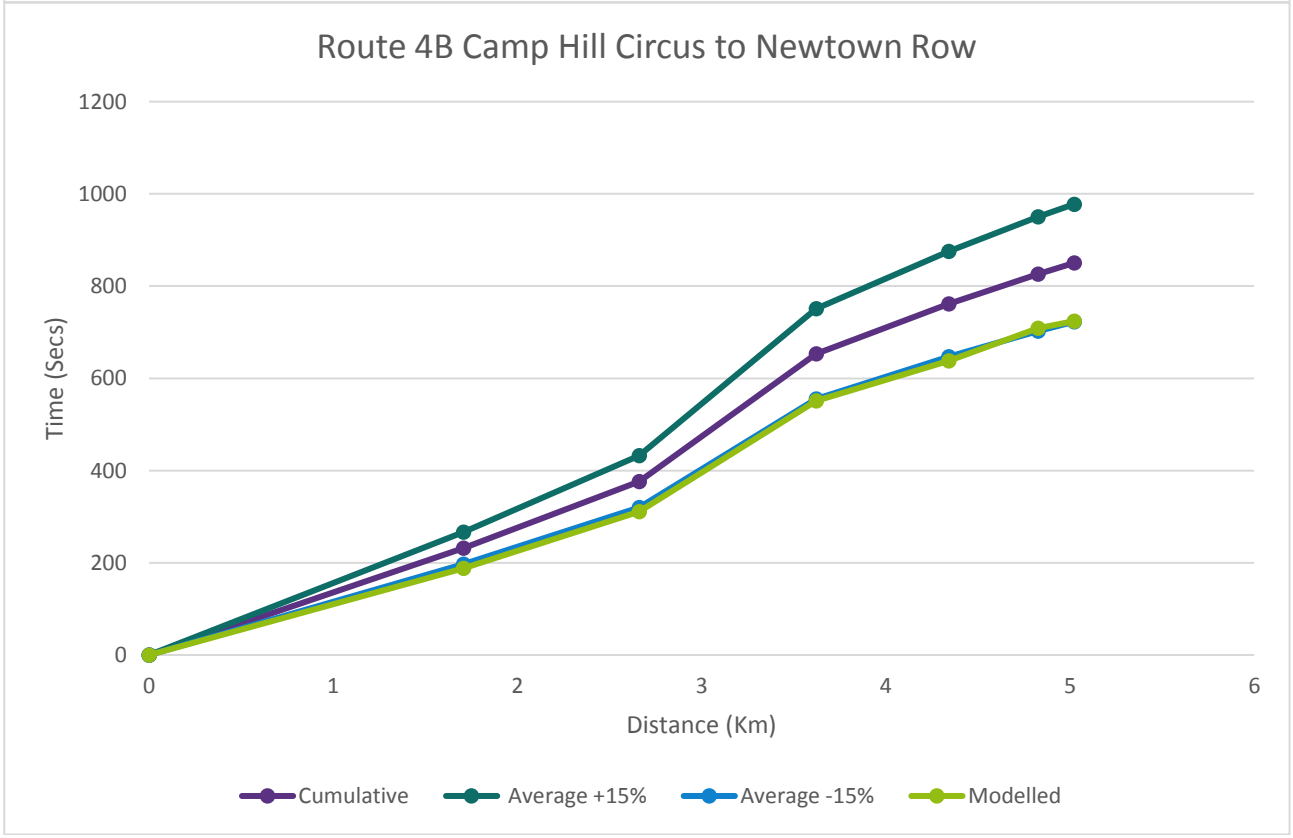

Route 2A Ring Road Clockwise (East)
Time (Secs)
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

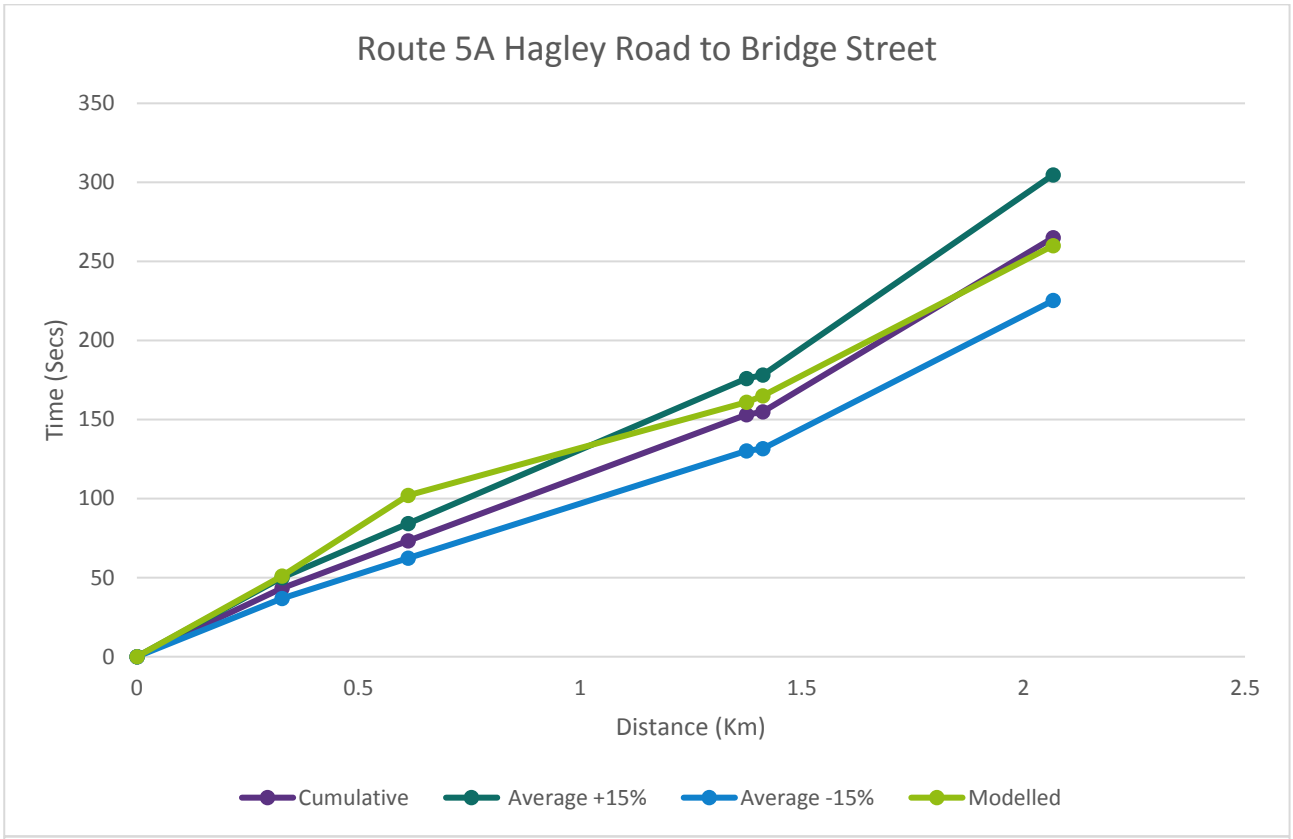

Route 2B Ring Road Anti-Clockwise(East)
Time (Secs)
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

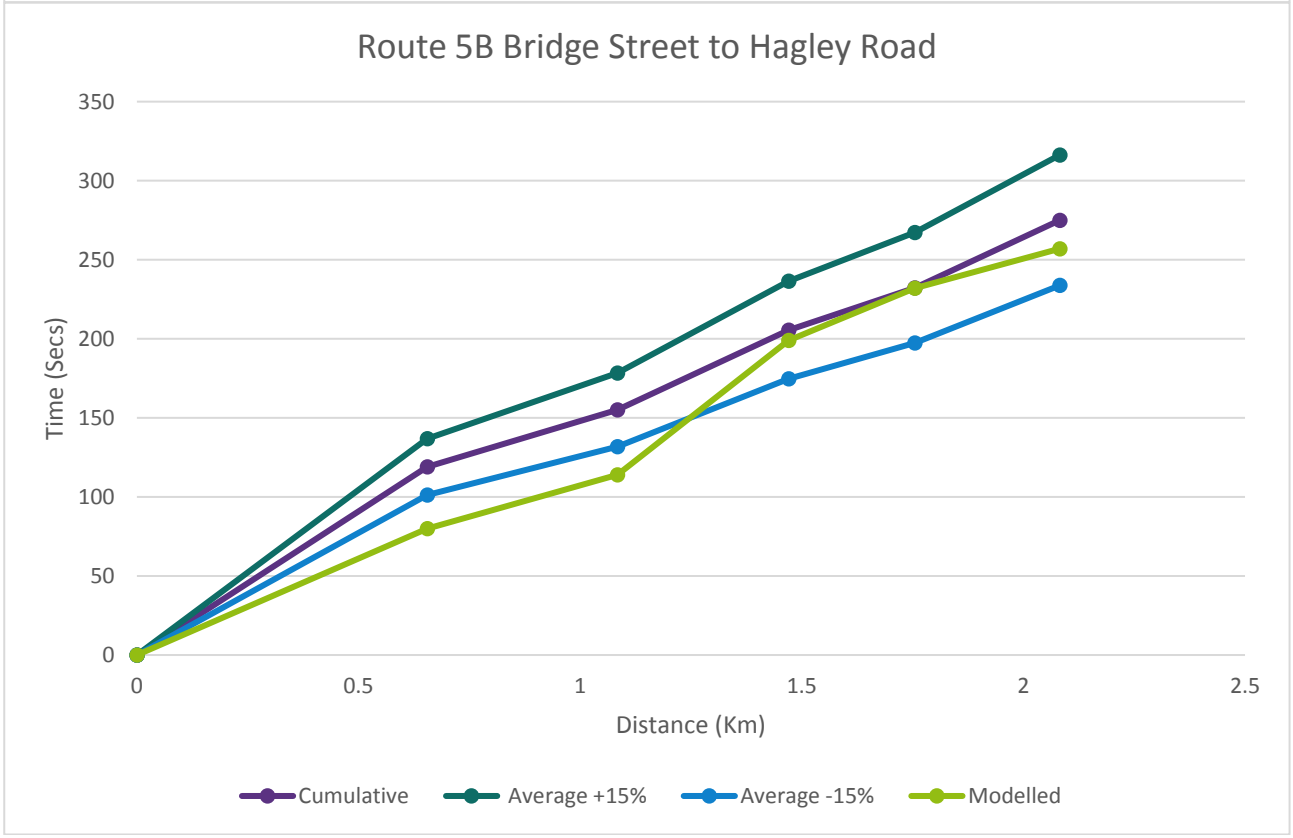

Route 3A Aston Expressway to Bristol Road
TIme (Secs)
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

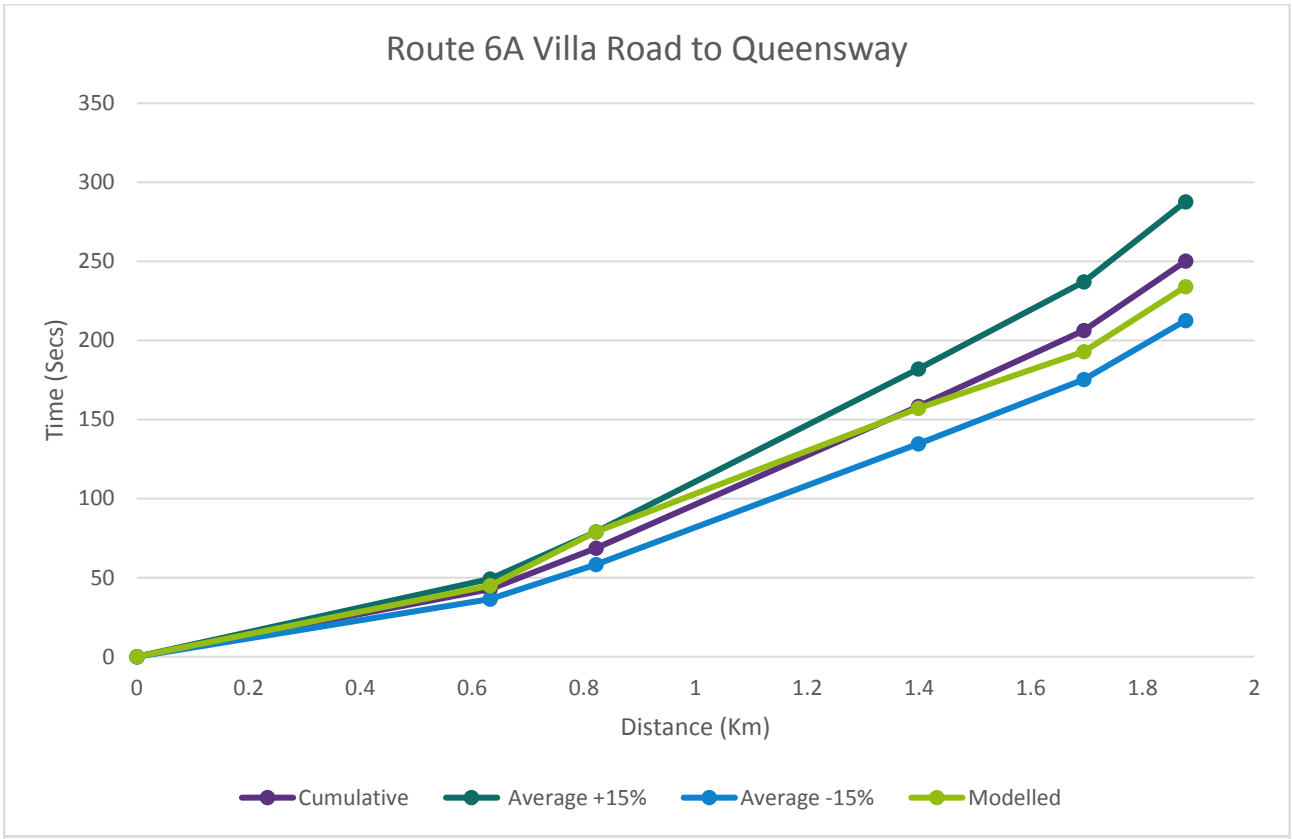

Route 3B Bristol Road to Aston Expressway
Time (Secs)
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

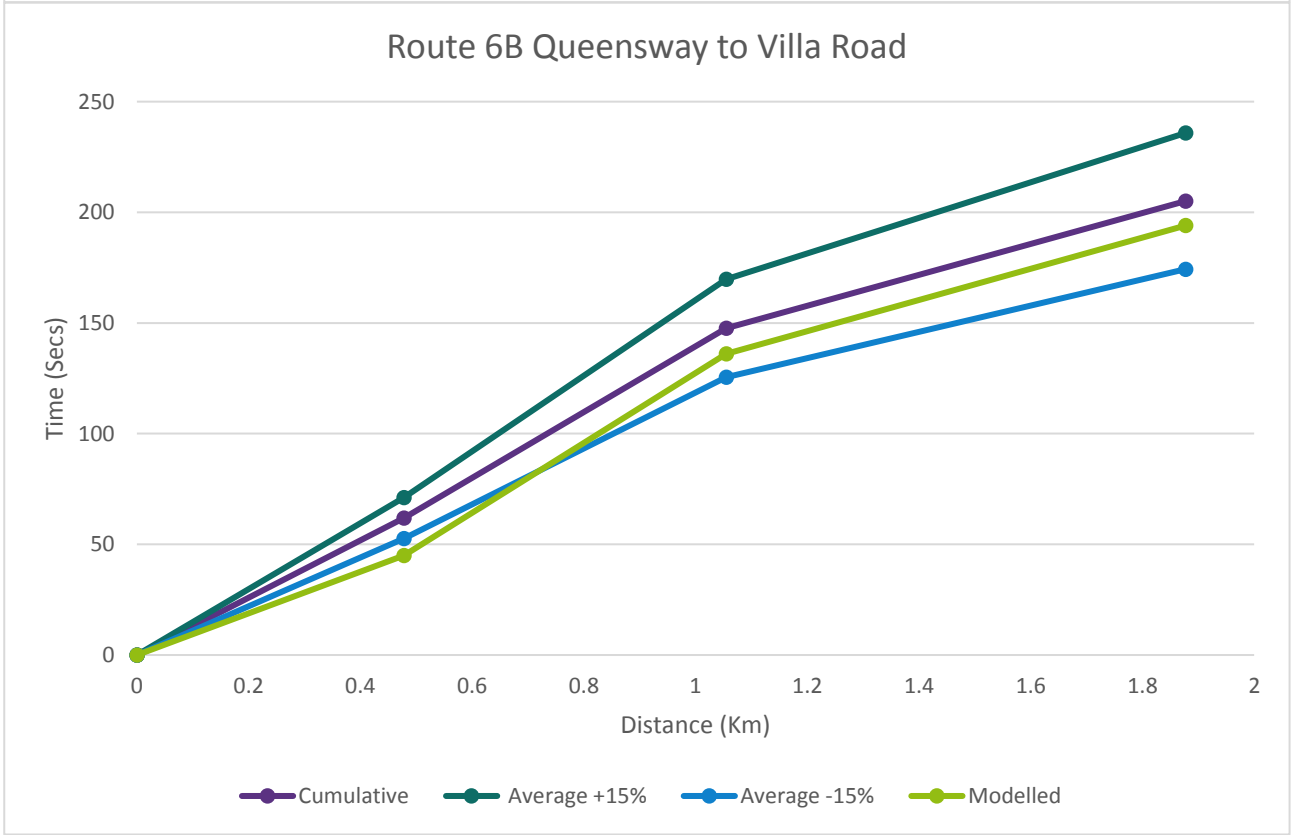

Route 4A Newtown Row to Camp Hill Circus
800
700
600
500
400
300
200
100
0
Time (Secs)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

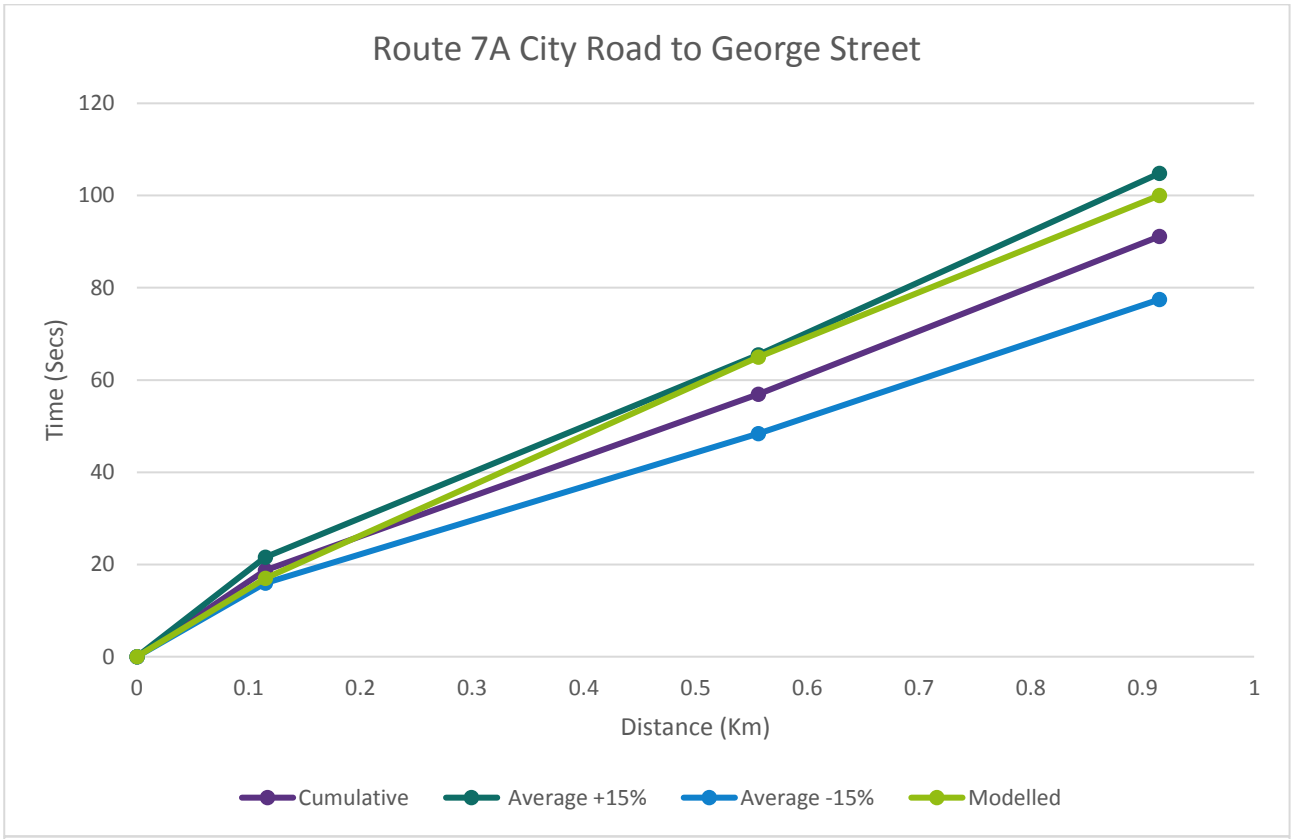

Route 4B Camp Hill Circus to Newtown Row
1200
1000
800
600
400
200
0
Time (Secs)
0
1
2
3
4
5
6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

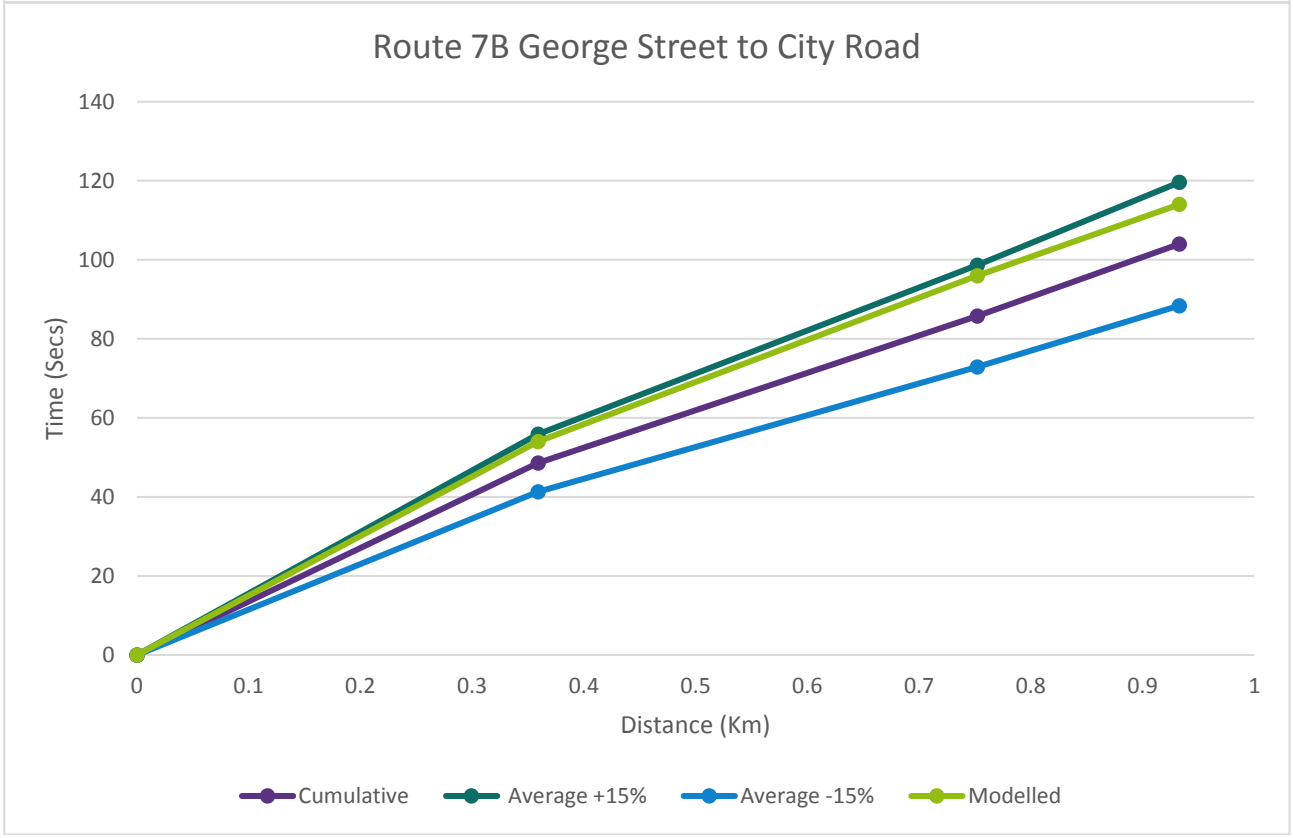

Route 5A Hagley Road to Bridge Street
350
300
250
200
150
100
50
0
Time (Secs)
0
0.5
1
1.5
2
2.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

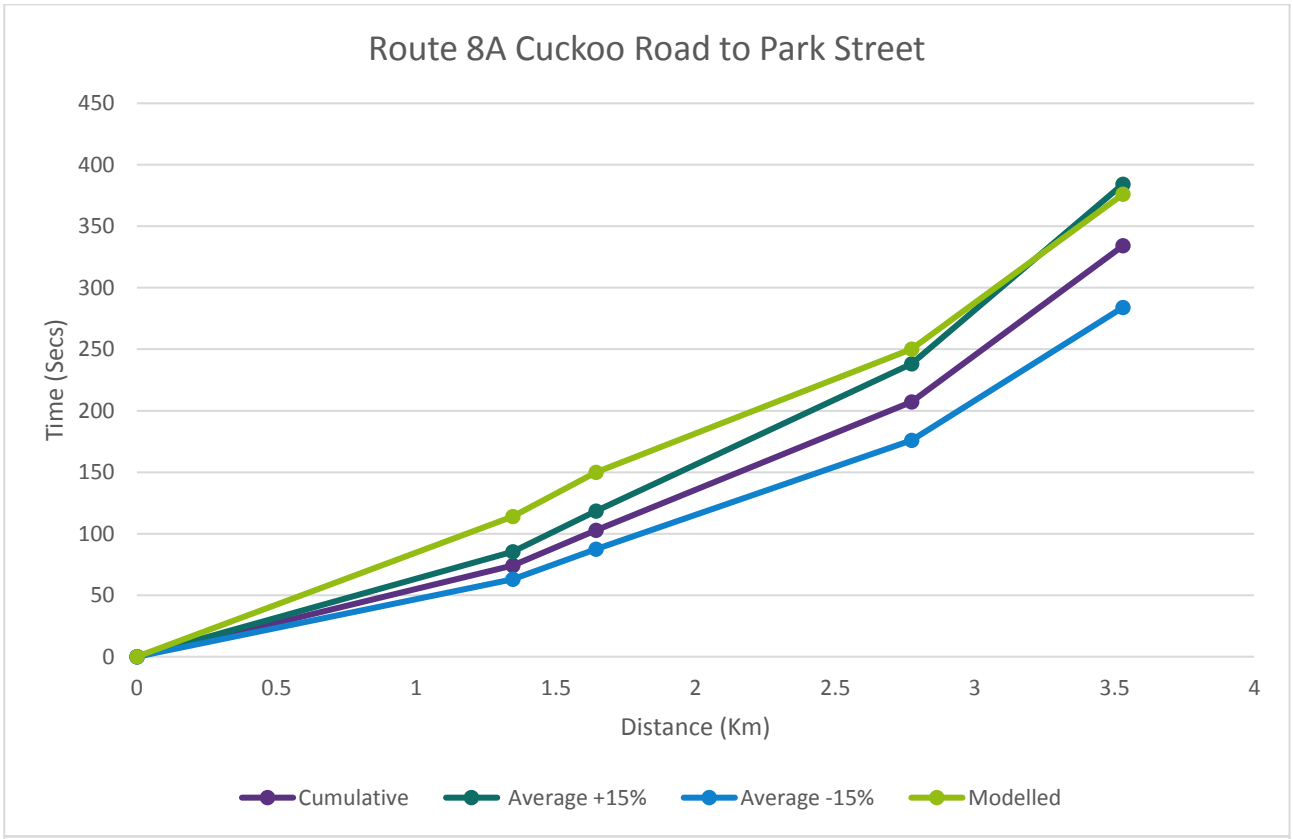

Route 5B Bridge Street to Hagley Road
350
300
250
200
150
100
50
0
Time (Secs)
0
0.5
1
1.5
2
2.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

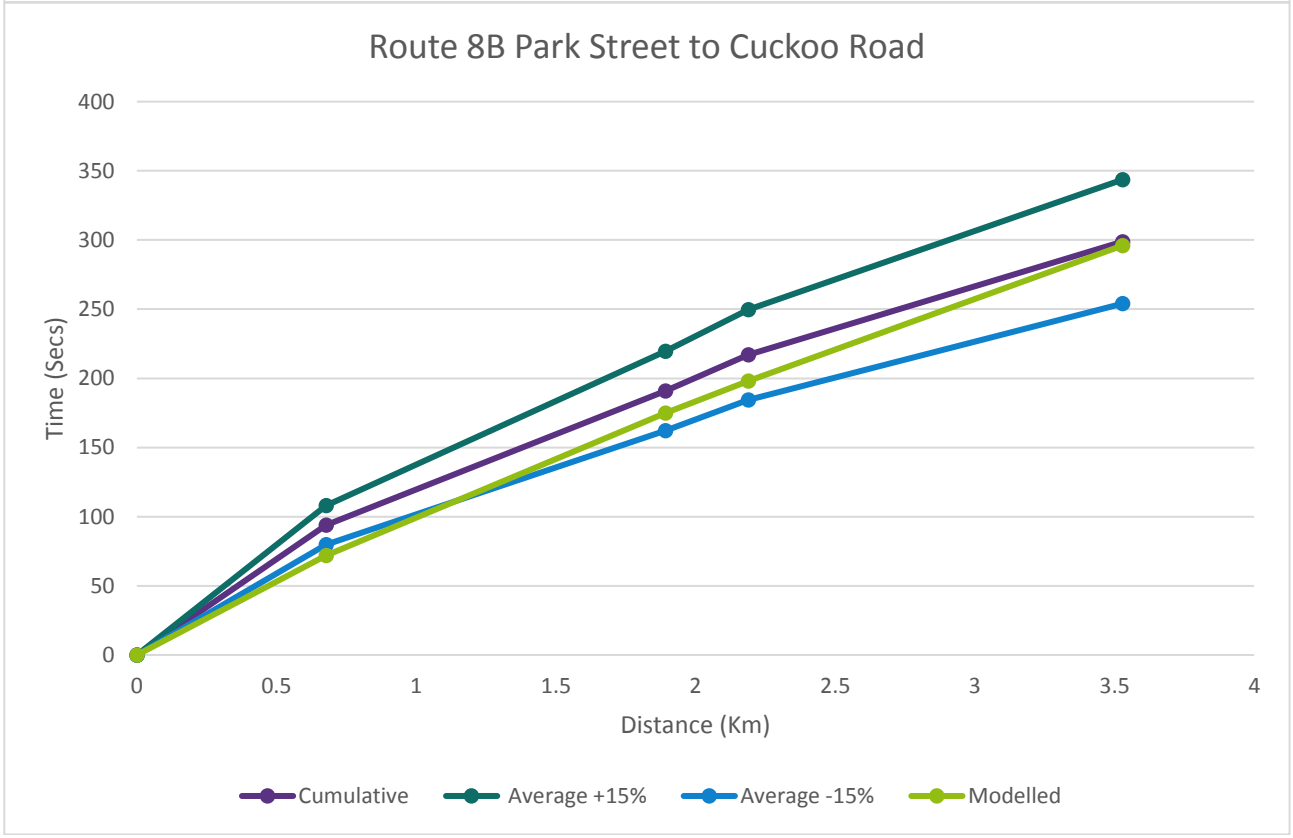

Route 6A Villa Road to Queensway
350
300
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

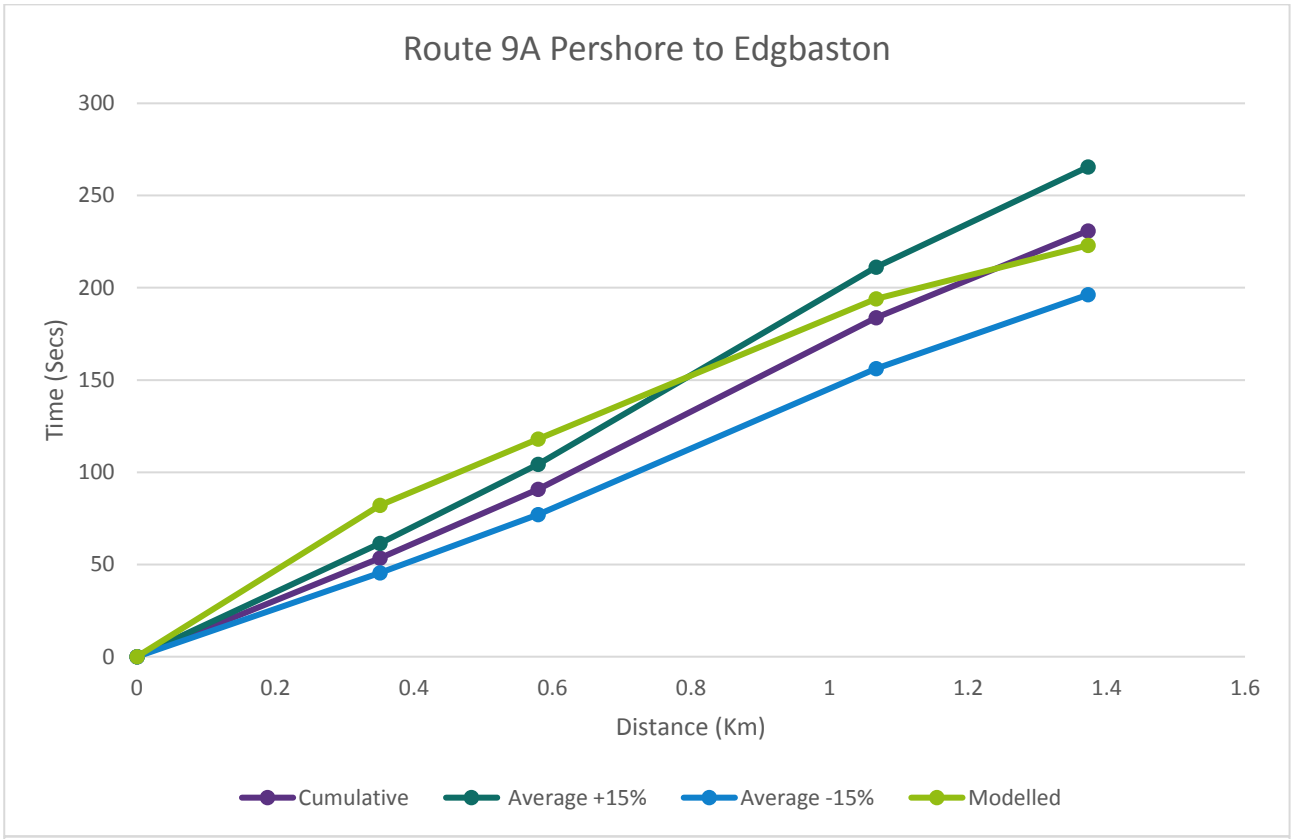

Route 6B Queensway to Villa Road
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

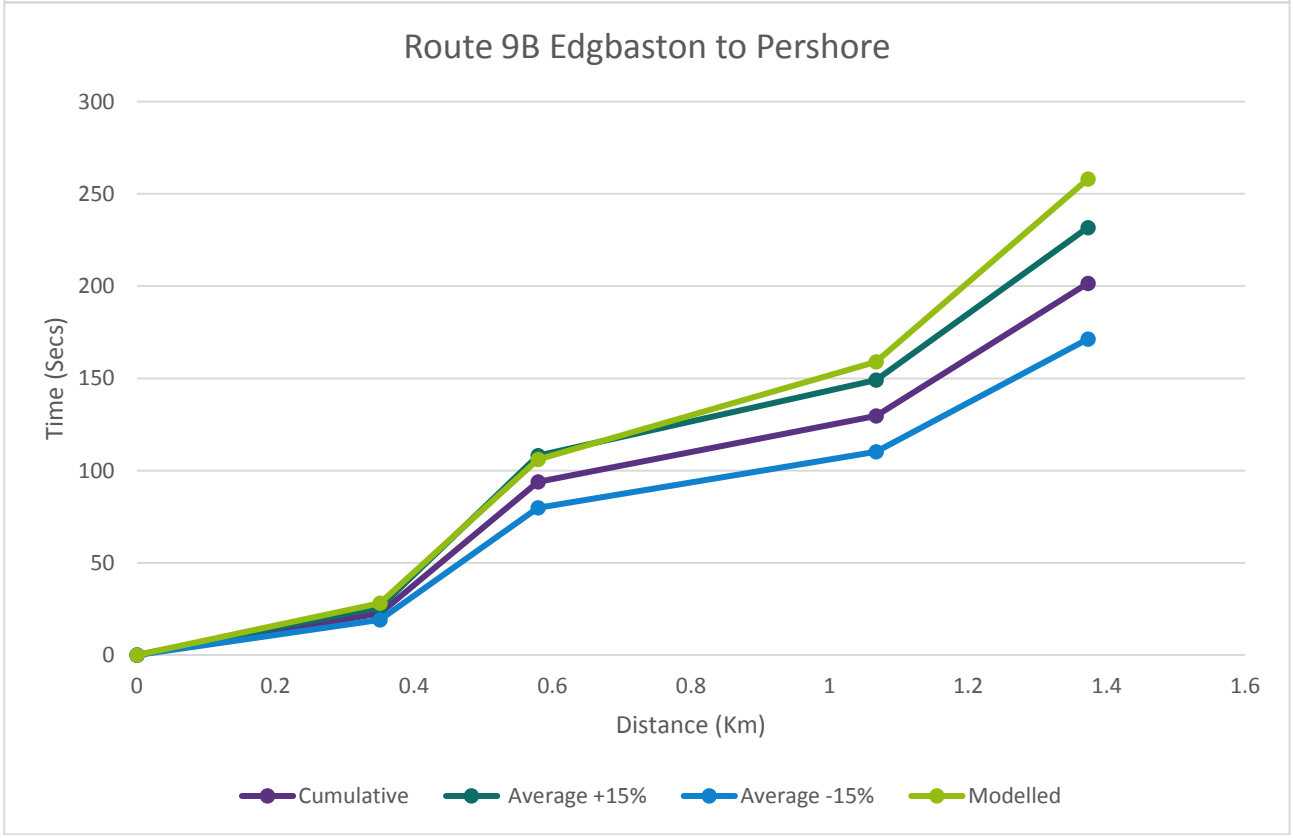

Route 7A City Road to George Street
120
100
80
60
40
20
0
Time (Secs)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

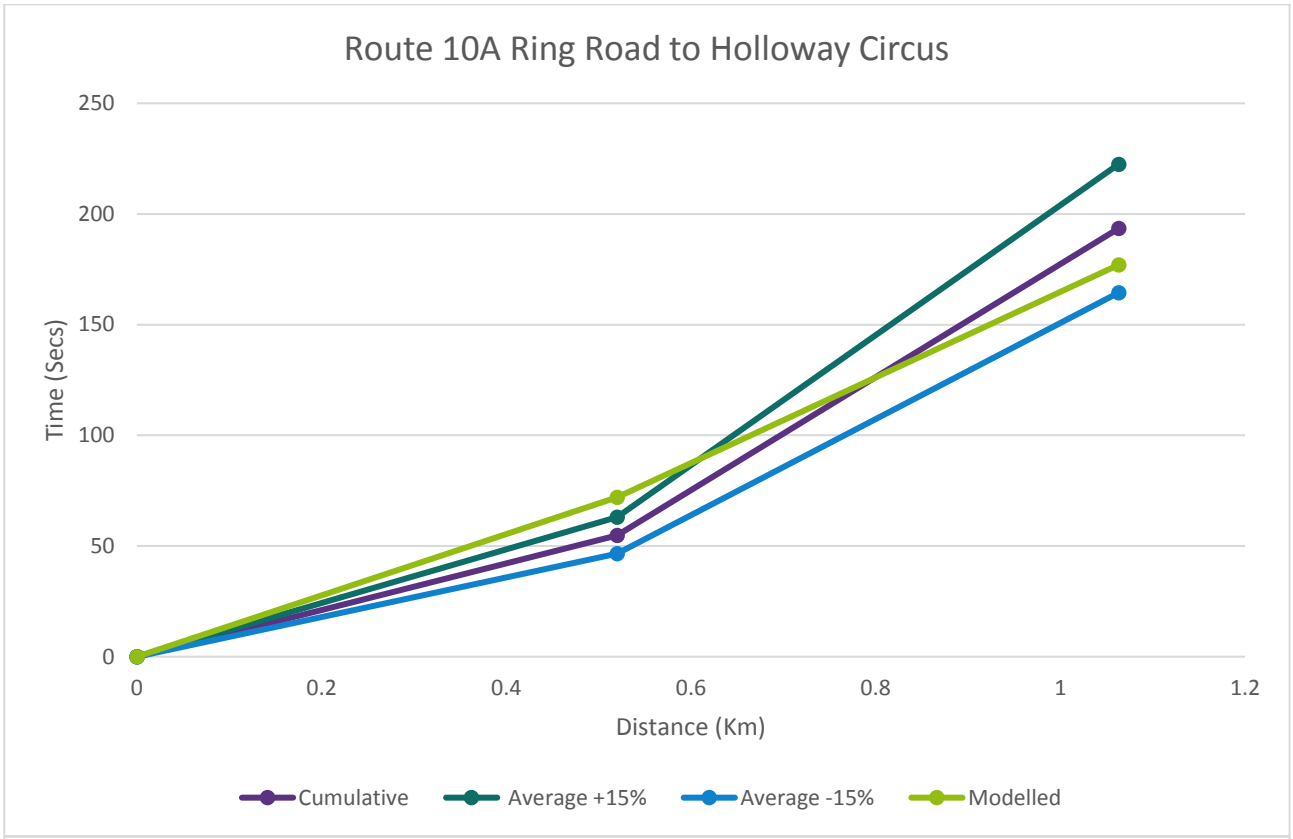

Route 7B George Street to City Road
140
120
100
80
60
40
20
0
Time (Secs)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

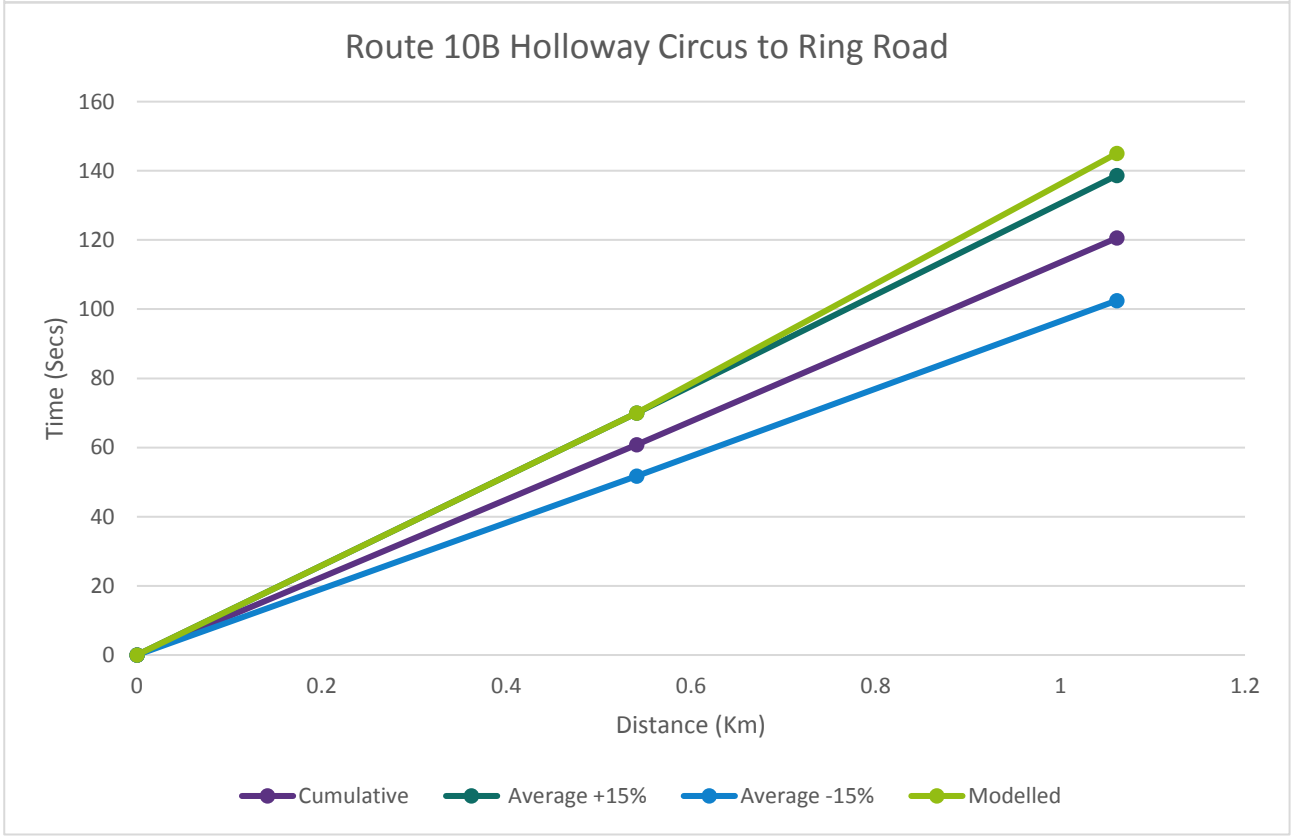

Route 8A Cuckoo Road to Park Street
Time (Secs)
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled


Route 8B Park Street to Cuckoo Road
Time (Secs)
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

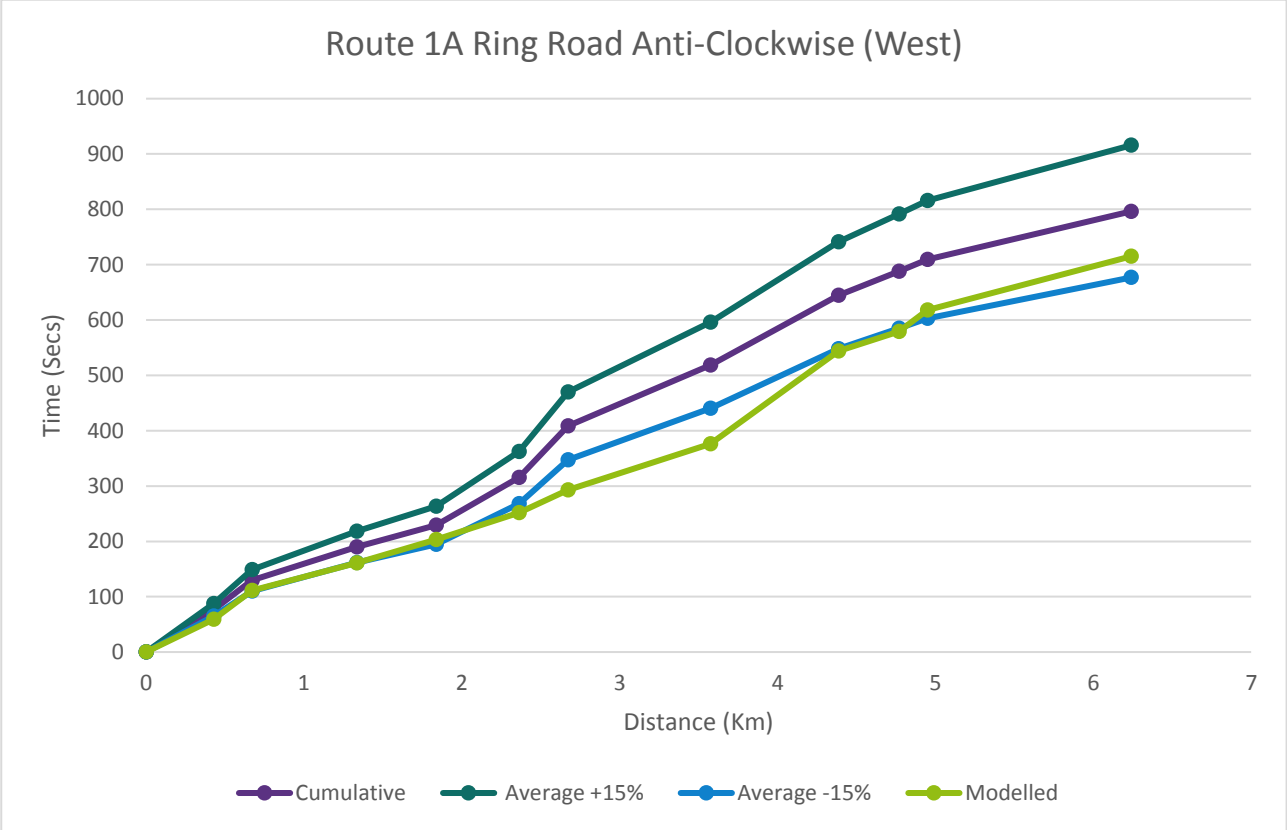

Route 9A Pershore to Edgbaston
300
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

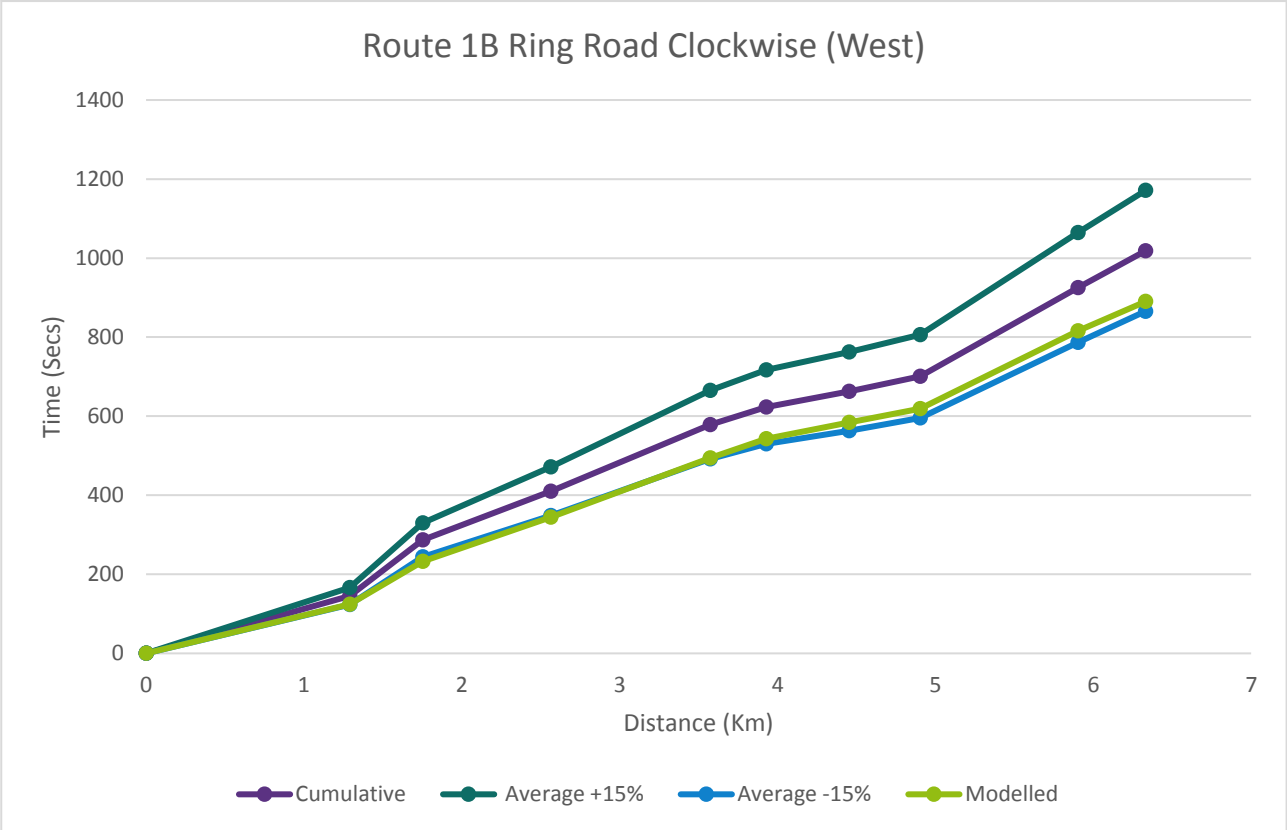

Route 9B Edgbaston to Pershore
300
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

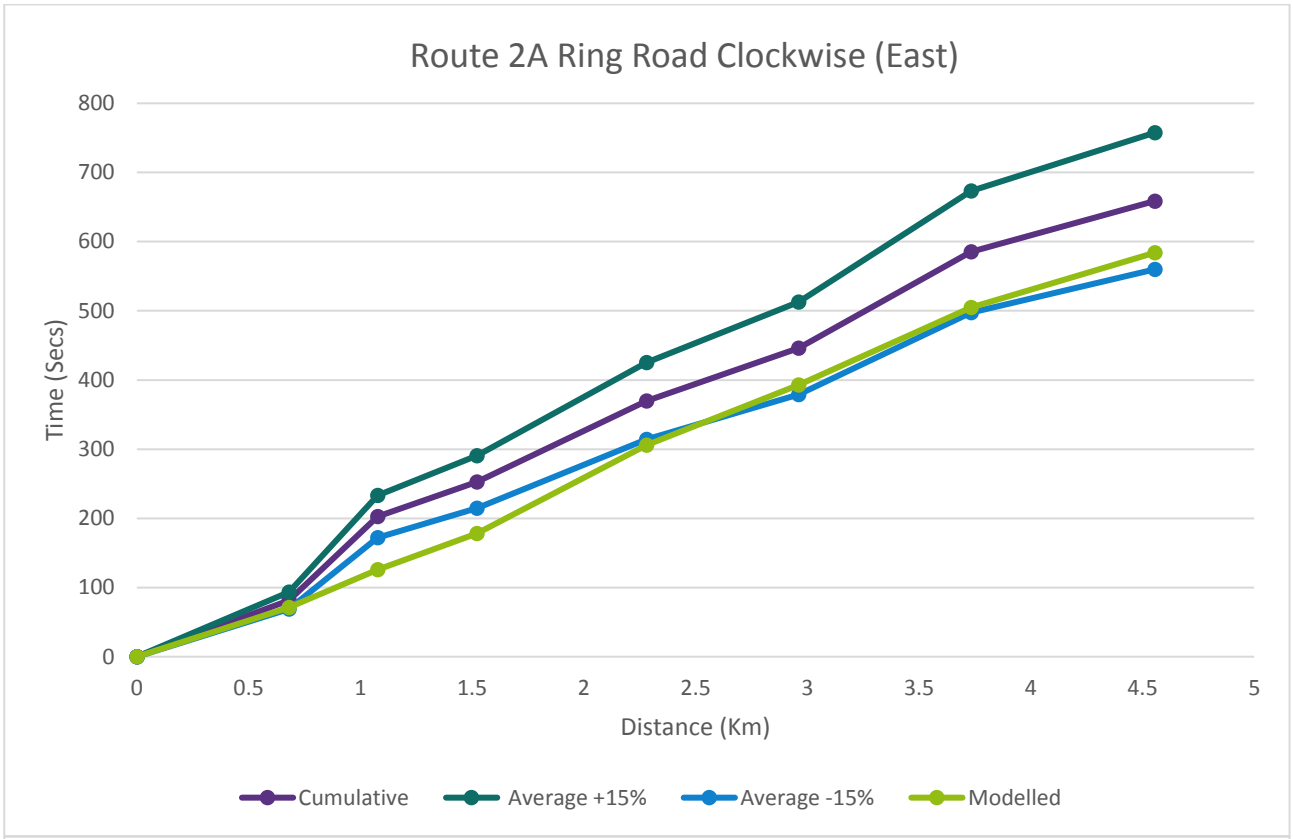

Route 10A Ring Road to Holloway Circus
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

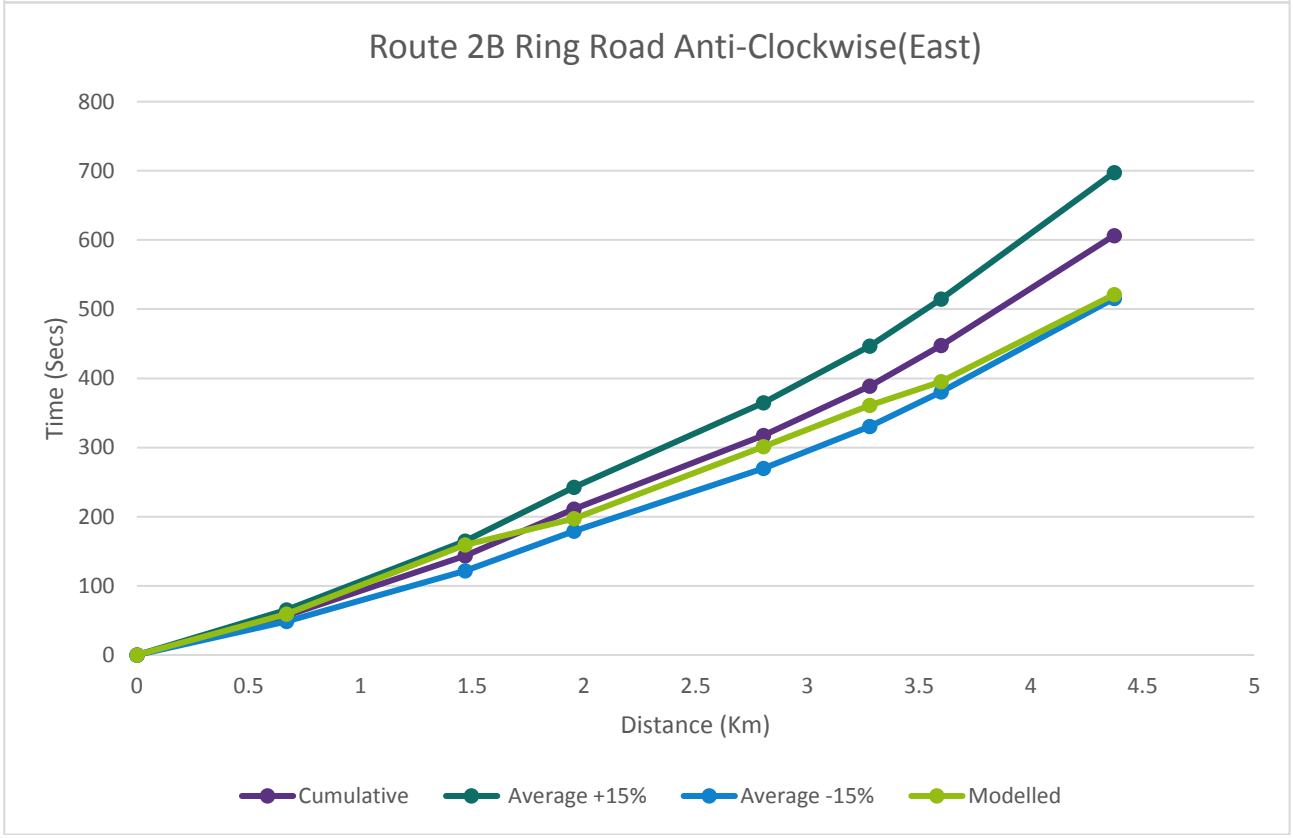

Route 10B Holloway Circus to Ring Road
160
140
120
100
80
60
40
20
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

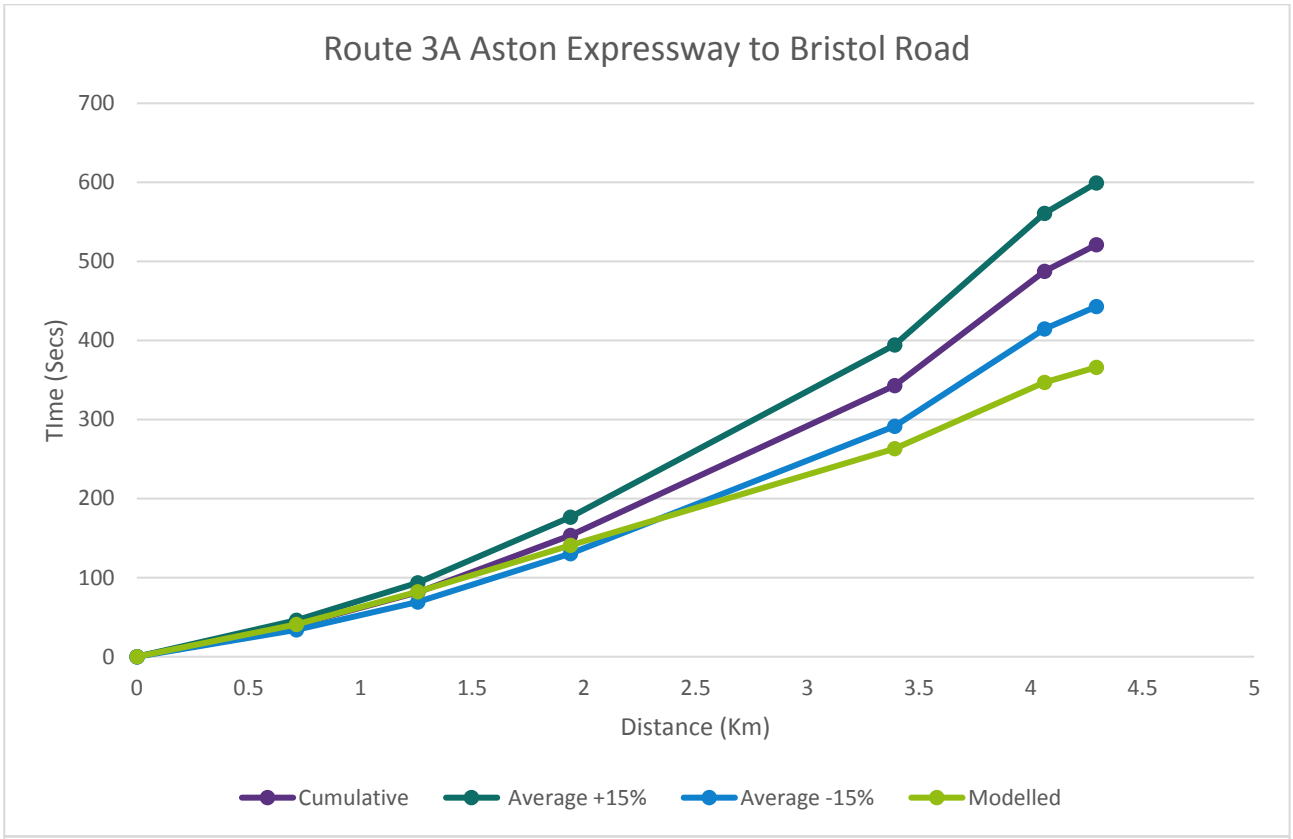
L.3. PM Peak

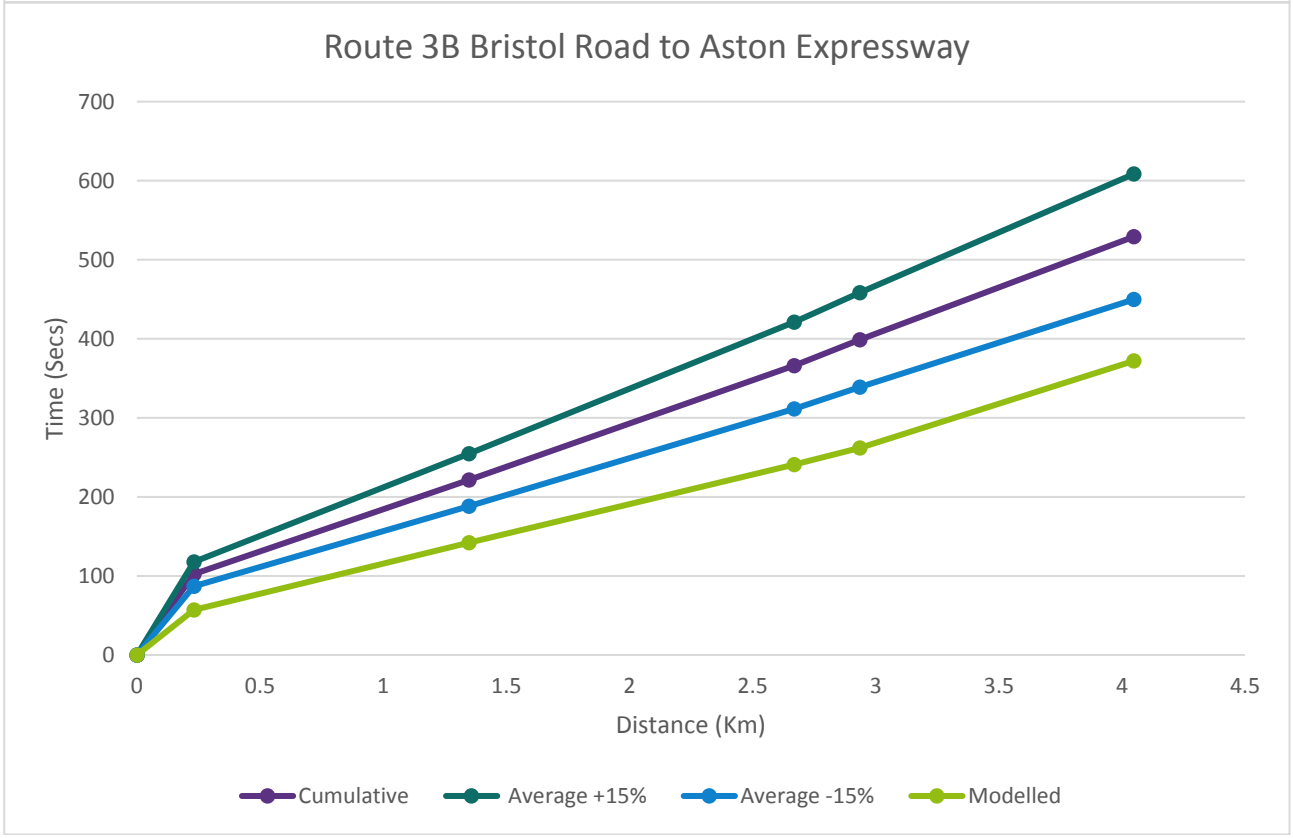

Route 1A Ring Road Anti-Clockwise (West)
Time (Secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

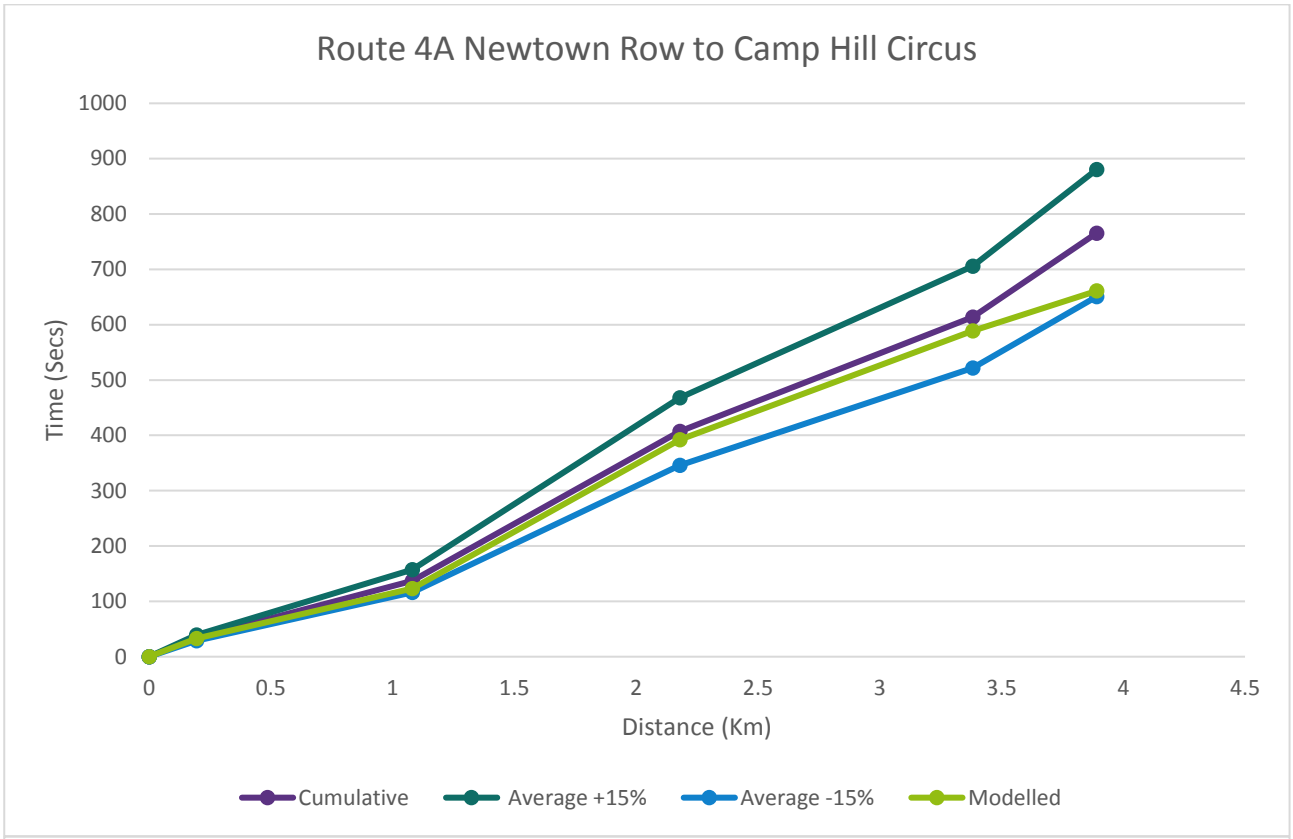

Route 1B Ring Road Clockwise (West)
Time (Secs)
1400
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

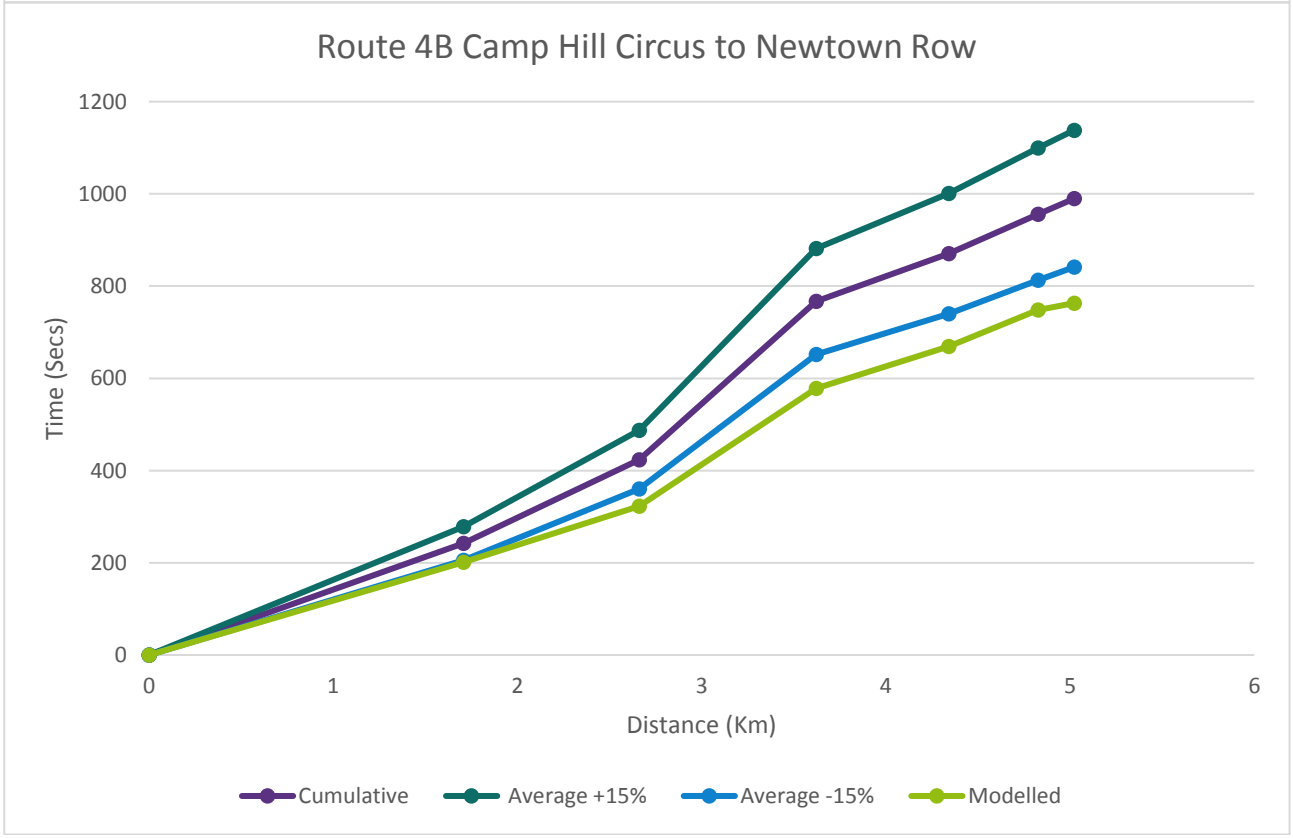

Route 2A Ring Road Clockwise (East)
Time (Secs)
800
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

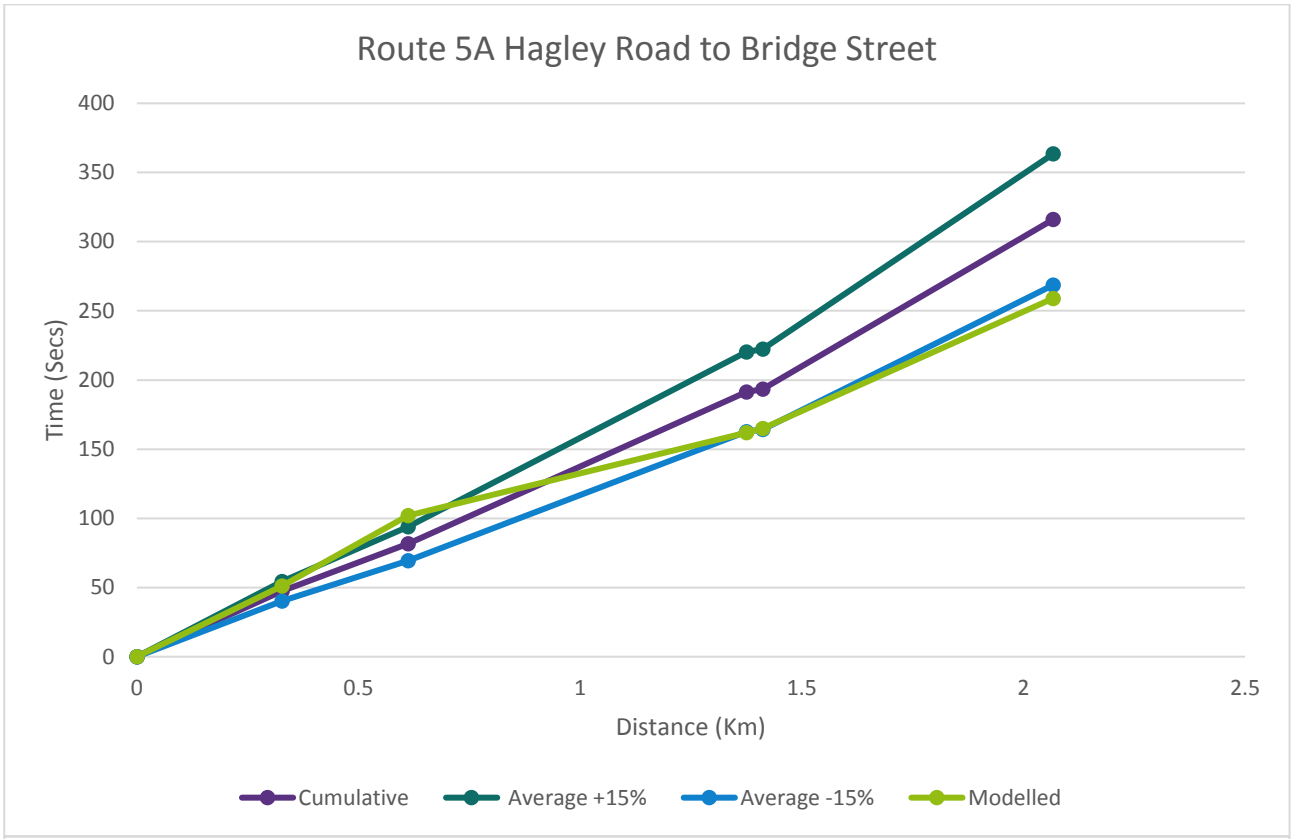

Route 2B Ring Road Anti-Clockwise(East)
Time (Secs)
800
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

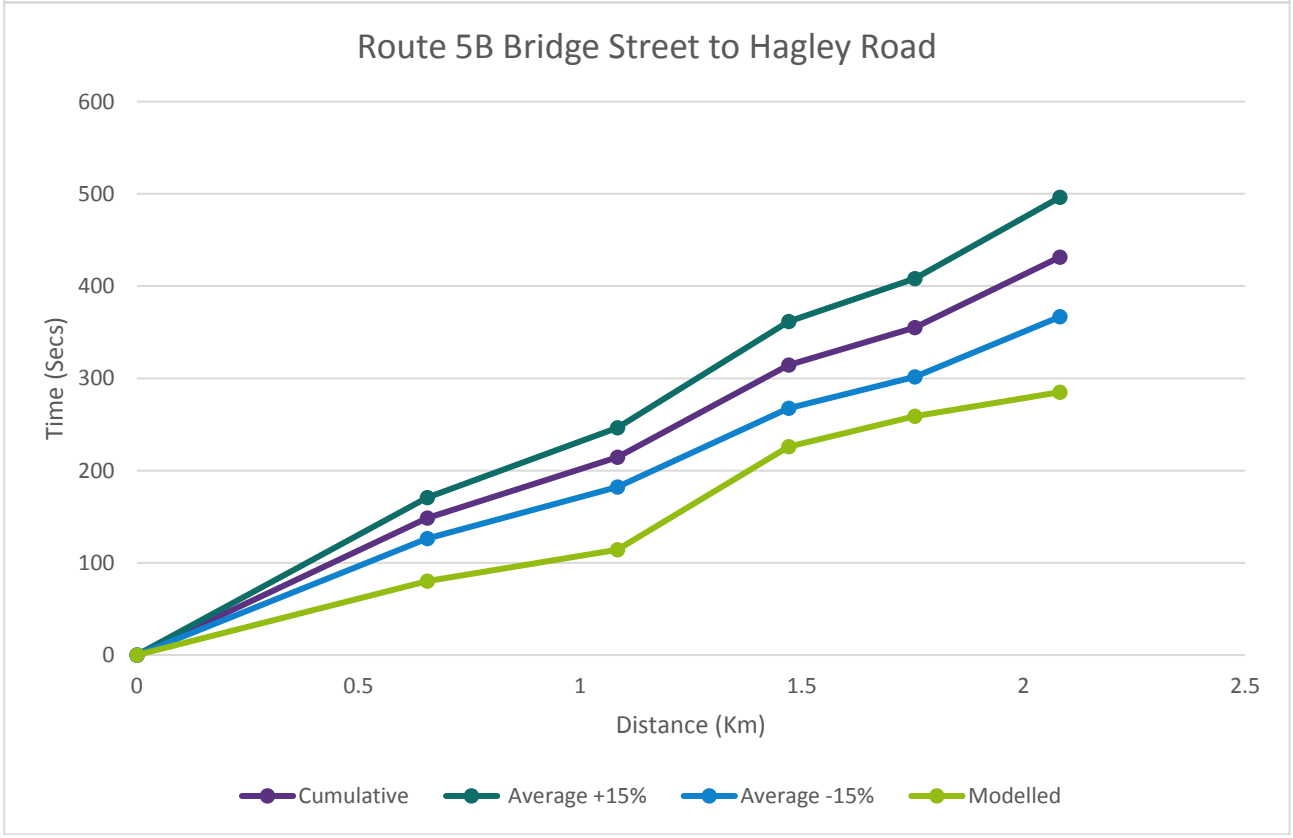

Route 3A Aston Expressway to Bristol Road
TIme (Secs)
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

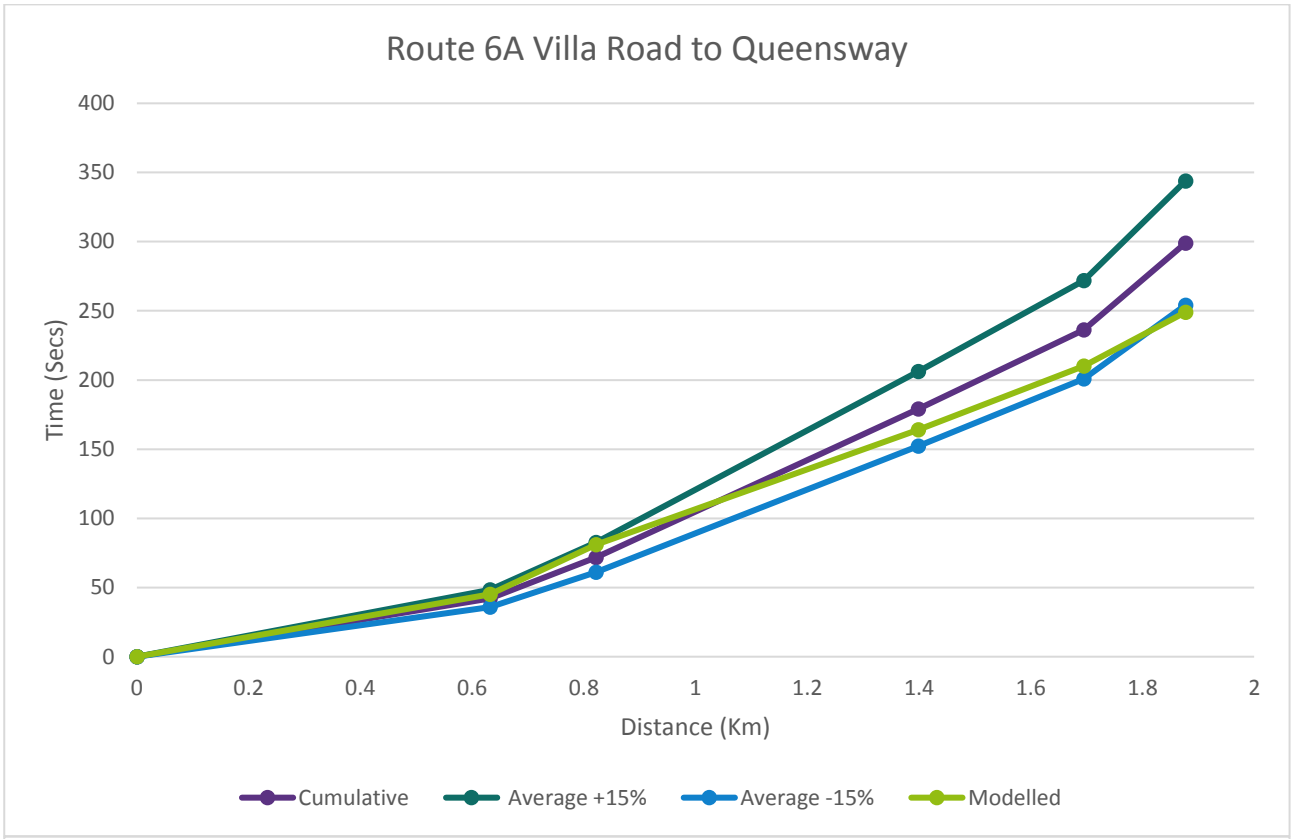

Route 3B Bristol Road to Aston Expressway
Time (Secs)
700
600
500
400
300
200
100
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

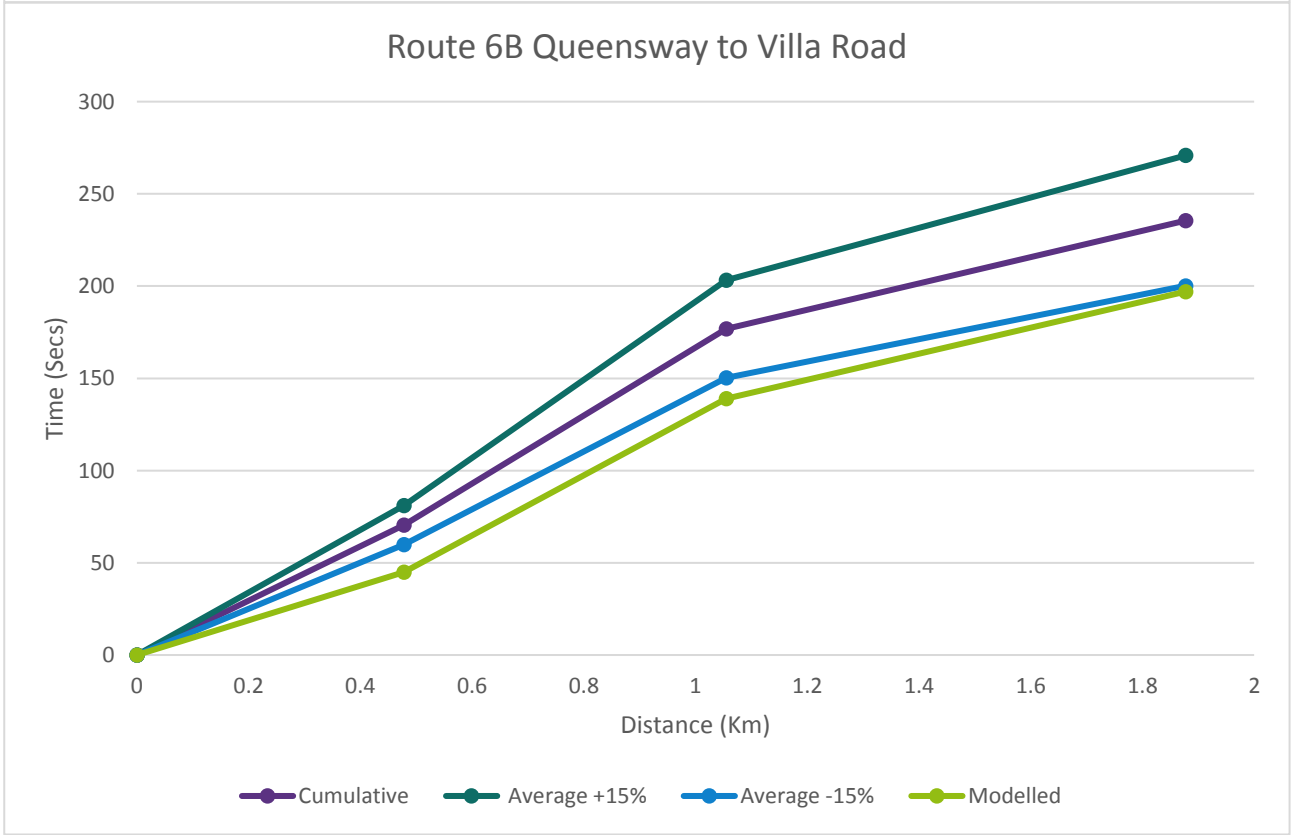

Route 4A Newtown Row to Camp Hill Circus
1000
900
800
700
600
500
400
300
200
100
0
Time (Secs)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

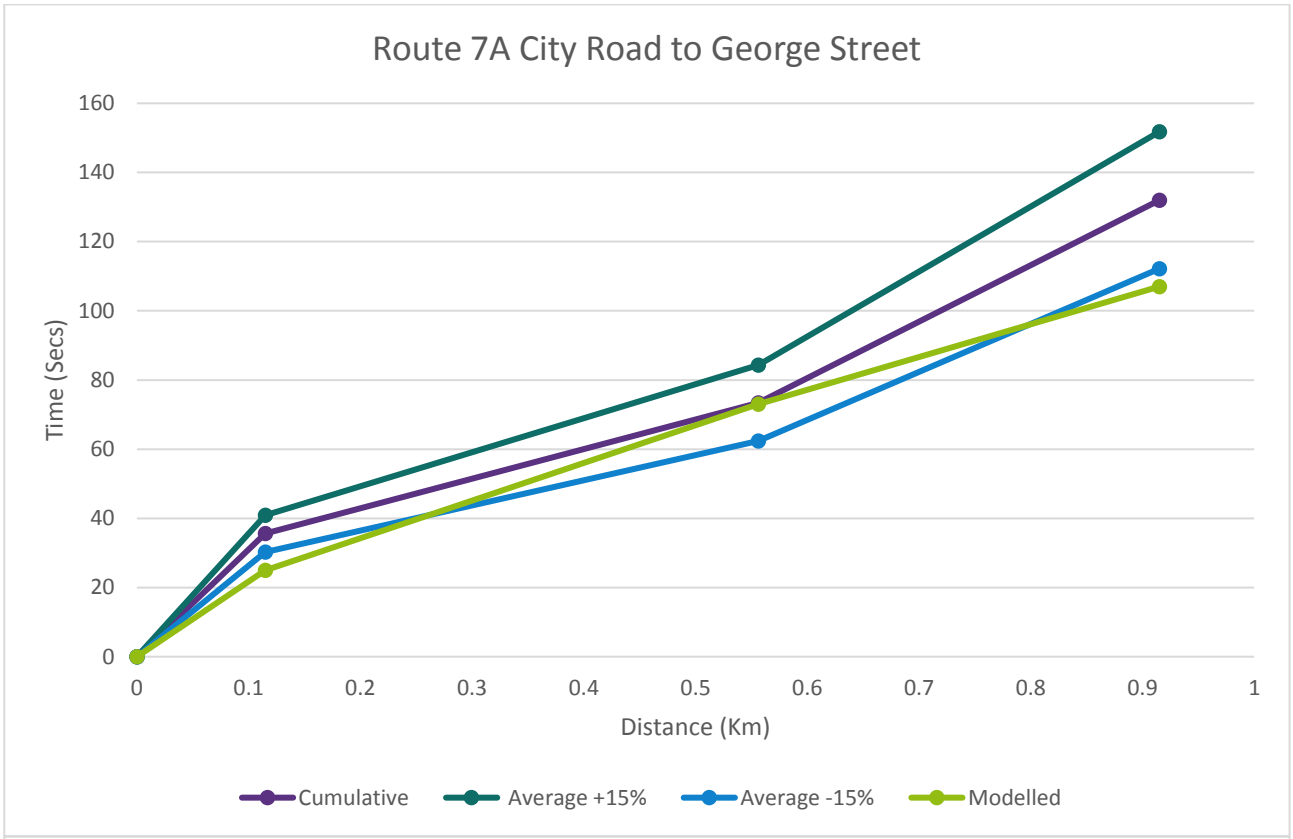

Route 4B Camp Hill Circus to Newtown Row
1200
1000
800
600
400
200
0
Time (Secs)
0
1
2
3
4
5
6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

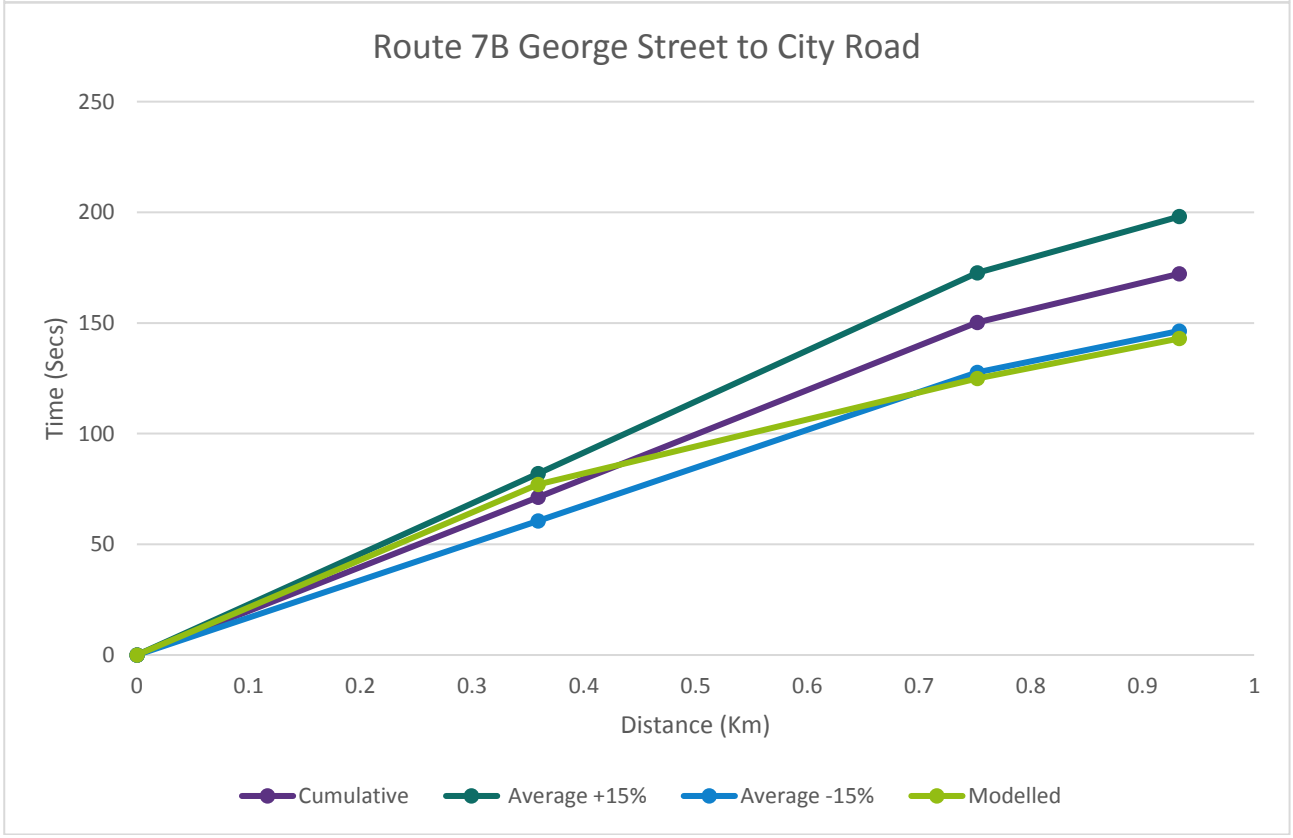

Route 5A Hagley Road to Bridge Street
400
350
300
250
200
150
100
50
0
Time (Secs)
0
0.5
1
1.5
2
2.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

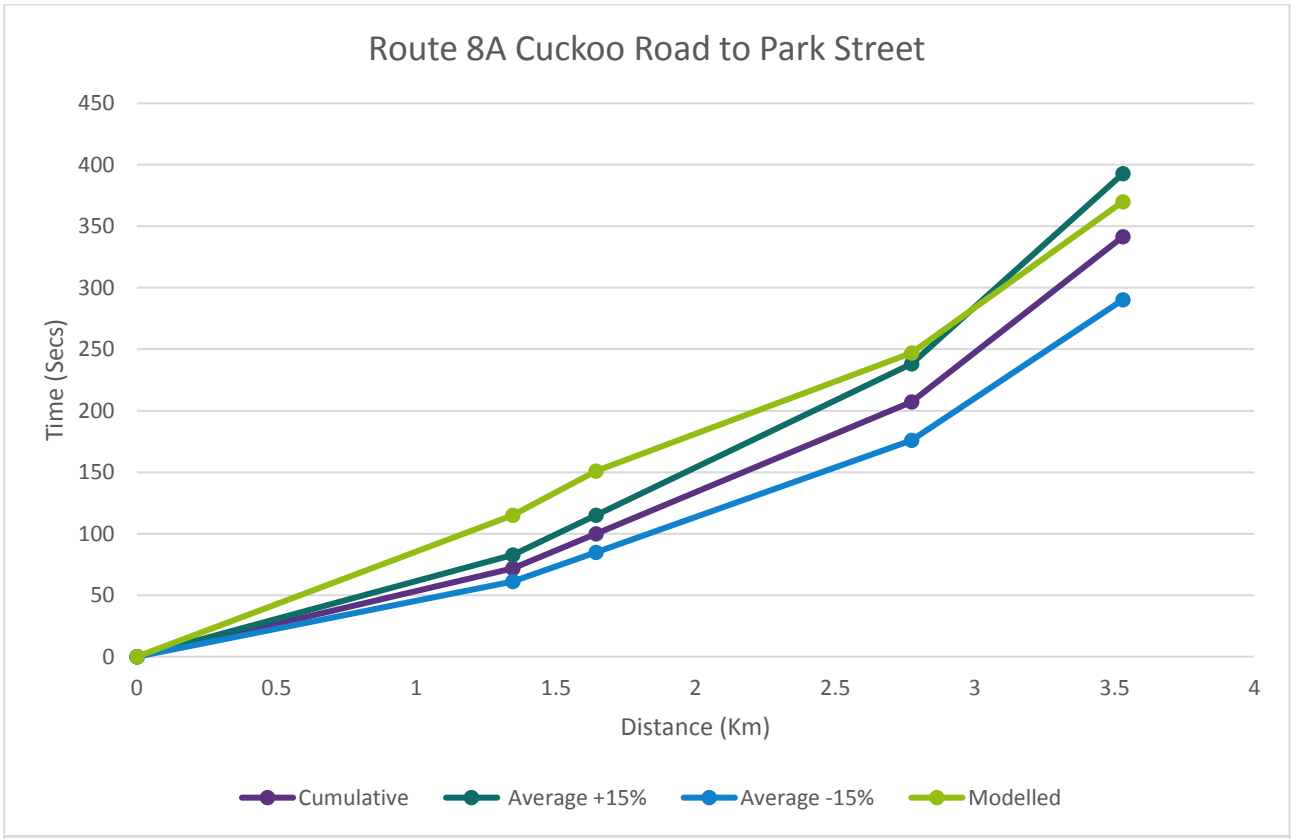

Route 5B Bridge Street to Hagley Road
600
500
400
300
200
100
0
Time (Secs)
0
0.5
1
1.5
2
2.5
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

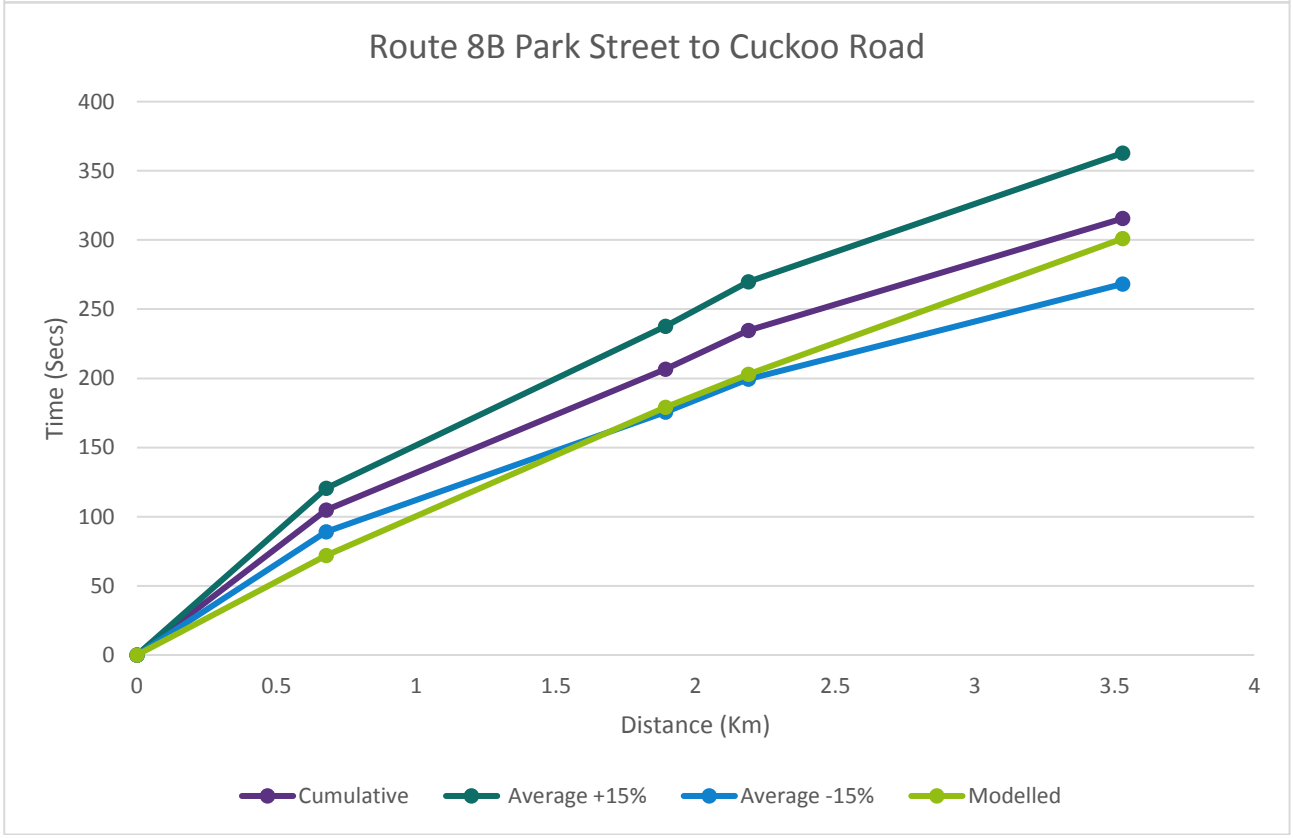

Route 6A Villa Road to Queensway
Time (Secs)
400
350
300
250
200
150
100
50
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

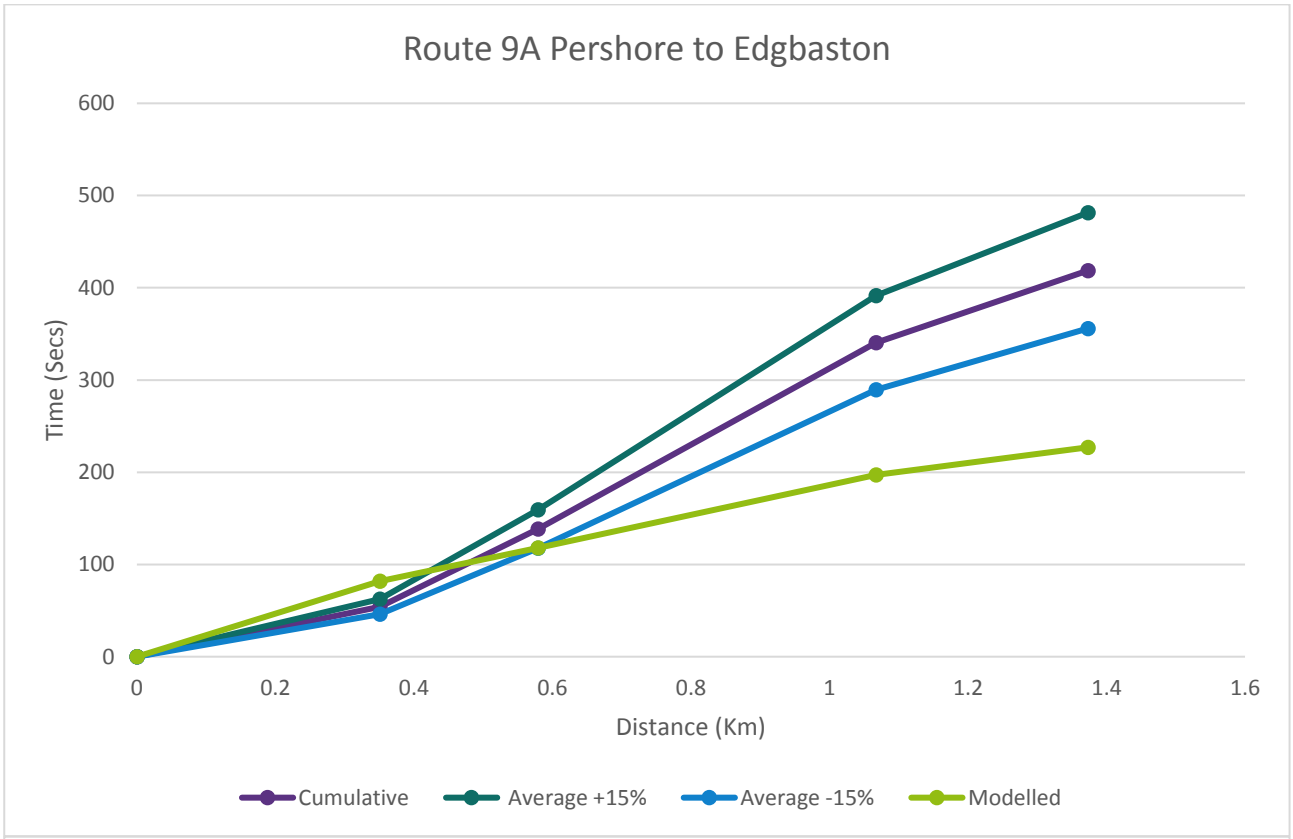

Route 6B Queensway to Villa Road
Time (Secs)
300
250
200
150
100
50
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

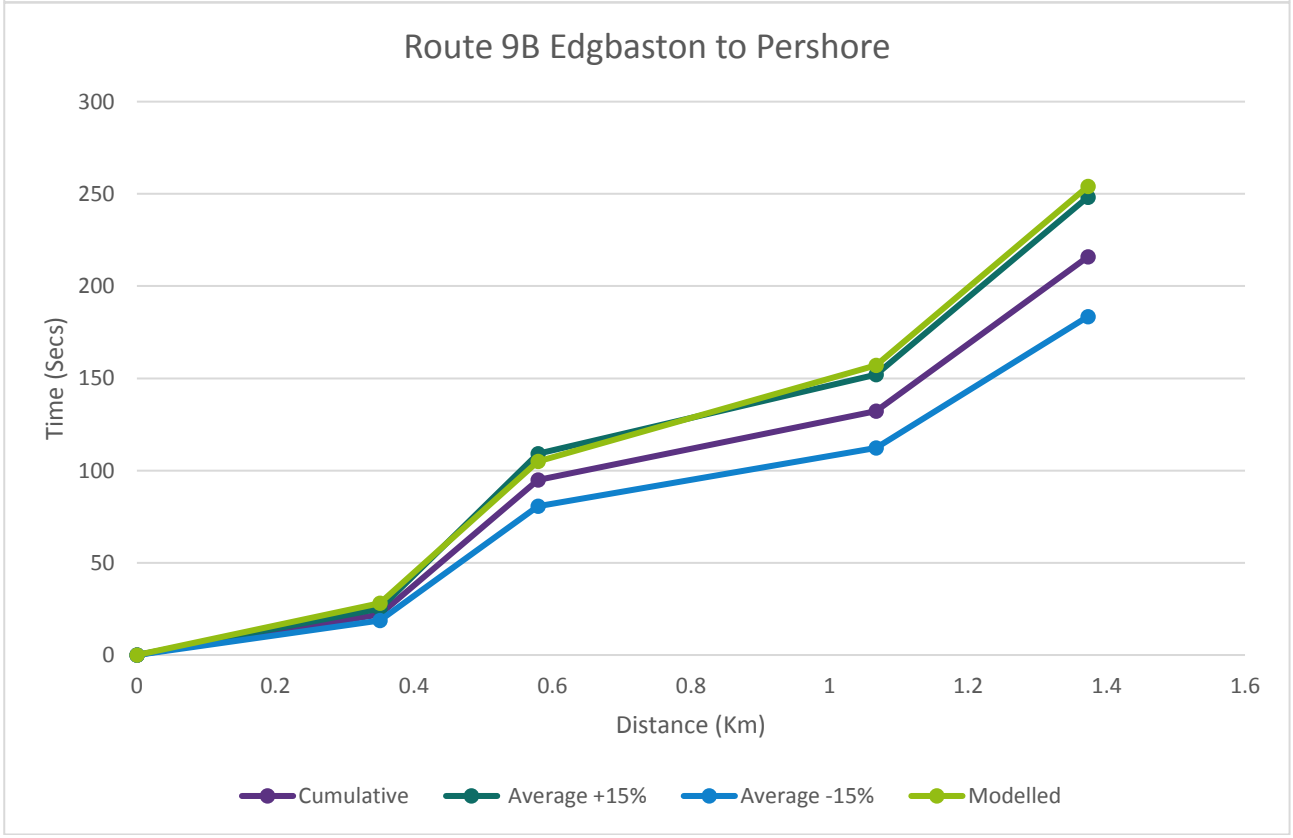

Route 7A City Road to George Street
160
140
120
100
80
60
40
20
0
Time (Secs)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

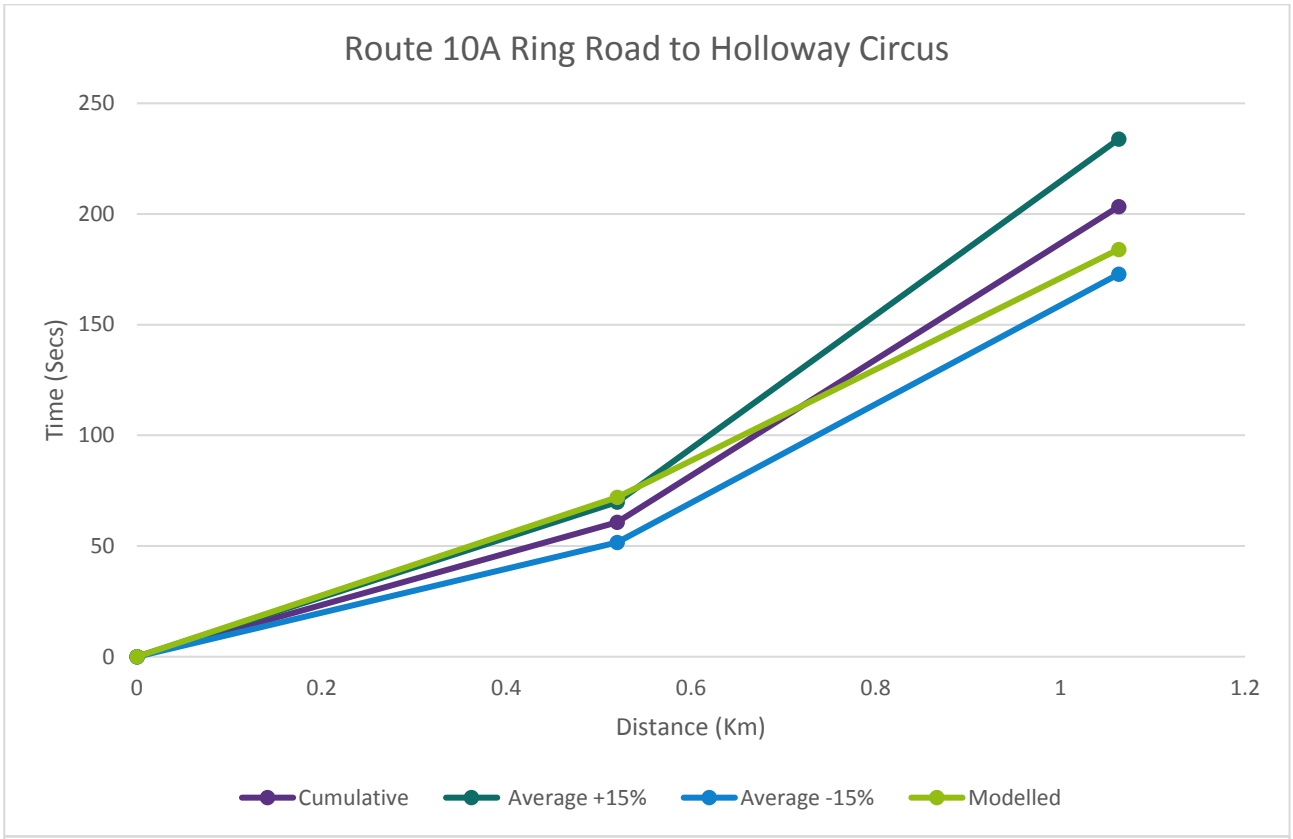

Route 7B George Street to City Road
250
200
150
100
50
0
Time (Secs)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

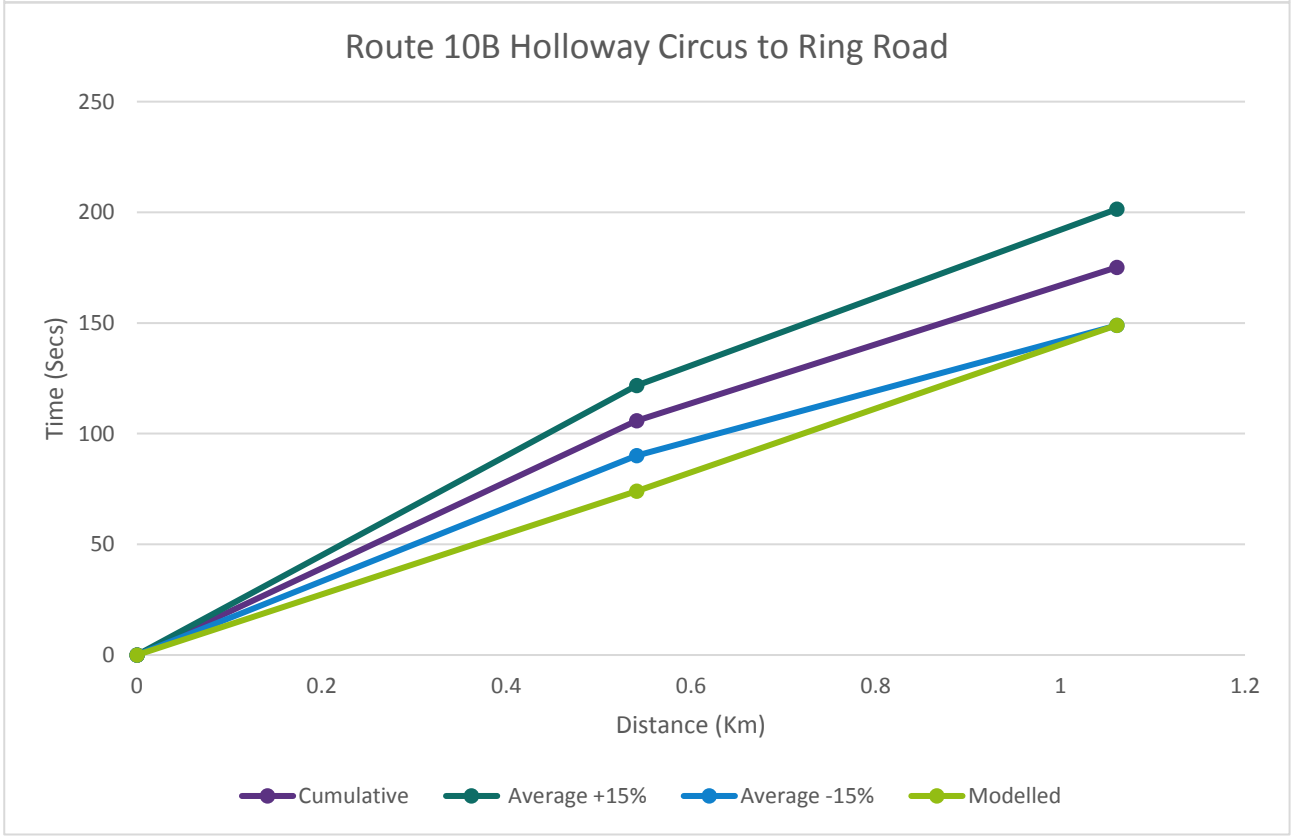

Route 8A Cuckoo Road to Park Street
Time (Secs)
450
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled


Route 8B Park Street to Cuckoo Road
Time (Secs)
400
350
300
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled


Route 9A Pershore to Edgbaston
600
500
400
300
200
100
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

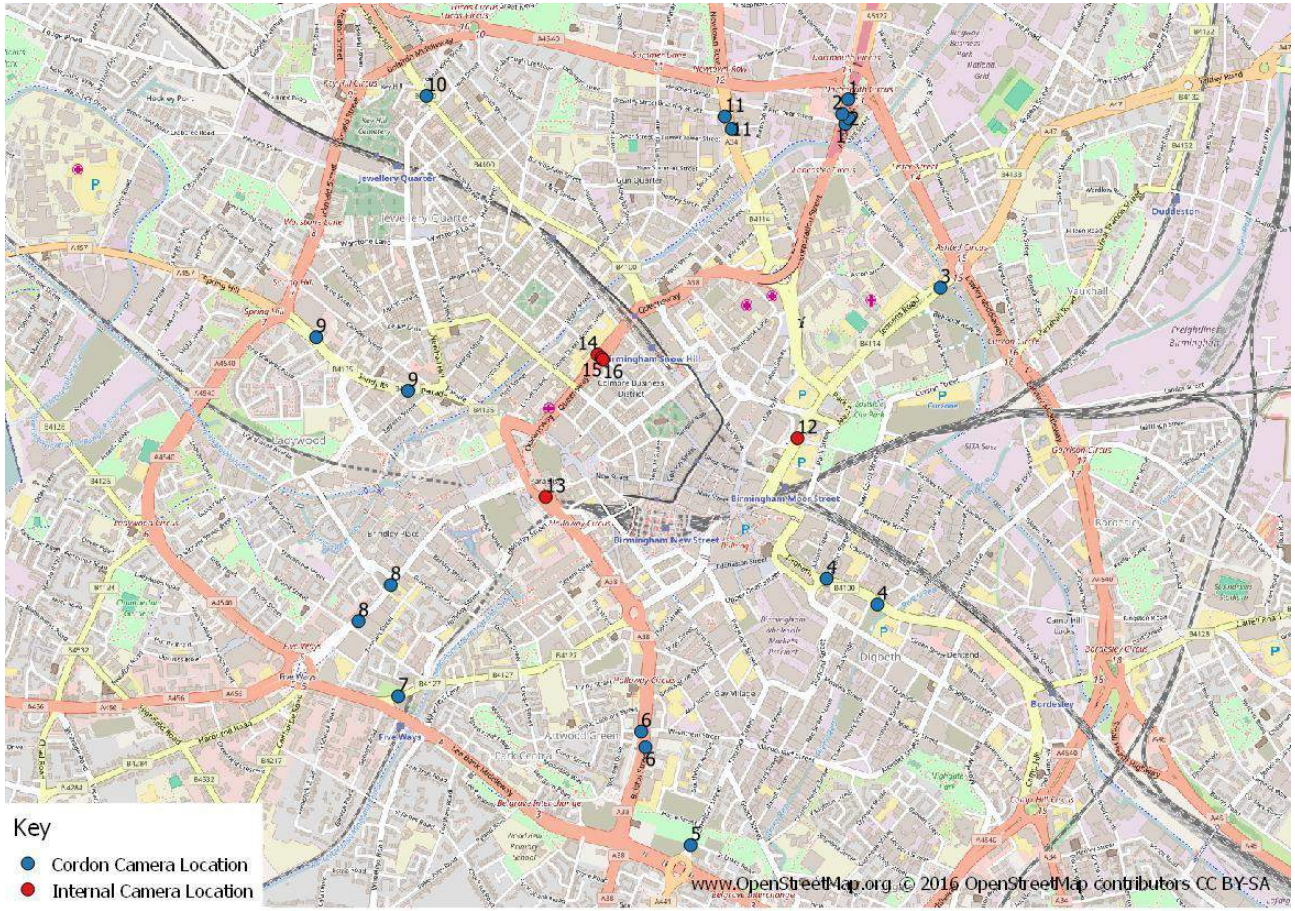

Route 9B Edgbaston to Pershore
300
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled


Route 10A Ring Road to Holloway Circus
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled


Route 10B Holloway Circus to Ring Road
250
200
150
100
50
0
Time (Secs)
0
0.2
0.4
0.6
0.8
1
1.2
Distance (Km)
Cumulative
Average +15%
Average -15%
Modelled

Appendix M. ANPR Comparison

M.1. Camera Locations



M.2. Through Movements AM Peak (From-To)

From Aston Expressway (1)	1	2	3	4	5	6	7	8	9	10	11
01 Observed	5%	2%	0%	7%	0%	72%	1%	2%	9%	1%	2%
01 Modelled	0%	0%	0%	2%	0%	98%	0%	1%	0%	0%	0%

From Dartmouth Circus (2)	1	2	3	4	5	6	7	8	9	10	11
02 Observed	3%	18%	3%	7%	0%	54%	1%	1%	7%	1%	4%
02 Modelled	0%	23%	0%	0%	0%	76%	0%	0%	0%	0%	0%

From Ashted Circus (3)	1	2	3	4	5	6	7	8	9	10	11
03 Observed	2%	2%	30%	56%	3%	3%	0%	0%	1%	0%	2%
03 Modelled	0%	0%	0%	92%	6%	0%	0%	0%	0%	0%	1%

From B4100 Digbeth (4)	1	2	3	4	5	6	7	8	9	10	11
04 Observed	5%	4%	4%	26%	7%	13%	0%	1%	1%	3%	35%
04 Modelled	0%	0%	0%	11%	89%	0%	0%	0%	0%	0%	0%

From Belgrave Int (5)	1	2	3	4	5	6	7	8	9	10	11
05 Observed	2%	1%	5%	40%	34%	11%	0%	0%	1%	0%	5%
05 Modelled	0%	0%	0%	78%	0%	19%	2%	2%	0%	0%	0%

From Bristol Road (6)	1	2	3	4	5	6	7	8	9	10	11
06 Observed	37%	25%	2%	1%	0%	3%	0%	1%	7%	7%	17%
06 Modelled	31%	29%	0%	0%	2%	9%	0%	0%	13%	4%	11%

From Bath Row (7)	1	2	3	4	5	6	7	8	9	10	11
07 Observed	32%	18%	3%	10%	2%	15%	4%	3%	8%	1%	3%
07 Modelled	59%	12%	0%	29%	0%	0%	0%	0%	0%	0%	0%

From Broad Street (8)	1	2	3	4	5	6	7	8	9	10	11
08 Observed	26%	15%	2%	3%	0%	5%	2%	22%	20%	1%	3%
08 Modelled	71%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%

From Spring Hill (9)	1	2	3	4	5	6	7	8	9	10	11
09 Observed	11%	7%	1%	3%	0%	8%	0%	35%	29%	3%	2%
09 Modelled	8%	7%	0%	4%	2%	1%	0%	48%	24%	6%	0%

From B4100 Hockley (10)	1	2	3	4	5	6	7	8	9	10	11
10 Observed	3%	3%	1%	8%	1%	41%	1%	0%	19%	20%	3%
10 Modelled	0%	0%	0%	4%	0%	95%	0%	0%	1%	0%	0%

From Newtown Row (11)	1	2	3	4	5	6	7	8	9	10	11
11 Observed	1%	3%	2%	31%	0%	42%	0%	0%	1%	1%	18%
11 Modelled	0%	0%	0%	6%	0%	94%	0%	0%	0%	0%	0%

M.3. Internal to External Movements AM Peak (From-To)

From Moor Street (12)	1	2	3	4	11
12 Observed	12%	6%	10%	26%	46%
12 Modelled	35%	4%	14%	0%	47%

From A38 Queensway – Paradise Circus (13)	1	2	10	11
13 Observed	47%	28%	7%	18%
13 Modelled	48%	36%	0%	17%

From A4400 Queensway – St Chads NB (14)	1	2	10	11
14 Observed	62%	29%	0%	9%
14 Modelled	68%	17%	0%	15%

From A4400 Queensway – St Chads Tunnel SB (15)	6
15 Observed	81%
15 Modelled	90%

From A4400 Queeensway – St Chads Above SB (16)	6	9
16 Observed	71%	29%
16 Modelled	100%	0%

M.4. Through Movements AM Peak (To-From)

To Aston Expressway (1)	1	2	3	4	5	6	7	8	9	10	11
01 Observed	10%	1%	1%	1%	0%	64%	8%	8%	4%	2%	1%
01 Modelled	0%	0%	0%	0%	0%	87%	7%	6%	1%	0%	0%

To Dartmouth Circus (2)	1	2	3	4	5	6	7	8	9	10	11
02 Observed	4%	12%	1%	1%	0%	61%	7%	6%	3%	2%	4%
02 Modelled	0%	8%	0%	0%	0%	87%	2%	3%	1%	0%	0%

To Ashted Circus (3)	1	2	3	4	5	6	7	8	9	10	11
03 Observed	4%	8%	42%	4%	6%	15%	4%	3%	2%	5%	8%
03 Modelled	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

To B4100 Digbeth (4)	1	2	3	4	5	6	7	8	9	10	11
04 Observed	14%	4%	18%	5%	11%	1%	3%	1%	1%	6%	35%
04 Modelled	5%	0%	8%	1%	67%	0%	9%	0%	1%	2%	8%

To Belgrave Int (5)	1	2	3	4	5	6	7	8	9	10	11
05 Observed	4%	2%	6%	9%	64%	3%	5%	0%	1%	3%	1%
05 Modelled	0%	0%	2%	38%	0%	59%	0%	0%	1%	0%	0%

To Bristol Road (6)	1	2	3	4	5	6	7	8	9	10	11
06 Observed	55%	10%	0%	1%	1%	2%	2%	1%	1%	10%	16%
06 Modelled	47%	11%	0%	0%	3%	11%	0%	0%	0%	8%	21%

To Bath Row (7)	1	2	3	4	5	6	7	8	9	10	11
07 Observed	27%	10%	1%	0%	0%	9%	23%	13%	4%	7%	7%
07 Modelled	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%

To Broad Street (8)	1	2	3	4	5	6	7	8	9	10	11
08 Observed	11%	2%	1%	1%	0%	6%	3%	25%	50%	0%	2%
08 Modelled	17%	0%	0%	0%	12%	0%	0%	0%	70%	0%	0%

To Spring Hill (9)	1	2	3	4	5	6	7	8	9	10	11
09 Observed	25%	5%	0%	0%	0%	21%	3%	9%	16%	18%	2%
09 Modelled	0%	0%	0%	0%	0%	79%	0%	0%	20%	1%	0%

To B4100 Hockley (10)	1	2	3	4	5	6	7	8	9	10	11
10 Observed	6%	2%	0%	2%	0%	41%	1%	1%	4%	40%	3%
10 Modelled	0%	0%	0%	0%	0%	96%	0%	0%	4%	0%	0%

To Newtown Row (11)	1	2	3	4	5	6	7	8	9	10	11
11 Observed	5%	3%	1%	9%	2%	46%	1%	2%	1%	3%	27%
11 Modelled	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%

M.5. External to Internal Movements AM Peak (To-From)

To A38 Queensway – Paradise Circus (NB)	5	6	7	8
13 Observed	0%	98%	2%	0%
13 Modelled	0%	96%	4%	0%

To A4400 Queensway – St Chads NB	6	7	8	9
14 Observed	24%	3%	66%	7%
14 Modelled	0%	0%	100%	0%

To A4400 Queensway – St Chads Tunnel (SB)	1	2	3	10	11
15 Observed	71%	10%	1%	5%	13%
15 Modelled	63%	11%	0%	7%	19%

To A4400 Queensway – St Chads Above (SB)	1	2	11
16 Observed	81%	15%	5%
16 Modelled	72%	12%	16%

M.6. Through Movements Inter-peak (From-To)

From Aston Expressway (1)	1	2	3	4	5	6	7	8	9	10	11
01 7%	1%	1%	8%	1%	70%	1%	1%	7%	2%	2%	2%
01 0%	0%	0%	3%	0%	96%	0%	0%	0%	0%	0%	0%

From Dartmouth Circus (2)	1	2	3	4	5	6	7	8	9	10	11
02 4%	12%	2%	6%	1%	61%	1%	1%	6%	2%	4%	4%
02 0%	6%	0%	0%	0%	94%	0%	0%	0%	0%	0%	0%

From Ashted Circus (3)	1	2	3	4	5	6	7	8	9	10	11
03 1%	2%	30%	54%	3%	3%	0%	0%	1%	1%	3%	2%
03 0%	0%	0%	18%	3%	42%	0%	2%	0%	0%	35%	1%

From B4100 Digbeth (4)	1	2	3	4	5	6	7	8	9	10	11
04 7%	2%	4%	33%	10%	16%	0%	0%	2%	4%	21%	35%
04 0%	0%	0%	9%	79%	0%	0%	0%	0%	0%	12%	0%

From Belgrave Int (5)	1	2	3	4	5	6	7	8	9	10	11
05 4%	1%	5%	23%	39%	21%	0%	0%	1%	1%	7%	5%
05 0%	0%	0%	66%	0%	32%	0%	2%	0%	0%	0%	0%

From Bristol Road (6)	1	2	3	4	5	6	7	8	9	10	11
06 51%	12%	1%	1%	1%	5%	1%	1%	5%	7%	17%	17%
06 38%	24%	0%	0%	9%	2%	0%	0%	10%	7%	10%	11%

From Bath Row (7)	1	2	3	4	5	6	7	8	9	10	11
07 37%	8%	2%	8%	3%	18%	7%	3%	8%	2%	4%	3%
07 1%	0%	0%	99%	0%	0%	0%	0%	0%	0%	0%	0%

From Broad Street (8)	1	2	3	4	5	6	7	8	9	10	11
08 34%	9%	1%	2%	0%	4%	2%	22%	19%	2%	3%	3%
08 64%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

From Spring Hill (9)	1	2	3	4	5	6	7	8	9	10	11
09 22%	7%	1%	4%	1%	11%	0%	17%	30%	3%	2%	2%
09 27%	10%	0%	5%	0%	0%	0%	20%	15%	23%	0%	0%

From B4100 Hockley (10)	1	2	3	4	5	6	7	8	9	10	11
10 6%	4%	2%	8%	1%	38%	0%	0%	10%	27%	4%	3%
10 0%	0%	0%	12%	0%	86%	0%	0%	2%	0%	0%	0%

From Newtown Row (11)	1	2	3	4	5	6	7	8	9	10	11
11 3%	4%	2%	25%	1%	39%	0%	0%	2%	2%	23%	18%
11 0%	0%	0%	4%	0%	96%	0%	0%	0%	0%	0%	0%

M.7. Internal to External Movements Inter-peak (From-To)

From Moor Street (12)	1	2	3	4	11
12 Observed	12%	6%	10%	26%	46%
12 Modelled	34%	3%	14%	0%	47%

From A38 Queensway – Paradise Circus (13)	1	2	10	11
13 Observed	47%	28%	7%	18%
13 Modelled	53%	27%	0%	17%

From A4400 Queensway – St Chads NB (14)	1	2	10	11
14 Observed	62%	29%	0%	9%
14 Modelled	69%	20%	0%	15%

From A4400 Queensway – St Chads Tunnel SB (15)	6
15 Observed	81%
15 Modelled	96%

From A4400 Queeensway – St Chads Above SB (16)	6	9
16 Observed	71%	29%
16 Modelled	100%	0%

M.8. Through Movements Inter-peak (To-From)

To Aston Expressway (1)	1	2	3	4	5	6	7	8	9	10	11
01 10%	1%	0%	1%	1%	60%	8%	9%	6%	2%	2%	1%
01 0%	0%	0%	0%	0%	84%	0%	13%	3%	0%	0%	0%

To Dartmouth Circus (2)	1	2	3	4	5	6	7	8	9	10	11
02 5%	15%	2%	1%	1%	46%	5%	8%	6%	4%	9%	4%
02 0%	7%	0%	0%	0%	78%	0%	10%	5%	0%	0%	0%

To Ashted Circus (3)	1	2	3	4	5	6	7	8	9	10	11
03 7%	6%	48%	4%	7%	7%	3%	3%	3%	3%	10%	8%
03 0%	0%	0%	0%	0%	71%	0%	29%	0%	0%	0%	0%

To B4100 Digbeth (4)	1	2	3	4	5	6	7	8	9	10	11
04 18%	4%	21%	7%	9%	2%	3%	1%	2%	3%	29%	35%
04 10%	0%	8%	3%	54%	0%	11%	0%	4%	5%	5%	8%

To Belgrave Int (5)	1	2	3	4	5	6	7	8	9	10	11
05 6%	3%	5%	9%	58%	6%	5%	1%	2%	2%	4%	1%
05 0%	0%	2%	31%	0%	66%	0%	0%	1%	0%	0%	0%

To Bristol Road (6)	1	2	3	4	5	6	7	8	9	10	11
06 55%	13%	0%	1%	2%	3%	2%	1%	2%	5%	15%	16%
06 37%	29%	3%	0%	4%	2%	0%	0%	0%	5%	19%	21%

To Bath Row (7)	1	2	3	4	5	6	7	8	9	10	11
07 19%	9%	1%	1%	0%	15%	34%	12%	2%	1%	5%	7%
07 0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

To Broad Street (8)	1	2	3	4	5	6	7	8	9	10	11
08 12%	2%	0%	0%	0%	6%	5%	41%	32%	1%	1%	2%
08 64%	13%	3%	0%	5%	0%	0%	0%	13%	0%	2%	0%

To Spring Hill (9)	1	2	3	4	5	6	7	8	9	10	11
09 27%	7%	1%	1%	0%	15%	5%	14%	21%	7%	3%	2%
09 1%	0%	0%	0%	99%	0%	0%	0%	0%	0%	0%	0%

To B4100 Hockley (10)	1	2	3	4	5	6	7	8	9	10	11
10 10%	4%	1%	2%	1%	37%	2%	2%	4%	31%	5%	3%
10 0%	0%	0%	0%	0%	83%	0%	0%	17%	0%	0%	0%

To Newtown Row (11)	1	2	3	4	5	6	7	8	9	10	11
11 5%	3%	2%	6%	3%	41%	2%	2%	1%	2%	32%	27%
11 99%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%

M.9. External to Internal Movements Inter-peak (To-From)

To A38 Queensway – Paradise Circus (NB)	5	6	7	8
13 Observed	0%	93%	7%	0%
13 Modelled	0%	100%	0%	0%

To A4400 Queensway – St Chads NB	6	7	8	9
14 Observed	21%	4%	52%	23%
14 Modelled	0%	0%	100%	0%

To A4400 Queensway – St Chads Tunnel (SB)	1	2	3	10	11
15 Observed	69%	13%	1%	5%	12%
15 Modelled	54%	21%	3%	6%	16%

To A4400 Queensway – St Chads Above (SB)	1	2	11
16 Observed	79%	15%	7%
16 Modelled	75%	9%	16%

M.10. Through Movements PM Peak (From-To)

From Aston Expressway (1)	1	2	3	4	5	6	7	8	9	10	11
01 Observed	5%	1%	1%	7%	0%	71%	1%	1%	9%	2%	2%
01 Modelled	0%	0%	0%	3%	0%	96%	0%	0%	0%	0%	0%

From Dartmouth Circus (2)	1	2	3	4	5	6	7	8	9	10	11
02 Observed	4%	9%	2%	6%	1%	63%	1%	1%	8%	1%	4%
02 Modelled	0%	6%	0%	0%	0%	94%	0%	0%	0%	0%	0%

From Ashted Circus (3)	1	2	3	4	5	6	7	8	9	10	11
03 Observed	2%	2%	27%	52%	3%	4%	0%	0%	3%	1%	6%
03 Modelled	0%	0%	0%	24%	21%	54%	0%	0%	0%	0%	0%

From B4100 Digbeth (4)	1	2	3	4	5	6	7	8	9	10	11
04 Observed	7%	2%	4%	21%	7%	19%	0%	0%	2%	4%	34%
04 Modelled	0%	0%	0%	2%	96%	1%	0%	0%	0%	0%	0%

From Belgrave Int (5)	1	2	3	4	5	6	7	8	9	10	11
05 Observed	4%	1%	8%	27%	22%	24%	0%	0%	0%	1%	13%
05 Modelled	0%	0%	0%	72%	0%	18%	4%	5%	0%	0%	0%

From Bristol Road (6)	1	2	3	4	5	6	7	8	9	10	11
06 Observed	56%	8%	1%	1%	0%	3%	0%	1%	5%	7%	19%
06 Modelled	34%	9%	0%	0%	4%	13%	0%	0%	15%	12%	13%

From Bath Row (7)	1	2	3	4	5	6	7	8	9	10	11
07 Observed	48%	6%	2%	5%	2%	13%	6%	3%	6%	2%	5%
07 Modelled	54%	29%	0%	17%	0%	0%	0%	0%	0%	0%	0%

From Broad Street (8)	1	2	3	4	5	6	7	8	9	10	11
08 Observed	40%	8%	3%	3%	0%	3%	3%	19%	16%	2%	4%
08 Modelled	80%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%

From Spring Hill (9)	1	2	3	4	5	6	7	8	9	10	11
09 Observed	22%	5%	2%	3%	1%	9%	1%	31%	21%	4%	2%
09 Modelled	27%	10%	0%	5%	0%	0%	0%	20%	15%	23%	0%

From B4100 Hockley (10)	1	2	3	4	5	6	7	8	9	10	11
10 Observed	7%	3%	3%	10%	1%	37%	0%	0%	11%	24%	4%
10 Modelled	0%	0%	0%	17%	0%	82%	0%	0%	1%	0%	0%

From Newtown Row (11)	1	2	3	4	5	6	7	8	9	10	11
11 Observed	3%	3%	2%	28%	1%	39%	0%	0%	2%	2%	20%
11 Modelled	0%	0%	0%	4%	0%	96%	0%	0%	0%	0%	0%

M.11. Internal to External Movements PM Peak (From-To)

From Moor Street (12)	1	2	3	4	11
12 Observed	25%	3%	12%	14%	45%
12 Modelled	36%	2%	18%	0%	44%

From A38 Queensway – Paradise Circus (13)	1	2	10	11
13 Observed	69%	9%	4%	17%
13 Modelled	53%	13%	14%	21%

From A4400 Queensway – St Chads NB (14)	1	2	10	11
14 Observed	81%	10%	1%	8%
14 Modelled	69%	9%	0%	21%

From A4400 Queensway – St Chads Tunnel SB (15)	6
15 Observed	91%
15 Modelled	100%

M.12. Through Movements PM Peak (To-From)

To Aston Expressway (1)	1	2	3	4	5	6	7	8	9	10	11
01 Observed	6%	1%	0%	1%	0%	63%	10%	9%	5%	2%	2%
01 Modelled	0%	0%	0%	0%	0%	83%	7%	9%	1%	0%	0%

To Dartmouth Circus (2)	1	1	2	3	4	5	6	7	8	9	10
02 Observed	5%	13%	2%	1%	0%	44%	6%	10%	5%	4%	10%
02 Modelled	0%	6%	0%	0%	0%	73%	12%	7%	1%	0%	0%

To Ashted Circus (3)	1	1	2	3	4	5	6	7	8	9	10
03 Observed	7%	4%	43%	4%	7%	6%	4%	5%	4%	5%	10%
03 Modelled	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

To B4100 Digbeth (4)	1	1	2	3	4	5	6	7	8	9	10
04 Observed	17%	3%	22%	6%	6%	2%	2%	1%	1%	6%	34%
04 Modelled	8%	0%	3%	1%	69%	0%	7%	0%	1%	6%	6%

To Belgrave Int (5)	1	1	2	3	4	5	6	7	8	9	10
05 Observed	5%	4%	10%	16%	41%	5%	6%	1%	2%	4%	6%
05 Modelled	0%	0%	5%	50%	0%	45%	0%	0%	0%	0%	0%

To Bristol Road (6)	1	1	2	3	4	5	6	7	8	9	10
06 Observed	56%	12%	1%	2%	2%	2%	2%	0%	1%	7%	15%
06 Modelled	35%	15%	1%	0%	3%	15%	0%	0%	0%	5%	26%

To Bath Row (7)	1	1	2	3	4	5	6	7	8	9	10
07 Observed	27%	10%	1%	0%	0%	9%	23%	13%	4%	7%	7%
07 Modelled	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%

To Broad Street (8)	1	1	2	3	4	5	6	7	8	9	10
08 Observed	11%	2%	0%	0%	0%	6%	4%	31%	43%	1%	1%
08 Modelled	0%	0%	0%	0%	68%	0%	0%	0%	32%	0%	0%

To Spring Hill (9)	1	1	2	3	4	5	6	7	8	9	10
09 Observed	32%	7%	2%	1%	0%	16%	4%	11%	13%	10%	4%
09 Modelled	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%

To B4100 Hockley (10)	1	1	2	3	4	5	6	7	8	9	10
10 Observed	10%	2%	1%	3%	1%	39%	2%	2%	4%	33%	5%
10 Modelled	0%	0%	0%	0%	0%	97%	0%	0%	3%	0%	0%

To Newtown Row (11)	1	2	3	4	5	6	7	8	9	10	11
11 Observed	6%	2%	3%	10%	3%	44%	2%	2%	1%	2%	24%
11 Modelled	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

M.13. External to Internal Movements PM Peak (To-From)

To A38 Queensway – Paradise Circus (NB)	5	6	7	8
13 Observed	0%	94%	6%	0%
13 Modelled	0%	94%	6%	0%

To A4400 Queensway – St Chads NB	6	7	8	9
14 Observed	49%	8%	31%	12%
14 Modelled	0%	0%	100%	0%

To A4400 Queensway – St Chads Tunnel (SB)	1	2	3	10	11
15 Observed	74%	11%	1%	4%	9%
15 Modelled	55%	12%	2%	8%	24%

To A4400 Queensway – St Chads Above (SB)	1	2	11
16 Observed	73%	15%	12%
16 Modelled	80%	5%	15%

M.14. PM (To-From)

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
01 Observed	6%	1%	0%	1%	0%	63%	10%	9%	5%	2%	2%
01 Modelled	0%	0%	0%	0%	0%	83%	7%	9%	1%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
02 Observed	5%	13%	2%	1%	0%	44%	6%	10%	5%	4%	10%
02 Modelled	0%	6%	0%	0%	0%	73%	12%	7%	1%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
03 Observed	7%	4%	43%	4%	7%	6%	4%	5%	4%	5%	10%
03 Modelled	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
04 Observed	17%	3%	22%	6%	6%	2%	2%	1%	1%	6%	34%
04 Modelled	8%	0%	3%	1%	69%	0%	7%	0%	1%	6%	6%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
05 Observed	5%	4%	10%	16%	41%	5%	6%	1%	2%	4%	6%
05 Modelled	0%	0%	5%	50%	0%	45%	0%	0%	0%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
06 Observed	56%	12%	1%	2%	2%	2%	2%	0%	1%	7%	15%
06 Modelled	35%	15%	1%	0%	3%	15%	0%	0%	0%	5%	26%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
07 Observed	26%	7%	0%	0%	0%	9%	34%	16%	3%	1%	3%
07 Modelled	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
08 Observed	11%	2%	0%	0%	0%	6%	4%	31%	43%	1%	1%
08 Modelled	0%	0%	0%	0%	68%	0%	0%	0%	32%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
09 Observed	32%	7%	2%	1%	0%	16%	4%	11%	13%	10%	4%
09 Modelled	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
10 Observed	10%	2%	1%	3%	1%	39%	2%	2%	4%	33%	5%
10 Modelled	0%	0%	0%	0%	0%	97%	0%	0%	3%	0%	0%

Average Peak Hour	1	2	3	4	5	6	7	8	9	10	11
11 Observed	6%	2%	3%	10%	3%	44%	2%	2%	1%	2%	24%
11 Modelled	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Average Peak Hour	5	6	7	8
13 Observed	0%	94%	6%	0%
13 Modelled	0%	94%	6%	0%

Average Peak Hour	6	7	8	9
14 Observed	49%	8%	31%	12%
14 Modelled	0%	0%	100%	0%

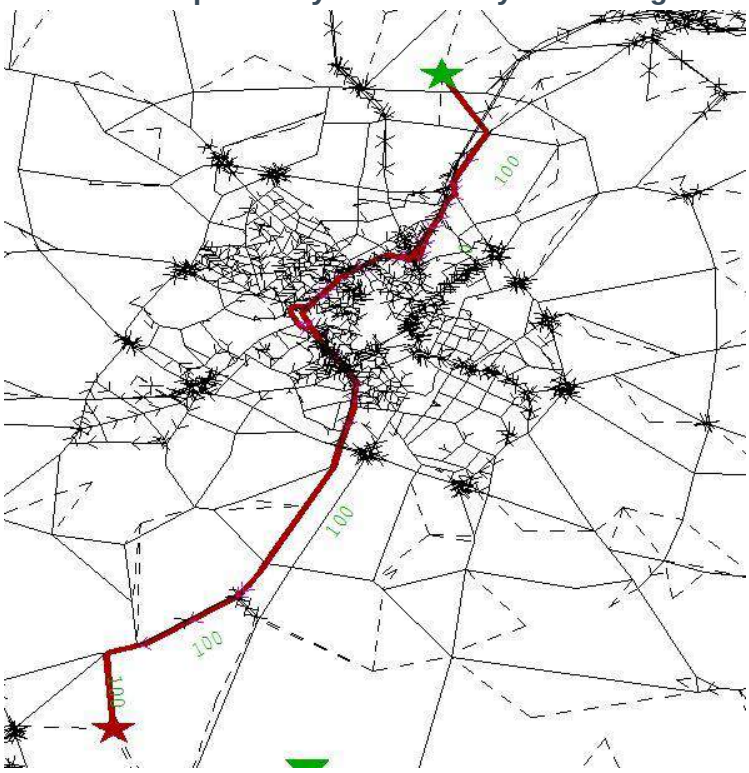
Average Peak Hour	1	2	3	10	11
15 Observed	74%	11%	1%	4%	9%
15 Modelled	55%	12%	2%	8%	24%

Average Peak Hour	1	2	11
16 Observed	73%	15%	12%
16 Modelled	80%	5%	15%

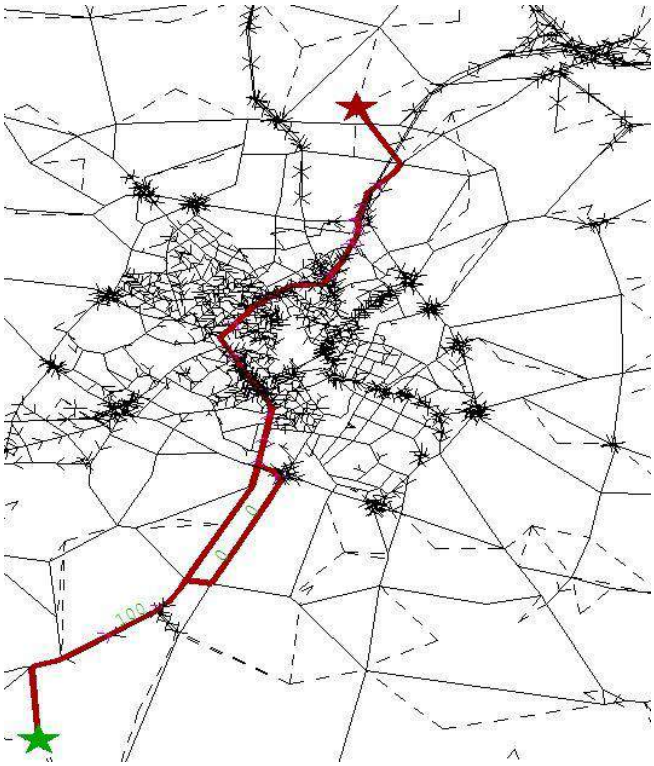
Appendix N. Routeing Validation

N.1. AM Peak Route Analysis

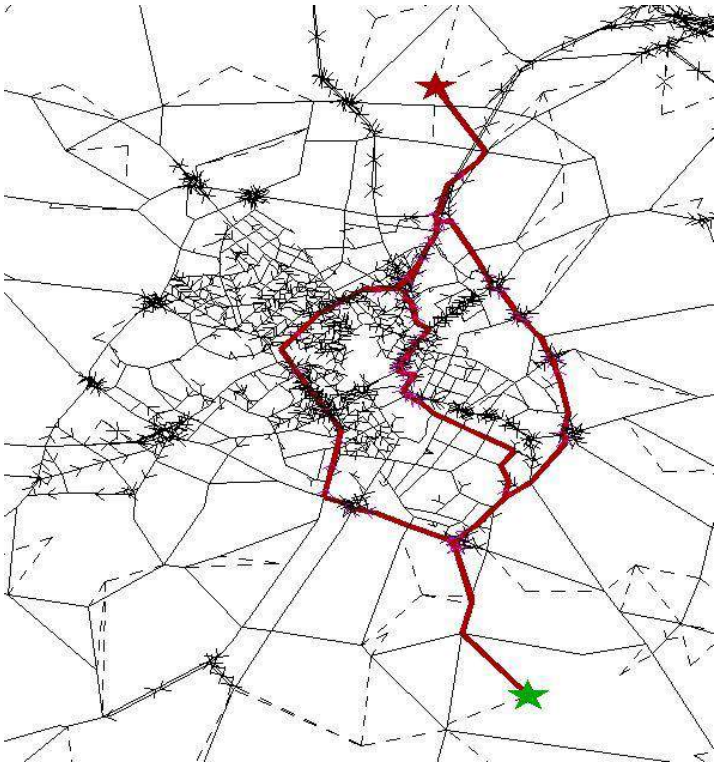
A38 Aston Expressway to University of Birmingham



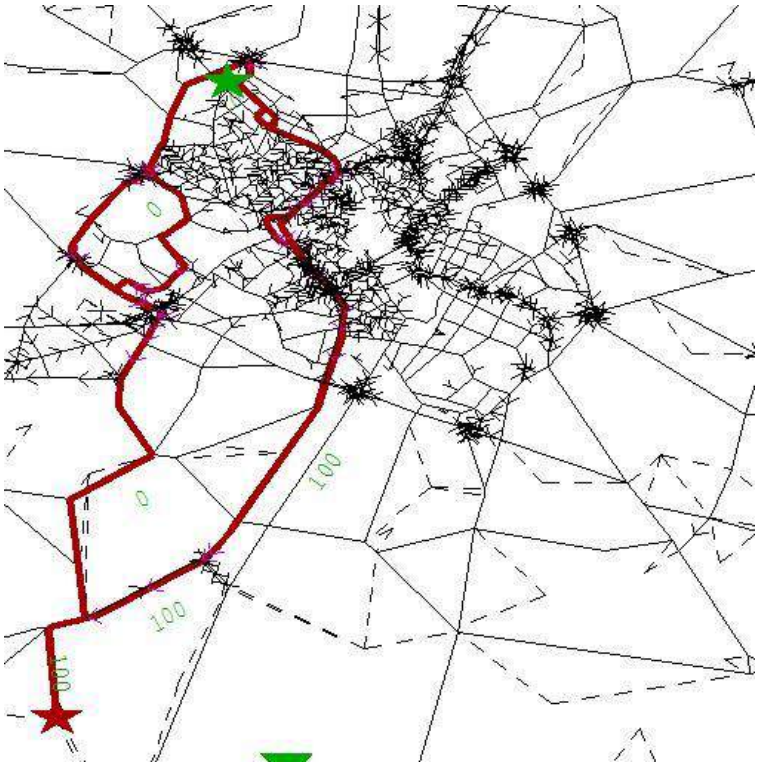
University of Birmingham to A38 Aston Expressway



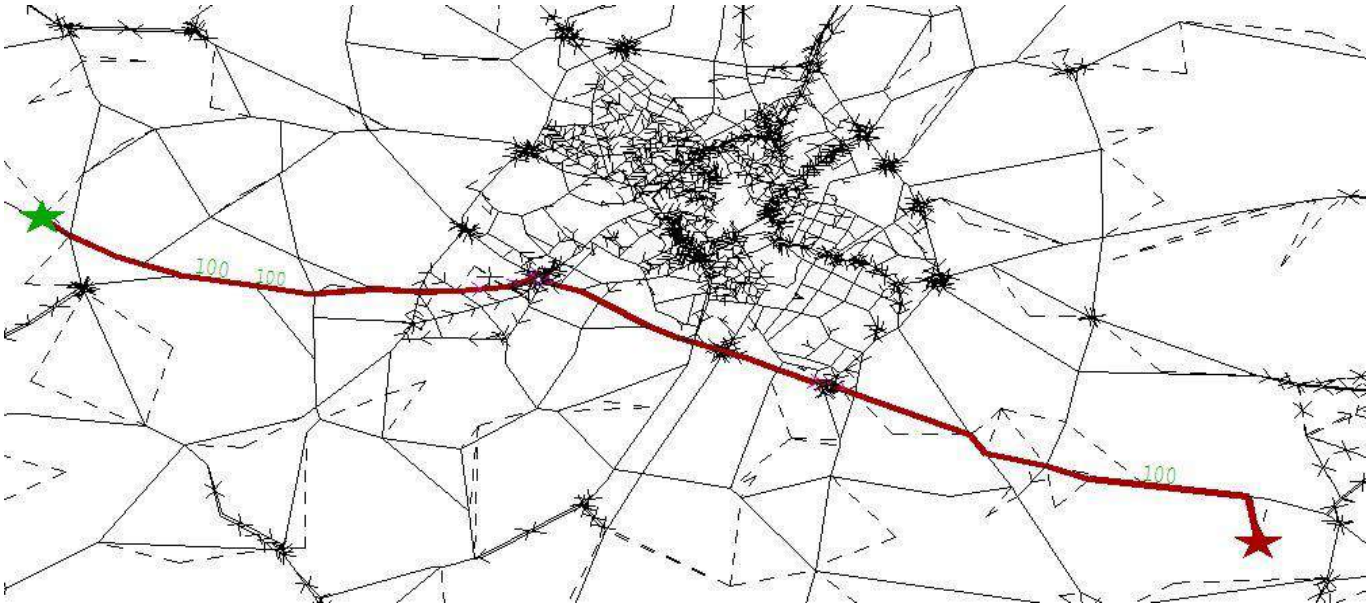
Alcester Road to Aston Expressway



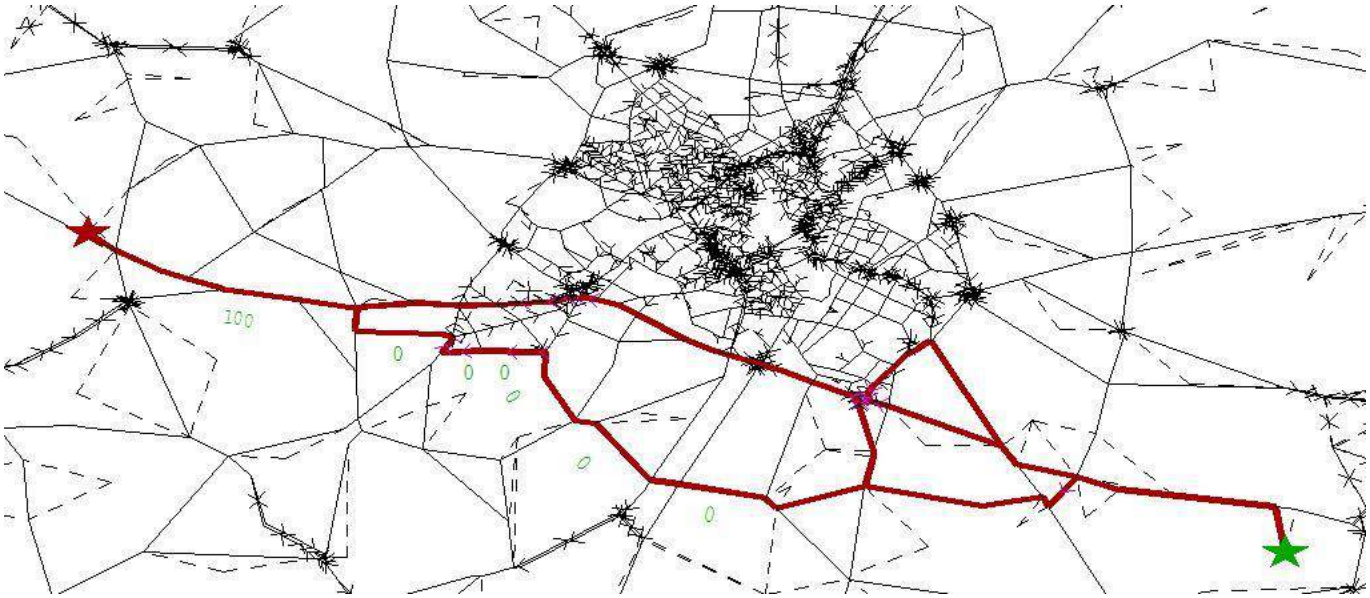
Great Hampton Street to Bristol Road



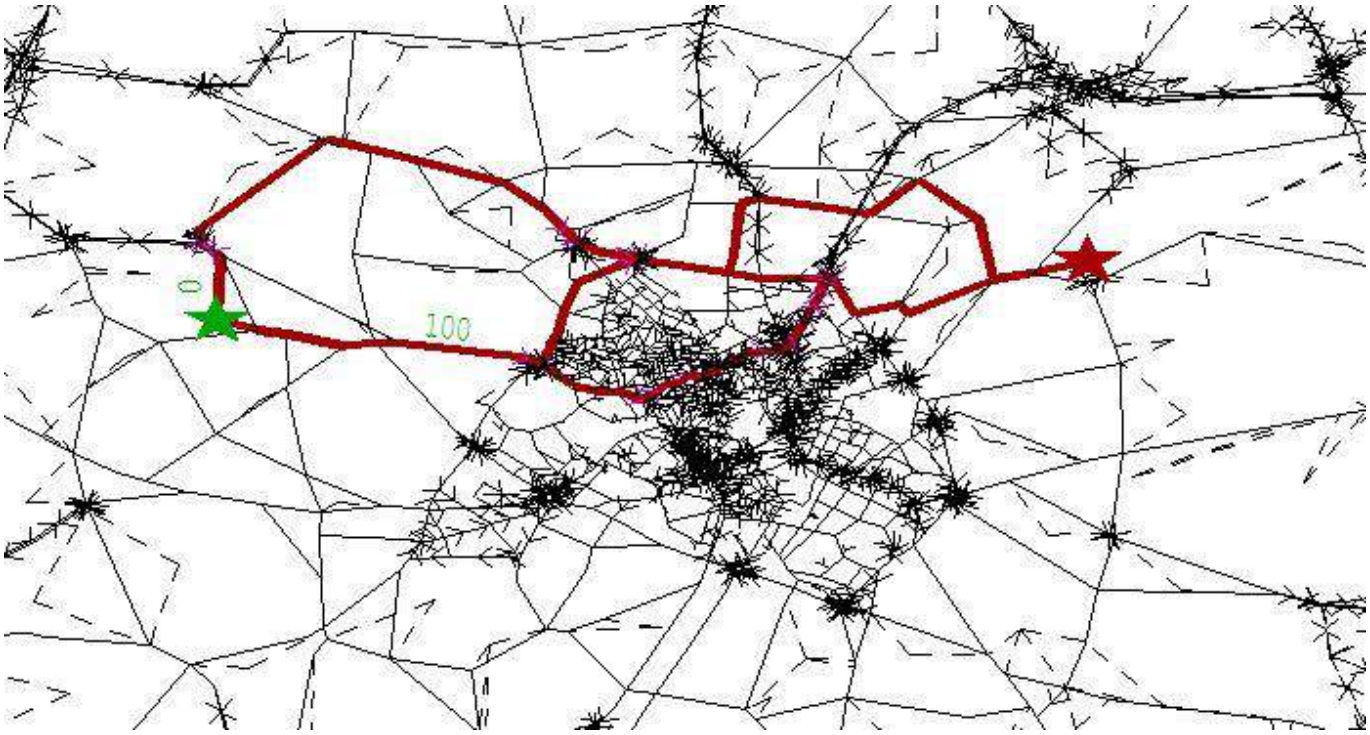
Hagley Road to Solihull



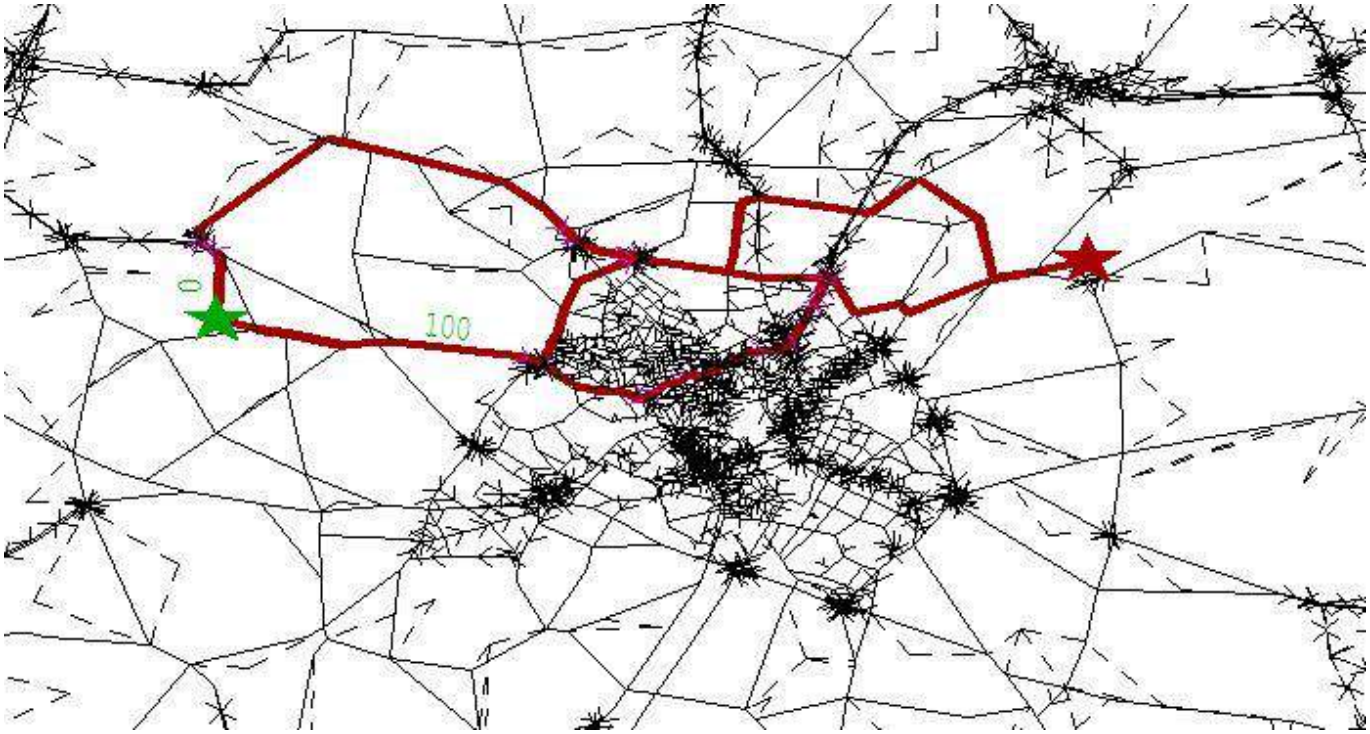
Solihull to Hagley Road



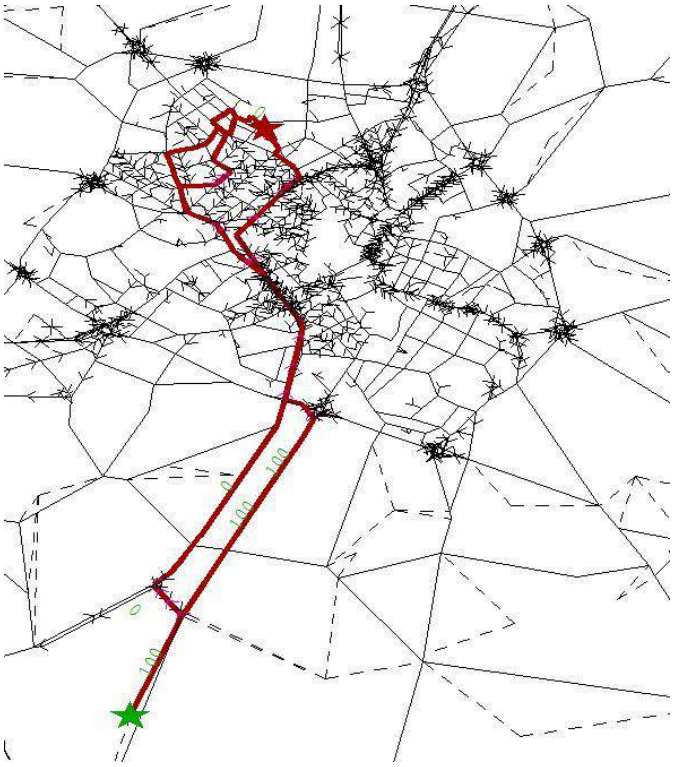
Smethwick to Star City



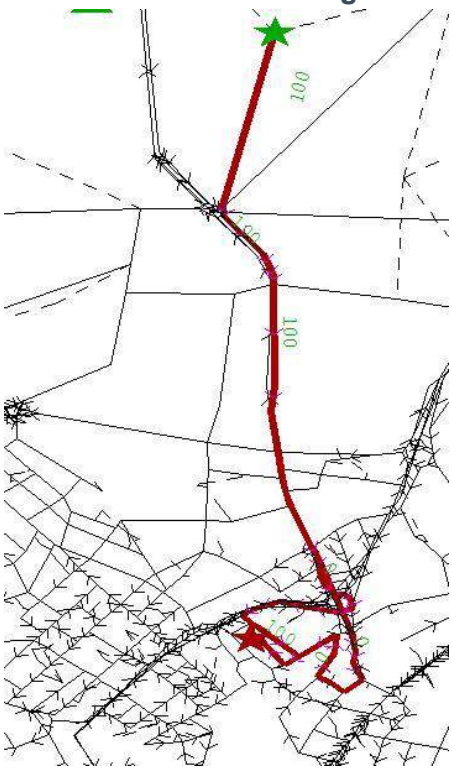
Star City to Smethwick



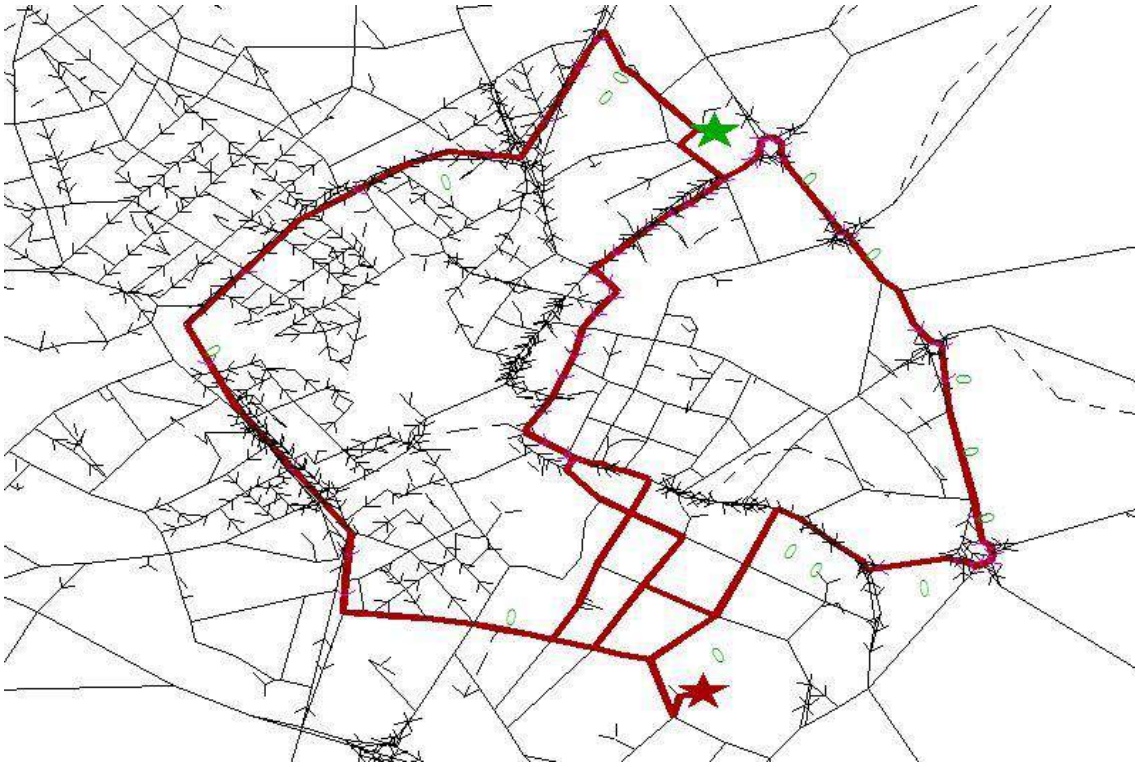
Pershore Road to Jewellery Quarter



Newtown Row to Birmingham Children's Hospital

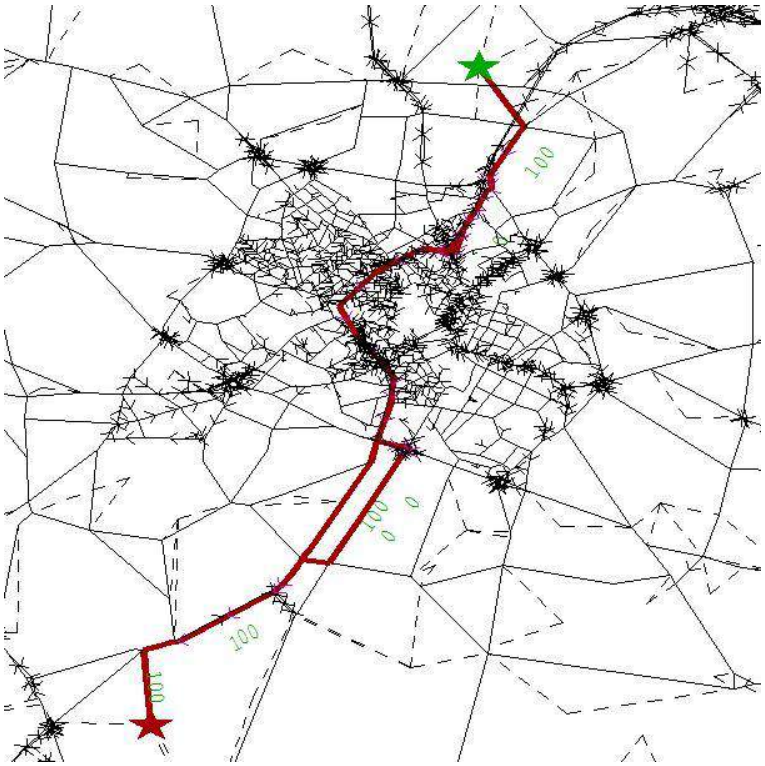


Aston University to Highgate Park

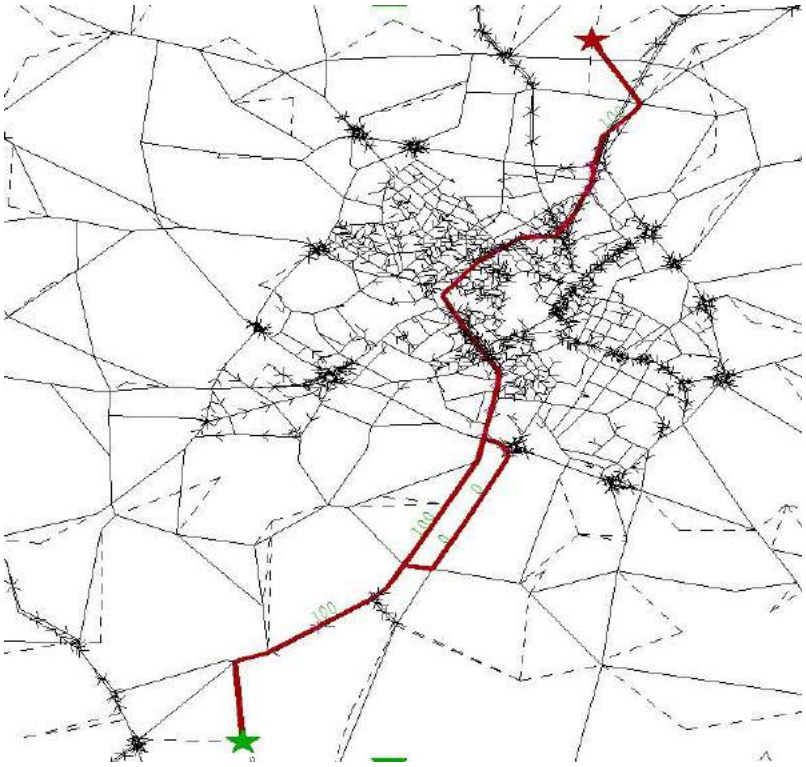


N.2. PM Peak Route Analysis

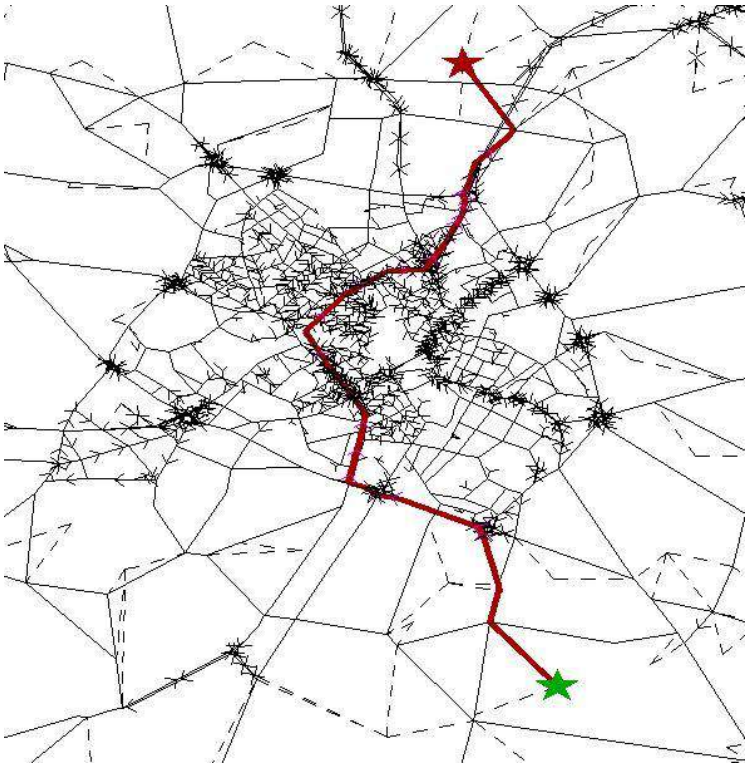
A38 Aston Expressway to University of Birmingham



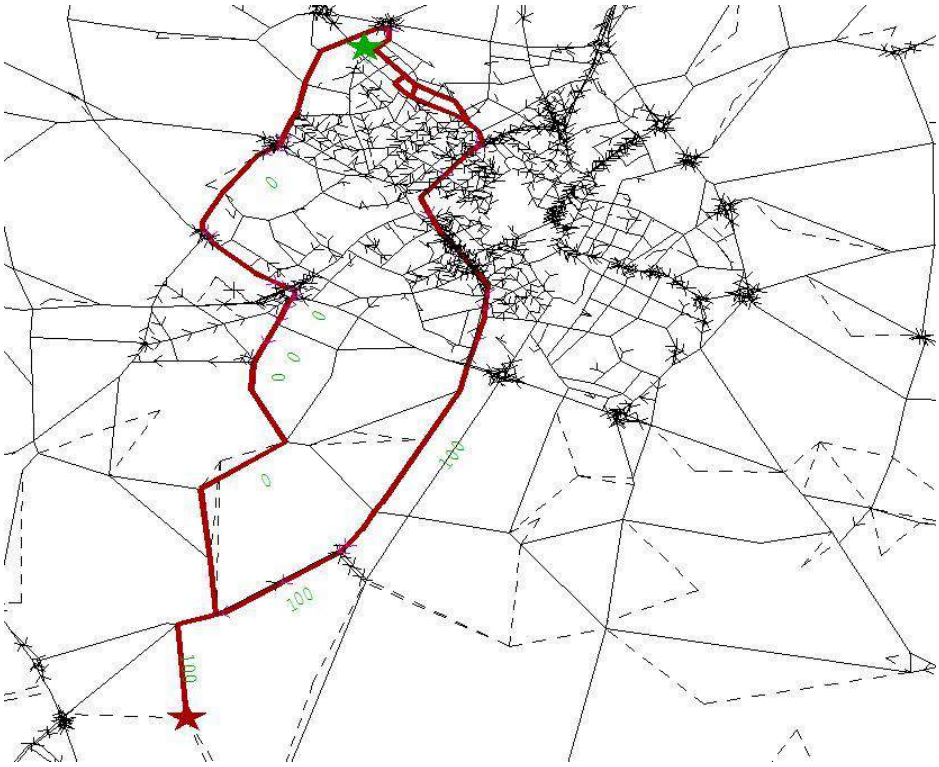
University of Birmingham to A38 Aston Expressway



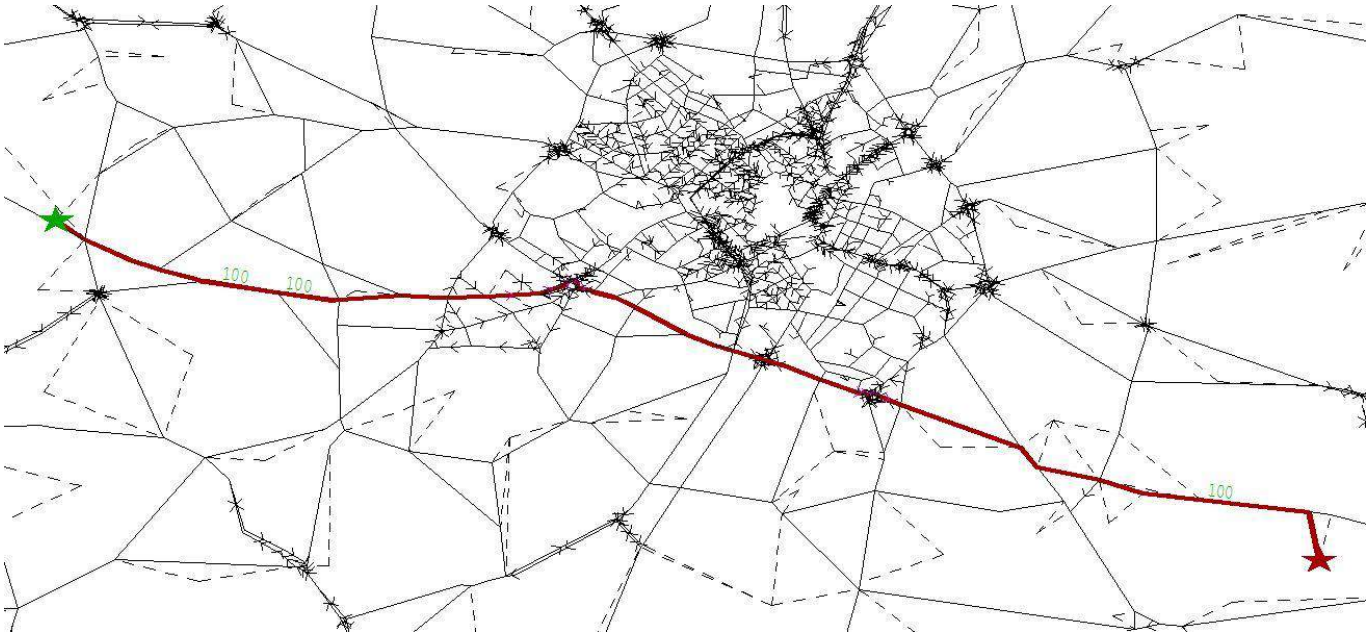
Alcester Road to Aston Expressway



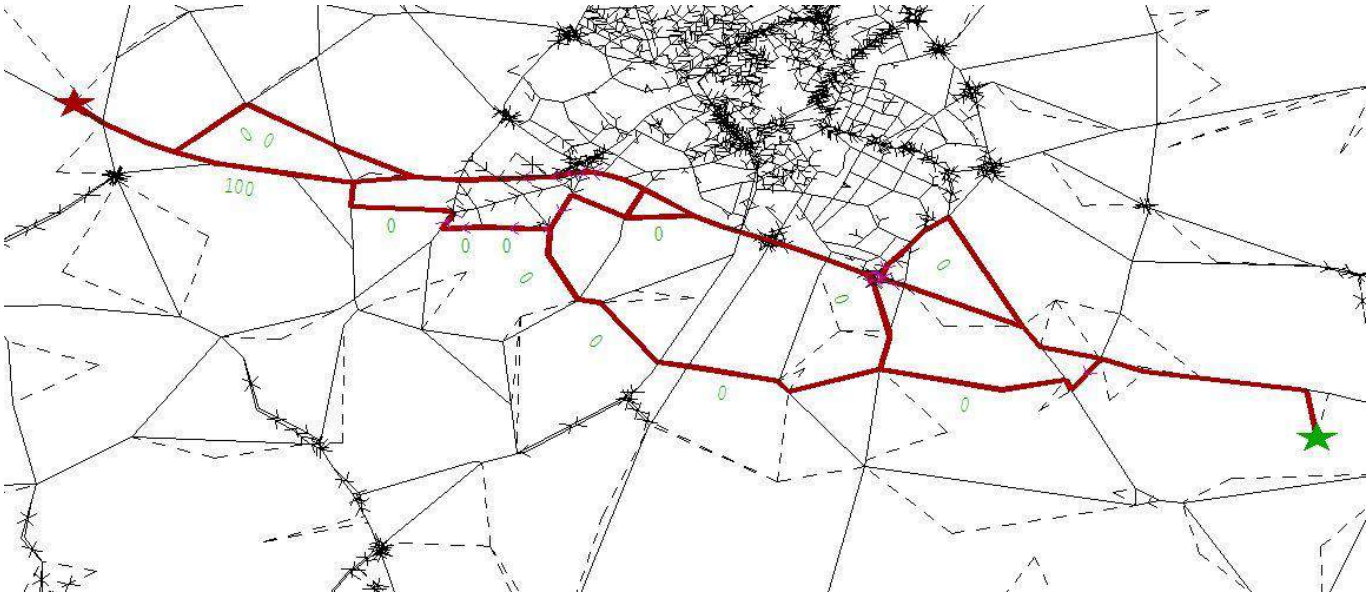
Great Hampton Street to Bristol Road



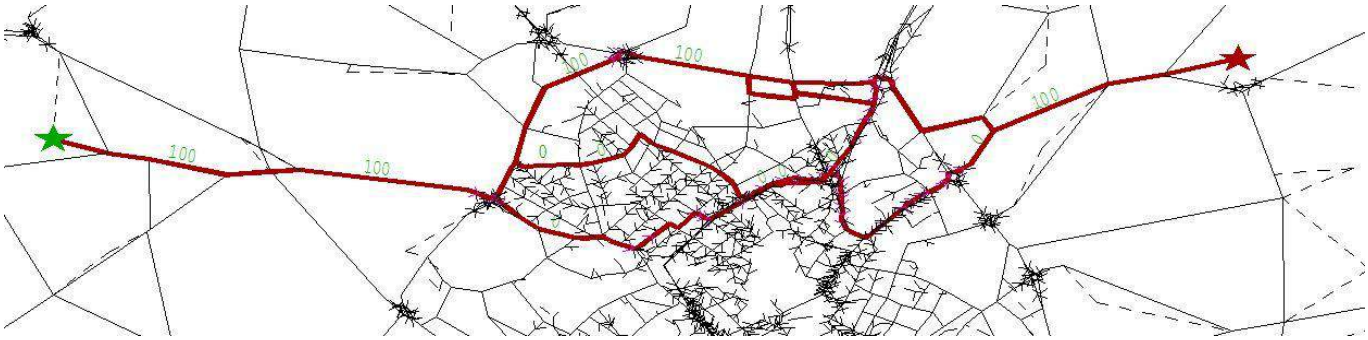
Hagley Road to Solihull



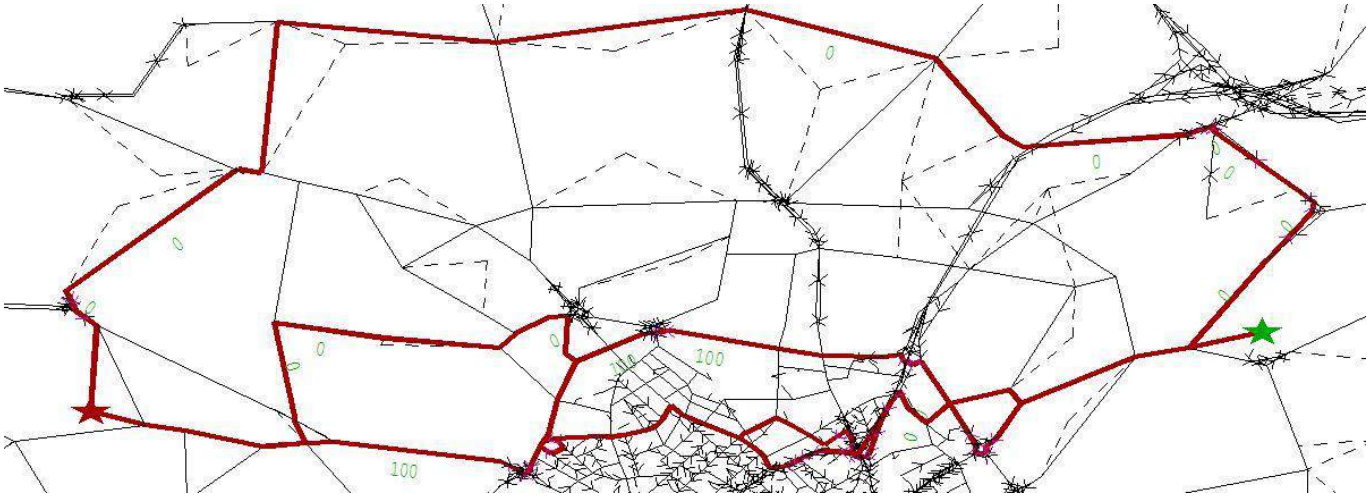
Solihull to Hagley Road



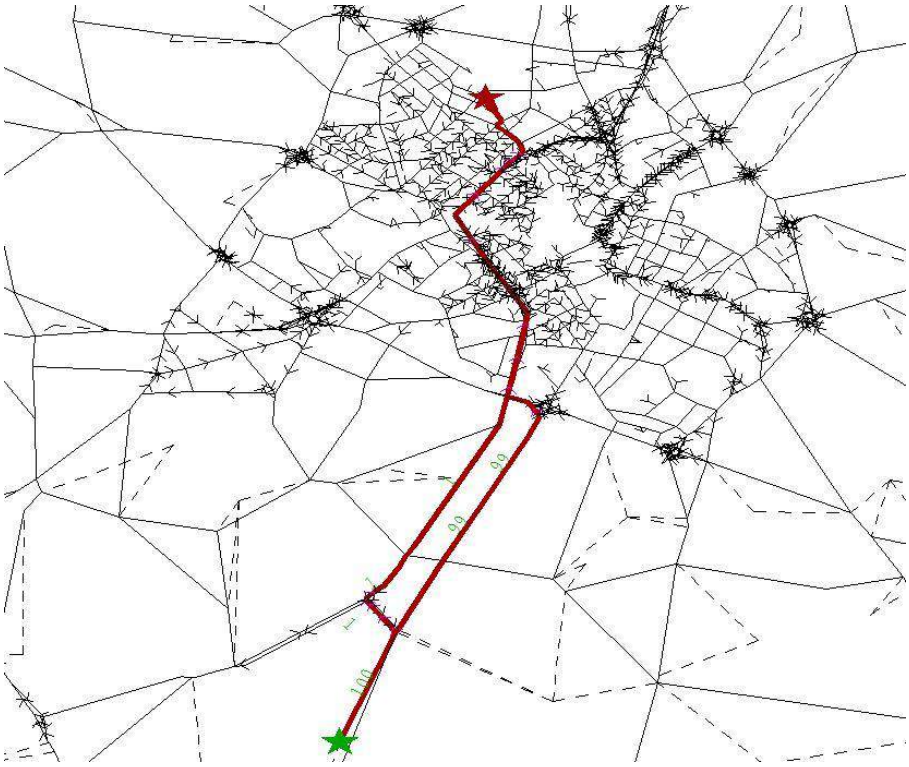
Smethwick to Star City



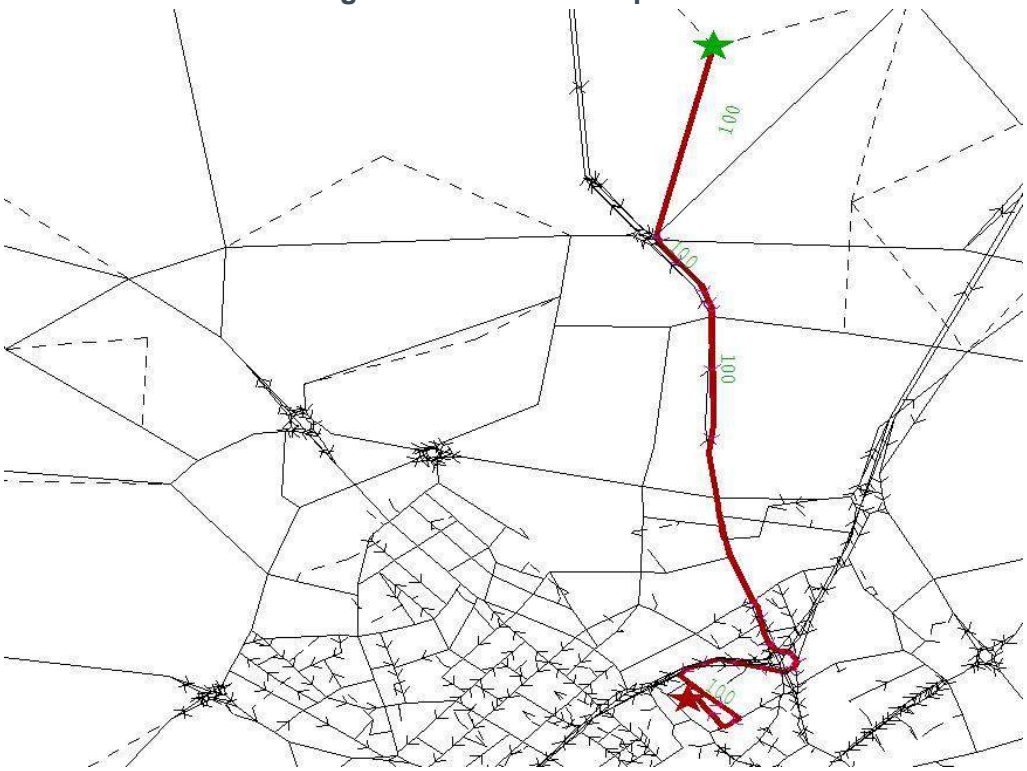
Star City to Smethwick



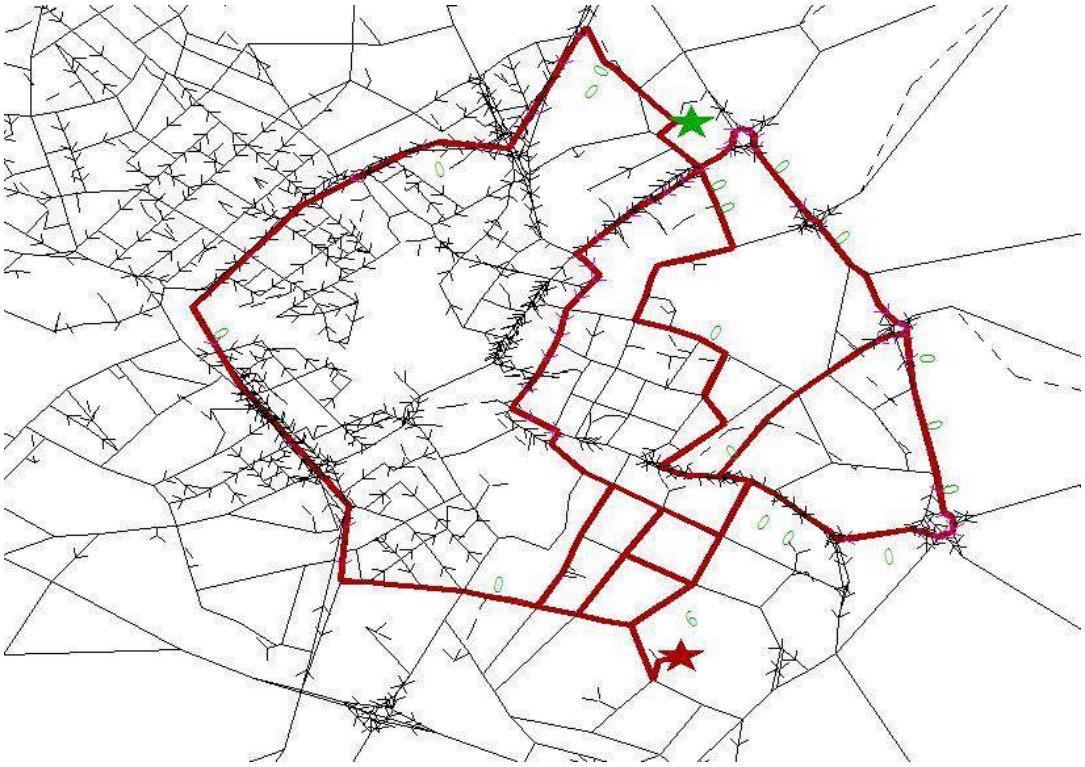
Pershore Road to Jewellery Quarter



Newtown Row to Birmingham Children's Hospital



Aston University to Highgate Park



Appendix O. Car Park Capacity vs. Zone Origins and Destinations

Zone	Area	Public Car Park Spaces	ME AM			ME IP				ME PM		
			OUT	IN	% IN vs CAP	OUT	IN	% OUT vs CAP	% IN vs CAP	OUT	IN	% OUT vs CAP
101	Vyse Street	35	10	88	251%	10	15	29%	43%	25	18	72%
102	Jewellery Quarter	1123	292	724	64%	346	372	31%	33%	569	398	51%
103	Barr Street/Smith Street	71	18	92	130%	46	71	65%	100%	26	27	37%
104	Buckingham Street	365	102	237	65%	184	128	50%	35%	205	51	56%
105	Lower Tower Street	183	52	155	85%	66	64	36%	35%	103	50	56%
106	Gunsmiths Quarter	467	140	345	74%	194	166	42%	36%	219	62	47%
107	Matalan (Pritchett Street)	0	62	333	-	91	113	-	-	101	91	-
108	Vesey Street/Lench Street	165	56	51	31%	40	43	24%	26%	85	27	52%
109	Lancaster Circus	0	10	59	-	23	17	-	-	30	21	-
110/ 310	B4/Children's Hospital	1382	94	184	13%	153	93	11%	7%	297	121	21%
111	Children's Hospital (Staff)	26	30	13	51%	45	13	172%	50%	76	19	293%
112	NCP Londonderry House	715	119	269	38%	199	139	28%	19%	418	97	58%
113	Chapel Street	276	37	108	39%	46	90	17%	33%	99	34	36%
114	Aston Street	24	8	26	107%	7	9	29%	37%	33	8	137%
115	Dartmouth Middleway/Holt Street	0	76	160	-	48	43	-	-	255	110	-
116	Ashted Lock Way/Venture Way	0	72	264	-	103	41	-	-	337	99	-
117	Millennium Point	984	202	342	35%	428	194	44%	20%	330	131	34%
118	Fazeley Street	310	94	102	33%	62	63	20%	20%	170	100	55%
119	Curzon Street	450	42	131	29%	75	120	17%	27%	108	112	24%
120	Bordesley Street/New Canal Street	499	107	316	63%	152	168	30%	34%	262	240	53%
121/ 321	Moor Street	2204	243	654	30%	691	570	31%	26%	606	569	27%
122	Digbeth High Street	327	30	100	31%	106	152	32%	47%	62	96	19%
123	Eastside Fazeley Street	101	19	52	52%	49	97	48%	96%	45	127	45%
124	Trinity Street/Kingston Road	326	256	670	205%	157	192	48%	59%	493	508	151%

Zone	Area	Public Car Park Spaces	ME AM			ME IP				ME PM		
			OUT	IN	% IN vs CAP	OUT	IN	% OUT vs CAP	% IN vs CAP	OUT	IN	% OUT vs CAP
125	Westley Street	0	9	97	-	80	177	-	-	93	148	-
126	Cheapside	0	147	192	-	16	15	-	-	333	159	-
127	MacDonald Street/Barford Street	0	27	38	-	27	32	-	-	32	49	-
128	Vaughton Street	0	32	39	-	25	40	-	-	31	55	-
129	Highgate Street	0	36	45	-	36	48	-	-	26	57	-
130	Darwin Street	130	139	125	96%	102	99	78%	76%	178	191	137%
131	Clyde Street/Warwick Street	0	24	71	-	42	47	-	-	62	39	-
132	Broom Street/Ravenhurst Street	0	22	64	-	42	47	-	-	62	39	-
133	Connaught Square/Green Street	220	158	273	124%	197	244	90%	111%	303	255	138%
134	Hope Street	0	10	39	-	18	22	-	-	6	71	-
135	Bromsgrove Street	369	44	82	22%	64	75	17%	20%	59	82	16%
136	Pershore Street	399	35	116	29%	68	106	17%	27%	56	88	14%
137/ 337	Arcardian/Thorp Street	1333	177	306	23%	194	285	15%	21%	283	281	21%
138	Birmingham Markets	892	58	201	23%	124	168	14%	19%	126	173	14%
139	Upper Dean Street/Edgbaston Street	949	108	120	13%	217	191	23%	20%	219	168	23%
140	Bell Barn Road	0	0	0	-	0	0	-	-	0	0	-
141	Alfred Knight Way	0	0	0	-	0	0	-	-	0	0	-
142	Irving Street/Horsefair	326	410	276	85%	150	61	46%	19%	283	361	87%
143	Ellis Street	407	175	169	42%	81	104	20%	26%	136	200	33%
144	Mailbox/Holliday Street	687	119	160	23%	217	211	32%	31%	243	155	35%
145	Arena Central	496	128	306	62%	213	110	43%	22%	277	183	56%
146	Berkeley Street/Broad Street	0	91	247	-	74	47	-	-	181	123	-
147	Tennant Street	338	150	303	90%	105	113	31%	33%	240	168	71%
148	Five Ways	690	158	470	68%	165	309	24%	45%	335	330	49%
149	Broadway Plaza	602	45	204	34%	60	159	10%	26%	57	93	9%
150	Cambridge Street	1	3	6	630%	0	0	0%	0%	4	3	416%
151	Brindley Place	890	182	329	37%	202	445	23%	50%	352	255	40%
152	Ryland Street/Sherborne Street	0	107	101	-	58	71	-	-	118	99	-
153	Ledsam Street	73	9	10	14%	12	37	17%	51%	11	45	15%

Zone	Area	Public Car Park Spaces	ME AM			ME IP				ME PM		
			OUT	IN	% IN vs CAP	OUT	IN	% OUT vs CAP	% IN vs CAP	OUT	IN	% OUT vs CAP
154	NIA Car Parks	2009	214	463	23%	126	301	6%	15%	251	336	12%
155	Edward Street	50	24	63	126%	24	30	48%	60%	31	31	61%
156	Camden Street	0	0	0	-	40	63	-	-	0	0	-
157	Legge Lane	40	218	133	333%	262	69	654%	171%	287	69	717%
158	Northwood Street 1	56	31	32	56%	44	16	78%	28%	52	20	93%
159	Northwood Street 2	80	58	69	86%	81	38	101%	48%	96	34	120%
160	NCP Newhall Street	555	345	355	64%	483	197	87%	36%	531	280	96%
161	Lionel Street 1	267	217	354	132%	224	132	84%	49%	278	159	104%
162	Lionel Street 2	178	100	198	111%	88	38	49%	21%	183	121	103%
163	Newhall Street/Eden Place	42	76	126	300%	91	98	216%	234%	116	67	277%
164	Colmore Business District	0	1	3	-	2	2	-	-	1	1	-
165	Snow Hill Station	863	137	595	69%	145	199	17%	23%	243	249	28%
166	Cannon Street	28	45	65	231%	62	74	222%	264%	81	48	290%
167	Temple Row/Bull Street	0	17	45	-	27	34	-	-	41	30	-
168	NCP High Street	1200	171	374	31%	291	261	24%	22%	426	193	35%
169	New Street	40	0	0	0%	0	0	0%	0%	0	0	0%
170	NCP Grand Central	450	122	199	44%	157	241	35%	54%	173	199	38%
171	Navigation Street Car Park	431	132	179	42%	81	129	19%	30%	207	206	48%
172	NCP New Street	616	216	312	51%	105	197	17%	32%	308	237	50%

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C. Observed and Future Year Traffic Flows

Data available on request.

D. Access and Servicing

D.1 Sections 1 & 2 Plan

D.2 Section 3 Plan

D.3 Section 4 Plan

D.4 Section 5 Plan

D.5 Sections 6 & 7 Plan

D.6 Section 8 Plan

D.7 New Loading Bay Design

Section 1 & 2

THE MINORIES

THE SQUARE

WESTERN ARCADE

CORPORATION STREET

2.8M HEIGHT RESTRICTION

NCP CAR PARK/IKEA COLLECTION STORE

TAXI RANK TO BE REMOVED

THE SQUARE

TO BE CLOSED

TAXI RANK TO BE EXTENDED

LEFT IN/LEFT OUT FROM IKEA/NCP CAR PARK

ALBERT STREET

EXISTING SERVICE ACCESS TO BULL STREET

KINGS PARADE BUILDING TO BE REMOVED

② ③

MARTINEAU PLACE

U-TURN FACILITY AT DALE END/HIGH STREET JUNCTION

① ②

NEW MEETING STREET

OFFICES

OFFICES

ALBERT STREET CAR PARK

BETFRED/SABINA HAIR/LOVE CHICKEN

SERVICE ACCESS TO 24 HOUR MARTINEAU PLACE TO BE SIGNALISED

CAR PARK

ENTRANCE TO ST.MICHAELS CATHOLIC CHURCH CAR PARK

HIGH STREET

SHARED USE ROAD TO BE PROVIDED ALONG ALIGNMENT FROM DALE END/HIGH STREET TO MOOR STREET QUEENSWAY

SERVICE ACCESS FOR TESCO & TRAVELODGE

Section 3

MILLENNIUM POINT

BIRMINGHAM ALIGNMENT CUTS OFF CORNER OF GARDENS

HIVE APARTMENTS

MASSHOUSE LANE

PARK STREET

HOTEL LA TOUR

PARK STREET TO BE CLOSED AFTER MASSHOUSE LANE TURN

THE EAGLE & TUN PH

DROP OFF POINT TO BE RETAINED

NEW CANAL ST

HOTEL LA TOUR CAR PARK

PARK AND BURIAL GROUND

②

③

SEYMOUR STREET

FAZELEY STREET CAR PARK

FAZELEY STREET

③

④

ALBERT STREET CAR PARK

Section 4

ACCESS/SERVICING TO BE RELOCATED TO BORDESLEY STREET OR NEW BARTHOLOMEW STREET

CAR PARK - TO BE REMOVED

CAR PARK - TO BE REDEVELOPED

WILLIAM MARSTON LTD

③ ④

④ ⑤

NEW BARTHOLOMEW STREET

DIGBETH HALL

NO WAITING OR LOADING WITH BEE - IN PLACE

LATIFS

ACCESS SERVICING TO BE RELOCATED TO NEW BARTHOLOMEW STREET

LATIFS CAR PARK

DIGBETH HALL CAR PARK

DIGBETH HALL ACCESS

LATIFS ACCESS

LATIFS ACCESS

Section 5

BORDESLEY STREET

WFC LTD. CAR PARK

WHITTAKER FLEET CARE LTD

SERVICED FROM MERIDEN STREET NO ALTERNATIVE ACCESS

COVENTRY STREET CAR PARK TO HOUSE BEE SUBSTATION

ONLY REOPENED AFTER BEE WORKS COMPLETE

CHICKEN .COM

④ ⑤

TO BE CLOSED

SUKI 10 C

UNOCCUPIED BUILDINGS

OPTIMUS LAW

MY GRILL

⑤ ⑥

HENNESSEY'S CAR PARK

SHOULD BE RELOCATED ENTRANCE TO CAR PARK

8 TRIX GAMES BUNKER

LATIFS ACCESS

Section 6 & 7

⑤
⑥
⑦
⑧

CAR PARK (ACCESSED VIA OXFORD ST)

DAYTONA MECHANICS (ACCESSED VIA OXFORD ST)

NORTON HYDRAULICS CAR PARK

ACCESS PRIORITY TO BE SWAPPED

SECONDARY

PRIMARY

NORTON HYDRAULICS

ACCESS PRIORITY TO BE SWAPPED

SECONDARY

PRIMARY

MERIDEN STREET

UNOCCUPIED BUILDINGS

MERIDEN PAPER

KITCHEN CARCASSES

ALLISON STREET

ALL CURRENTLY SERVICED IN MERIDEN STREET

MORGAN SOLICITORS LLP

BIRMINGHAM SOUTH & CITY COLLEGE (TO BE DEMOLISHED)

FANCY FABRIC STORE

TAXI RANK / LOADING BAY TO BE REMOVED

MILK STREET

3 LANES DOWN TO 2 TO ACCOMMODATE TRAM

DIGBETH (B4100)

3 LANES DOWN TO 2 TO ACCOMMODATE TRAM

DIGBETH COACH STATION

DIGBETH (B4100)

POSSIBLE NEW LOADING BAY

NO LOADING ON DIGBETH MONDAY TO FRIDAY 07:45-09:15 / 16:30-18:45. WILL REMAIN THE SAME WITH BEE IN PLACE

REA STREET

MILL LANE

Section 8

MILK STREET

FLOODGATE STREET

NO SERVICING / LOADING ON HIGH STREET DERITEND MONDAY TO FRIDAY 07:45-09:15 / 16:30-18:45 (TO BE RETAINED)

BIRMINGHAM SOUTH & CITY COLLEGE

GIBB STREET

HEATH MILL LANE

3 LANES DOWN TO 2 (REMOVAL OF BUS LANE)

⑦ ⑧

3 LANES DOWN TO 2 (REMOVAL OF BUS LANE)

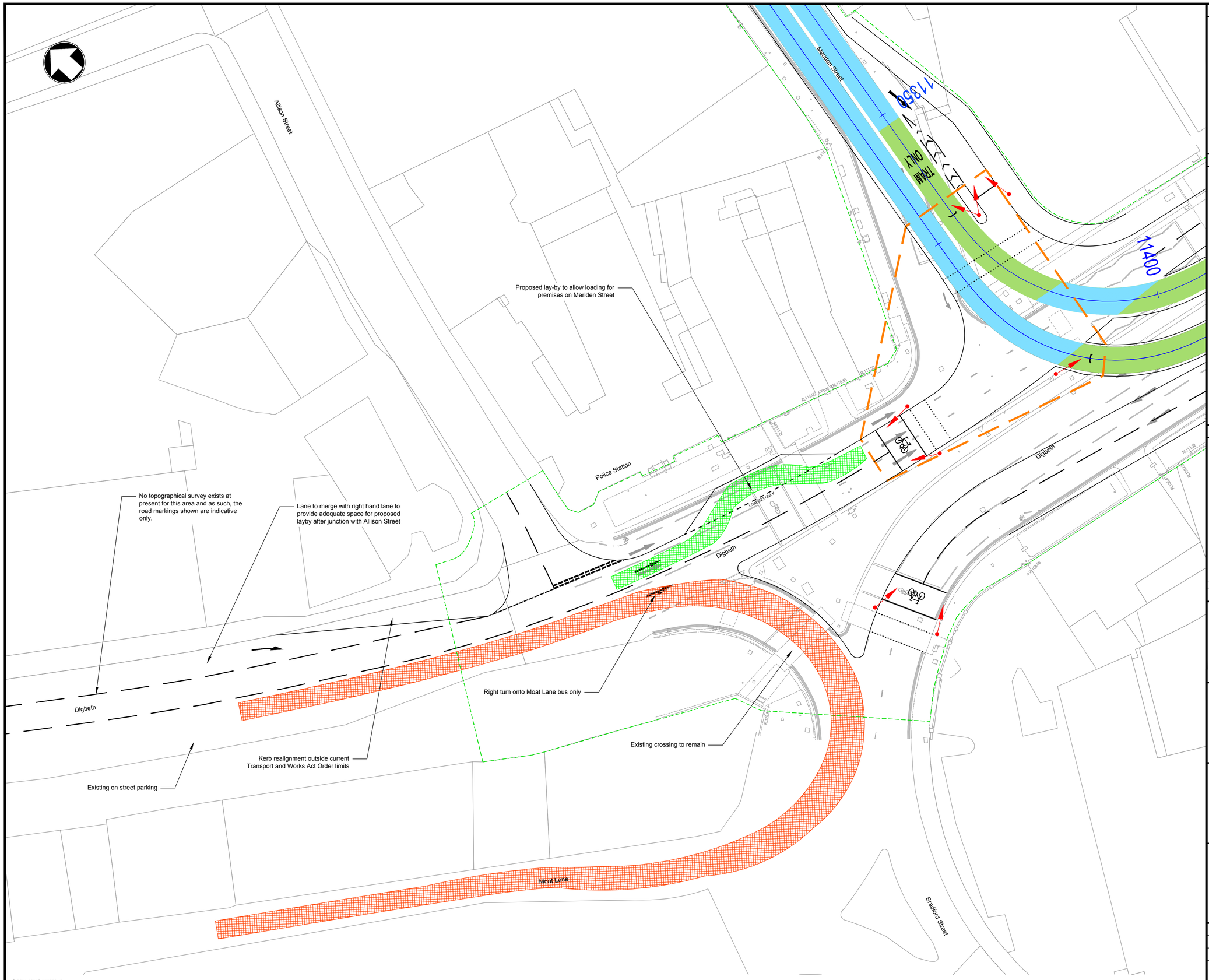
IRISH CENTRE

PROPOSED REDEVELOPMENT

STONE YARD

CHAPEL HOUSE STREET

GREEN STREET



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1:250 0 12.5m 25m

Notes

1. All dimensions are in metres unless otherwise stated.
2. Do not scale any items or information from this drawing.
3. Service locations not considered during design.
4. The Developed Kinematic Envelope (DKE) of the tram is based upon the updated Generic Tram DKE Model for 'Type A Vehicles'. Refer to Mott MacDonald Ltd report reference MMD-300207-SL02-DOC-0001.

Key to symbols

- Segregated track
- Shared track
- Swept path of van (5.89m length)
- Swept path of single decker bus (12m length)
- Junction Intervisibility
- Limit of permanent land acquisition within Transport and Works Act Order

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05/09/2017	PR	First Issue.	CMS	GL

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centro transforming public transport

Client
Centro
Centro House
16 Summer Lane
Birmingham
B19 3SD

Title
Midland Metro Phase 2
Birmingham Eastside Extension
Digbeth Loading Bay Layout

Designed	P Richardson	Eng check	C Searson
Drawn	P Richardson	Coordination	C Searson
Dwg check	M Bonner	Approved	G Last

Scale at A1	Status	Rev
As Shown	PRE	P1

Drawing Number
MMD-300207-HS42-DRA-0000-0001

E. Accident Data

Data available on request.

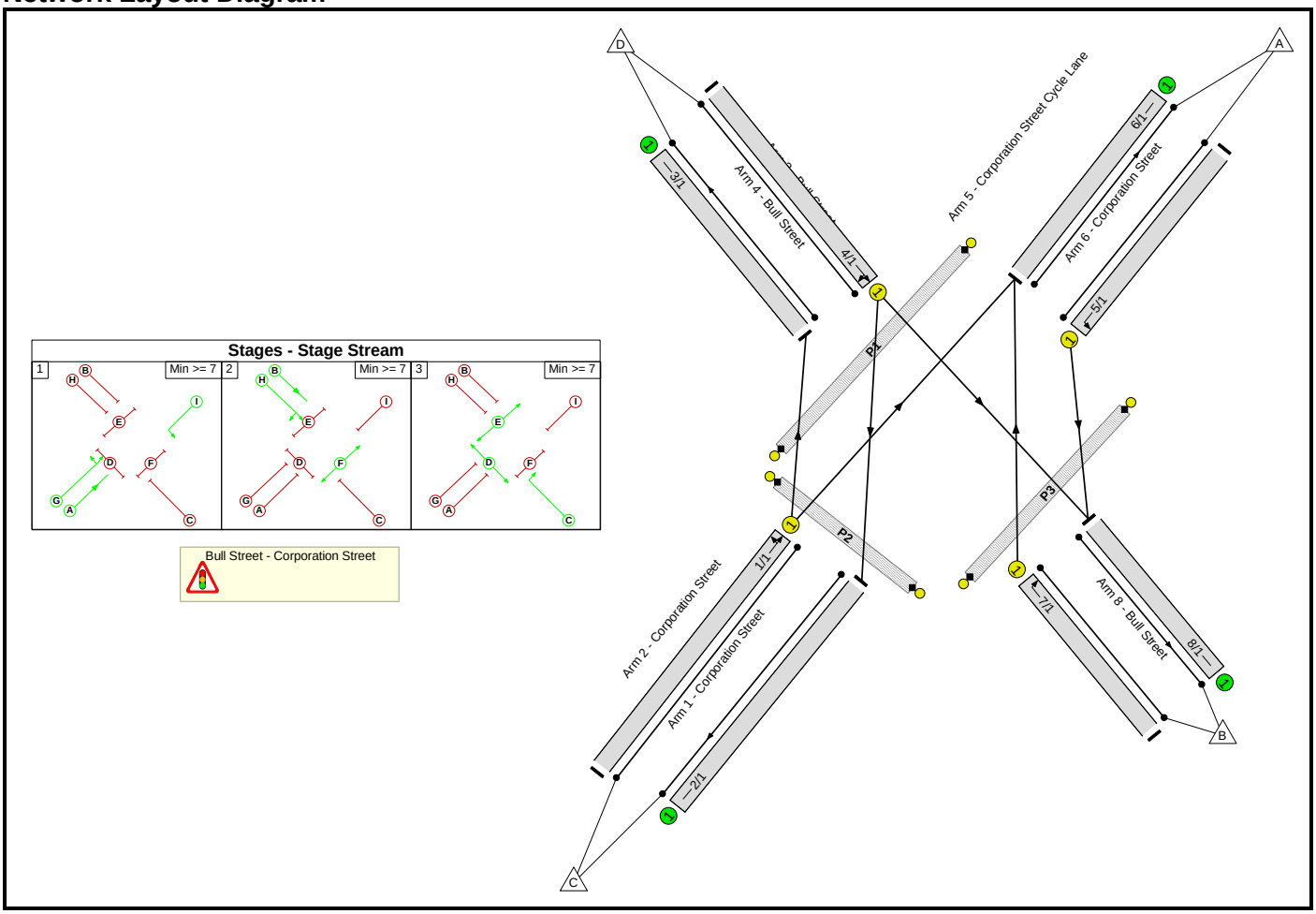
F. Junction Capacity Assessment Outputs

Full Input Data And Results

User and Project Details

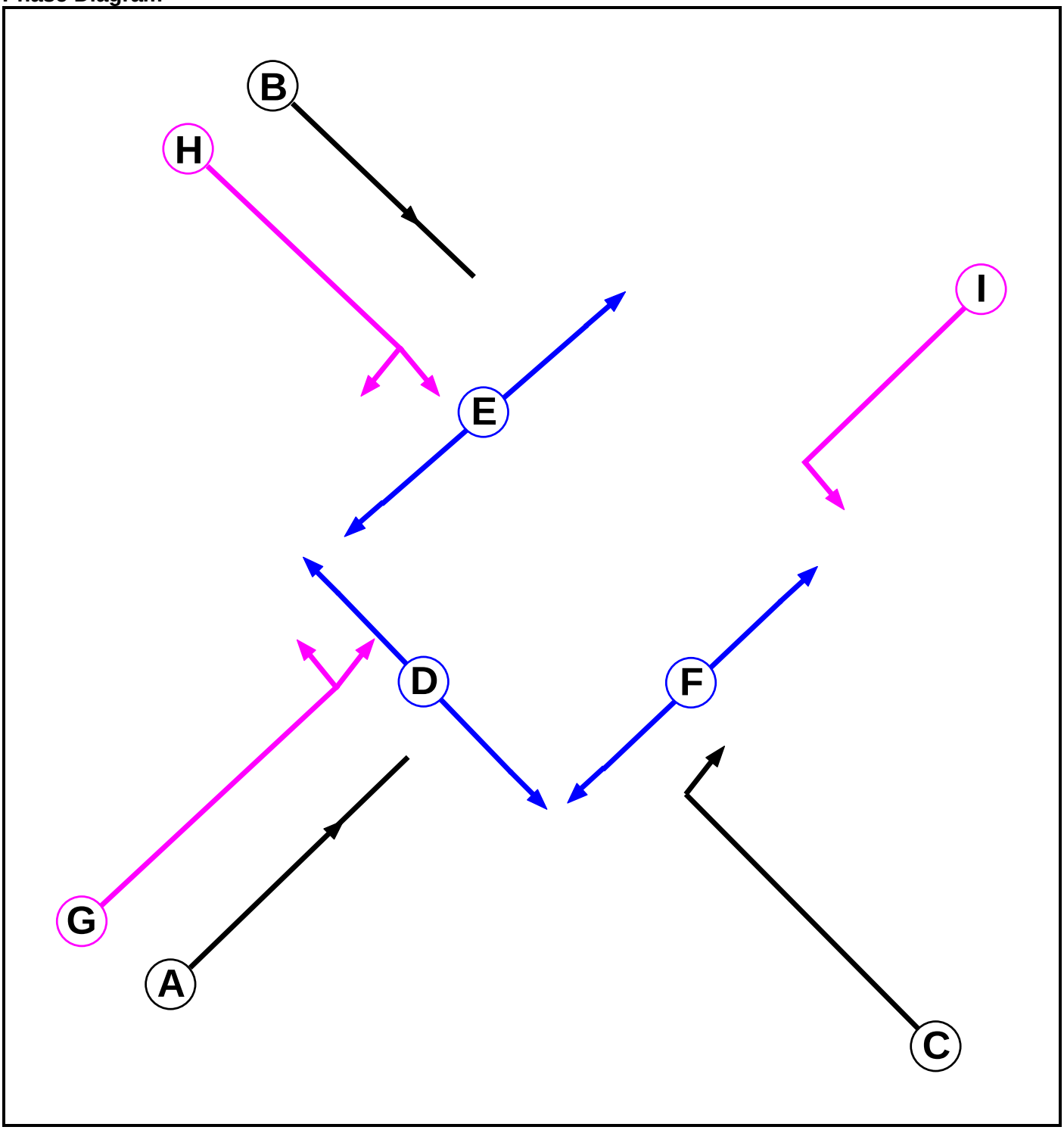
Project:	**359345 - Birmingham Eastside Extension**
Title:	**Bull Street/Corporation Street**
Location:	Birmingham
File name:	Bull Street - Corporation Street.lsg3x
Author:	Dragos Suciu
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU, UK
Notes:	Existing/Do Minimum

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Pedestrian	1		7	7
E	Pedestrian	1		7	7
F	Pedestrian	1		7	7
G	LRT	1		7	7
H	LRT	1		7	7
I	Cycle	1		7	7

Phase Intergreens Matrix

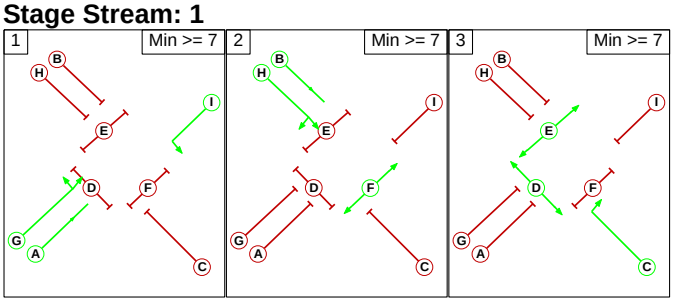
		Starting Phase								
		A	B	C	D	E	F	G	H	I
Terminating Phase	A		6	5	5	11	-	-	6	-
	B	6		5	12	5	-	6	-	-
	C	5	5		-	-	5	5	5	7
	D	12	12	-		-	-	12	12	-
	E	12	12	-	-		-	12	12	-
	F	-	-	11	-	-		-	-	11
	G	-	6	5	9	11	-		-	-
	H	6	-	5	12	9	-	-		-
	I	-	-	6	-	-	6	-	-	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A G I
1	2	B F H
1	3	C D E

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

	To Stage			
		1	2	3
From Stage	1		6	11
	2	11		12
	3	12	12	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Bull Street - Corporation Street
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Bull Street - Corporation Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Corporation Street)	U	G	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 3 Left	Inf
											Arm 6 Ahead	Inf
2/1 (Corporation Street)	U		2	3	60.0	Geom	-	3.60	0.00	Y		
3/1 (Bull Street)	U		2	3	60.0	Geom	-	3.80	0.00	Y		
4/1 (Bull Street)	U	H	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 2 Right	Inf
											Arm 8 Ahead	Inf
5/1 (Corporation Street Cycle Lane)	U	I	2	3	60.0	Geom	-	2.00	0.00	Y	Arm 8 Left	Inf
6/1 (Corporation Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Bull Street)	U	C	2	3	60.0	Geom	-	3.35	0.00	Y	Arm 6 Right	Inf
8/1 (Bull Street)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 AM Peak (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	152	0	0	0	152
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	152	0	58	58	268

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2016 AM Peak (Standard PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	152
7/1	152
8/1	0

Lane Saturation Flows

Junction: Bull Street - Corporation Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2016 PM Peak (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	160	0	0	0	160
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	160	0	58	58	276

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 PM Peak (Standard PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	160
7/1	160
8/1	0

Lane Saturation Flows

Junction: Bull Street - Corporation Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2016 AM Peak (Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	226	0	0	0	226
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	226	0	58	58	342

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2016 AM Peak (Saturn PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	226
7/1	226
8/1	0

Lane Saturation Flows

Junction: Bull Street - Corporation Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2016 PM Peak (Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	237	0	0	0	237
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	237	0	58	58	353

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 PM Peak (Saturn PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	237
7/1	237
8/1	0

Lane Saturation Flows

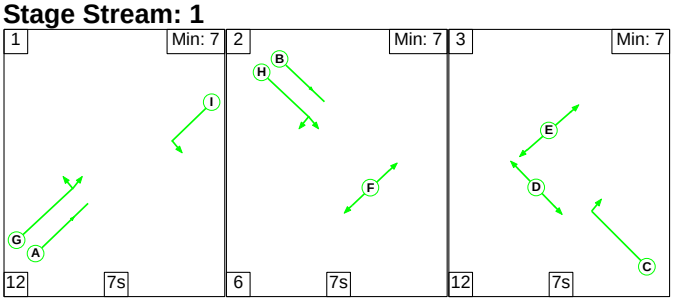
Junction: Bull Street - Corporation Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2016 AM Peak (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1



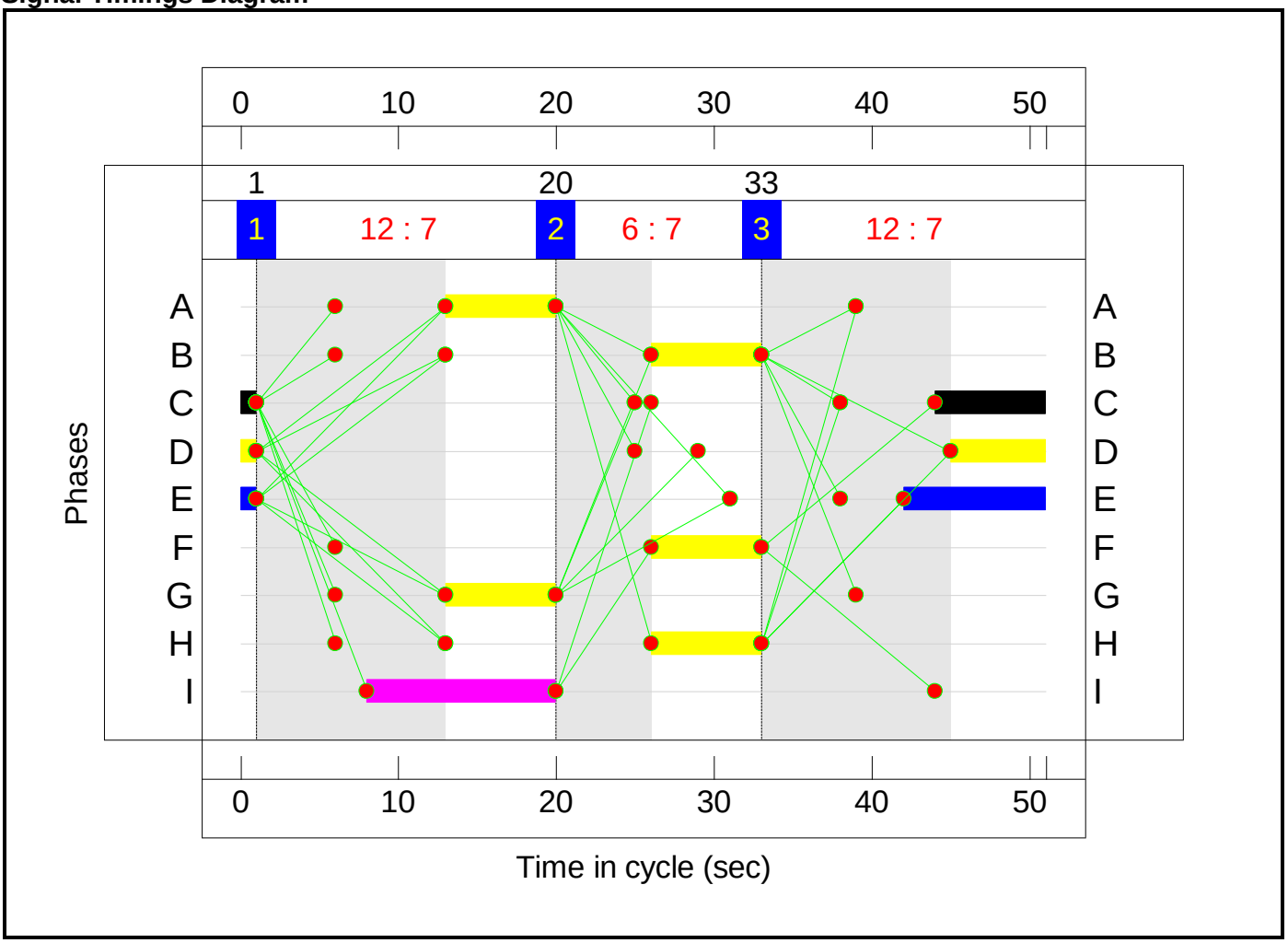
Full Input Data And Results

Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	7	7	7
Change Point	1	20	33

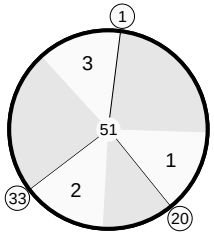
Signal Timings Diagram



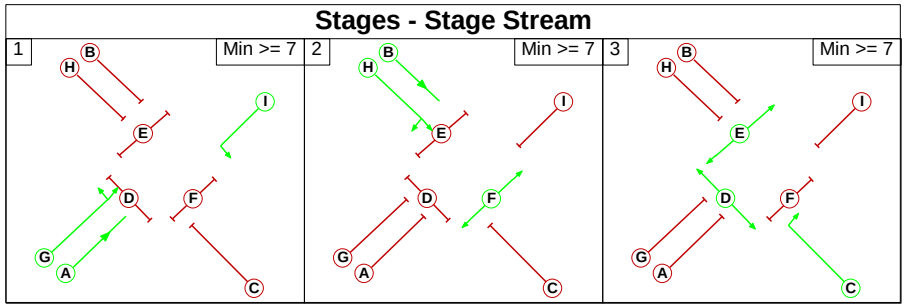
Full Input Data And Results

Network Layout Diagram

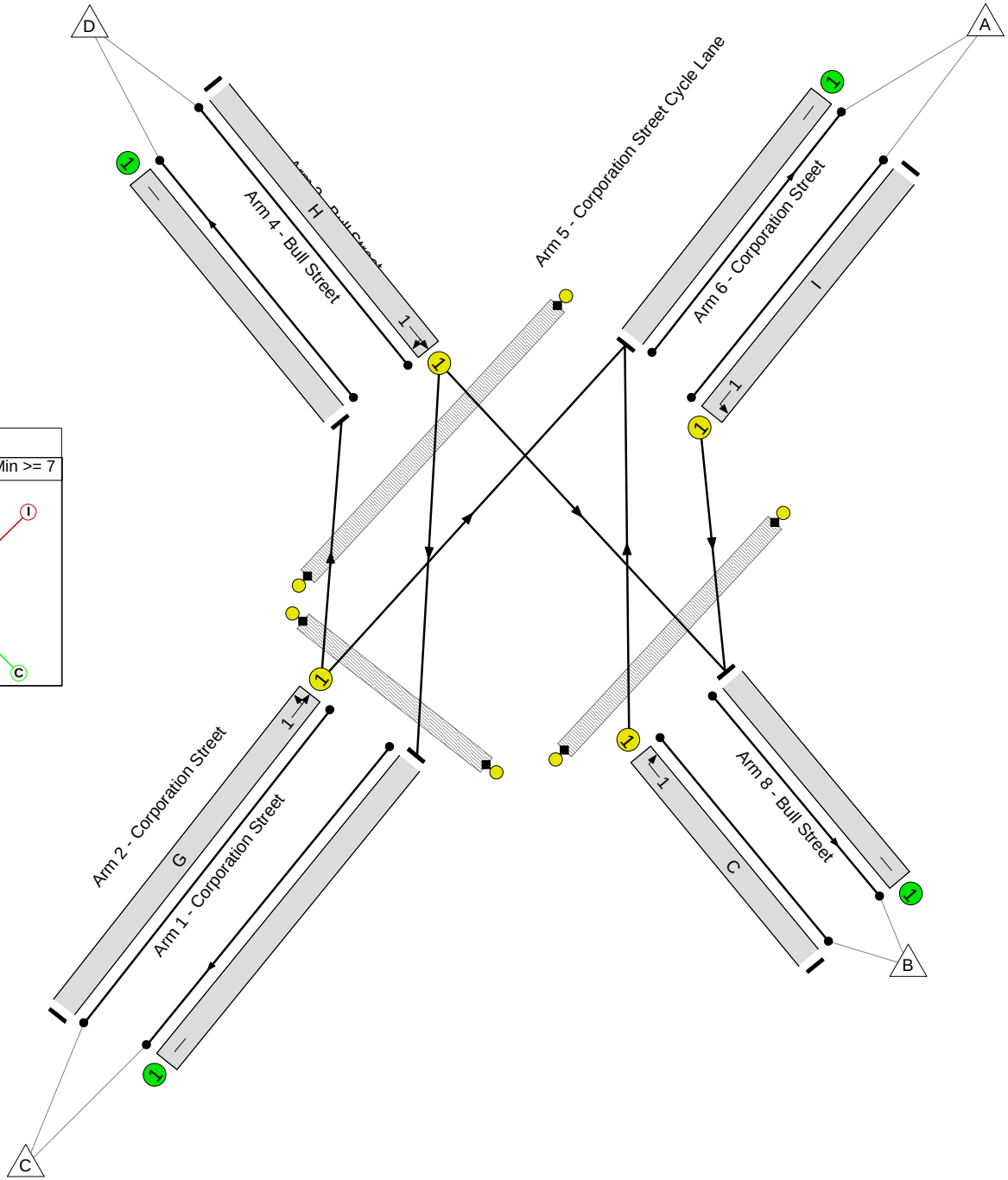
Full Input Data And Results



C1 Stream 1



Bull Street - Corporation Street
PRC: 103.8 %
Total Traffic Delay: 2.0 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Street/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
Bull Street - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
1/1	Corporation Street Left Ahead	U	1	N/A	G		1	7	-	58	2015	316	18.3%
2/1	Corporation Street	U	N/A	N/A	-		-	-	-	58	1975	1975	2.9%
3/1	Bull Street	U	N/A	N/A	-		-	-	-	58	1995	1995	2.9%
4/1	Bull Street Right Ahead	U	1	N/A	H		1	7	-	58	1995	313	18.5%
5/1	Corporation Street Cycle Lane Left	U	1	N/A	I		1	12	-	0	1815	463	0.0%
6/1	Corporation Street	U	N/A	N/A	-		-	-	-	152	Inf	Inf	0.0%
7/1	Bull Street Right	U	1	N/A	C		1	8	-	152	1950	344	44.2%
8/1	Bull Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	E		1	10	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	D		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Street/Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.6**	**0.0**	**2.0**	**-**	**-**	**-**	**-**
Bull Street - Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.6**	**0.0**	**2.0**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.3	0.1	-	0.4	25.7	0.7	0.1	0.8
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	58	58	-	-	-	0.3	0.1	-	0.4	25.8	0.7	0.1	0.8
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	152	152	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	152	152	-	-	-	0.8	0.4	-	1.2	28.1	1.9	0.4	2.3
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

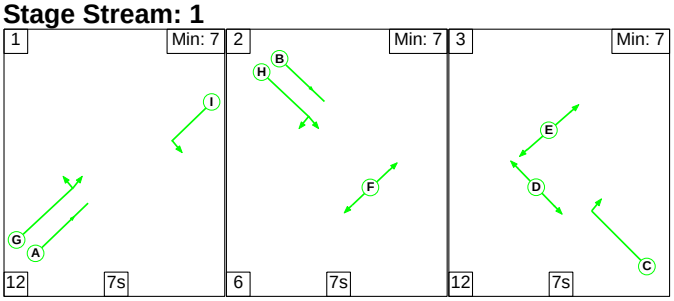
C1 Stream: 1 PRC for Signalled Lanes (%): 103.8 Total Delay for Signalled Lanes (pcuHr): 2.02 Cycle Time (s): 51
PRC Over All Lanes (%): 103.8 Total Delay Over All Lanes(pcuHr): 2.05

Full Input Data And Results

Scenario 2: '2016 PM Peak (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

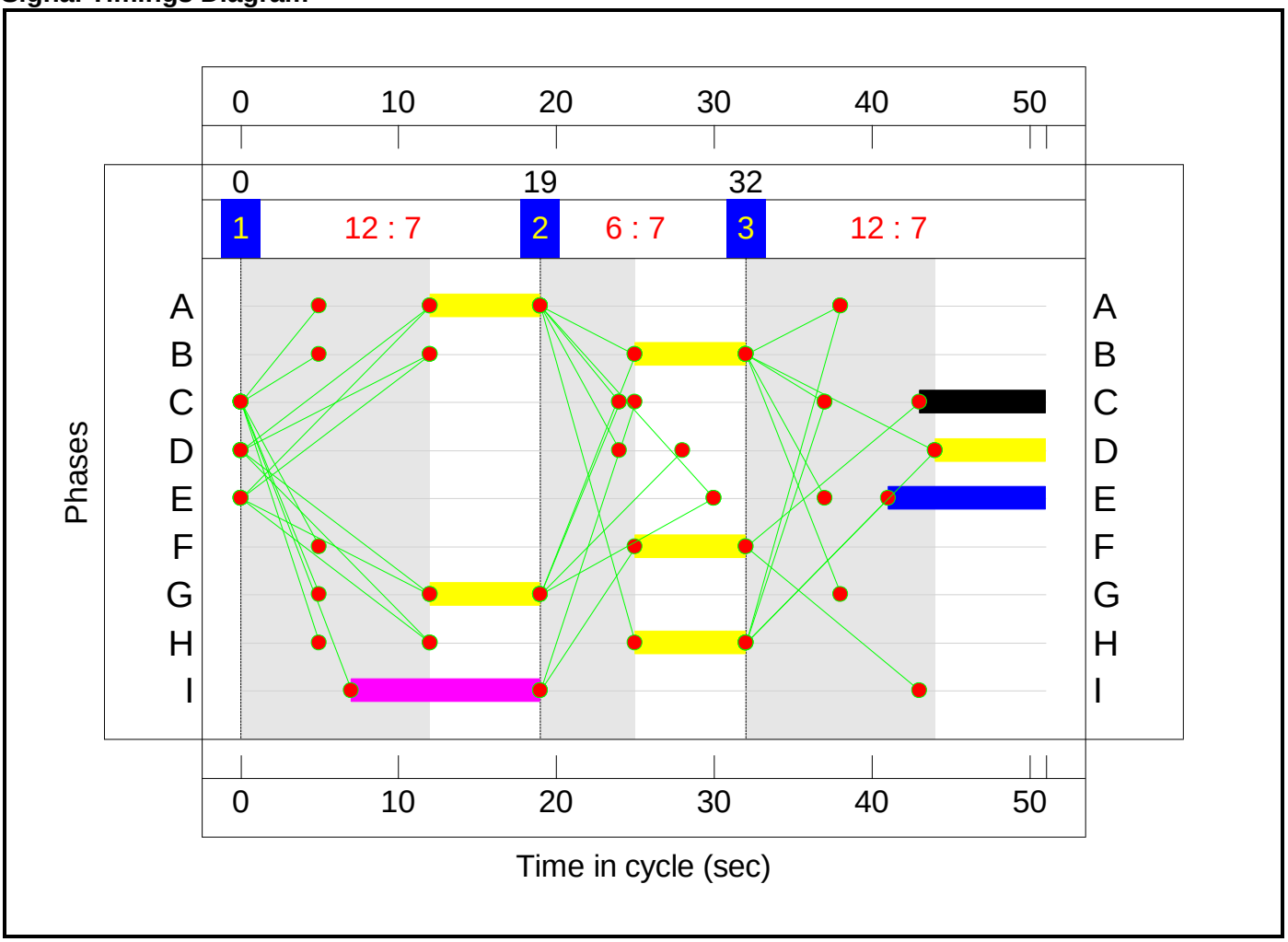


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	7	7	7
Change Point	0	19	32

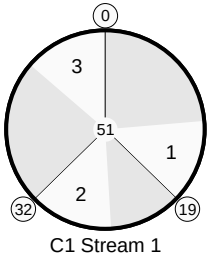
Signal Timings Diagram



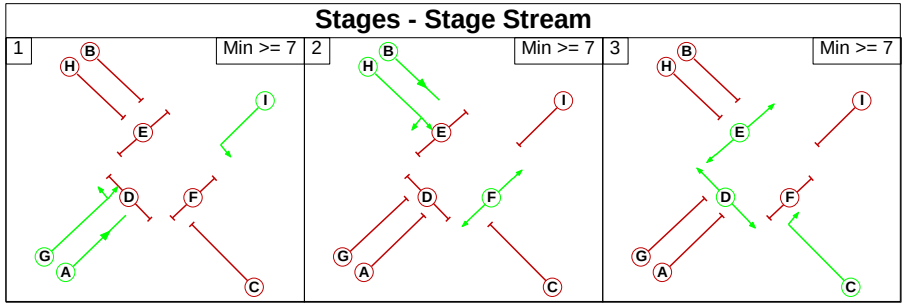
Full Input Data And Results

Network Layout Diagram

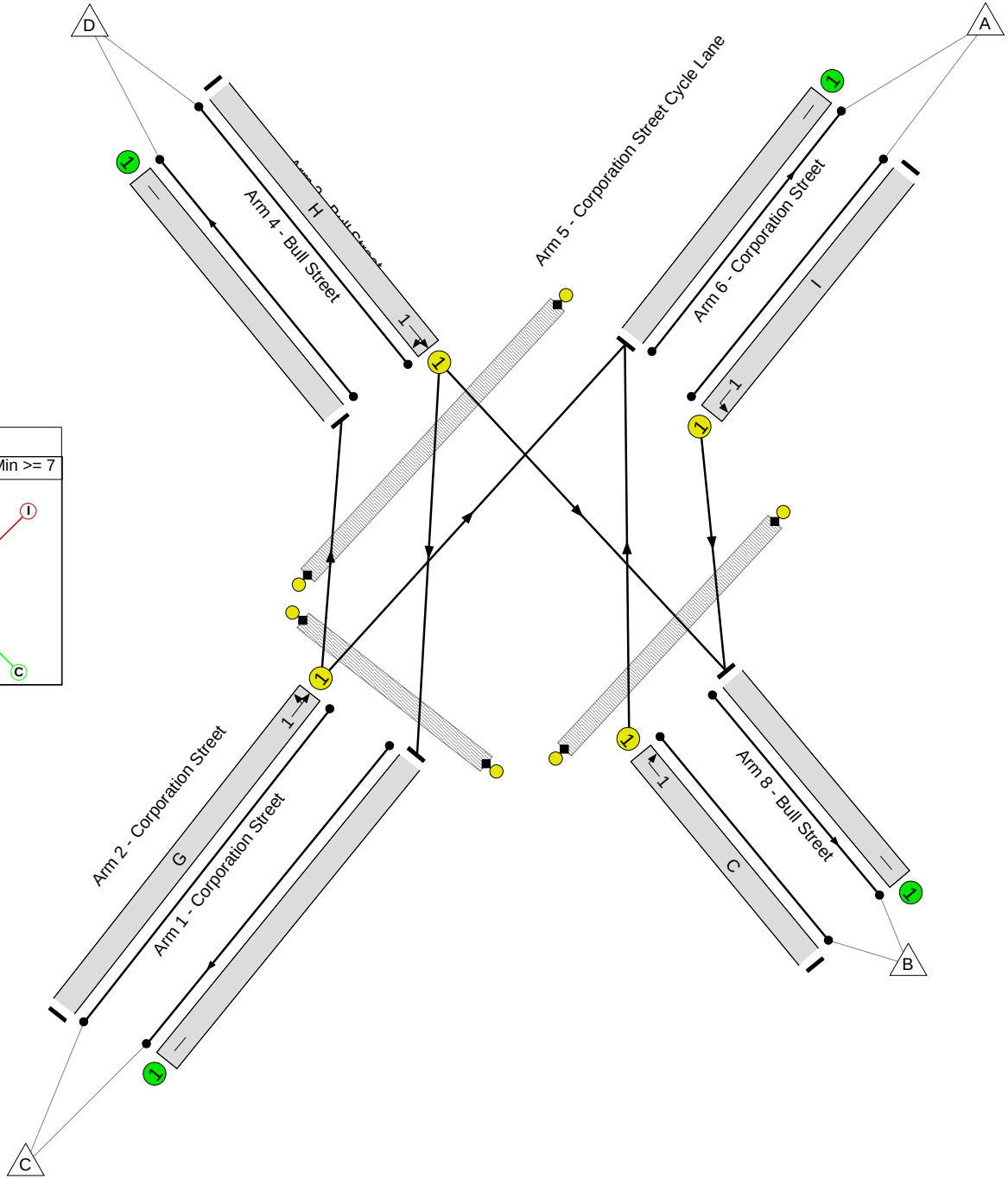
Full Input Data And Results



C1 Stream 1



Bull Street - Corporation Street
PRC: 93.6 %
Total Traffic Delay: 2.1 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Street/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**46.5%**
Bull Street - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**46.5%**
1/1	Corporation Street Left Ahead	U	1	N/A	G		1	7	-	58	2015	316	18.3%
2/1	Corporation Street	U	N/A	N/A	-		-	-	-	58	1975	1975	2.9%
3/1	Bull Street	U	N/A	N/A	-		-	-	-	58	1995	1995	2.9%
4/1	Bull Street Right Ahead	U	1	N/A	H		1	7	-	58	1995	313	18.5%
5/1	Corporation Street Cycle Lane Left	U	1	N/A	I		1	12	-	0	1815	463	0.0%
6/1	Corporation Street	U	N/A	N/A	-		-	-	-	160	Inf	Inf	0.0%
7/1	Bull Street Right	U	1	N/A	C		1	8	-	160	1950	344	46.5%
8/1	Bull Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	E		1	10	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	D		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Street/Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.7**	**0.0**	**2.1**	**-**	**-**	**-**	**-**
Bull Street - Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.7**	**0.0**	**2.1**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.3	0.1	-	0.4	25.7	0.7	0.1	0.8
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	58	58	-	-	-	0.3	0.1	-	0.4	25.8	0.7	0.1	0.8
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	160	160	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	160	160	-	-	-	0.8	0.4	-	1.3	28.6	2.0	0.4	2.4
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 Stream: 1 PRC for Signalled Lanes (%): 93.6 Total Delay for Signalled Lanes (pcuHr): 2.10 Cycle Time (s): 51
PRC Over All Lanes (%): 93.6 Total Delay Over All Lanes(pcuHr): 2.13

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: J2 Bull Street - Dale End.j9
Path: P:\Birmingham\ITB\359345 BEE Addendum Work\3.0 Calculations\Junction Capacity Assessments\Junctions 9 Assessments\Existing and DM
Report generation date: 25/09/2017 11:49:07

»2016-Standard, AM
»2016-Standard, PM
»2026-Standard, AM
»2026-Standard, PM
»2031-Standard, AM
»2031-Standard, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016-Standard							
Stream B-AC	0.1	14.90	0.07	B	0.1	14.78	0.06	B
Stream C-AB	0.8	13.31	0.26	B	0.8	13.06	0.26	B
	2026-Standard							
Stream B-AC	0.0	7.60	0.04	A	0.0	7.83	0.05	A
Stream C-AB	0.5	7.66	0.28	A	0.8	8.63	0.36	A
	2031-Standard							
Stream B-AC	0.0	7.60	0.04	A	0.0	7.60	0.04	A
Stream C-AB	0.5	7.66	0.28	A	0.5	7.66	0.28	A

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	BEE Bull Street / Dale End
Location	BEE
Site number	Junction 2
Date	03/11/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	359345
Enumerator	MOTTMAC\HOD76167
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D5	2026-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D6	2026-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D7	2031-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D8	2031-Standard	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

2016-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	9.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bull Street		Major
B	Dale End		Minor
C	High Street		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	4.30			93.3	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.38	27	40

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	576	0.093	0.235	0.148	0.336
1	B-C	739	0.100	0.254	-	-
1	C-B	628	0.216	0.216	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	30	100.000
C		ONE HOUR	✓	260	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	30	0	0
	C	122	138	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.47	0.53	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	95	0	0
	C	95	95	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.950	1.000	1.000
	C	1.950	1.950	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:30-08:45	A	0	0
	B	23	23
	C	196	196
08:45-09:00	A	0	0
	B	27	27
	C	234	234
09:00-09:15	A	0	0
	B	33	33
	C	286	286
09:15-09:30	A	0	0
	B	33	33
	C	286	286
09:30-09:45	A	0	0
	B	27	27
	C	234	234
09:45-10:00	A	0	0
	B	23	23
	C	196	196

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	14.90	0.1	B	28	41
C-AB	0.26	13.31	0.8	B	152	228
C-A					87	130
A-B					0	0
A-C					0	0

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	527	0.043	22	0.0	0.1	13.888	B
C-AB	120	30	688	0.174	118	0.0	0.5	12.293	B
C-A	76	19			76				
A-B	0	0			0				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27	7	517	0.052	27	0.1	0.1	14.309	B
C-AB	147	37	700	0.211	147	0.5	0.6	12.703	B
C-A	86	22			86				
A-B	0	0			0				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	33	8	504	0.066	33	0.1	0.1	14.890	B
C-AB	188	47	716	0.262	187	0.6	0.8	13.272	B
C-A	99	25			99				
A-B	0	0			0				
A-C	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	33	8	504	0.066	33	0.1	0.1	14.903	B
C-AB	188	47	716	0.262	188	0.8	0.8	13.309	B
C-A	99	25			99				
A-B	0	0			0				
A-C	0	0			0				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27	7	517	0.052	27	0.1	0.1	14.330	B
C-AB	148	37	700	0.211	148	0.8	0.6	12.762	B
C-A	86	22			86				
A-B	0	0			0				
A-C	0	0			0				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	527	0.043	23	0.1	0.1	13.933	B
C-AB	120	30	688	0.175	121	0.6	0.5	12.398	B
C-A	76	19			76				
A-B	0	0			0				
A-C	0	0			0				

2016-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	8.56	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)	Run automatically
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	26	100.000
C		ONE HOUR	✓	268	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	26	0	0
	C	134	134	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.50	0.50	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	95	0	0
	C	95	95	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.950	1.000	1.000
	C	1.950	1.950	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A	0	0
	B	20	20
	C	202	202
16:15-16:30	A	0	0
	B	23	23
	C	241	241
16:30-16:45	A	0	0
	B	29	29
	C	295	295
16:45-17:00	A	0	0
	B	29	29
	C	295	295
17:00-17:15	A	0	0
	B	23	23
	C	241	241
17:15-17:30	A	0	0
	B	20	20
	C	202	202

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.06	14.78	0.1	B	24	36
C-AB	0.26	13.06	0.8	B	150	225
C-A					96	144
A-B					0	0
A-C					0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	20	5	527	0.037	19	0.0	0.1	13.817	B
C-AB	118	30	694	0.170	116	0.0	0.5	12.130	B
C-A	84	21			84				
A-B	0	0			0				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	517	0.045	23	0.1	0.1	14.216	B
C-AB	146	36	707	0.206	145	0.5	0.6	12.504	B
C-A	95	24			95				
A-B	0	0			0				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	29	7	504	0.057	29	0.1	0.1	14.766	B
C-AB	186	46	724	0.257	185	0.6	0.8	13.019	B
C-A	109	27			109				
A-B	0	0			0				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	29	7	504	0.057	29	0.1	0.1	14.779	B
C-AB	186	46	724	0.257	186	0.8	0.8	13.058	B
C-A	109	27			109				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	517	0.045	23	0.1	0.1	14.235	B
C-AB	146	36	707	0.206	147	0.8	0.6	12.560	B
C-A	95	24			95				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	20	5	526	0.037	20	0.1	0.1	13.855	B
C-AB	118	30	694	0.171	119	0.6	0.5	12.229	B
C-A	83	21			83				
A-B	0	0			0				
A-C	0	0			0				

2026-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	4.74	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)	Run automatically
D5	2026-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	308	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	164	144	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.53	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:30-08:45	A	0	0
	B	15	15
	C	232	232
08:45-09:00	A	0	0
	B	18	18
	C	277	277
09:00-09:15	A	0	0
	B	22	22
	C	339	339
09:15-09:30	A	0	0
	B	22	22
	C	339	339
09:30-09:45	A	0	0
	B	18	18
	C	277	277
09:45-10:00	A	0	0
	B	15	15
	C	232	232

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	7.60	0.0	A	18	28
C-AB	0.28	7.66	0.5	A	168	252
C-A					115	172
A-B					0	0
A-C					0	0

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.108	A
C-AB	131	33	708	0.185	130	0.0	0.3	6.811	A
C-A	101	25			101				
A-B	0	0			0				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.312	A
C-AB	163	41	724	0.225	162	0.3	0.4	7.075	A
C-A	114	29			114				
A-B	0	0			0				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.602	A
C-AB	210	52	746	0.281	209	0.4	0.5	7.540	A
C-A	130	32			130				
A-B	0	0			0				
A-C	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.605	A
C-AB	210	52	746	0.281	210	0.5	0.5	7.658	A
C-A	129	32			129				
A-B	0	0			0				
A-C	0	0			0				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.320	A
C-AB	163	41	724	0.225	164	0.5	0.4	7.284	A
C-A	114	28			114				
A-B	0	0			0				
A-C	0	0			0				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.119	A
C-AB	132	33	709	0.186	132	0.4	0.3	6.933	A
C-A	100	25			100				
A-B	0	0			0				
A-C	0	0			0				

2026-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	6.04	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)	Run automatically
D6	2026-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	338	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	152	186	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.45	0.55	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A	0	0
	B	15	15
	C	254	254
16:15-16:30	A	0	0
	B	18	18
	C	304	304
16:30-16:45	A	0	0
	B	22	22
	C	372	372
16:45-17:00	A	0	0
	B	22	22
	C	372	372
17:00-17:15	A	0	0
	B	18	18
	C	304	304
17:15-17:30	A	0	0
	B	15	15
	C	254	254

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.05	7.83	0.0	A	18	28
C-AB	0.36	8.63	0.8	A	213	320
C-A					97	145
A-B					0	0
A-C					0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	512	0.029	15	0.0	0.0	7.241	A
C-AB	167	42	703	0.238	166	0.0	0.4	7.287	A
C-A	87	22			87				
A-B	0	0			0				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	499	0.036	18	0.0	0.0	7.482	A
C-AB	207	52	717	0.289	206	0.4	0.5	7.721	A
C-A	97	24			97				
A-B	0	0			0				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	482	0.046	22	0.0	0.0	7.830	A
C-AB	265	66	737	0.360	265	0.5	0.7	8.481	A
C-A	107	27			107				
A-B	0	0			0				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	481	0.046	22	0.0	0.0	7.834	A
C-AB	266	66	737	0.360	266	0.7	0.8	8.629	A
C-A	106	27			106				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	499	0.036	18	0.0	0.0	7.492	A
C-AB	207	52	717	0.289	208	0.8	0.5	7.969	A
C-A	97	24			97				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	511	0.029	15	0.0	0.0	7.254	A
C-AB	168	42	703	0.239	168	0.5	0.4	7.433	A
C-A	87	22			87				
A-B	0	0			0				
A-C	0	0			0				

2031-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	4.74	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)	Run automatically
D7	2031-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	308	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	164	144	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.53	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:30-08:45	A	0	0
	B	15	15
	C	232	232
08:45-09:00	A	0	0
	B	18	18
	C	277	277
09:00-09:15	A	0	0
	B	22	22
	C	339	339
09:15-09:30	A	0	0
	B	22	22
	C	339	339
09:30-09:45	A	0	0
	B	18	18
	C	277	277
09:45-10:00	A	0	0
	B	15	15
	C	232	232

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	7.60	0.0	A	18	28
C-AB	0.28	7.66	0.5	A	168	252
C-A					115	172
A-B					0	0
A-C					0	0

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.108	A
C-AB	131	33	708	0.185	130	0.0	0.3	6.811	A
C-A	101	25			101				
A-B	0	0			0				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.312	A
C-AB	163	41	724	0.225	162	0.3	0.4	7.075	A
C-A	114	29			114				
A-B	0	0			0				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.602	A
C-AB	210	52	746	0.281	209	0.4	0.5	7.540	A
C-A	130	32			130				
A-B	0	0			0				
A-C	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.605	A
C-AB	210	52	746	0.281	210	0.5	0.5	7.658	A
C-A	129	32			129				
A-B	0	0			0				
A-C	0	0			0				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.320	A
C-AB	163	41	724	0.225	164	0.5	0.4	7.284	A
C-A	114	28			114				
A-B	0	0			0				
A-C	0	0			0				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.119	A
C-AB	132	33	709	0.186	132	0.4	0.3	6.933	A
C-A	100	25			100				
A-B	0	0			0				
A-C	0	0			0				

2031-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	4.74	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)	Run automatically
D8	2031-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	308	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	164	144	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.53	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A	0	0
	B	15	15
	C	232	232
16:15-16:30	A	0	0
	B	18	18
	C	277	277
16:30-16:45	A	0	0
	B	22	22
	C	339	339
16:45-17:00	A	0	0
	B	22	22
	C	339	339
17:00-17:15	A	0	0
	B	18	18
	C	277	277
17:15-17:30	A	0	0
	B	15	15
	C	232	232

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	7.60	0.0	A	18	28
C-AB	0.28	7.66	0.5	A	168	252
C-A					115	172
A-B					0	0
A-C					0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.108	A
C-AB	131	33	708	0.185	130	0.0	0.3	6.811	A
C-A	101	25			101				
A-B	0	0			0				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.312	A
C-AB	163	41	724	0.225	162	0.3	0.4	7.075	A
C-A	114	29			114				
A-B	0	0			0				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.602	A
C-AB	210	52	746	0.281	209	0.4	0.5	7.540	A
C-A	130	32			130				
A-B	0	0			0				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.605	A
C-AB	210	52	746	0.281	210	0.5	0.5	7.658	A
C-A	129	32			129				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.320	A
C-AB	163	41	724	0.225	164	0.5	0.4	7.284	A
C-A	114	28			114				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

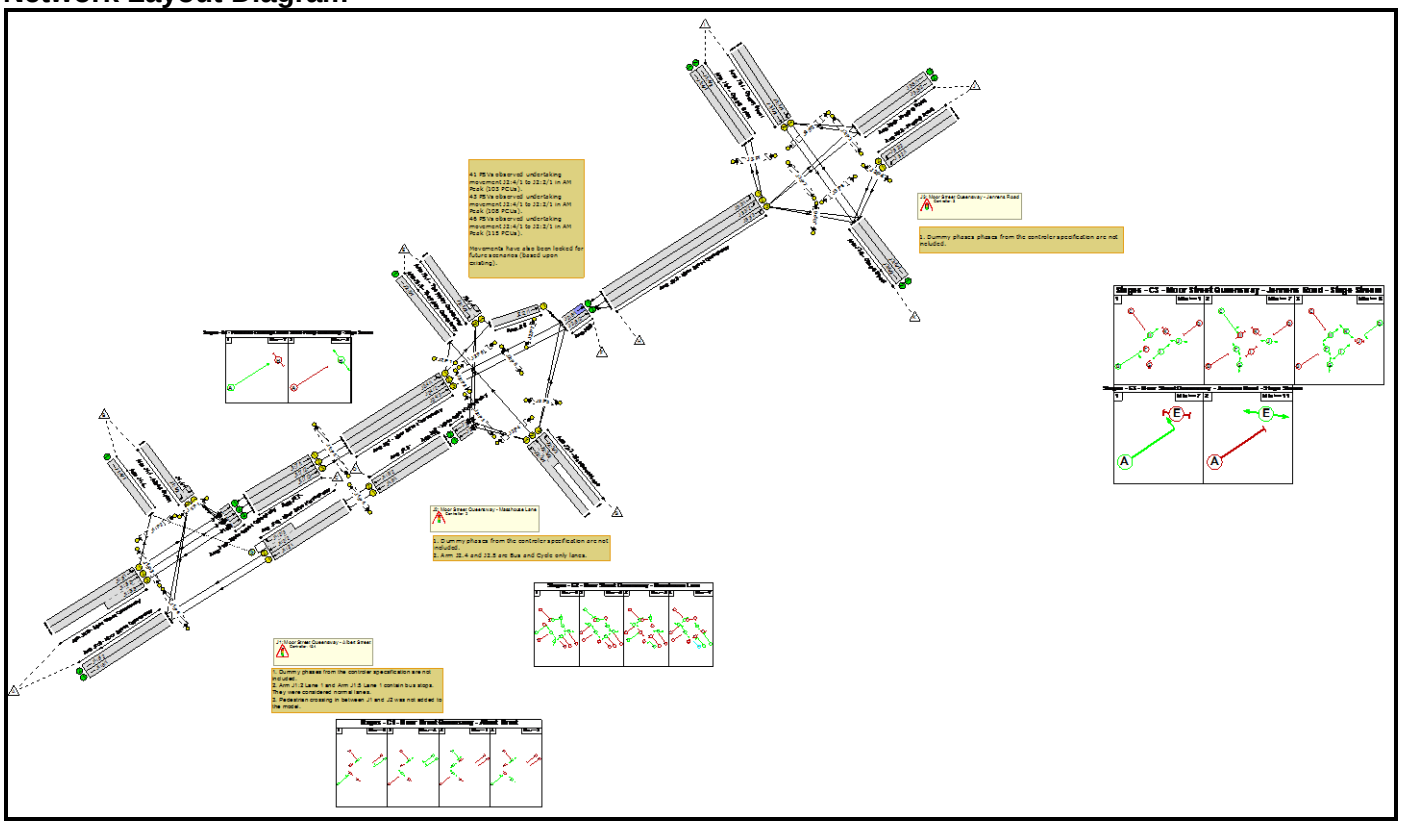
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.119	A
C-AB	132	33	709	0.186	132	0.4	0.3	6.933	A
C-A	100	25			100				
A-B	0	0			0				
A-C	0	0			0				

Full Input Data And Results

User and Project Details

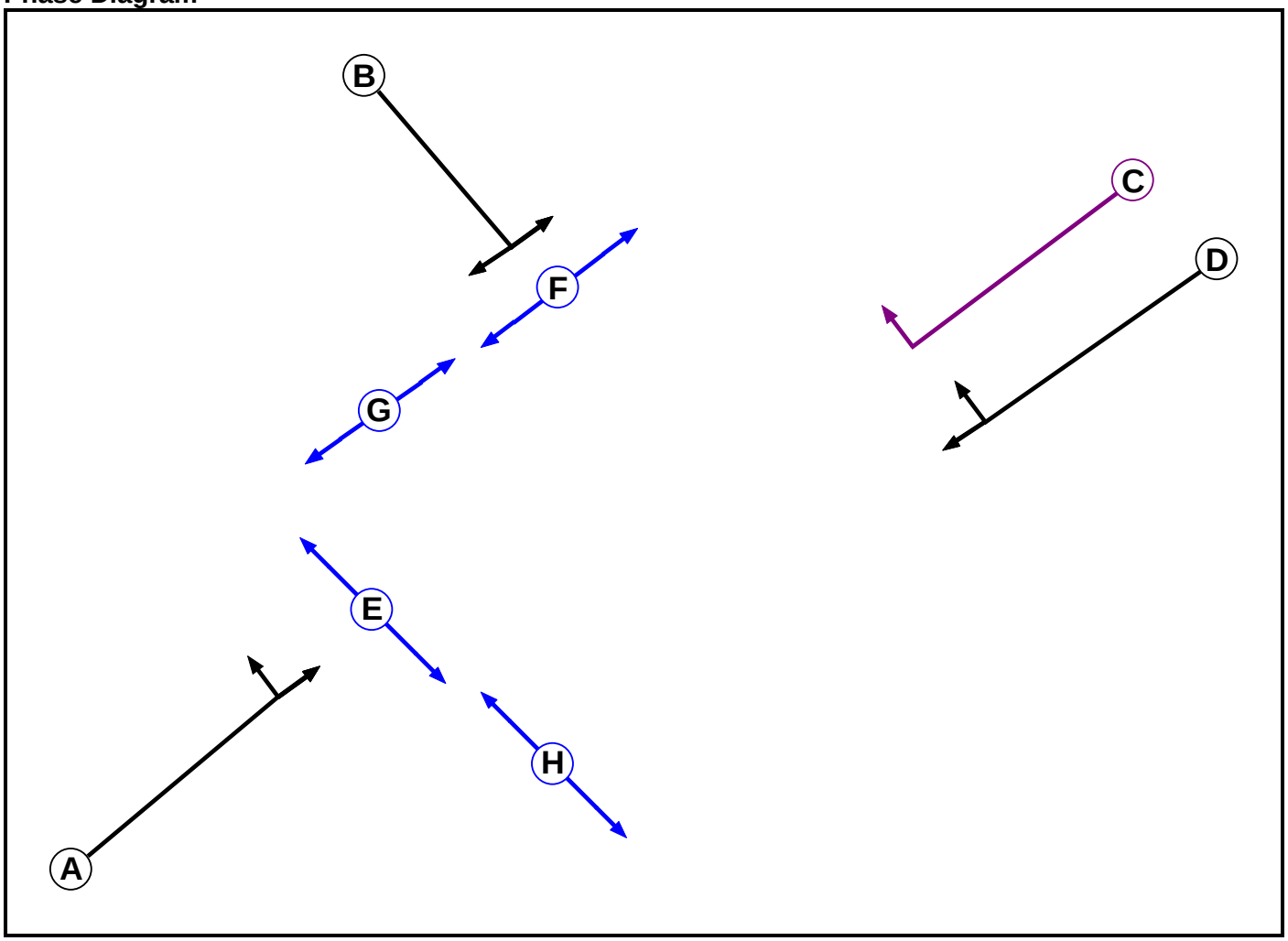
Project:	**359345 - Birmingham Eastside Extension**
Title:	**Moor Street Queensway/Albert Street**
Location:	Birmingham
File name:	Moor Street Queensway - Albert Street.lsg3x
Author:	Dragos Suciu
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU, UK
Notes:	

Network Layout Diagram



C1 - Moor Street Queensway - Albert Street

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	0
C	Ind. Arrow	D	4	4
D	Traffic		7	7
E	Pedestrian		13	13
F	Pedestrian		8	8
G	Pedestrian		7	1
H	Pedestrian		7	7

Full Input Data And Results

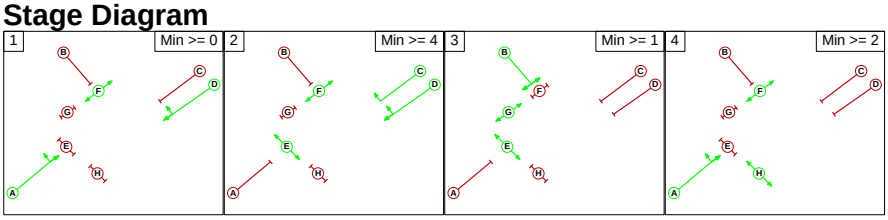
Phase Intergreens Matrix

Terminating Phase	Starting Phase							
	A	B	C	D	E	F	G	H
A		6	5	-	5	-	7	-
B	5		7	7	-	5	-	10
C	6	5		-	-	-	8	-
D	-	5	-		-	-	8	8
E	13	-	-	-		-	-	-
F	-	8	-	-	-		-	-
G	7	-	7	7	-	-		-
H	-	8	-	8	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D F
2	C D E F
3	B E G
4	A F H

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	A	Losing	2	2
1	3	D	Losing	3	3
2	3	D	Losing	3	3
3	1	B	Losing	8	8
3	1	G	Losing	6	6
3	4	B	Losing	8	8
3	4	G	Losing	6	6
4	3	A	Losing	2	2

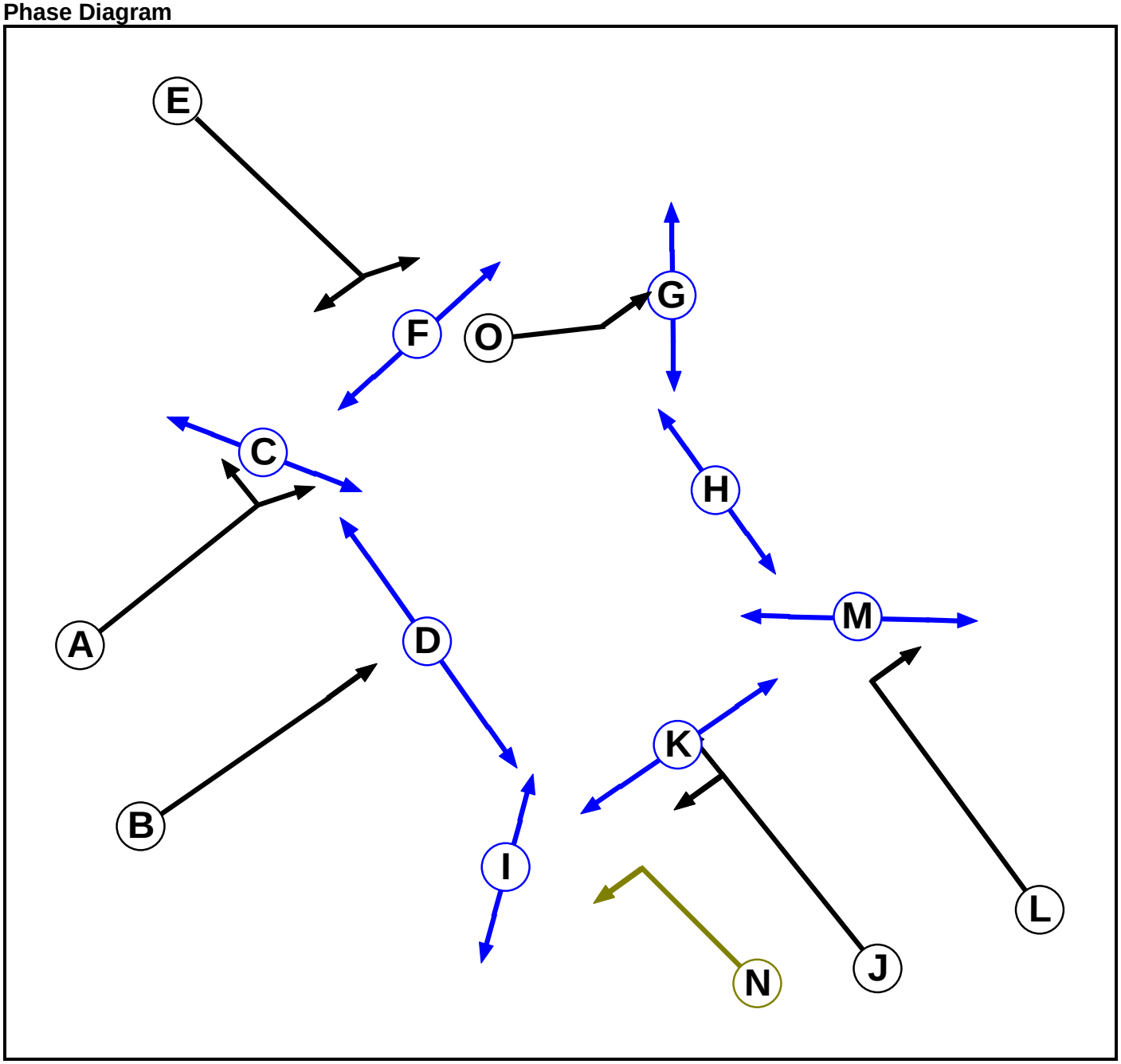
Full Input Data And Results

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		5	11	8
	2	13		11	13
	3	15	X		18
	4	8	X	9	

C2 - Moor Street Queensway - Masshouse Lane

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Pedestrian		6	6
D	Pedestrian		6	6
E	Traffic		7	5
F	Pedestrian		6	6
G	Pedestrian		7	7
H	Pedestrian		6	6
I	Pedestrian		6	6
J	Traffic		7	7
K	Pedestrian		8	8
L	Traffic		7	7
M	Pedestrian		7	7
N	Filter	J	4	0
O	Traffic		7	7

Full Input Data And Results

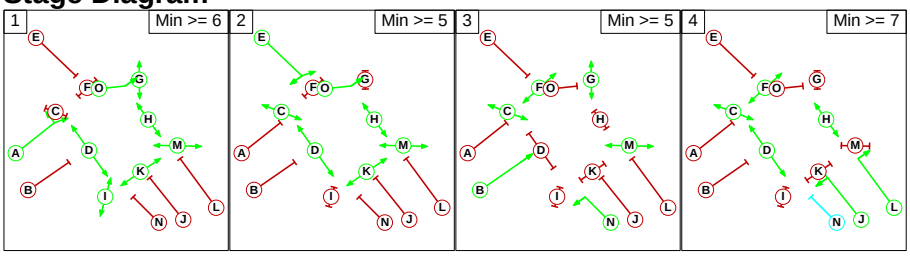
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A		6	5	-	7	-	-	-	-	5	-	-	-	-	-
B	5		-	5	5	-	-	7	-	5	-	7	-	-	8
C	8	-		-	-	-	-	-	-	-	-	-	-	-	-
D	-	8	-		-	-	-	-	-	-	-	-	-	-	-
E	5	7	-	-		8	7	-	10	8	-	7	-	8	-
F	-	-	-	-	7		-	-	-	-	-	-	-	-	-
G	-	-	-	-	7	-		-	-	7	-	-	-	-	-
H	-	6	-	-	-	-	-		-	-	-	-	-	-	-
I	-	-	-	-	5	-	-	-		7	-	-	-	7	-
J	8	6	-	-	5	-	8	-	7		5	-	-	-	-
K	-	-	-	-	-	-	-	-	-	10		-	-	10	-
L	-	5	-	-	5	-	-	-	-	-	-		5	-	5
M	-	-	-	-	-	-	-	-	-	-	-	7		-	-
N	-	-	-	-	5	-	-	-	7	-	5	-	-		-
O	-	5	-	-	-	5	-	-	-	-	-	5	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D G H I K M O
2	C D E H K M O
3	B C F G M N
4	C D F H J L

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	A	Losing	1	1
1	4	A	Losing	2	2
1	4	G	Losing	3	3
1	4	I	Losing	3	3
1	4	M	Losing	1	1
1	4	O	Losing	5	5
2	1	E	Losing	3	3
2	3	E	Losing	2	2
2	3	H	Losing	2	2
2	3	O	Losing	5	5
2	4	E	Losing	2	2
2	4	M	Losing	2	2
2	4	O	Losing	5	5
4	1	F	Losing	3	3
4	1	L	Losing	3	3

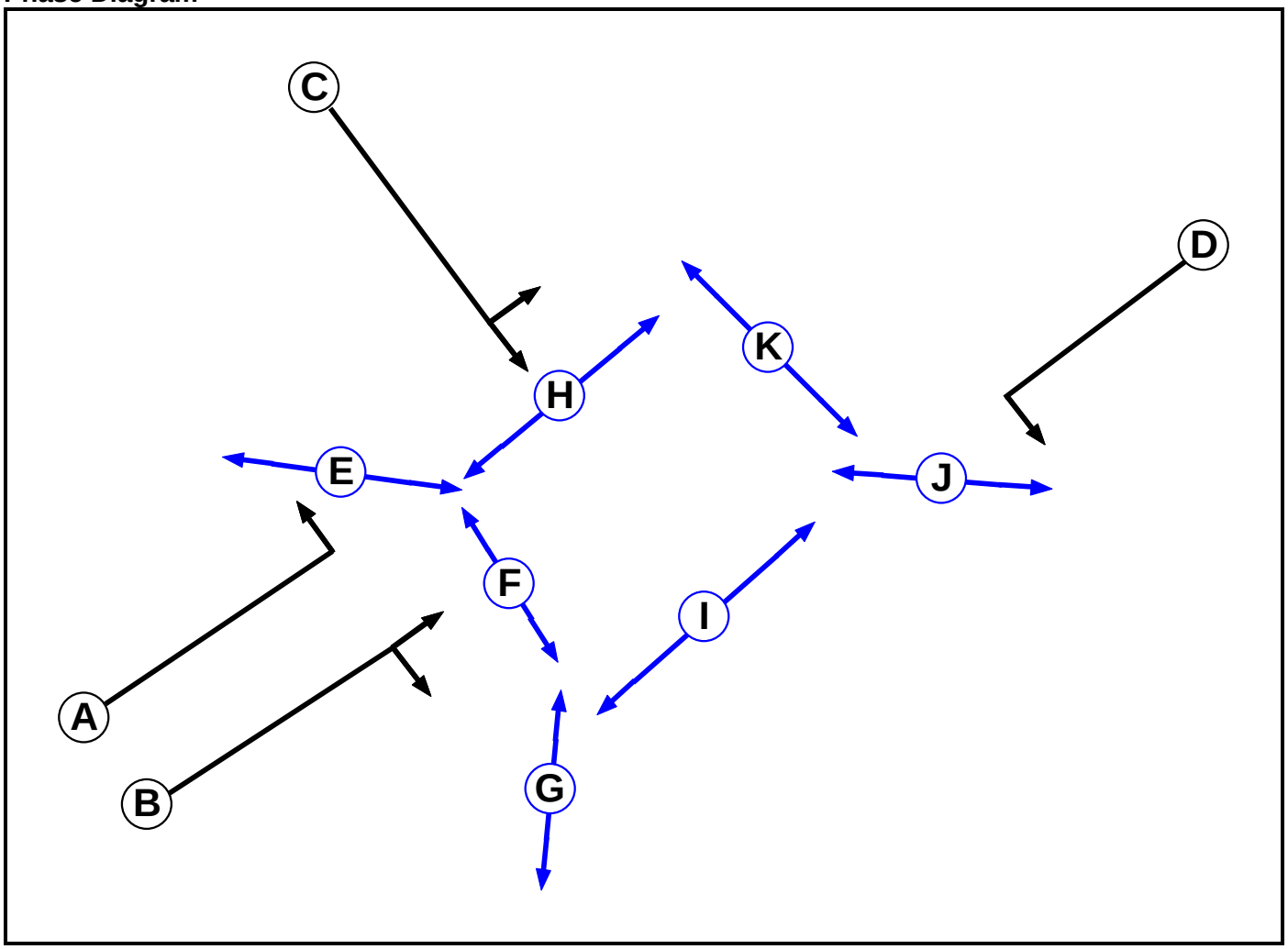
Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		7	10	10
2	13		10	10
3	X	X		7
4	8	7	8	

Full Input Data And Results

C3 - Moor Street Queensway - Jennens Road

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	2		7	7
B	Traffic	1		7	2
C	Traffic	1		7	7
D	Traffic	1		7	3
E	Pedestrian	2		11	11
F	Pedestrian	1		5	5
G	Pedestrian	1		6	6
H	Pedestrian	1		10	10
I	Pedestrian	1		10	10
J	Pedestrian	1		10	10
K	Pedestrian	1		8	8

Full Input Data And Results

Phase Intergreens Matrix

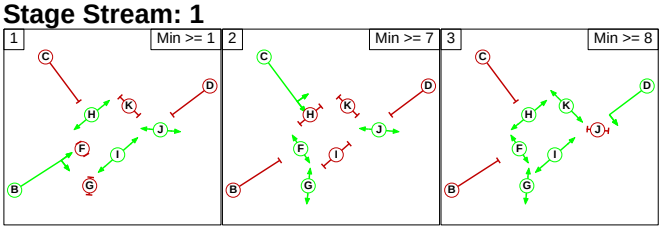
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K
A		-	-	-	5	-	-	-	-	-	-
B	-		5	5	-	5	5	-	-	-	8
C	-	5		7	-	-	-	5	7	-	8
D	-	5	5		-	-	-	-	-	5	-
E	11	-	-	-		-	-	-	-	-	-
F	-	5	-	-	-		-	-	-	-	-
G	-	6	-	-	-	-		-	-	-	-
H	-	-	10	-	-	-	-		-	-	-
I	-	-	8	-	-	-	-	-		-	-
J	-	-	-	10	-	-	-	-	-		-
K	-	9	9	-	-	-	-	-	-	-	

Phases in Stage

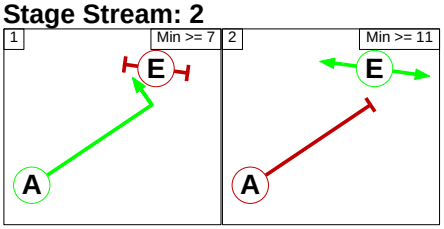
Stream	Stage No.	Phases in Stage
1	1	B H I J
1	2	C F G J
1	3	D F G H I K
2	1	A
2	2	E

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	B	Losing	5	5
1	3	B	Losing	5	5
2	3	C	Losing	4	4
3	1	D	Losing	4	4
3	2	D	Losing	5	5

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

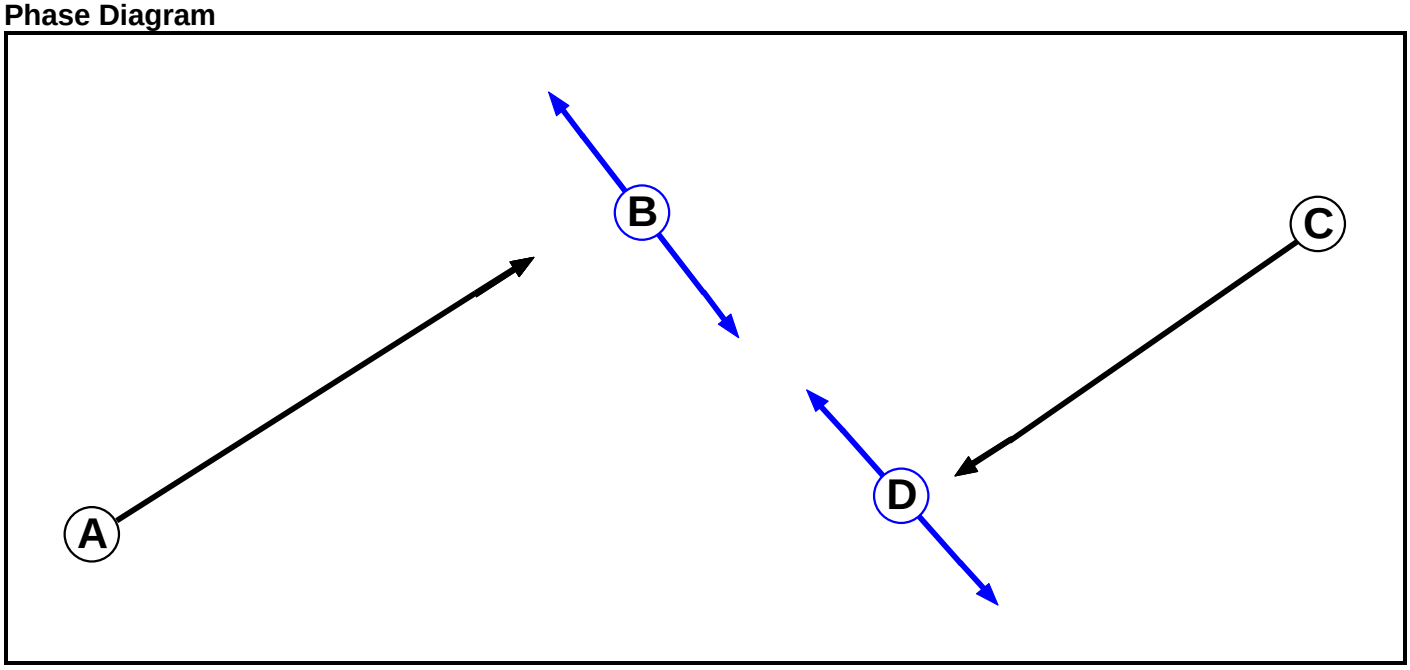
		To Stage		
		1	2	3
From Stage	1		10	13
	2	7		12
	3	9	10	

Stage Stream: 2

		To Stage	
		1	2
From Stage	1		5
	2	11	

C4 - Pedestrian Crossings Albert Street-Priory Queensway

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Pedestrian	1		5	5
C	Traffic	2		7	7
D	Pedestrian	2		5	5

Phase Intergreens Matrix

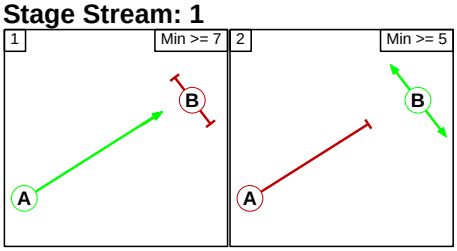
		Starting Phase			
		A	B	C	D
Terminating Phase	A		5	-	-
	B	8		-	-
	C	-	-		5
	D	-	-	8	

Phases in Stage

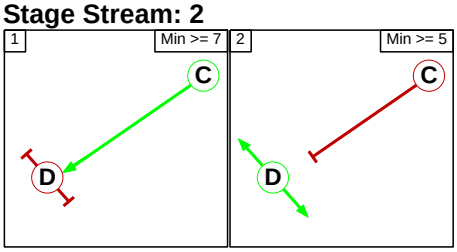
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		5
	2	8	

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		5
	2	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Moor Street Queensway - Albert Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J1:2/3 (Moor Street Queensway)	J1:4/1 (Right)	1439	0	J1:3/2	1.09	All	2.00	-	0.50	2	2.00
				J1:3/3	1.09	To J1:5/3 (Ahead)					
				J1:3/1	1.09	All					

Junction: J2: Moor Street Queensway - Masshouse Lane
There are no Opposed Lanes in this Junction

Junction: J3: Moor Street Queensway - Jennens Road
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: Moor Street Queensway - Albert Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Albert Street)	U	B	2	3	1.9	Geom	-	3.35	0.00	Y	Arm J1:5 Left	19.00
J1:1/2 (Albert Street)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm J1:6 Right	13.00
J1:2/1 (Moor Street Queensway)	U	D	2	3	9.7	Geom	-	2.90	0.00	Y	Arm J1:6 Ahead	Inf
J1:2/2 (Moor Street Queensway)	U	D	2	3	9.7	Geom	-	3.50	0.00	N	Arm J1:6 Ahead	Inf
J1:2/3 (Moor Street Queensway)	O	D C	2	3	6.6	Geom	-	2.80	0.00	Y	Arm J1:4 Right	22.00
J1:3/1 (Moor Street Queensway)	U	A	2	3	60.0	Geom	-	3.95	0.00	Y	Arm J1:4 Left	10.00
											Arm J1:5 Ahead	Inf
J1:3/2 (Moor Street Queensway)	U	A	2	3	60.0	Geom	-	3.20	0.00	Y	Arm J1:5 Ahead	Inf
J1:3/3 (Moor Street Queensway)	U	A	2	3	8.5	Geom	-	2.90	0.00	N	Arm J1:5 Ahead	Inf
J1:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.55	0.00	Y	Arm J1:7 Ahead	Inf
J1:5/2 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.55	0.00	Y	Arm J1:7 Ahead	Inf
J1:5/3 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.10	0.00	N	Arm J1:7 Ahead	Inf
J1:6/1 (Moor Street Queensway)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/2 (Moor Street Queensway)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:7/1	U	A	2	3	13.9	Geom	-	3.55	0.00	Y	Arm J2:4 Ahead	Inf
J1:7/2	U	A	2	3	13.9	Geom	-	3.55	0.00	Y	Arm J2:4 Ahead	Inf

Full Input Data And Results

J1:7/3	U	A	2	3	13.9	Geom	-	3.10	0.00	N	Arm J2:4 Ahead	Inf
J1:8/1	U	C	2	3	12.5	Geom	-	3.00	0.00	Y	Arm J1:2 Ahead	Inf
J1:8/2	U	C	2	3	12.5	Geom	-	3.45	0.00	N	Arm J1:2 Ahead	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (The Priory Queensway)	U	E	2	3	1.9	Geom	-	3.00	0.00	Y	Arm J2:2 Left	30.00
J2:1/2 (The Priory Queensway)	U	E	2	3	60.0	Geom	-	3.70	0.00	N	Arm J2:7 Right	9.00
J2:2/1	U	O	2	3	3.8	Geom	-	4.30	0.00	Y	Arm J2:6 Ahead	55.00
J2:3/1 (Masshouse Lane)	U	J N	2	3	60.0	Geom	-	3.30	0.00	Y	Arm J2:7 Left	9.00
J2:3/2 (Masshouse Lane)	U	J	2	3	6.4	Geom	-	4.05	0.00	Y	Arm J2:5 Ahead	Inf
J2:3/3 (Masshouse Lane)	U	L	2	3	60.0	Geom	-	3.30	0.00	Y	Arm J2:6 Right	18.00
J2:4/1 (Moor Street Queensway)	U	A	2	3	9.6	Geom	-	3.30	0.00	Y	Arm J2:2 Ahead	Inf
											Arm J2:5 Left	30.00
J2:4/2 (Moor Street Queensway)	U	B	2	3	10.6	Geom	-	3.65	0.00	Y	Arm J2:6 Ahead	Inf
J2:4/3 (Moor Street Queensway)	U	B	2	3	10.6	Geom	-	3.35	0.00	N	Arm J2:6 Ahead	Inf
J2:5/1 (The Priory Queensway)	U		2	3	60.0	Geom	-	3.80	0.00	Y		
J2:6/1	U		2	3	6.6	Geom	-	3.40	0.00	Y	Arm J3:3 Ahead	Inf
J2:6/2	U		2	3	6.6	Geom	-	3.50	0.00	N	Arm J3:3 Ahead	Inf
J2:7/1 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.00	0.00	Y	Arm J1:8 Ahead	Inf
J2:7/2 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.45	0.00	N	Arm J1:8 Ahead	Inf

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (Chapel Street)	U	C	2	3	60.0	Geom	-	3.45	0.00	Y	Arm J3:5 Left	17.00
											Arm J3:6 Ahead	Inf
J3:1/2 (Chapel Street)	U	C	2	3	60.0	Geom	-	3.40	0.00	N	Arm J3:6 Ahead	Inf
J3:2/1 (Jennens Road)	U	D	2	3	60.0	Geom	-	3.65	0.00	Y	Arm J3:6 Left	26.00
J3:2/2 (Jennens Road)	U	D	2	3	60.0	Geom	-	3.70	0.00	N	Arm J3:6 Left	26.00
J3:3/1 (Moor Street Queensway)	U	A	2	3	13.6	Geom	-	3.10	0.00	Y	Arm J3:4 Left	35.00
J3:3/2 (Moor Street Queensway)	U	A	2	3	14.3	Geom	-	3.45	0.00	N	Arm J3:4 Left	35.00
J3:3/3 (Moor Street Queensway)	U	B	2	3	14.3	Geom	-	3.75	0.00	Y	Arm J3:5 Ahead	Inf
											Arm J3:6 Right	20.00
J3:4/1 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:4/2 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/1 (Jennens Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/2 (Jennens Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/1 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/2 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 Observed AM (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	113	624	0	0	0	0	0	0	0	0	737
	B	150	0	35	0	0	0	0	0	0	0	0	185
	C	258	55	0	0	0	0	0	0	0	0	0	313
	D	0	0	0	0	66	570	0	0	0	0	0	636
	E	0	0	0	122	0	83	0	0	0	0	0	205
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	182	106	130	0	0	0	0	0	418
	H	0	0	0	0	0	0	0	0	445	195	139	779
	I	0	0	0	0	0	0	0	0	0	250	772	1022
	J	0	0	0	0	0	0	0	0	0	0	411	411
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	408	168	659	304	172	783	0	0	445	445	1322	4706

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2016 Observed AM (Standard PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	35
J1:1/2 (with short)	185(In) 150(Out)
J1:2/1	104
J1:2/2 (with short)	209(In) 154(Out)
J1:2/3 (short)	55
J1:3/1	233
J1:3/2 (with short)	504(In) 243(Out)
J1:3/3 (short)	261
J1:4/1	168
J1:5/1	123
J1:5/2	252
J1:5/3	284
J1:6/1	179
J1:6/2	229
J1:7/1	123
J1:7/2	252
J1:7/3	284
J1:8/1	87
J1:8/2	217
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	83
J2:1/2 (with short)	205(In) 122(Out)
J2:2/1	186
J2:3/1 (with short)	288(In) 182(Out)
J2:3/2 (short)	106
J2:3/3	130
J2:4/1	169
J2:4/2	223
J2:4/3	244
J2:5/1	172
J2:6/1	327
J2:6/2	456
J2:7/1	87
J2:7/2	217

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	473
J3:1/2	549
J3:2/1	196
J3:2/2	215
J3:3/1	195
J3:3/2	250
J3:3/3	334
J3:4/1	195
J3:4/2	250
J3:5/1	223
J3:5/2	222
J3:6/1	489
J3:6/2	833

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	100.0 %	1774	1774
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	48.5 %	1874	1874
				Arm J1:5 Ahead	Inf	51.5 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	60.9 % 39.1 %	1908	1908
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	52.9 %	1873	1873
				Arm J3:6 Ahead	Inf	47.1 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	58.4 %	1930	1930
				Arm J3:6 Right	20.00	41.6 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2016 Observed PM (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	73	798	0	0	0	0	0	0	0	0	871
	B	207	0	95	0	0	0	0	0	0	0	0	302
	C	234	51	0	0	0	0	0	0	0	0	0	285
	D	0	0	0	0	63	847	0	0	0	0	0	910
	E	0	0	0	99	0	98	0	0	0	0	0	197
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	187	110	178	0	0	0	0	0	475
	H	0	0	0	0	0	0	0	0	754	225	139	1118
	I	0	0	0	0	0	0	0	0	0	235	865	1100
	J	0	0	0	0	0	0	0	0	0	0	492	492
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	441	124	893	286	173	1123	0	0	754	460	1496	5750

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 Observed PM (Standard PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	95
J1:1/2 (with short)	302(In) 207(Out)
J1:2/1	92
J1:2/2 (with short)	193(In) 142(Out)
J1:2/3 (short)	51
J1:3/1	273
J1:3/2 (with short)	598(In) 293(Out)
J1:3/3 (short)	305
J1:4/1	124
J1:5/1	206
J1:5/2	305
J1:5/3	382
J1:6/1	196
J1:6/2	245
J1:7/1	206
J1:7/2	305
J1:7/3	382
J1:8/1	92
J1:8/2	194
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	98
J2:1/2 (with short)	197(In) 99(Out)
J2:2/1	206
J2:3/1 (with short)	297(In) 187(Out)
J2:3/2 (short)	110
J2:3/3	178
J2:4/1	171
J2:4/2	354
J2:4/3	385
J2:5/1	173
J2:6/1	469
J2:6/2	654
J2:7/1	92
J2:7/2	194

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	512
J3:1/2	588
J3:2/1	234
J3:2/2	258
J3:3/1	343
J3:3/2	411
J3:3/3	364
J3:4/1	343
J3:4/2	411
J3:5/1	231
J3:5/2	229
J3:6/1	581
J3:6/2	915

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	100.0 %	1774	1774
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	26.7 %	1932	1932
				Arm J1:5 Ahead	Inf	73.3 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	63.2 % 36.8 %	1910	1910
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	45.9 %	1884	1884
				Arm J3:6 Ahead	Inf	54.1 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	61.8 %	1935	1935
				Arm J3:6 Right	20.00	38.2 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2016 Observed AM (Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	114	714	0	0	0	0	0	0	0	0	828
	B	204	0	38	0	0	0	0	0	0	0	0	242
	C	363	71	0	0	0	0	0	0	0	0	0	434
	D	0	0	0	0	96	628	0	0	0	0	0	724
	E	0	0	0	180	0	122	0	0	0	0	0	302
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	243	156	137	0	0	0	0	0	536
	H	0	0	0	0	0	0	0	0	461	235	187	883
	I	0	0	0	0	0	0	0	0	0	251	838	1089
	J	0	0	0	0	0	0	0	0	0	0	457	457
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	567	185	752	423	252	887	0	0	461	486	1482	5495

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2016 Observed AM (Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	38
J1:1/2 (with short)	242(In) 204(Out)
J1:2/1	157
J1:2/2 (with short)	277(In) 206(Out)
J1:2/3 (short)	71
J1:3/1	253
J1:3/2 (with short)	575(In) 278(Out)
J1:3/3 (short)	297
J1:4/1	185
J1:5/1	147
J1:5/2	283
J1:5/3	322
J1:6/1	259
J1:6/2	308
J1:7/1	147
J1:7/2	283
J1:7/3	322
J1:8/1	140
J1:8/2	283
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	122
J2:1/2 (with short)	302(In) 180(Out)
J2:2/1	225
J2:3/1 (with short)	399(In) 243(Out)
J2:3/2 (short)	156
J2:3/3	137
J2:4/1	199
J2:4/2	251
J2:4/3	274
J2:5/1	252
J2:6/1	359
J2:6/2	528
J2:7/1	140
J2:7/2	283

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	505
J3:1/2	584
J3:2/1	219
J3:2/2	238
J3:3/1	202
J3:3/2	259
J3:3/3	422
J3:4/1	202
J3:4/2	259
J3:5/1	244
J3:5/2	242
J3:6/1	567
J3:6/2	915

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	100.0 %	1774	1774
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	45.1 %	1883	1883
				Arm J1:5 Ahead	Inf	54.9 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	51.8 % 48.2 %	1899	1899
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	49.7 %	1878	1878
				Arm J3:6 Ahead	Inf	50.3 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	55.7 %	1926	1926
				Arm J3:6 Right	20.00	44.3 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 4: '2016 Observed PM (Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	73	877	0	0	0	0	0	0	0	0	950
	B	256	0	95	0	0	0	0	0	0	0	0	351
	C	326	65	0	0	0	0	0	0	0	0	0	391
	D	0	0	0	0	87	900	0	0	0	0	0	987
	E	0	0	0	143	0	143	0	0	0	0	0	286
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	252	164	179	0	0	0	0	0	595
	H	0	0	0	0	0	0	0	0	768	268	181	1217
	I	0	0	0	0	0	0	0	0	0	238	944	1182
	J	0	0	0	0	0	0	0	0	0	0	537	537
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	582	138	972	395	251	1222	0	0	768	506	1662	6496

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 Observed PM (Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	95
J1:1/2 (with short)	351(In) 256(Out)
J1:2/1	138
J1:2/2 (with short)	253(In) 188(Out)
J1:2/3 (short)	65
J1:3/1	303
J1:3/2 (with short)	647(In) 318(Out)
J1:3/3 (short)	329
J1:4/1	138
J1:5/1	239
J1:5/2	328
J1:5/3	405
J1:6/1	266
J1:6/2	316
J1:7/1	239
J1:7/2	328
J1:7/3	405
J1:8/1	145
J1:8/2	250
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	143
J2:1/2 (with short)	286(In) 143(Out)
J2:2/1	251
J2:3/1 (with short)	416(In) 252(Out)
J2:3/2 (short)	164
J2:3/3	179
J2:4/1	195
J2:4/2	380
J2:4/3	412
J2:5/1	251
J2:6/1	502
J2:6/2	720
J2:7/1	145
J2:7/2	250

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	552
J3:1/2	630
J3:2/1	257
J3:2/2	280
J3:3/1	349
J3:3/2	419
J3:3/3	449
J3:4/1	349
J3:4/2	419
J3:5/1	253
J3:5/2	253
J3:6/1	662
J3:6/2	1000

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	100.0 %	1774	1774
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	24.1 %	1940	1940
				Arm J1:5 Ahead	Inf	75.9 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	100.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	55.4 % 44.6 %	1903	1903
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

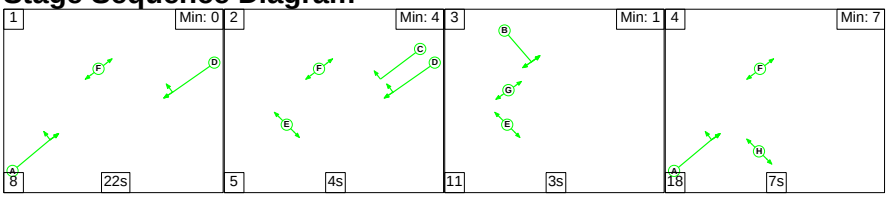
Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	43.1 %	1888	1888
				Arm J3:6 Ahead	Inf	56.9 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	59.7 %	1932	1932
				Arm J3:6 Right	20.00	40.3 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2016 Observed AM (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Moor Street Queensway - Albert Street

Stage Sequence Diagram

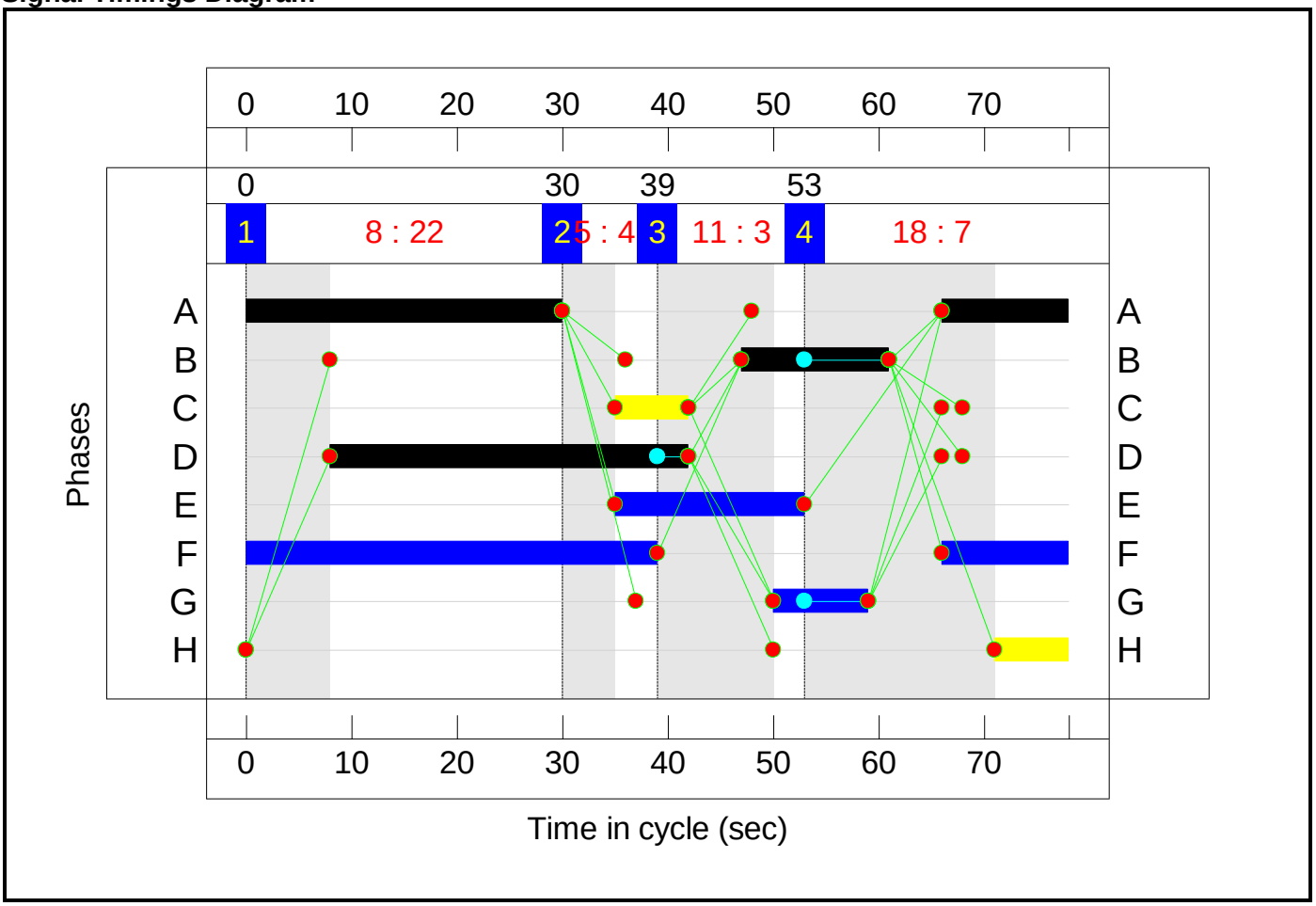


Stage Timings

Stage	1	2	3	4
Duration	22	4	3	7
Change Point	0	30	39	53

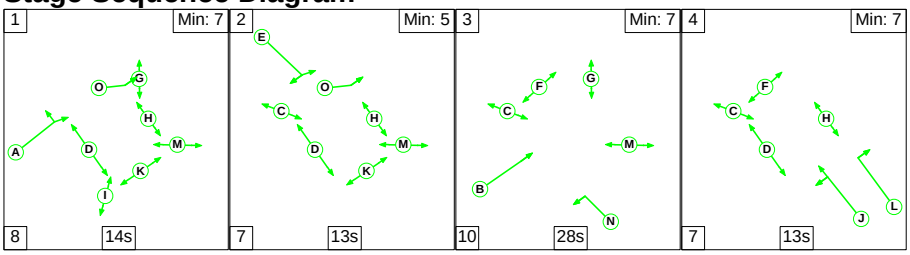
Full Input Data And Results

Signal Timings Diagram



C2 - Moor Street Queensway - Masshouse Lane

Stage Sequence Diagram

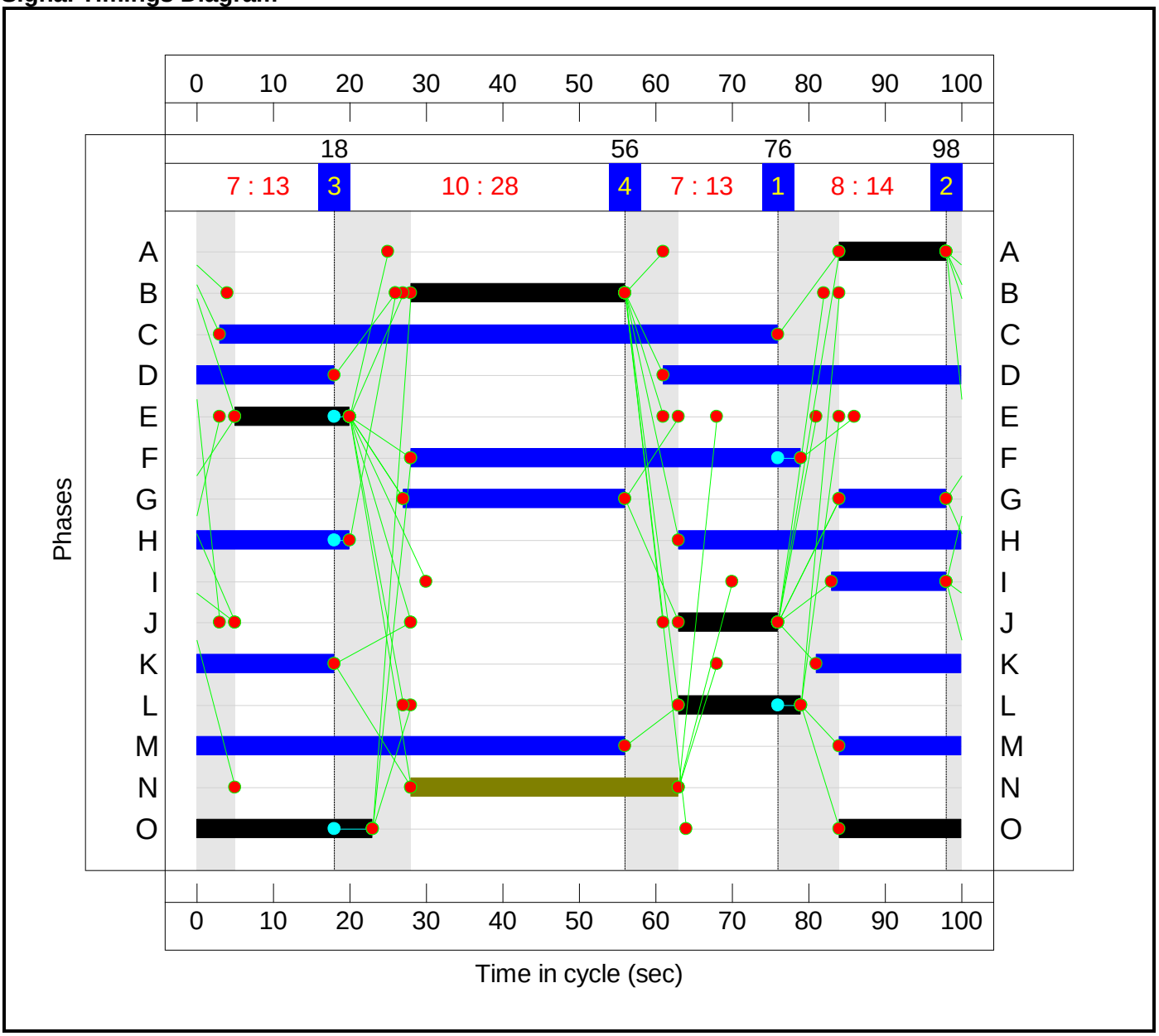


Stage Timings

Stage	1	2	3	4
Duration	14	13	28	13
Change Point	76	98	18	56

Full Input Data And Results

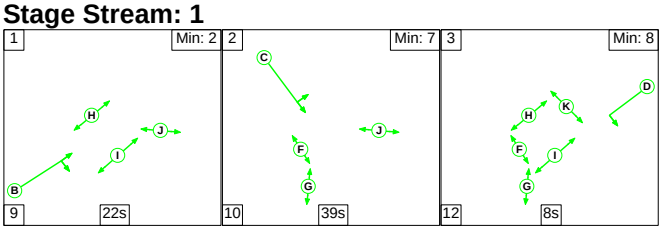
Signal Timings Diagram



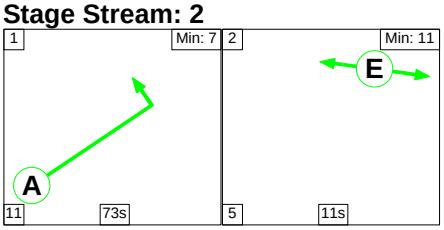
C3 - Moor Street Queensway - Jennens Road

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

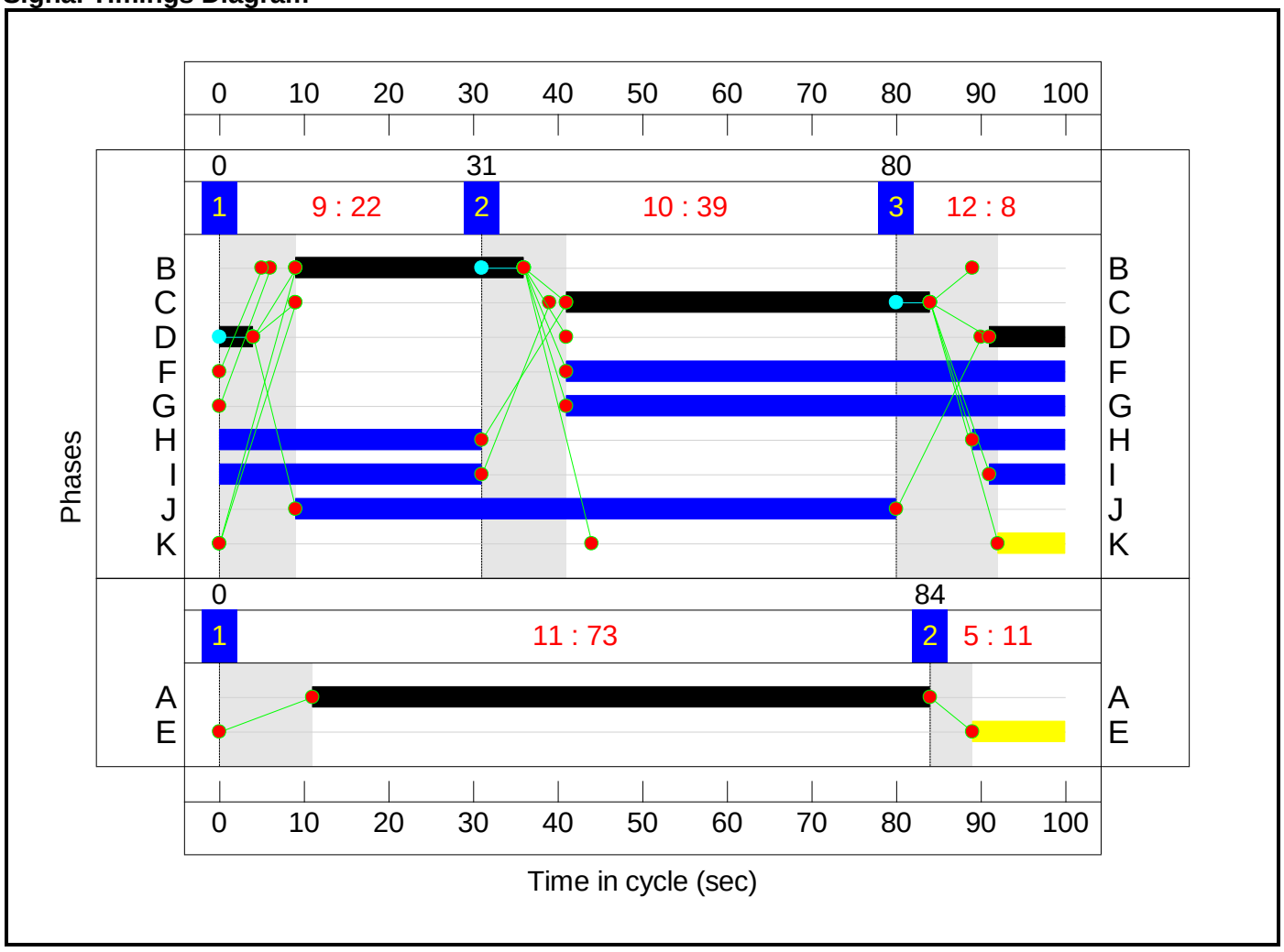
Stage Stream: 1

Stage	1	2	3
Duration	22	39	8
Change Point	0	31	80

Stage Stream: 2

Stage	1	2
Duration	73	11
Change Point	0	84

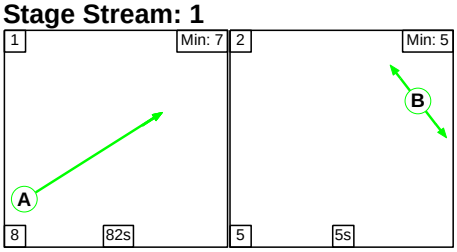
Signal Timings Diagram



C4 - Pedestrian Crossings Albert Street-Priory Queensway

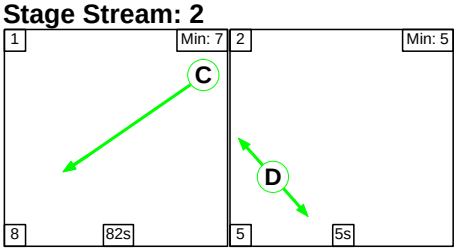
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

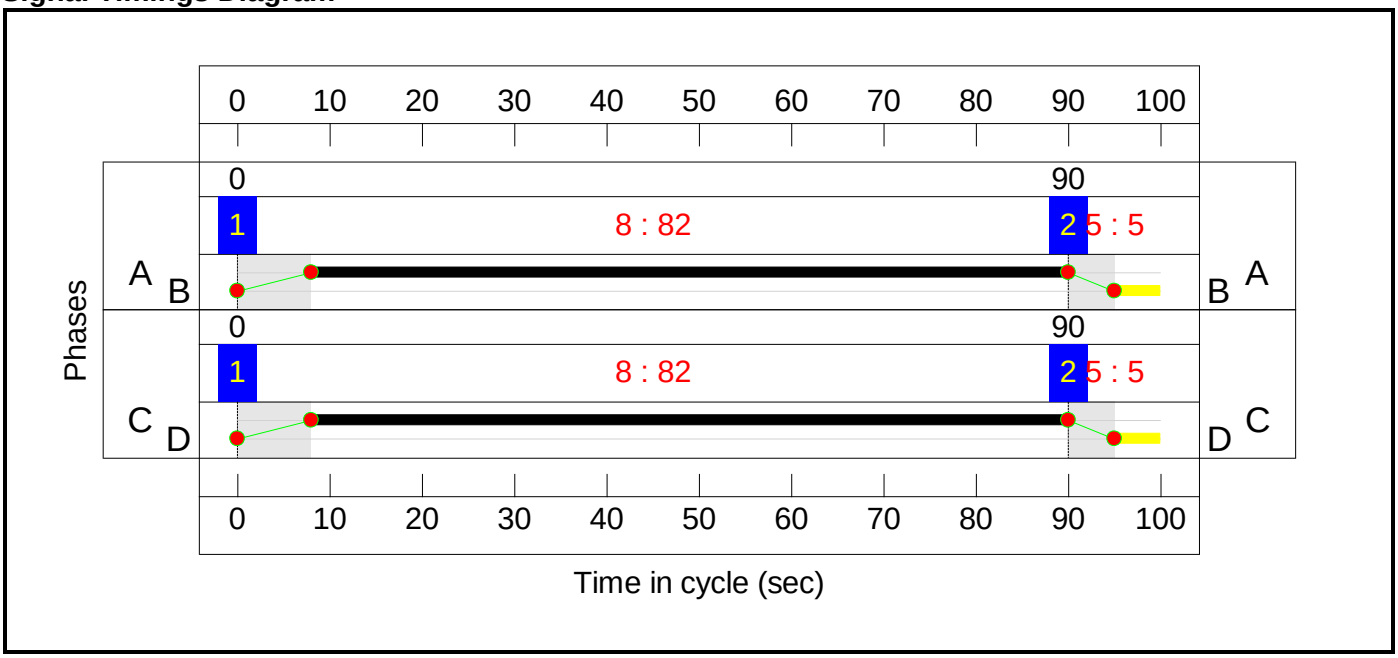
Stage Stream: 1

Stage	1	2
Duration	82	5
Change Point	0	90

Stage Stream: 2

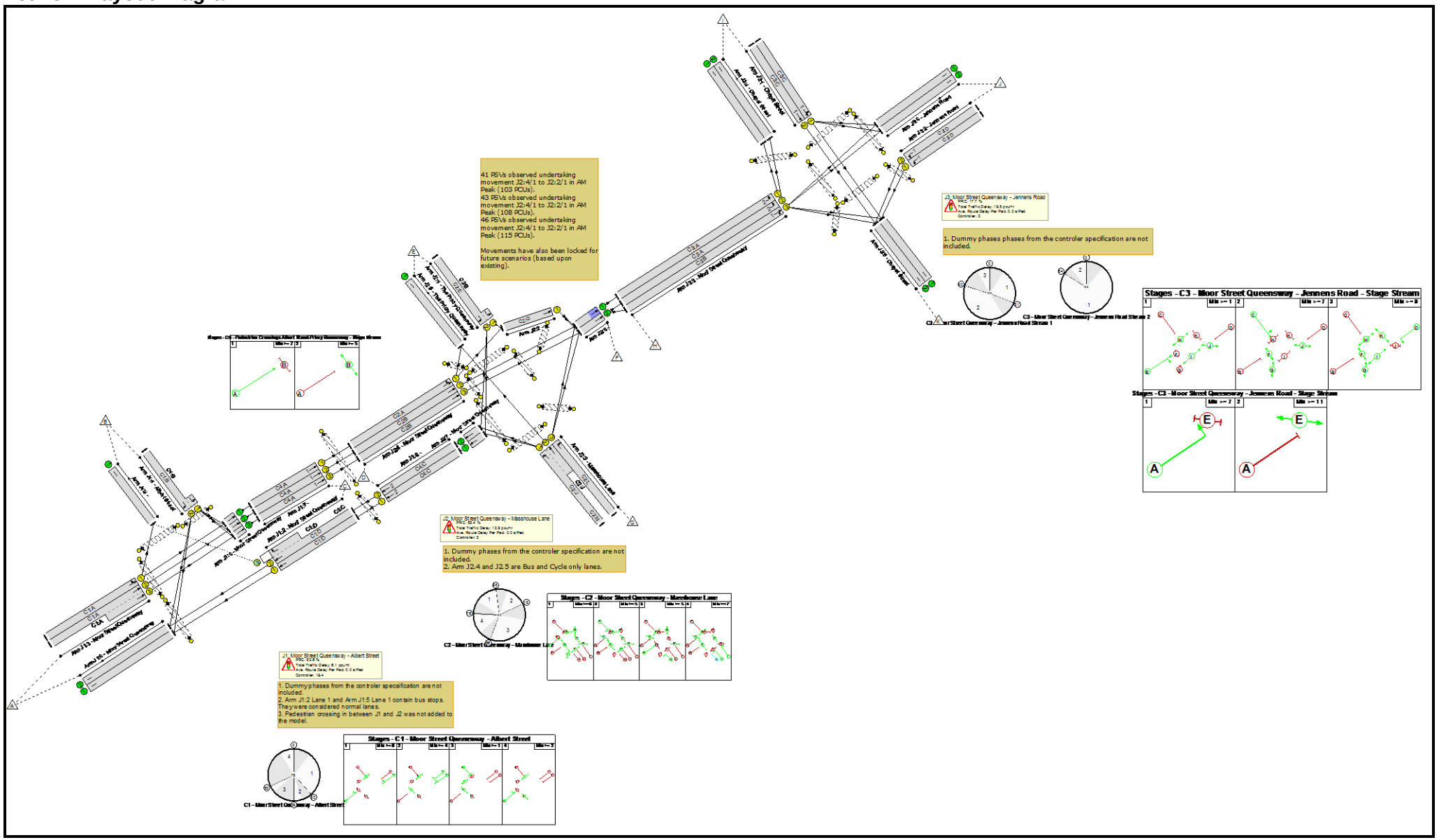
Stage	1	2
Duration	82	5
Change Point	0	90

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.4%**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**49.0%**
1/2+1/1	Albert Street Left Right	U	N/A	N/A	C1:B		1	14	-	185	1717:1807	306+71	49.0 : 49.0%
2/1	Moor Street Queensway Ahead	U	N/A	N/A	C1:D		1	34	-	104	1905	855	12.2%
2/2+2/3	Moor Street Queensway Right Ahead	U+O	N/A	N/A	C1:D	C1:C	1	34	7	209	2105:1774	769+275	20.0 : 20.0%
3/1	Moor Street Queensway Left Ahead	U	N/A	N/A	C1:A		1	42	-	233	1874	1033	22.6%
3/2+3/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:A		1	42	-	504	1935:2045	718+771	33.8 : 33.8%
4/1		U	N/A	N/A	-		-	-	-	168	Inf	Inf	0.0%
5/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	123	1970	1970	6.2%
5/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	252	1970	1970	12.8%
5/3	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	284	2065	2065	13.8%
6/1	Moor Street Queensway	U	N/A	N/A	-		-	-	-	179	Inf	Inf	0.0%
6/2	Moor Street Queensway	U	N/A	N/A	-		-	-	-	229	Inf	Inf	0.0%
7/1	Ahead	U	4:1	N/A	C4:A		1	82	-	123	1970	1635	7.5%
7/2	Ahead	U	4:1	N/A	C4:A		1	82	-	252	1970	1635	15.4%

Full Input Data And Results

7/3	Ahead	U	4:1	N/A	C4:A		1	82	-	284	2065	1714	16.6%
8/1	Ahead	U	4:2	N/A	C4:C		1	82	-	87	1915	1589	5.5%
8/2	Ahead	U	4:2	N/A	C4:C		1	82	-	217	2100	1743	12.4%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	51	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	9	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:E		1	18	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:H		1	7	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	4:1	-	C4:B		1	5	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	4:2	-	C4:D		1	5	-	0	-	0	0.0%
J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.0%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C2:E		1	15	-	205	1821:1824	211+144	57.8 : 57.8%
2/1	Ahead	U	N/A	N/A	C2:O		1	39	-	186	1991	796	23.4%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C2:J	C2:N	1	48:13	35	288	1667:2020	427+249	42.6 : 42.6%
3/3	Masshouse Lane Right	U	N/A	N/A	C2:L		1	16	-	130	1795	305	42.6%
4/1	Moor Street Queensway Ahead Left	U	N/A	N/A	C2:A		1	14	-	169	1908	286	59.0%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	28	-	223	1980	574	38.8%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	28	-	244	2090	606	40.3%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	172	1995	1995	8.6%
6/1	Ahead	U	N/A	N/A	-		-	-	-	327	1955	1955	16.7%

Full Input Data And Results

6/2	Ahead	U	N/A	N/A	-		-	-	-	456	2105	2105	21.7%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	87	1915	1915	4.5%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	217	2100	2100	10.3%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:C		1	73	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:D		1	57	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:I		1	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:K		1	37	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C2:M		1	72	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C2:F		1	51	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C2:G		2	43	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C2:H		1	57	-	0	-	0	0.0%
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.4%**
1/1	Chapel Street Left Ahead	U	3:1	N/A	C3:C		1	43	-	473	1873	824	57.4%
1/2	Chapel Street Ahead	U	3:1	N/A	C3:C		1	43	-	549	2095	922	59.6%
2/1	Jennens Road Left	U	3:1	N/A	C3:D		1	13	-	196	1872	262	74.8%
2/2	Jennens Road Left	U	3:1	N/A	C3:D		1	13	-	215	2009	281	76.4%
3/1	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	73	-	195	1846	1366	14.3%
3/2	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	73	-	250	2014	1490	16.8%

Full Input Data And Results

3/3	Moor Street Queensway Ahead Right	U	3:1	N/A	C3:B		1	27	-	334	1930	540	61.8%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	195	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	250	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	223	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	222	Inf	Inf	0.0%
6/1	Chapel Street	U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%
6/2	Chapel Street	U	N/A	N/A	-		-	-	-	833	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:2	-	C3:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:H		1	42	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	3:1	-	C3:K		1	8	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:J		1	71	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	3:1	-	C3:I		1	40	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	3:1	-	C3:G		1	59	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	3:1	-	C3:F		1	59	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**47**	**7**	**1**	**29.7**	**9.8**	**0.0**	**39.5**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**47**	**7**	**1**	**4.7**	**1.4**	**0.0**	**6.1**	**-**	**-**	**-**	**-**
1/2+1/1	185	185	-	-	-	1.4	0.5	-	1.9	37.0	3.1	0.5	3.5
2/1	104	104	-	-	-	0.4	0.1	-	0.4	15.0	1.3	0.1	1.4
2/2+2/3	209	209	47	7	1	0.7	0.1	0.0	0.9	15.0	2.0	0.1	2.1
3/1	233	233	-	-	-	0.6	0.1	-	0.7	11.2	2.5	0.1	2.7
3/2+3/3	504	504	-	-	-	1.3	0.3	-	1.5	10.8	2.9	0.3	3.2
4/1	168	168	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	123	123	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	284	284	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	179	179	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	229	229	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	123	123	-	-	-	0.1	0.0	-	0.1	2.7	0.6	0.0	0.7
7/2	252	252	-	-	-	0.1	0.1	-	0.2	3.0	1.3	0.1	1.4
7/3	284	284	-	-	-	0.1	0.1	-	0.2	2.9	1.5	0.1	1.6
8/1	87	87	-	-	-	0.0	0.0	-	0.0	1.2	0.0	0.0	0.0
8/2	217	217	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**10.9**	**3.0**	**0.0**	**13.9**	**-**	**-**	**-**	**-**
1/2+1/1	205	205	-	-	-	2.1	0.7	-	2.8	49.6	3.8	0.7	4.5
2/1	186	186	-	-	-	0.0	0.2	-	0.2	3.0	0.0	0.2	0.2
3/1+3/2	288	288	-	-	-	1.9	0.4	-	2.3	28.2	2.9	0.4	3.3
3/3	130	130	-	-	-	1.3	0.4	-	1.7	47.4	3.2	0.4	3.6
4/1	169	169	-	-	-	1.9	0.7	-	2.6	54.8	4.4	0.7	5.1
4/2	223	223	-	-	-	1.8	0.3	-	2.1	33.5	5.0	0.3	5.3
4/3	244	244	-	-	-	1.9	0.3	-	2.3	33.5	5.4	0.3	5.8
5/1	172	172	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	327	327	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	87	87	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	217	217	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**14.1**	**5.4**	**0.0**	**19.5**	**-**	**-**	**-**	**-**
1/1	473	473	-	-	-	2.8	0.7	-	3.4	26.1	9.7	0.7	10.4
1/2	549	549	-	-	-	3.2	0.7	-	4.0	26.1	11.4	0.7	12.2
2/1	196	196	-	-	-	2.2	1.4	-	3.7	67.4	5.2	1.4	6.6
2/2	215	215	-	-	-	2.5	1.5	-	4.0	67.4	5.7	1.5	7.3
3/1	195	195	-	-	-	0.2	0.1	-	0.3	5.3	1.6	0.1	1.7
3/2	250	250	-	-	-	0.3	0.1	-	0.4	5.3	2.0	0.1	2.1

Full Input Data And Results

3/3	334	334	-	-	-	2.9	0.8	-	3.7	40.0	8.1	0.8	8.9
4/1	195	195	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	250	250	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	223	223	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	222	222	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	833	833	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-

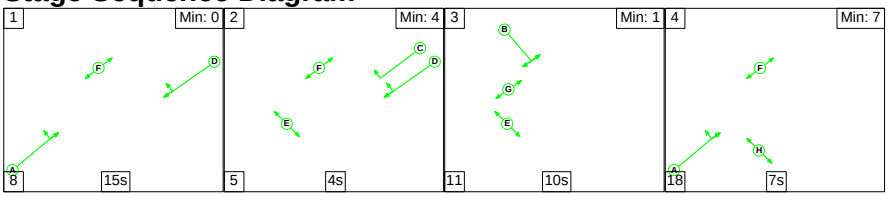
C1 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%): 83.6	Total Delay for Signalled Lanes (pcuHr): 5.44	Cycle Time (s): 78	
C2 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%): 52.4	Total Delay for Signalled Lanes (pcuHr): 13.87	Cycle Time (s): 100	
C3 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%): 17.7	Total Delay for Signalled Lanes (pcuHr): 18.81	Cycle Time (s): 100	
C3 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%): 436.5	Total Delay for Signalled Lanes (pcuHr): 0.66	Cycle Time (s): 100	
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 1	PRC for Signalled Lanes (%): 443.2	Total Delay for Signalled Lanes (pcuHr): 0.53	Cycle Time (s): 100	
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 2	PRC for Signalled Lanes (%): 622.9	Total Delay for Signalled Lanes (pcuHr): 0.10	Cycle Time (s): 100	
		PRC Over All Lanes (%): 17.7	Total Delay Over All Lanes(pcuHr): 39.46		

Full Input Data And Results

Scenario 2: '2016 Observed PM (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Moor Street Queensway - Albert Street

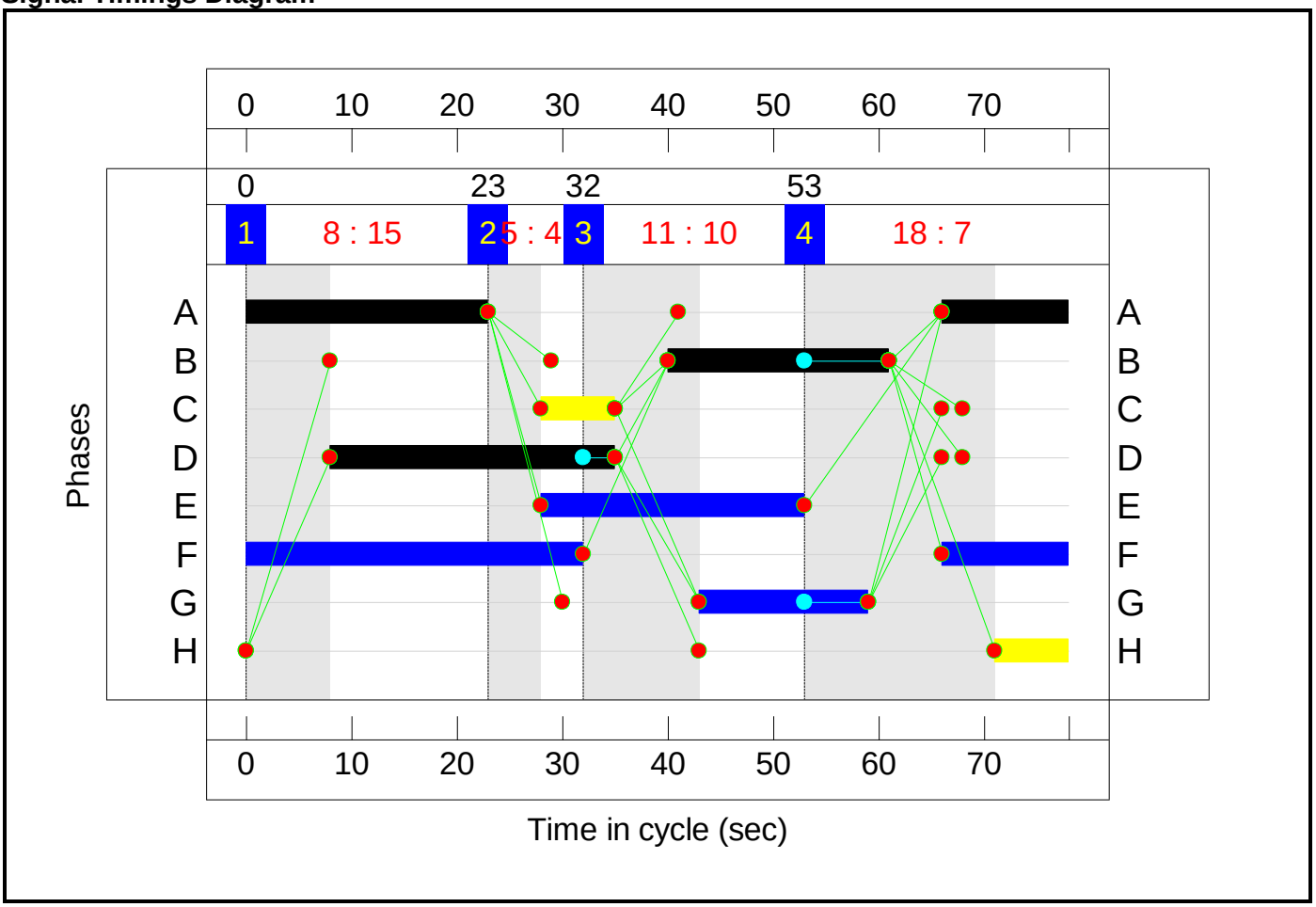
Stage Sequence Diagram



Stage Timings

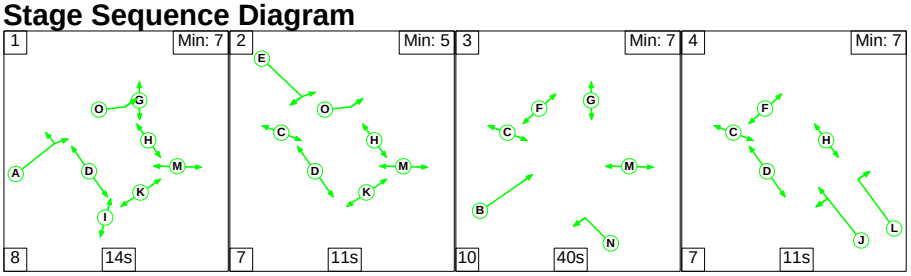
Stage	1	2	3	4
Duration	15	4	10	7
Change Point	0	23	32	53

Signal Timings Diagram



C2 - Moor Street Queensway - Masshouse Lane

Stage Sequence Diagram

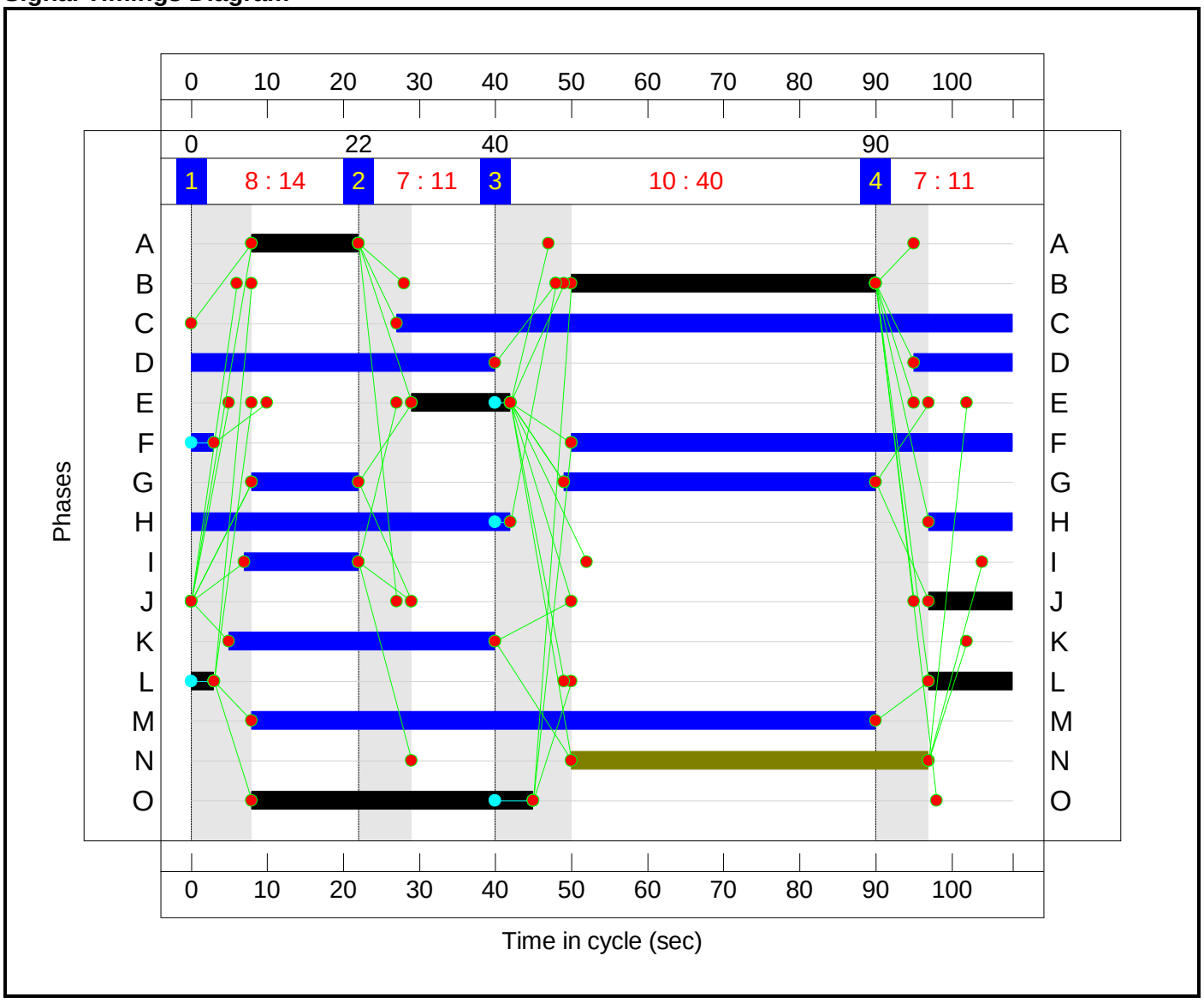


Full Input Data And Results

Stage Timings

Stage	1	2	3	4
Duration	14	11	40	11
Change Point	0	22	40	90

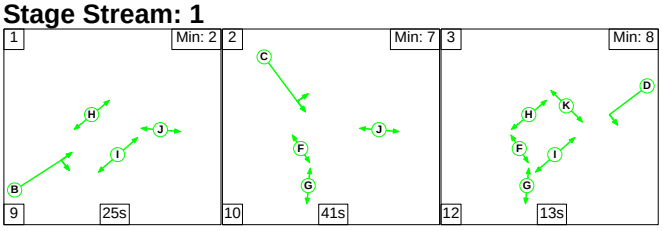
Signal Timings Diagram



C3 - Moor Street Queensway - Jennens Road

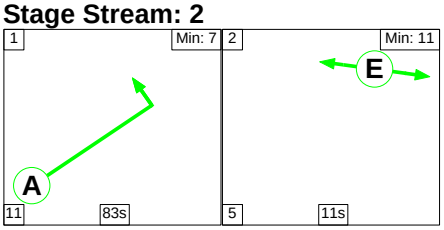
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

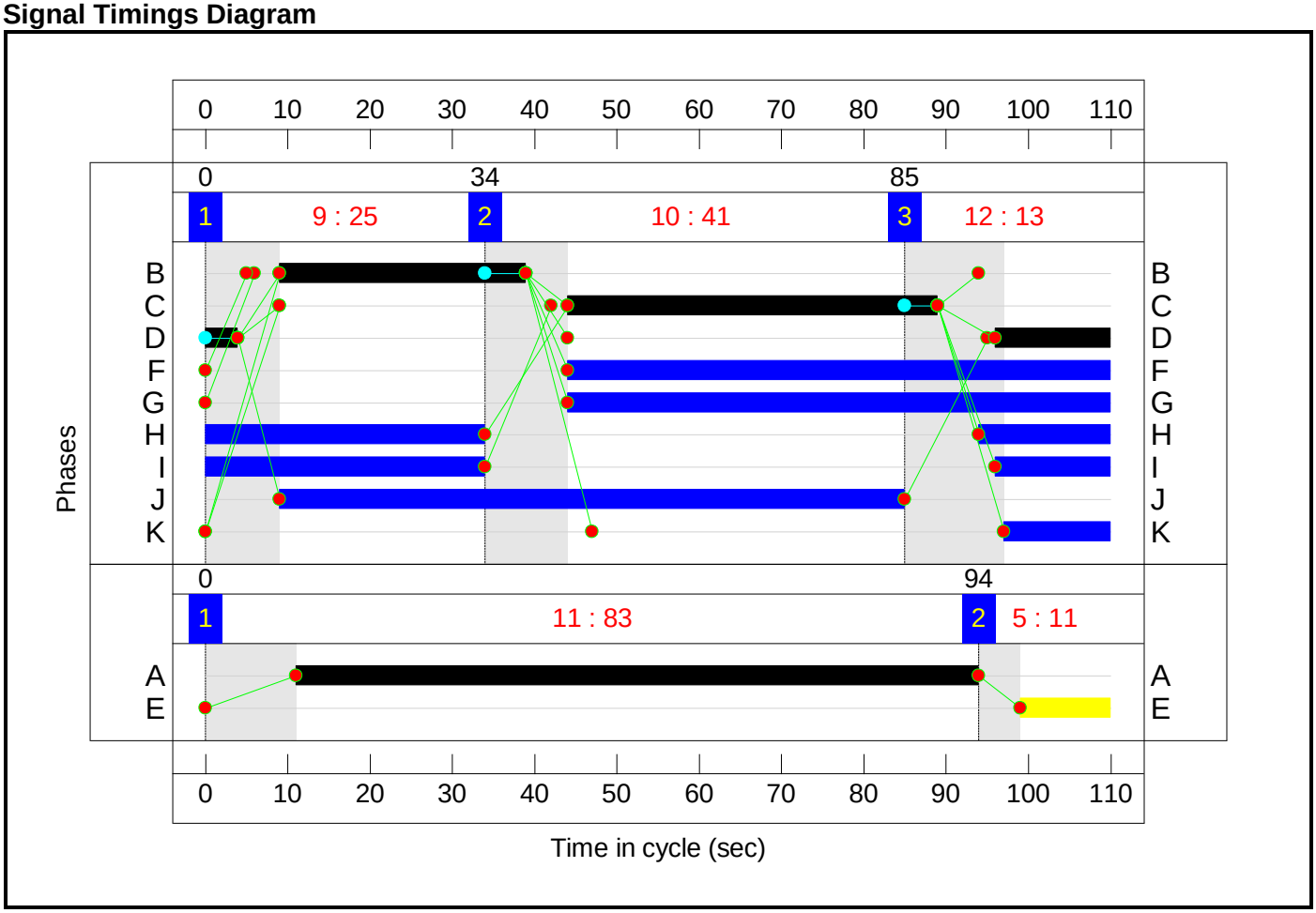
Stage Stream: 1

Stage	1	2	3
Duration	25	41	13
Change Point	0	34	85

Stage Stream: 2

Stage	1	2
Duration	83	11
Change Point	0	94

Signal Timings Diagram

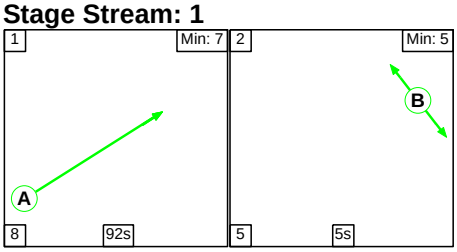


Full Input Data And Results

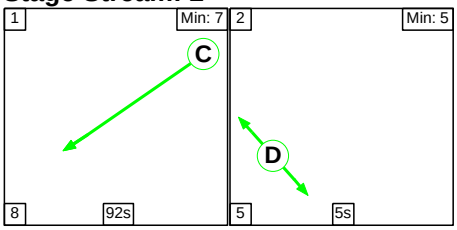
C4 - Pedestrian Crossings Albert Street-Priory Queensway

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

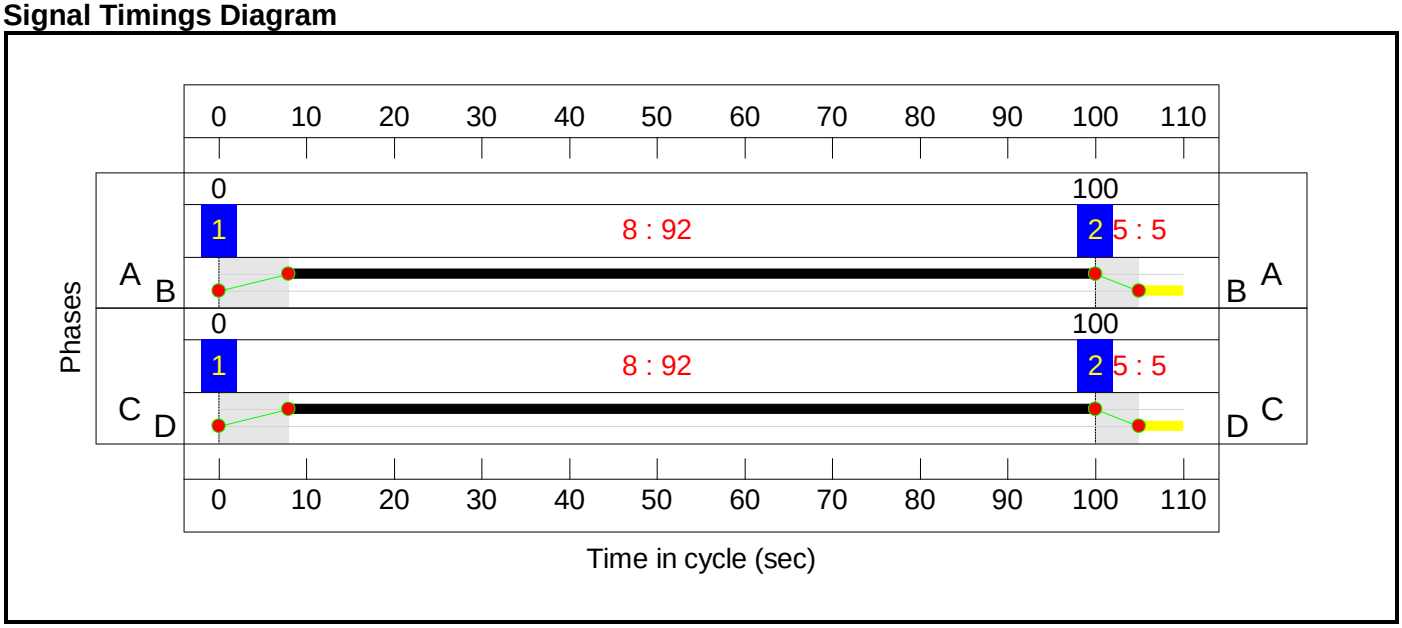
Stage Stream: 1

Stage	1	2
Duration	92	5
Change Point	0	100

Stage Stream: 2

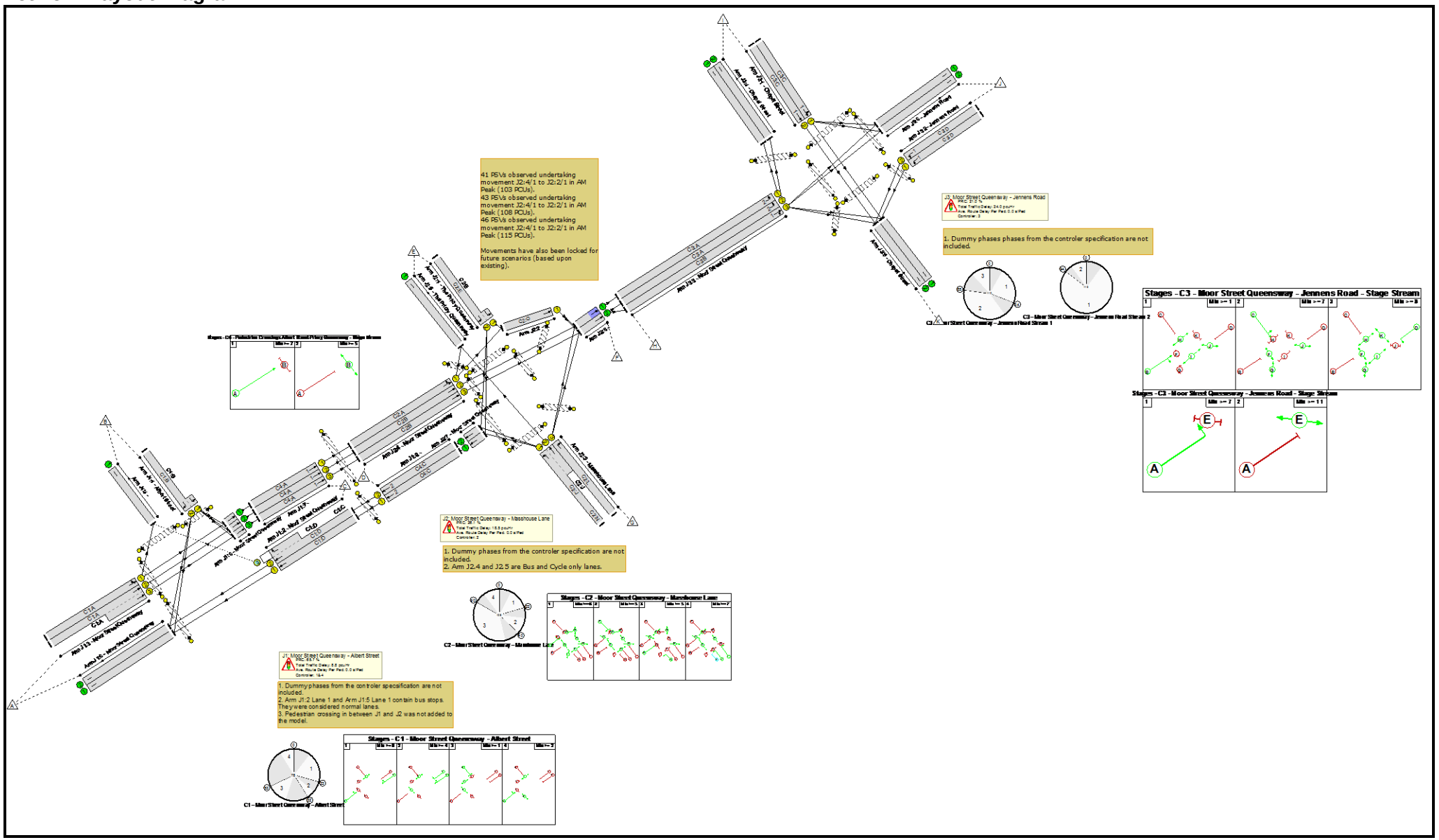
Stage	1	2
Duration	92	5
Change Point	0	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.3%**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**54.3%**
1/2+1/1	Albert Street Left Right	U	N/A	N/A	C1:B		1	21	-	302	1717:1807	381+175	54.3 : 54.3%
2/1	Moor Street Queensway Ahead	U	N/A	N/A	C1:D		1	27	-	92	1905	684	13.5%
2/2+2/3	Moor Street Queensway Right Ahead	U+O	N/A	N/A	C1:D	C1:C	1	27	7	193	2105:1774	636+228	22.3 : 22.3%
3/1	Moor Street Queensway Left Ahead	U	N/A	N/A	C1:A		1	35	-	273	1932	892	30.6%
3/2+3/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:A		1	35	-	598	1935:2045	647+673	45.3 : 45.3%
4/1		U	N/A	N/A	-		-	-	-	124	Inf	Inf	0.0%
5/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	206	1970	1970	10.5%
5/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	305	1970	1970	15.5%
5/3	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	382	2065	2065	18.5%
6/1	Moor Street Queensway	U	N/A	N/A	-		-	-	-	196	Inf	Inf	0.0%
6/2	Moor Street Queensway	U	N/A	N/A	-		-	-	-	245	Inf	Inf	0.0%
7/1	Ahead	U	4:1	N/A	C4:A		1	92	-	206	1970	1666	12.4%
7/2	Ahead	U	4:1	N/A	C4:A		1	92	-	305	1970	1666	18.3%

Full Input Data And Results

7/3	Ahead	U	4:1	N/A	C4:A		1	92	-	382	2065	1746	21.9%
8/1	Ahead	U	4:2	N/A	C4:C		1	92	-	92	1915	1619	5.7%
8/2	Ahead	U	4:2	N/A	C4:C		1	92	-	194	2100	1775	10.9%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	44	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	16	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:E		1	25	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:H		1	7	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	4:1	-	C4:B		1	5	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	4:2	-	C4:D		1	5	-	0	-	0	0.0%
J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.4%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C2:E		1	13	-	197	1821:1824	158+156	62.8 : 62.8%
2/1	Ahead	U	N/A	N/A	C2:O		1	37	-	206	1991	701	29.4%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C2:J	C2:N	1	58:11	47	297	1667:2020	371+218	50.4 : 50.4%
3/3	Masshouse Lane Right	U	N/A	N/A	C2:L		1	14	-	178	1795	249	71.4%
4/1	Moor Street Queensway Ahead Left	U	N/A	N/A	C2:A		1	14	-	171	1910	265	64.5%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	40	-	354	1980	752	47.1%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	40	-	385	2090	793	48.5%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	173	1995	1995	8.7%
6/1	Ahead	U	N/A	N/A	-		-	-	-	469	1955	1955	24.0%

Full Input Data And Results

6/2	Ahead	U	N/A	N/A	-		-	-	-	654	2105	2105	31.1%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	92	1915	1915	4.8%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	194	2100	2100	9.2%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:C		1	81	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:D		1	53	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:I		1	15	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:K		1	35	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C2:M		1	82	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C2:F		1	61	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C2:G		2	55	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C2:H		1	53	-	0	-	0	0.0%
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.3%**
1/1	Chapel Street Left Ahead	U	3:1	N/A	C3:C		1	45	-	512	1884	788	65.0%
1/2	Chapel Street Ahead	U	3:1	N/A	C3:C		1	45	-	588	2095	876	67.1%
2/1	Jennens Road Left	U	3:1	N/A	C3:D		1	18	-	234	1872	323	72.4%
2/2	Jennens Road Left	U	3:1	N/A	C3:D		1	18	-	258	2009	347	74.3%
3/1	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	83	-	343	1846	1410	24.3%
3/2	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	83	-	411	2014	1538	26.7%

Full Input Data And Results

3/3	Moor Street Queensway Ahead Right	U	3:1	N/A	C3:B		1	30	-	364	1935	545	66.8%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	343	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	411	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	231	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	229	Inf	Inf	0.0%
6/1	Chapel Street	U	N/A	N/A	-		-	-	-	581	Inf	Inf	0.0%
6/2	Chapel Street	U	N/A	N/A	-		-	-	-	915	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:2	-	C3:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:H		1	50	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	3:1	-	C3:K		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:J		1	76	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	3:1	-	C3:I		1	48	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	3:1	-	C3:G		1	66	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	3:1	-	C3:F		1	66	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**43**	**7**	**1**	**39.0**	**12.4**	**0.0**	**51.4**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**43**	**7**	**1**	**7.0**	**1.9**	**0.0**	**8.8**	**-**	**-**	**-**	**-**
1/2+1/1	302	302	-	-	-	1.9	0.6	-	2.5	29.8	4.5	0.6	5.1
2/1	92	92	-	-	-	0.4	0.1	-	0.5	19.9	1.3	0.1	1.4
2/2+2/3	193	193	43	7	1	0.9	0.1	0.0	1.1	20.1	2.1	0.1	2.2
3/1	273	273	-	-	-	1.0	0.2	-	1.2	16.1	3.6	0.2	3.9
3/2+3/3	598	598	-	-	-	2.2	0.4	-	2.6	15.8	4.2	0.4	4.6
4/1	124	124	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	206	206	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	382	382	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	196	196	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	245	245	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	206	206	-	-	-	0.1	0.1	-	0.2	2.7	1.0	0.1	1.1
7/2	305	305	-	-	-	0.1	0.1	-	0.2	2.9	1.7	0.1	1.8
7/3	382	382	-	-	-	0.2	0.1	-	0.3	2.9	2.1	0.1	2.3
8/1	92	92	-	-	-	0.0	0.0	-	0.1	2.6	0.4	0.0	0.5
8/2	194	194	-	-	-	0.1	0.1	-	0.1	2.6	1.0	0.1	1.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**13.9**	**4.6**	**0.0**	**18.5**	**-**	**-**	**-**	**-**
1/2+1/1	197	197	-	-	-	2.4	0.8	-	3.2	58.5	3.6	0.8	4.4
2/1	206	206	-	-	-	0.0	0.2	-	0.2	3.7	0.0	0.2	0.2
3/1+3/2	297	297	-	-	-	2.0	0.5	-	2.5	30.7	3.1	0.5	3.6
3/3	178	178	-	-	-	2.2	1.2	-	3.4	68.9	5.1	1.2	6.3
4/1	171	171	-	-	-	2.1	0.9	-	3.0	62.7	4.8	0.9	5.7
4/2	354	354	-	-	-	2.5	0.4	-	2.9	29.8	8.0	0.4	8.4
4/3	385	385	-	-	-	2.7	0.5	-	3.2	29.9	8.8	0.5	9.2
5/1	173	173	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	469	469	-	-	-	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1
6/2	654	654	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	92	92	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	194	194	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**18.1**	**5.9**	**0.0**	**24.0**	**-**	**-**	**-**	**-**
1/1	512	512	-	-	-	3.6	0.9	-	4.6	32.0	12.4	0.9	13.3
1/2	588	588	-	-	-	4.2	1.0	-	5.2	32.1	14.4	1.0	15.4
2/1	234	234	-	-	-	2.8	1.3	-	4.1	62.6	6.7	1.3	8.0
2/2	258	258	-	-	-	3.1	1.4	-	4.5	62.8	7.5	1.4	8.9
3/1	343	343	-	-	-	0.4	0.2	-	0.5	5.5	3.0	0.2	3.1
3/2	411	411	-	-	-	0.4	0.2	-	0.6	5.5	3.7	0.2	3.8

Full Input Data And Results

3/3	364	364	-	-	-	3.5	1.0	-	4.5	44.8	9.8	1.0	10.8
4/1	343	343	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	231	231	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	229	229	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	581	581	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	915	915	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	65.7	Total Delay for Signalled Lanes (pcuHr):	7.93
C2 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	26.1	Total Delay for Signalled Lanes (pcuHr):	18.46
C3 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	21.0	Total Delay for Signalled Lanes (pcuHr):	22.90
C3 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	236.8	Total Delay for Signalled Lanes (pcuHr):	1.14
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 1	PRC for Signalled Lanes (%):	311.3	Total Delay for Signalled Lanes (pcuHr):	0.71
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 2	PRC for Signalled Lanes (%):	723.7	Total Delay for Signalled Lanes (pcuHr):	0.21
		PRC Over All Lanes (%):	21.0	Total Delay Over All Lanes(pcuHr):	51.40

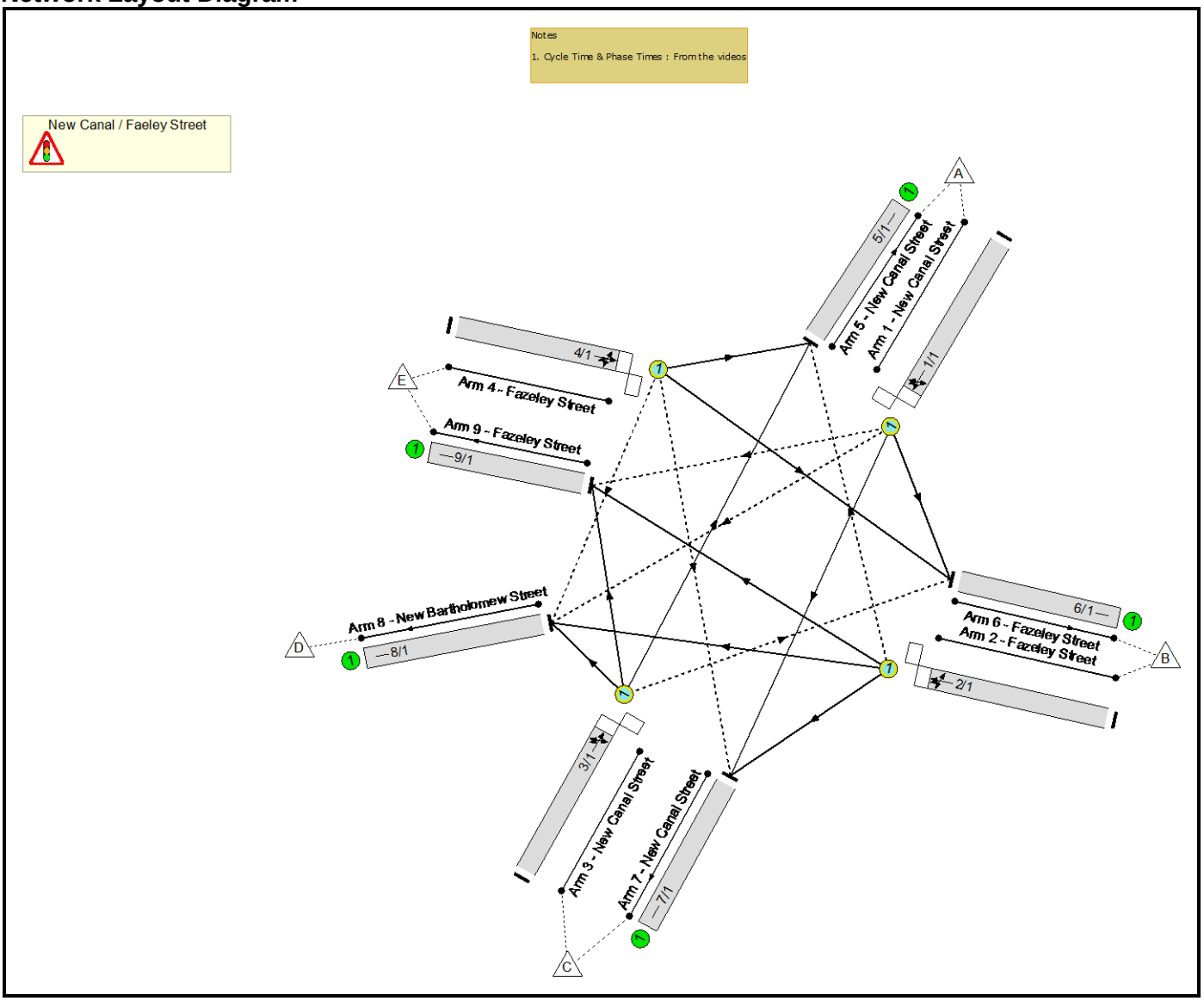
Cycle Time (s):	78
Cycle Time (s):	108
Cycle Time (s):	110
Cycle Time (s):	110
Cycle Time (s):	110
Cycle Time (s):	110

Full Input Data And Results

User and Project Details

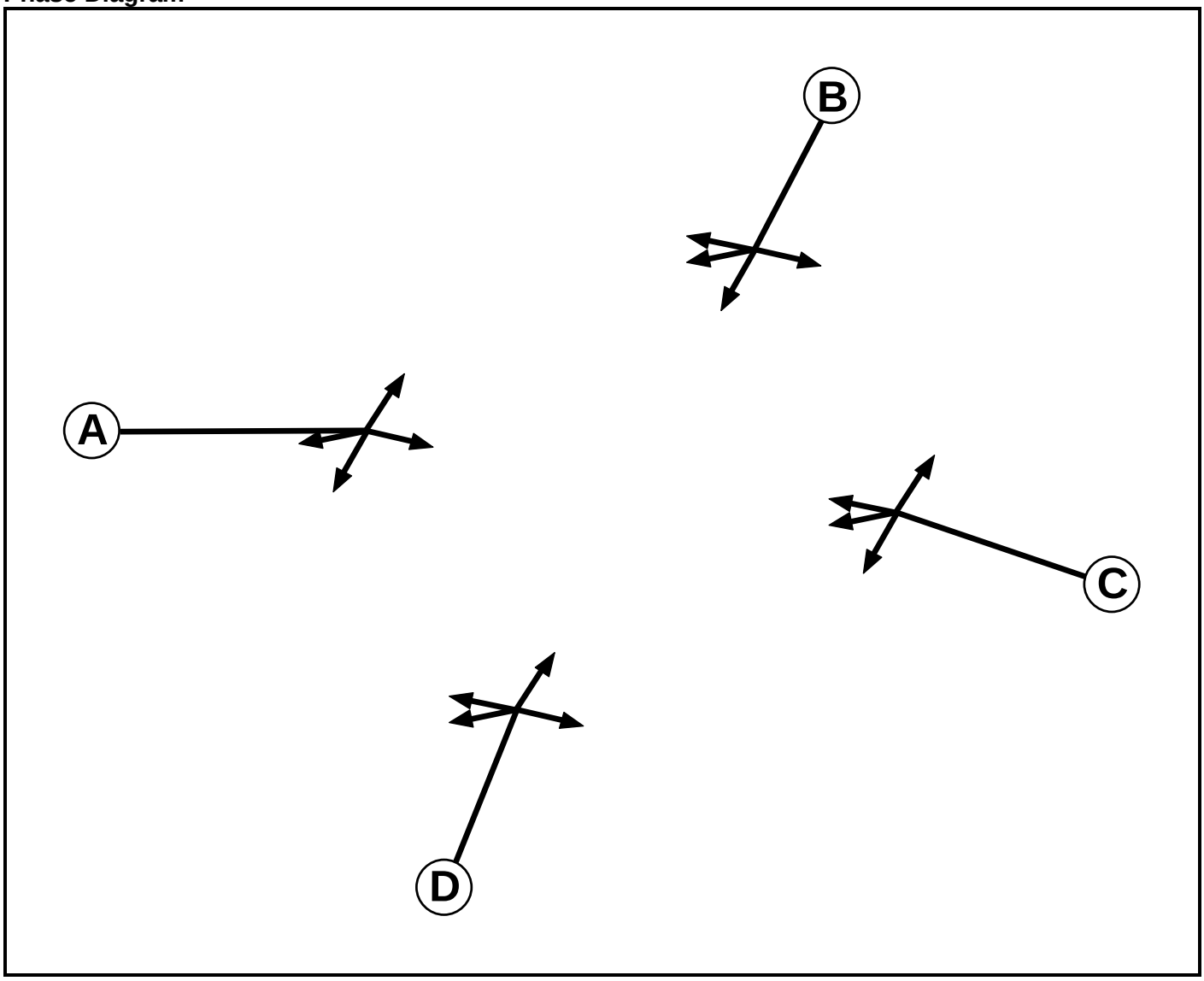
Project:	**Birmingham Eastside Extension**
Title:	**New Canal Street / Fazeley Street Junction**
Location:	Birmingham
File name:	New Canal Street _ Fazeley Street.lsg3x
Author:	Andreas Theofanous
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	The Junction is Signalized

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7

Full Input Data And Results

Phase Intergreens Matrix

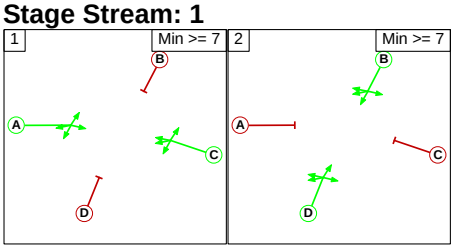
Terminating Phase	Starting Phase				
		A	B	C	D
	A		5	-	5
	B	5		5	-
	C	-	5		5
	D	5	-	5	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B D

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage		
		1	2
	1		5
	2	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: New Canal / Faeley Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (New Canal Street)	8/1 (Right)	1439	0	3/1	1.09	To 5/1 (Ahead) To 8/1 (Left) To 9/1 (Left)	2.00	1.00	0.50	2	2.00
	9/1 (Right)	1439	0	3/1	1.09	To 5/1 (Ahead) To 9/1 (Left)					
2/1 (Fazeley Street)	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	1.00	0.50	2	2.00
3/1 (New Canal Street)	6/1 (Right)	1439	0	1/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	2.00	1.00	0.50	2	2.00
4/1 (Fazeley Street)	7/1 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 8/1 (Ahead) To 9/1 (Ahead)	2.00	1.00	0.50	2	2.00
	8/1 (U-Turn)	1439	0	2/1	1.09	To 8/1 (Ahead) To 9/1 (Ahead)					

Full Input Data And Results

Lane Input Data

Junction: New Canal / Faeley Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (New Canal Street)	O	B	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 6 Left	7.00
											Arm 7 Ahead	Inf
											Arm 8 Right	7.00
											Arm 9 Right	Inf
2/1 (Fazeley Street)	O	C	2	3	60.0	Geom	-	3.93	0.00	Y	Arm 5 Right	10.00
											Arm 7 Left	Inf
											Arm 8 Ahead	10.00
											Arm 9 Ahead	Inf
3/1 (New Canal Street)	O	D	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	7.00
											Arm 8 Left	Inf
											Arm 9 Left	7.00
4/1 (Fazeley Street)	O	A	2	3	60.0	Geom	-	3.85	0.00	Y	Arm 5 Left	7.00
											Arm 6 Ahead	Inf
											Arm 7 Right	7.00
											Arm 8 U-Turn	4.00
5/1 (New Canal Street)	U		2	3	60.0	Geom	-	4.00	0.00	Y		
6/1 (Fazeley Street)	U		2	3	60.0	Geom	-	3.95	0.00	Y		
7/1 (New Canal Street)	U		2	3	60.0	Geom	-	3.75	0.00	Y		
8/1 (New Bartholomew Street)	U		2	3	60.0	Geom	-	5.00	0.00	Y		
9/1 (Fazeley Street)	U		2	3	60.0	Geom	-	3.85	0.00	Y		

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 Observed AM (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	49	244	4	31	328
	B	113	0	65	12	54	244
	C	120	15	0	3	9	147
	D	0	0	0	0	0	0
	E	66	143	42	0	0	251
	Tot.	299	207	351	19	94	970

Traffic Lane Flows

Lane	Scenario 1: 2016 Observed AM (Standard PCU Factors)
Junction: New Canal / Faeley Street	
1/1	328
2/1	244
3/1	147
4/1	251
5/1	299
6/1	207
7/1	351
8/1	19
9/1	94

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	14.9 %	1948	1948
				Arm 7 Ahead	Inf	74.4 %		
				Arm 8 Right	7.00	1.2 %		
				Arm 9 Right	Inf	9.5 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	46.3 %	1865	1865
				Arm 7 Left	Inf	26.6 %		
				Arm 8 Ahead	10.00	4.9 %		
				Arm 9 Ahead	Inf	22.1 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	81.6 %	1923	1923
				Arm 6 Right	7.00	10.2 %		
				Arm 8 Left	Inf	2.0 %		
				Arm 9 Left	7.00	6.1 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	26.3 %	1831	1831
				Arm 6 Ahead	Inf	57.0 %		
				Arm 7 Right	7.00	16.7 %		
				Arm 8 U-Turn	4.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (New Bartholomew Street)	5.00	0.00	Y				2115	2115
9/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 2: '2016 Observed PM (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	42	264	5	30	341
	B	182	0	43	5	54	284
	C	214	11	0	2	5	232
	D	0	0	0	0	0	0
	E	77	196	28	2	0	303
	Tot.	473	249	335	14	89	1160

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 Observed PM (Standard PCU Factors)
Junction: New Canal / Faeley Street	
1/1	341
2/1	284
3/1	232
4/1	303
5/1	473
6/1	249
7/1	335
8/1	14
9/1	89

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	12.3 %	1957	1957
				Arm 7 Ahead	Inf	77.4 %		
				Arm 8 Right	7.00	1.5 %		
				Arm 9 Right	Inf	8.8 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	64.1 %	1828	1828
				Arm 7 Left	Inf	15.1 %		
				Arm 8 Ahead	10.00	1.8 %		
				Arm 9 Ahead	Inf	19.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	92.2 %	1961	1961
				Arm 6 Right	7.00	4.7 %		
				Arm 8 Left	Inf	0.9 %		
				Arm 9 Left	7.00	2.2 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	25.4 %	1857	1857
				Arm 6 Ahead	Inf	64.7 %		
				Arm 7 Right	7.00	9.2 %		
				Arm 8 U-Turn	4.00	0.7 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (New Bartholomew Street)	5.00	0.00	Y				2115	2115
9/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 3: '2016 Observed AM (Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	52	246	4	31	333
	B	117	0	67	12	54	250
	C	122	14	0	3	9	148
	D	0	0	0	0	0	0
	E	67	145	42	0	0	254
	Tot.	306	211	355	19	94	985

Traffic Lane Flows

Lane	Scenario 3: 2016 Observed AM (Saturn PCU Factors)
Junction: New Canal / Faeley Street	
1/1	333
2/1	250
3/1	148
4/1	254
5/1	306
6/1	211
7/1	355
8/1	19
9/1	94

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	15.6 %	1945	1945
				Arm 7 Ahead	Inf	73.9 %		
				Arm 8 Right	7.00	1.2 %		
				Arm 9 Right	Inf	9.3 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	46.8 %	1864	1864
				Arm 7 Left	Inf	26.8 %		
				Arm 8 Ahead	10.00	4.8 %		
				Arm 9 Ahead	Inf	21.6 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	82.4 %	1926	1926
				Arm 6 Right	7.00	9.5 %		
				Arm 8 Left	Inf	2.0 %		
				Arm 9 Left	7.00	6.1 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	26.4 %	1832	1832
				Arm 6 Ahead	Inf	57.1 %		
				Arm 7 Right	7.00	16.5 %		
				Arm 8 U-Turn	4.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (New Bartholomew Street)	5.00	0.00	Y				2115	2115
9/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 4: '2016 Observed PM (Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	42	265	5	30	342
	B	184	0	43	5	54	286
	C	216	11	0	2	5	234
	D	0	0	0	0	0	0
	E	78	198	30	2	0	308
	Tot.	478	251	338	14	89	1170

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 Observed PM (Saturn PCU Factors)
Junction: New Canal / Faeley Street	
1/1	342
2/1	286
3/1	234
4/1	308
5/1	478
6/1	251
7/1	338
8/1	14
9/1	89

Lane Saturation Flows

Junction: New Canal / Faeley Street

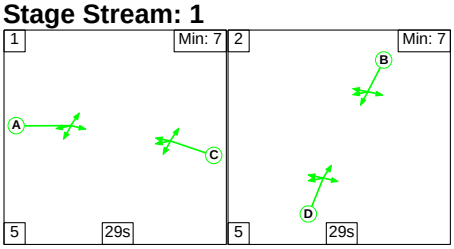
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	12.3 %	1957	1957
				Arm 7 Ahead	Inf	77.5 %		
				Arm 8 Right	7.00	1.5 %		
				Arm 9 Right	Inf	8.8 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	64.3 %	1827	1827
				Arm 7 Left	Inf	15.0 %		
				Arm 8 Ahead	10.00	1.7 %		
				Arm 9 Ahead	Inf	18.9 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	92.3 %	1961	1961
				Arm 6 Right	7.00	4.7 %		
				Arm 8 Left	Inf	0.9 %		
				Arm 9 Left	7.00	2.1 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	25.3 %	1856	1856
				Arm 6 Ahead	Inf	64.3 %		
				Arm 7 Right	7.00	9.7 %		
				Arm 8 U-Turn	4.00	0.6 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (New Bartholomew Street)	5.00	0.00	Y				2115	2115
9/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Full Input Data And Results

Scenario 1: '2016 Observed AM (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

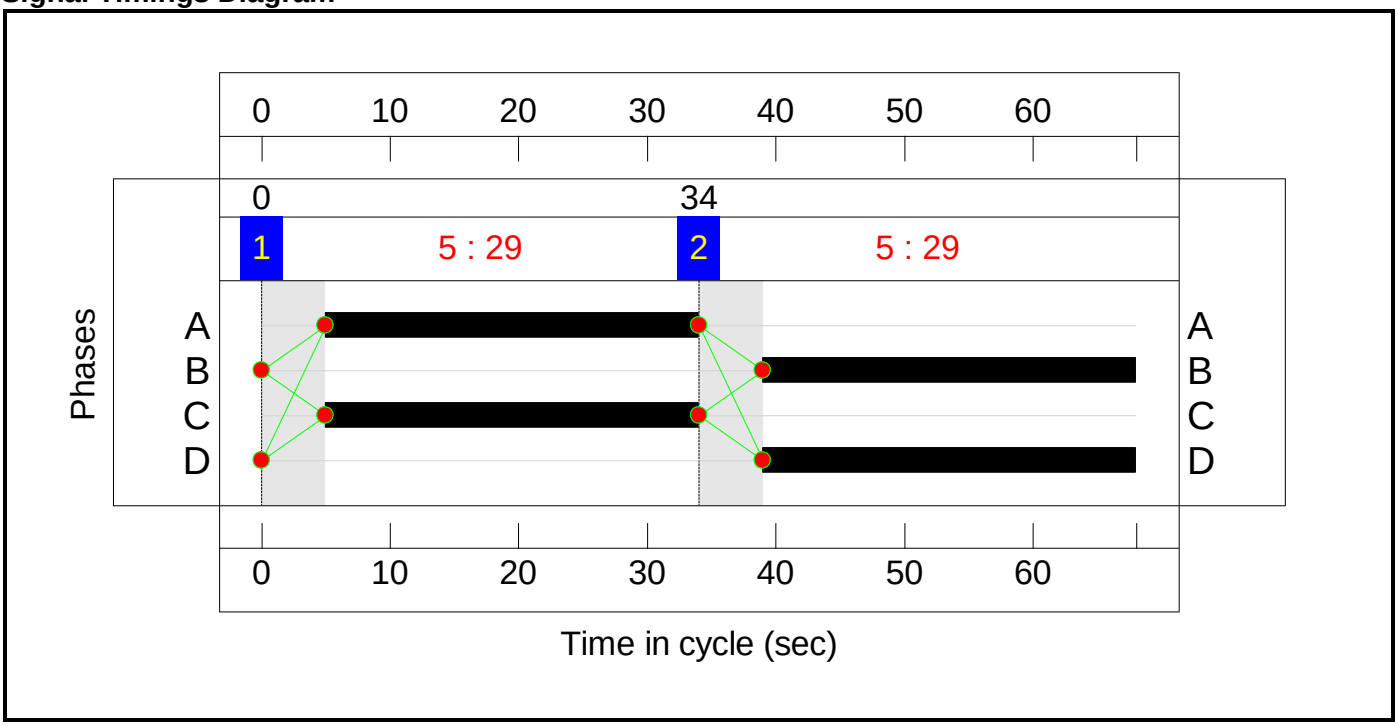


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	29	29
Change Point	0	34

Signal Timings Diagram



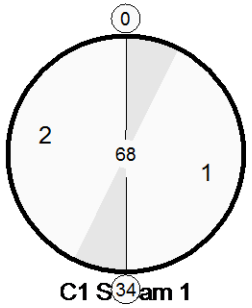
Full Input Data And Results

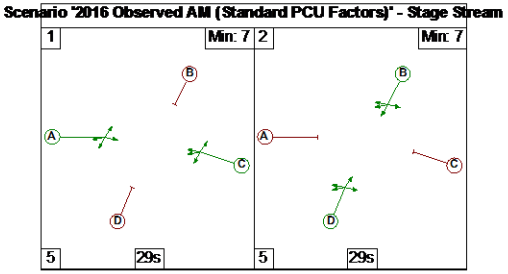
Network Layout Diagram

New Canal / Faeley Street
PRC: 134.2 %
Total Traffic Delay: 4.6 pcuHr

Notes

1. Cycle Time & Phase Times : From the videos





Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**38.4%**
New Canal / Faeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**38.4%**
1/1	New Canal Street Left Ahead Right Right2	O	1	N/A	B		1	29	-	328	1948	853	38.4%
2/1	Fazeley Street Right Left Ahead Ahead2	O	1	N/A	C		1	29	-	244	1865	718	34.0%
3/1	New Canal Street Ahead Right Left Left2	O	1	N/A	D		1	29	-	147	1923	840	17.5%
4/1	Fazeley Street Left Ahead Right U-Turn	O	1	N/A	A		1	29	-	251	1831	808	31.1%
5/1	New Canal Street	U	N/A	N/A	-		-	-	-	299	2015	2015	14.8%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	207	2010	2010	10.3%
7/1	New Canal Street	U	N/A	N/A	-		-	-	-	351	1990	1990	17.6%
8/1	New Bartholomew Street	U	N/A	N/A	-		-	-	-	19	2115	2115	0.9%
9/1	Fazeley Street	U	N/A	N/A	-		-	-	-	94	2000	2000	4.7%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**202**	**0**	**3**	**3.3**	**1.2**	**0.1**	**4.6**	**-**	**-**	**-**	**-**
New Canal / Faeley Street	**-**	**-**	**202**	**0**	**3**	**3.3**	**1.2**	**0.1**	**4.6**	**-**	**-**	**-**	**-**
1/1	328	328	34	0	1	1.2	0.3	0.0	1.5	16.3	4.1	0.3	4.4
2/1	244	244	111	0	2	0.8	0.3	0.1	1.2	17.5	2.9	0.3	3.2
3/1	147	147	15	0	0	0.5	0.1	0.0	0.6	14.3	1.7	0.1	1.8
4/1	251	251	41	0	1	0.9	0.2	0.0	1.1	15.6	3.1	0.2	3.3
5/1	299	299	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/1	207	207	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
7/1	351	351	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	19	19	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
9/1	94	94	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

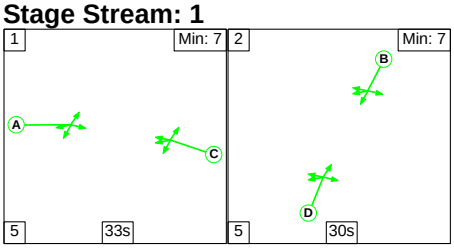
C1 Stream: 1 PRC for Signalled Lanes (%): 134.2 Total Delay for Signalled Lanes (pcuHr): 4.33 Cycle Time (s): 68
PRC Over All Lanes (%): 134.2 Total Delay Over All Lanes(pcuHr): 4.61

Full Input Data And Results

Scenario 2: '2016 Observed PM (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

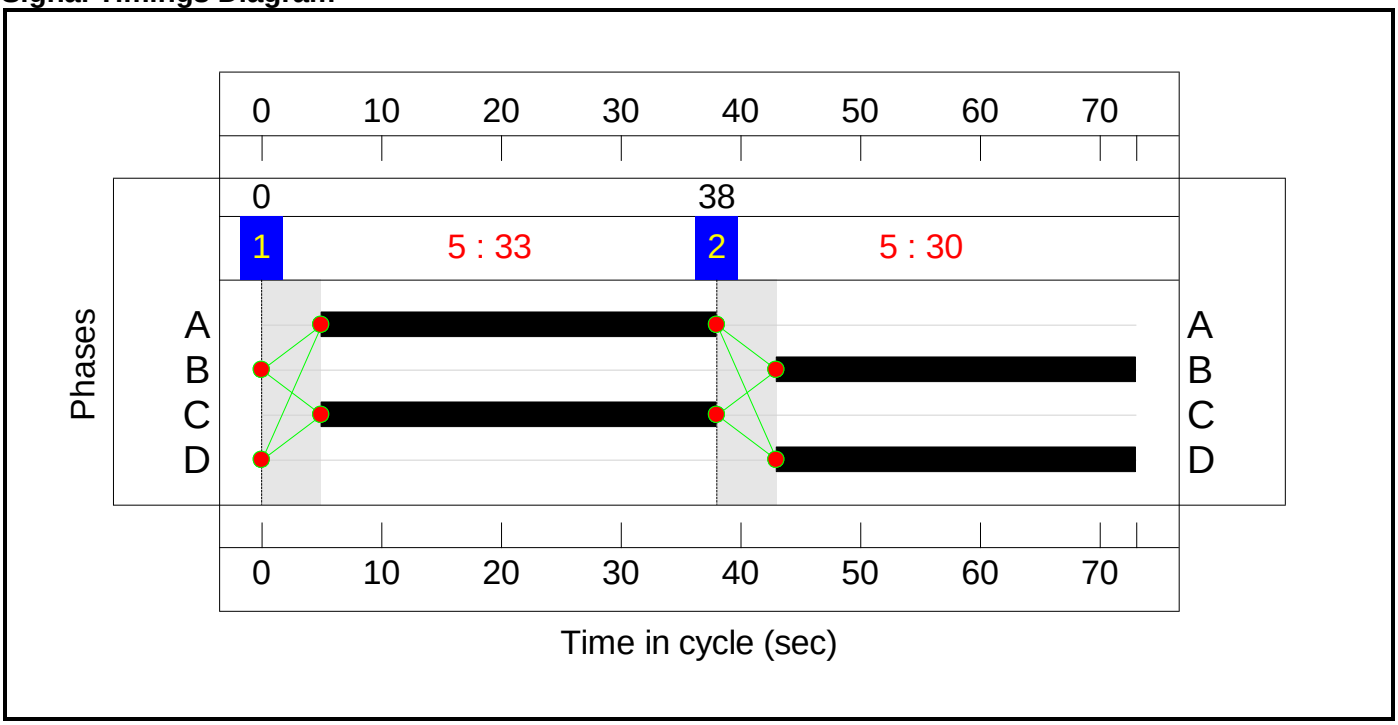


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	33	30
Change Point	0	38

Signal Timings Diagram



Full Input Data And Results

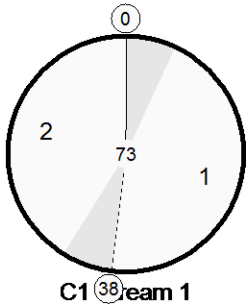
Network Layout Diagram

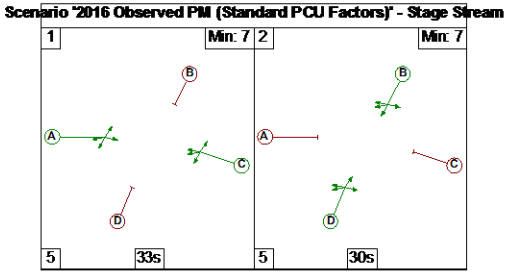
Full Input Data And Results

New Canal / Faeley Street
PRC: 115.3 %
Total Traffic Delay: 6.1 pcuHr

Notes

1. Cycle Time & Phase Times : From the videos





Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**41.8%**
New Canal / Faeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**41.8%**
1/1	New Canal Street Left Ahead Right Right2	O	1	N/A	B		1	30	-	341	1957	821	41.5%
2/1	Fazeley Street Right Left Ahead Ahead2	O	1	N/A	C		1	33	-	284	1828	679	41.8%
3/1	New Canal Street Ahead Right Left Left2	O	1	N/A	D		1	30	-	232	1961	825	28.1%
4/1	Fazeley Street Left Ahead Right U-Turn	O	1	N/A	A		1	33	-	303	1857	865	35.0%
5/1	New Canal Street	U	N/A	N/A	-		-	-	-	473	2015	2015	23.5%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	249	2010	2010	12.4%
7/1	New Canal Street	U	N/A	N/A	-		-	-	-	335	1990	1990	16.8%
8/1	New Bartholomew Street	U	N/A	N/A	-		-	-	-	14	2115	2115	0.7%
9/1	Fazeley Street	U	N/A	N/A	-		-	-	-	89	2000	2000	4.5%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**254**	**0**	**4**	**4.4**	**1.5**	**0.2**	**6.1**	**-**	**-**	**-**	**-**
New Canal / Faeley Street	**-**	**-**	**254**	**0**	**4**	**4.4**	**1.5**	**0.2**	**6.1**	**-**	**-**	**-**	**-**
1/1	341	341	35	0	0	1.4	0.4	0.0	1.8	18.5	4.7	0.4	5.1
2/1	284	284	180	0	2	1.1	0.4	0.2	1.6	20.4	4.3	0.4	4.6
3/1	232	232	11	0	0	0.9	0.2	0.0	1.1	16.8	3.0	0.2	3.2
4/1	303	303	30	0	0	1.0	0.3	0.0	1.3	15.7	3.9	0.3	4.1
5/1	473	473	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
6/1	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
7/1	335	335	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	14	14	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
9/1	89	89	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

C1 Stream: 1 PRC for Signalled Lanes (%): 115.3 Total Delay for Signalled Lanes (pcuHr): 5.77 Cycle Time (s): 73
PRC Over All Lanes (%): 115.3 Total Delay Over All Lanes(pcuHr): 6.12

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: J6 New Canal Street - Bordesley Street.j9
Path: P:\Birmingham\ITB\359345 BEE Addendum Work\3.0 Calculations\Junction Capacity Assessments\Junctions 9 Assessments\Existing and DM
Report generation date: 25/09/2017 11:51:09

»2016-Standard, AM
»2016-Standard, PM
»2026 DM-Standard, AM
»2026 DM-Standard, PM
»2031 DM-Standard, AM
»2031 DM-Standard, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016-Standard							
Stream B-ACD	0.1	8.65	0.10	A	0.2	9.30	0.19	A
Stream A-BCD	0.1	5.01	0.04	A	0.1	4.91	0.06	A
Stream D-ABC	0.3	9.84	0.24	A	0.6	11.16	0.39	B
Stream C-ABD	0.0	5.85	0.03	A	0.1	6.27	0.07	A
	2026 DM-Standard							
Stream B-ACD	0.2	8.52	0.15	A	0.2	8.32	0.14	A
Stream A-BCD	0.1	4.98	0.04	A	0.1	4.83	0.06	A
Stream D-ABC	0.2	8.32	0.15	A	0.4	8.86	0.26	A
Stream C-ABD	0.1	6.73	0.08	A	0.1	6.56	0.08	A
	2031 DM-Standard							
Stream B-ACD	0.2	8.37	0.13	A	0.2	8.19	0.14	A
Stream A-BCD	0.1	4.98	0.04	A	0.1	4.82	0.06	A
Stream D-ABC	0.2	8.31	0.15	A	0.4	8.87	0.26	A
Stream C-ABD	0.1	6.77	0.08	A	0.1	6.55	0.08	A

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

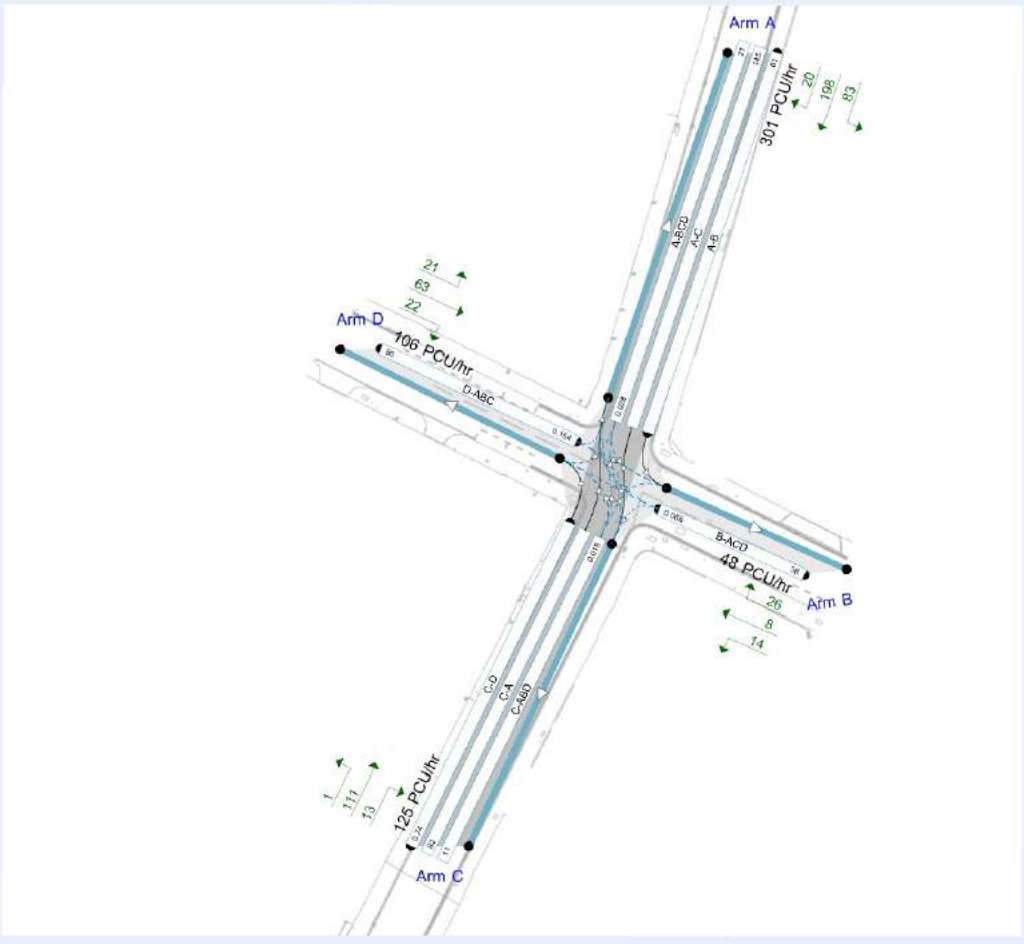
File summary

File Description

Title	J6 New Canal Street / Bordesley Street
Location	BEE
Site number	Junction 6
Date	03/11/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\HOD76167
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



Flows show original traffic demand (PCU/hr).
Streams (upstream end) show Total Demand (PCU/hr). Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D5	2026 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D6	2026 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D7	2031 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D8	2031 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

2016-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	2.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	New Canal Street (north)		Major
B	untitled		Minor
C	New Canal Street (south)		Major
D	untitled		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	7.50			100.0	✓	0.00
C	7.50			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.65	21	23
D	One lane	4.08	17	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	632	-	-	-	-	-	-	0.229	0.327	0.229	-	-	-
1	B-A	577	0.098	0.248	0.248	-	-	-	0.156	0.355	-	0.248	0.248	0.124
1	B-C	744	0.107	0.269	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	577	0.098	0.248	0.248	-	-	-	0.156	0.355	0.156	-	-	-
1	B-D, offside lane	577	0.098	0.248	0.248	-	-	-	0.156	0.355	0.156	-	-	-
1	C-B	632	0.229	0.229	0.327	-	-	-	-	-	-	-	-	-
1	D-A	706	-	-	-	-	-	-	0.256	-	0.101	-	-	-
1	D-B, nearside lane	547	0.148	0.148	0.336	-	-	-	0.235	0.235	0.093	-	-	-
1	D-B, offside lane	547	0.148	0.148	0.336	-	-	-	0.235	0.235	0.093	-	-	-
1	D-C	547	-	0.148	0.336	0.118	0.235	0.235	0.235	0.235	0.093	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	301	100.000
B		ONE HOUR	✓	48	100.000
C		ONE HOUR	✓	125	100.000
D		ONE HOUR	✓	106	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	83	198	20
	B	26	0	14	8
	C	111	13	0	1
	D	21	63	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	5	4	0
	B	20	0	0	0
	C	5	0	0	0
	D	10	0	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.10	8.65	0.1	A	44	66
A-BCD	0.04	5.01	0.1	A	28	42
A-B					73	110
A-C					175	262
D-ABC	0.24	9.84	0.3	A	97	146
C-ABD	0.03	5.85	0.0	A	14	21
C-D					0.90	1
C-A					99	149

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	36	9	545	0.066	36	0.0	0.1	7.769	A
A-BCD	21	5	749	0.028	21	0.0	0.0	5.000	A
A-B	61	15			61				
A-C	145	36			145				
D-ABC	80	20	518	0.154	79	0.0	0.2	8.417	A
C-ABD	11	3	636	0.018	11	0.0	0.0	5.800	A
C-D	0.74	0.18			0.74				
C-A	82	21			82				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	43	11	530	0.081	43	0.1	0.1	8.119	A
A-BCD	27	7	773	0.035	27	0.0	0.0	4.887	A
A-B	72	18			72				
A-C	172	43			172				
D-ABC	95	24	508	0.188	95	0.2	0.2	8.971	A
C-ABD	14	3	637	0.022	14	0.0	0.0	5.816	A
C-D	0.88	0.22			0.88				
C-A	98	24			98				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	53	13	511	0.104	53	0.1	0.1	8.642	A
A-BCD	36	9	805	0.044	36	0.0	0.1	4.747	A
A-B	87	22			87				
A-C	208	52			208				
D-ABC	117	29	493	0.237	116	0.2	0.3	9.826	A
C-ABD	18	4	639	0.028	18	0.0	0.0	5.841	A
C-D	1	0.27			1				
C-A	119	30			119				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	53	13	510	0.104	53	0.1	0.1	8.647	A
A-BCD	36	9	805	0.045	36	0.1	0.1	4.755	A
A-B	87	22			87				
A-C	208	52			208				
D-ABC	117	29	493	0.237	117	0.3	0.3	9.842	A
C-ABD	18	4	639	0.028	18	0.0	0.0	5.846	A
C-D	1	0.27			1				
C-A	119	30			119				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	43	11	530	0.081	43	0.1	0.1	8.126	A
A-BCD	27	7	773	0.035	27	0.1	0.0	4.902	A
A-B	72	18			72				
A-C	172	43			172				
D-ABC	95	24	508	0.188	96	0.3	0.2	8.996	A
C-ABD	14	3	637	0.022	14	0.0	0.0	5.826	A
C-D	0.88	0.22			0.88				
C-A	98	24			98				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	36	9	545	0.066	36	0.1	0.1	7.784	A
A-BCD	21	5	749	0.028	21	0.0	0.0	5.007	A
A-B	61	15			61				
A-C	145	36			145				
D-ABC	80	20	518	0.154	80	0.2	0.2	8.454	A
C-ABD	11	3	636	0.018	11	0.0	0.0	5.805	A
C-D	0.74	0.18			0.74				
C-A	82	21			82				

2016-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	4.39	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)	Run automatically
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	351	100.000
B		ONE HOUR	✓	84	100.000
C		ONE HOUR	✓	135	100.000
D		ONE HOUR	✓	188	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	51	273	27
	B	35	0	29	20
	C	99	32	0	4
	D	91	76	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	7
	C	2	0	0	0
	D	2	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.19	9.30	0.2	A	77	116
A-BCD	0.06	4.91	0.1	A	40	60
A-B					44	67
A-C					238	356
D-ABC	0.39	11.16	0.6	B	173	259
C-ABD	0.07	6.27	0.1	A	35	52
C-D					3	5
C-A					86	128

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	63	16	531	0.119	63	0.0	0.1	7.796	A
A-BCD	30	7	768	0.039	30	0.0	0.1	4.899	A
A-B	37	9			37				
A-C	198	49			198				
D-ABC	142	35	561	0.252	140	0.0	0.3	8.680	A
C-ABD	28	7	622	0.044	27	0.0	0.1	6.062	A
C-D	3	0.72			3				
C-A	71	18			71				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	76	19	512	0.147	75	0.1	0.2	8.369	A
A-BCD	38	10	795	0.048	38	0.1	0.1	4.785	A
A-B	44	11			44				
A-C	234	58			234				
D-ABC	169	42	550	0.307	169	0.3	0.4	9.589	A
C-ABD	34	8	621	0.054	34	0.1	0.1	6.144	A
C-D	3	0.85			3				
C-A	84	21			84				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	92	23	486	0.190	92	0.2	0.2	9.285	A
A-BCD	52	13	833	0.063	52	0.1	0.1	4.638	A
A-B	53	13			53				
A-C	282	70			282				
D-ABC	207	52	535	0.387	206	0.4	0.6	11.107	B
C-ABD	43	11	620	0.070	43	0.1	0.1	6.262	A
C-D	4	1			4				
C-A	101	25			101				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	92	23	486	0.190	92	0.2	0.2	9.300	A
A-BCD	52	13	833	0.063	52	0.1	0.1	4.644	A
A-B	53	13			53				
A-C	282	70			282				
D-ABC	207	52	535	0.387	207	0.6	0.6	11.156	B
C-ABD	43	11	620	0.070	43	0.1	0.1	6.268	A
C-D	4	1			4				
C-A	101	25			101				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	76	19	512	0.148	76	0.2	0.2	8.389	A
A-BCD	38	10	795	0.048	39	0.1	0.1	4.792	A
A-B	44	11			44				
A-C	233	58			233				
D-ABC	169	42	550	0.307	170	0.6	0.5	9.649	A
C-ABD	34	8	621	0.055	34	0.1	0.1	6.154	A
C-D	3	0.85			3				
C-A	84	21			84				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	63	16	531	0.119	63	0.2	0.1	7.826	A
A-BCD	30	7	768	0.039	30	0.1	0.1	4.906	A
A-B	37	9			37				
A-C	197	49			197				
D-ABC	142	35	561	0.252	142	0.5	0.3	8.758	A
C-ABD	28	7	622	0.044	28	0.1	0.1	6.069	A
C-D	3	0.72			3				
C-A	71	18			71				

2026 DM-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.13	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)	Run automatically
D5	2026 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	299	100.000
B		ONE HOUR	✓	68	100.000
C		ONE HOUR	✓	79	100.000
D		ONE HOUR	✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	81	198	20
	B	13	0	14	41
	C	39	40	0	0
	D	23	50	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	5	4	0
	B	20	0	0	0
	C	5	0	0	0
	D	10	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.15	8.52	0.2	A	62	94
A-BCD	0.04	4.98	0.1	A	28	42
A-B					72	107
A-C					175	263
D-ABC	0.15	8.32	0.2	A	67	100
C-ABD	0.08	6.73	0.1	A	39	59
C-D					0	0
C-A					33	50

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	541	0.095	51	0.0	0.1	7.573	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.969	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.0	0.1	7.531	A
C-ABD	32	8	599	0.053	31	0.0	0.1	6.360	A
C-D	0	0			0				
C-A	28	7			28				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	529	0.116	61	0.1	0.1	7.947	A
A-BCD	27	7	778	0.034	27	0.0	0.0	4.853	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.1	0.1	7.846	A
C-ABD	38	10	593	0.065	38	0.1	0.1	6.510	A
C-D	0	0			0				
C-A	33	8			33				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	512	0.146	75	0.1	0.2	8.512	A
A-BCD	36	9	811	0.044	35	0.0	0.1	4.710	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.1	0.2	8.313	A
C-ABD	48	12	584	0.081	47	0.1	0.1	6.730	A
C-D	0	0			0				
C-A	39	10			39				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	511	0.146	75	0.2	0.2	8.516	A
A-BCD	36	9	811	0.044	36	0.1	0.1	4.717	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.2	0.2	8.316	A
C-ABD	48	12	584	0.081	48	0.1	0.1	6.734	A
C-D	0	0			0				
C-A	39	10			39				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	529	0.116	61	0.2	0.1	7.957	A
A-BCD	27	7	778	0.034	27	0.1	0.0	4.868	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.2	0.1	7.856	A
C-ABD	38	10	593	0.065	38	0.1	0.1	6.517	A
C-D	0	0			0				
C-A	33	8			33				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	541	0.095	51	0.1	0.1	7.594	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.977	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.1	0.1	7.551	A
C-ABD	32	8	599	0.053	32	0.1	0.1	6.366	A
C-D	0	0			0				
C-A	28	7			28				

2026 DM-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.25	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)	Run automatically
D6	2026 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	362	100.000
B		ONE HOUR	✓	68	100.000
C		ONE HOUR	✓	118	100.000
D		ONE HOUR	✓	132	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	50	288	24
	B	0	0	29	39
	C	80	38	0	0
	D	75	57	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	7
	C	2	0	0	0
	D	2	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.14	8.32	0.2	A	62	94
A-BCD	0.06	4.83	0.1	A	36	54
A-B					44	66
A-C					252	378
D-ABC	0.26	8.86	0.4	A	121	182
C-ABD	0.08	6.56	0.1	A	40	60
C-D					0	0
C-A					68	103

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	561	0.091	51	0.0	0.1	7.328	A
A-BCD	27	7	777	0.035	27	0.0	0.0	4.824	A
A-B	36	9			36				
A-C	209	52			209				
D-ABC	99	25	582	0.171	99	0.0	0.2	7.587	A
C-ABD	32	8	609	0.052	31	0.0	0.1	6.245	A
C-D	0	0			0				
C-A	57	14			57				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	545	0.112	61	0.1	0.1	7.719	A
A-BCD	35	9	806	0.043	35	0.0	0.1	4.694	A
A-B	43	11			43				
A-C	248	62			248				
D-ABC	119	30	572	0.207	118	0.2	0.3	8.083	A
C-ABD	39	10	605	0.064	39	0.1	0.1	6.371	A
C-D	0	0			0				
C-A	67	17			67				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	524	0.143	75	0.1	0.2	8.316	A
A-BCD	47	12	847	0.056	47	0.1	0.1	4.537	A
A-B	52	13			52				
A-C	299	75			299				
D-ABC	145	36	560	0.260	145	0.3	0.4	8.848	A
C-ABD	49	12	600	0.082	49	0.1	0.1	6.553	A
C-D	0	0			0				
C-A	81	20			81				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	524	0.143	75	0.2	0.2	8.322	A
A-BCD	47	12	847	0.056	47	0.1	0.1	4.538	A
A-B	52	13			52				
A-C	299	75			299				
D-ABC	145	36	560	0.260	145	0.4	0.4	8.865	A
C-ABD	49	12	600	0.082	49	0.1	0.1	6.557	A
C-D	0	0			0				
C-A	81	20			81				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	545	0.112	61	0.2	0.1	7.730	A
A-BCD	35	9	806	0.043	35	0.1	0.1	4.703	A
A-B	43	11			43				
A-C	248	62			248				
D-ABC	119	30	572	0.207	119	0.4	0.3	8.105	A
C-ABD	39	10	605	0.064	39	0.1	0.1	6.381	A
C-D	0	0			0				
C-A	67	17			67				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	561	0.091	51	0.1	0.1	7.345	A
A-BCD	27	7	777	0.035	27	0.1	0.0	4.830	A
A-B	36	9			36				
A-C	209	52			209				
D-ABC	99	25	582	0.171	100	0.3	0.2	7.620	A
C-ABD	32	8	609	0.052	32	0.1	0.1	6.252	A
C-D	0	0			0				
C-A	57	14			57				

2031 DM-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.07	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)	Run automatically
D7	2031 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	299	100.000
B		ONE HOUR	✓	62	100.000
C		ONE HOUR	✓	78	100.000
D		ONE HOUR	✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	81	198	20
	B	13	0	14	35
	C	37	41	0	0
	D	23	50	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	5	4	0
	B	20	0	0	0
	C	5	0	0	0
	D	10	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.13	8.37	0.2	A	57	85
A-BCD	0.04	4.98	0.1	A	28	42
A-B					72	107
A-C					175	263
D-ABC	0.15	8.31	0.2	A	67	100
C-ABD	0.08	6.77	0.1	A	40	60
C-D					0	0
C-A					32	47

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	47	12	544	0.086	46	0.0	0.1	7.490	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.969	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.0	0.1	7.528	A
C-ABD	32	8	598	0.054	32	0.0	0.1	6.374	A
C-D	0	0			0				
C-A	26	7			26				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	56	14	531	0.105	56	0.1	0.1	7.838	A
A-BCD	27	7	778	0.034	27	0.0	0.0	4.853	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.1	0.1	7.842	A
C-ABD	39	10	591	0.066	39	0.1	0.1	6.534	A
C-D	0	0			0				
C-A	31	8			31				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	68	17	514	0.133	68	0.1	0.2	8.362	A
A-BCD	36	9	811	0.044	35	0.0	0.1	4.711	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.1	0.2	8.307	A
C-ABD	49	12	583	0.083	48	0.1	0.1	6.761	A
C-D	0	0			0				
C-A	37	9			37				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	68	17	514	0.133	68	0.2	0.2	8.368	A
A-BCD	36	9	811	0.044	36	0.1	0.1	4.717	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.2	0.2	8.310	A
C-ABD	49	12	583	0.083	49	0.1	0.1	6.767	A
C-D	0	0			0				
C-A	37	9			37				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	56	14	531	0.105	56	0.2	0.1	7.849	A
A-BCD	27	7	778	0.034	27	0.1	0.0	4.867	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.2	0.1	7.853	A
C-ABD	39	10	591	0.066	39	0.1	0.1	6.543	A
C-D	0	0			0				
C-A	31	8			31				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	47	12	544	0.086	47	0.1	0.1	7.508	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.976	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.1	0.1	7.545	A
C-ABD	32	8	598	0.054	32	0.1	0.1	6.387	A
C-D	0	0			0				
C-A	26	7			26				

2031 DM-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.22	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)	Run automatically
D8	2031 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	363	100.000
B		ONE HOUR	✓	65	100.000
C		ONE HOUR	✓	117	100.000
D		ONE HOUR	✓	133	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	50	289	24
	B	0	0	29	36
	C	80	37	0	0
	D	76	57	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	7
	C	2	0	0	0
	D	2	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.14	8.19	0.2	A	60	89
A-BCD	0.06	4.82	0.1	A	36	55
A-B					44	66
A-C					253	379
D-ABC	0.26	8.87	0.4	A	122	183
C-ABD	0.08	6.55	0.1	A	39	58
C-D					0	0
C-A					69	103

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	49	12	564	0.087	49	0.0	0.1	7.241	A
A-BCD	27	7	778	0.035	27	0.0	0.0	4.819	A
A-B	36	9			36				
A-C	210	53			210				
D-ABC	100	25	582	0.172	99	0.0	0.2	7.588	A
C-ABD	31	8	609	0.051	31	0.0	0.1	6.238	A
C-D	0	0			0				
C-A	57	14			57				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	58	15	549	0.106	58	0.1	0.1	7.611	A
A-BCD	35	9	807	0.043	35	0.0	0.1	4.689	A
A-B	43	11			43				
A-C	249	62			249				
D-ABC	120	30	573	0.209	119	0.2	0.3	8.085	A
C-ABD	38	9	605	0.062	38	0.1	0.1	6.362	A
C-D	0	0			0				
C-A	67	17			67				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	72	18	528	0.136	71	0.1	0.2	8.180	A
A-BCD	47	12	848	0.056	47	0.1	0.1	4.529	A
A-B	52	13			52				
A-C	300	75			300				
D-ABC	146	37	560	0.261	146	0.3	0.4	8.854	A
C-ABD	48	12	600	0.080	48	0.1	0.1	6.541	A
C-D	0	0			0				
C-A	81	20			81				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	72	18	528	0.136	72	0.2	0.2	8.185	A
A-BCD	47	12	848	0.056	47	0.1	0.1	4.535	A
A-B	52	13			52				
A-C	300	75			300				
D-ABC	146	37	560	0.261	146	0.4	0.4	8.871	A
C-ABD	48	12	600	0.080	48	0.1	0.1	6.547	A
C-D	0	0			0				
C-A	81	20			81				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	58	15	549	0.106	59	0.2	0.1	7.623	A
A-BCD	35	9	807	0.043	35	0.1	0.1	4.698	A
A-B	43	11			43				
A-C	249	62			249				
D-ABC	120	30	573	0.209	120	0.4	0.3	8.108	A
C-ABD	38	9	605	0.063	38	0.1	0.1	6.371	A
C-D	0	0			0				
C-A	67	17			67				

17:15 - 17:30

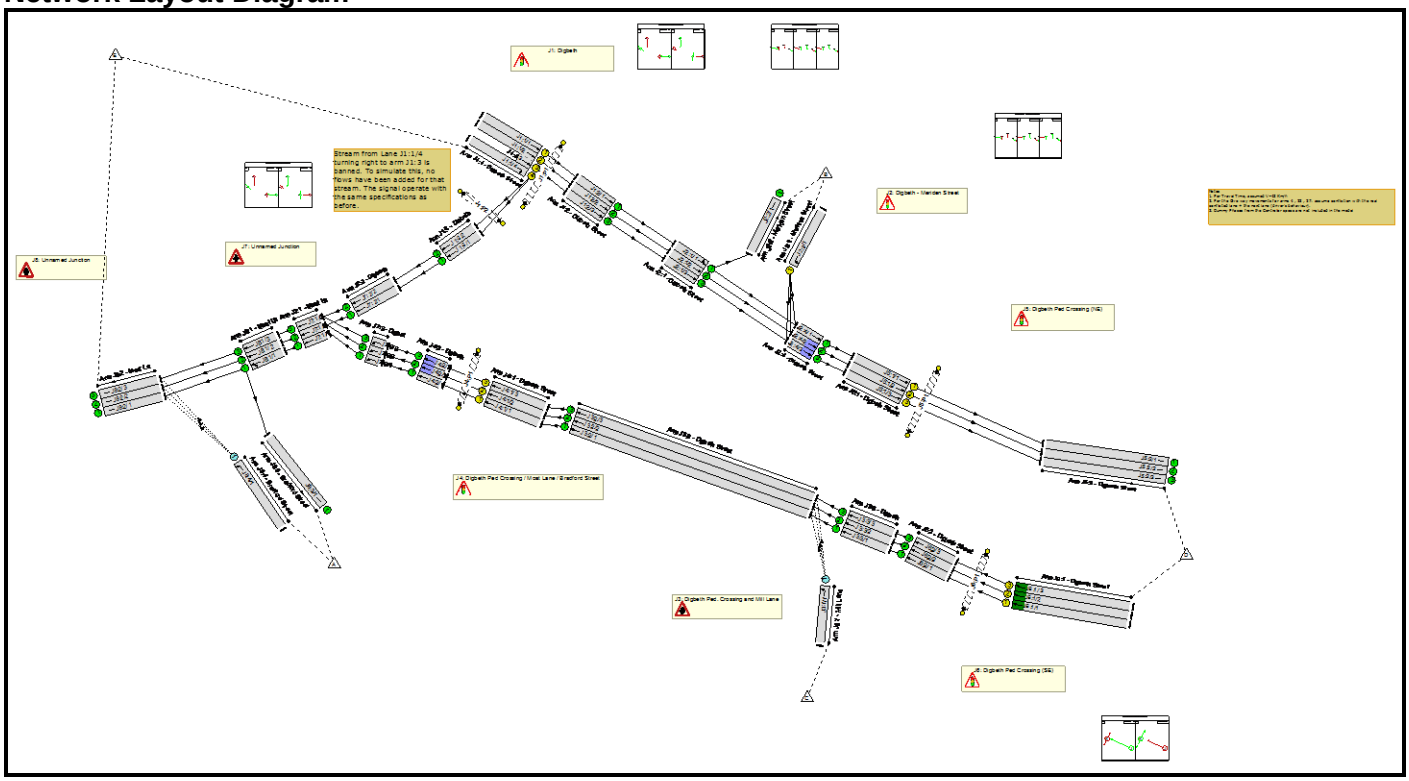
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	49	12	564	0.087	49	0.1	0.1	7.254	A
A-BCD	27	7	778	0.035	27	0.1	0.0	4.824	A
A-B	36	9			36				
A-C	210	52			210				
D-ABC	100	25	582	0.172	100	0.3	0.2	7.620	A
C-ABD	31	8	609	0.051	31	0.1	0.1	6.245	A
C-D	0	0			0				
C-A	57	14			57				

Full Input Data And Results

User and Project Details

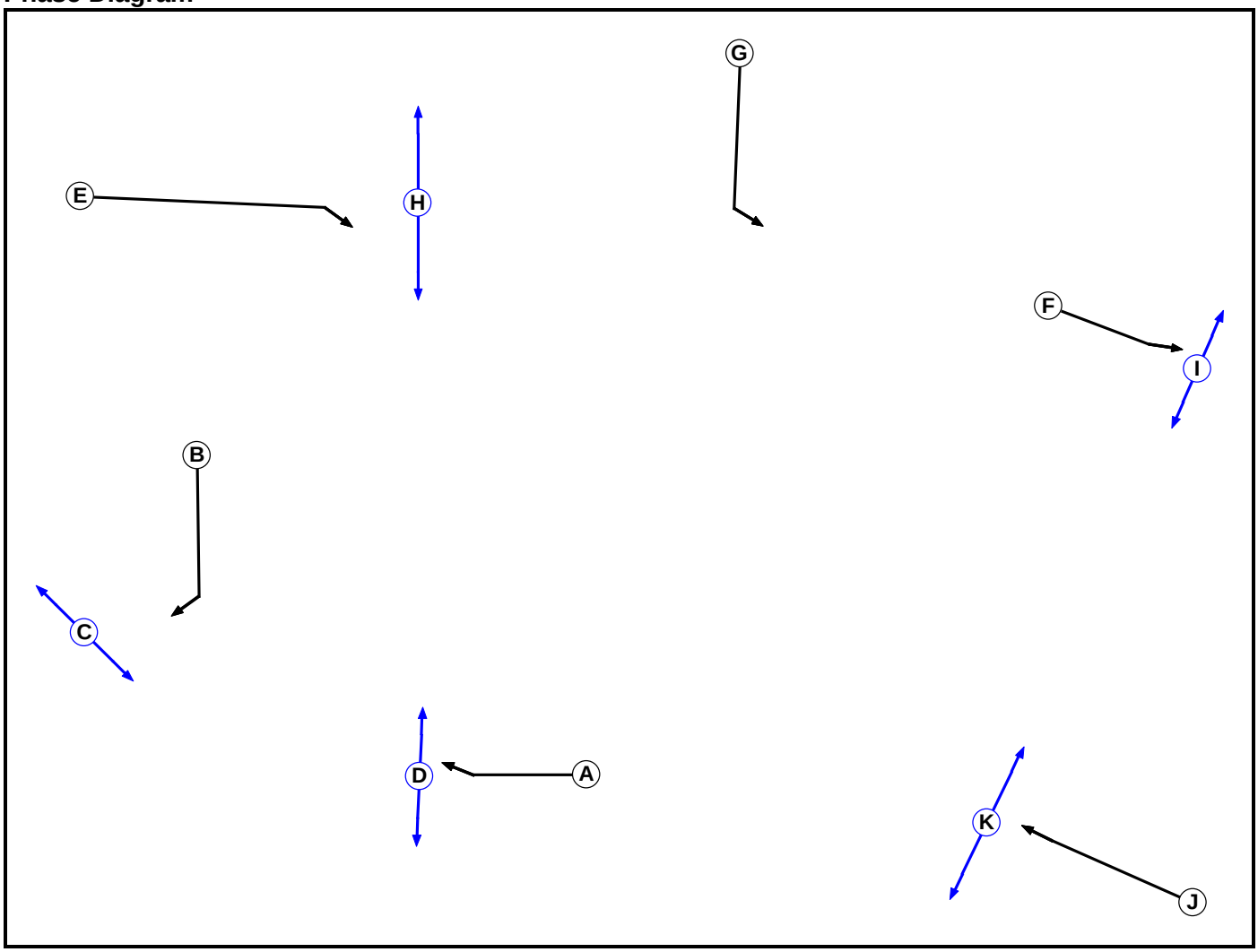
Project:	**Birmingham Eastside Extension**
Title:	**High Street Deritend / Meriden Street (Including Moat Lane Gyratory)**
Location:	Birmingham
File name:	Moat Lane Gyratory (Digbeth Street Only).lsg3x
Author:	Andreas Theofanous
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	Area wih signalized and not signalized junctions

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Pedestrian	1		5	5
D	Pedestrian	1		5	5
E	Traffic	2		7	7
F	Traffic	2		7	7
G	Traffic	2		7	7
H	Pedestrian	2		5	5
I	Pedestrian	2		5	5
J	Traffic	3		7	7
K	Pedestrian	3		5	5

Full Input Data And Results

Phase Intergreens Matrix

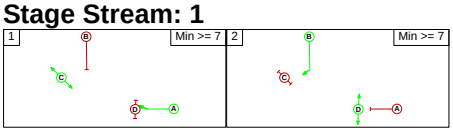
Terminating Phase	Starting Phase											
		A	B	C	D	E	F	G	H	I	J	K
	A		5	-	5	-	-	-	-	-	-	-
	B	5		5	-	-	-	-	-	-	-	-
	C	-	10		-	-	-	-	-	-	-	-
	D	13	-	-		-	-	-	-	-	-	-
	E	-	-	-	-		-	8	5	-	-	-
	F	-	-	-	-	-		-	-	5	-	-
	G	-	-	-	-	5	-		-	-	-	-
	H	-	-	-	-	12	-	-		-	-	-
	I	-	-	-	-	-	8	-	-		-	-
	J	-	-	-	-	-	-	-	-	-		5
	K	-	-	-	-	-	-	-	-	-	8	

Phases in Stage

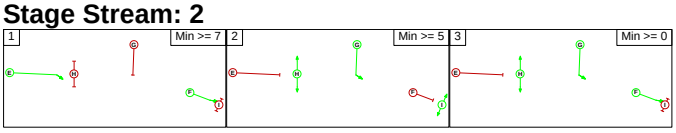
Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B D
2	1	E F
2	2	G H I
2	3	F G H
3	1	J
3	2	K

Stage Diagram

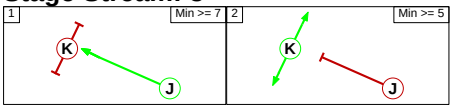
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	F	Losing	4	4

Stage Stream: 3

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage \ To Stage	1	2
1		10
2	13	

Stage Stream: 2

From Stage \ To Stage	1	2	3
1		9	8
2	12		8
3	12	5	

Stage Stream: 3

From Stage \ To Stage	1	2
1		5
2	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Digbeth
There are no Opposed Lanes in this Junction

Junction: J2: Digbeth - Meriden Street
There are no Opposed Lanes in this Junction

Junction: J3: Digbeth Ped. Crossing and Mill Lane

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
J3:1/1 (Mill Lane)	J3:2/1 (Left)	715	0	J3:3/1	0.22	All	-	-	-	-	-
				J3:3/2	0.22	All					
				J3:3/3	1.09	All					
	J3:2/2 (Left)	715	0	J3:3/1	0.22	All					
				J3:3/2	0.22	All					
				J3:3/3	0.22	All					
	J3:2/3 (Left)	715	0	J3:3/1	0.22	All					
				J3:3/2	0.22	All					
				J3:3/3	0.22	All					

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street
There are no Opposed Lanes in this Junction

Junction: J5: Digbeth Ped Crossing (NE)
There are no Opposed Lanes in this Junction

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)
There are no Opposed Lanes in this Junction

Junction: J7: Unnamed Junction
There are no Opposed Lanes in this Junction

Junction: J8: Unnamed Junction											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J8:4/1 (Bradford Street)	J8:2/1 (Left)	715	0	J8:1/1	0.22	To J8:2/1 (Ahead)	-	-	-	-	-
				J8:1/2	0.22	All					
	J8:2/2 (Left)	715	0	J8:1/1	0.22	To J8:2/1 (Ahead)					
				J8:1/2	0.22	All					
				J8:1/3	0.22	All					
	J8:2/3 (Left)	715	0	J8:1/1	0.22	To J8:2/1 (Ahead)					
				J8:1/2	0.22	All					
				J8:1/3	0.22	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Digbeth												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Digbeth Street)	U	E	2	3	6.4	Geom	-	3.65	0.00	Y	Arm J1:2 Ahead	Inf
J1:1/2 (Digbeth Street)	U	E	2	3	6.4	Geom	-	3.65	0.00	N	Arm J1:2 Ahead	Inf
J1:1/3 (Digbeth Street)	U	E	2	3	2.6	Geom	-	3.65	0.00	N	Arm J1:2 Ahead	Inf
J1:1/4 (Digbeth Street)	U	B	2	3	6.4	Geom	-	4.00	0.00	Y	Arm J1:3 Right	10.00
J1:2/1 (Digbeth Street)	U		2	3	0.2	Geom	-	3.65	0.00	Y	Arm J2:1 Ahead	Inf
J1:2/2 (Digbeth Street)	U		2	3	0.2	Geom	-	3.65	0.00	N	Arm J2:1 Ahead	Inf
J1:2/3 (Digbeth Street)	U		2	3	0.2	Geom	-	3.65	0.00	N	Arm J2:1 Ahead	Inf
J1:3/1 (Digbeth)	U		2	3	2.6	Geom	-	3.50	0.00	Y	Arm J7:2 Ahead	Inf
J1:3/2 (Digbeth)	U		2	3	2.6	Geom	-	3.50	0.00	Y	Arm J7:2 Ahead	Inf

Full Input Data And Results

Junction: J2: Digbeth - Meriden Street

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Digbeth Street)	U		2	3	5.6	Geom	-	3.65	0.00	Y	Arm J2:2 Left	Inf
											Arm J2:4 Ahead	Inf
J2:1/2 (Digbeth Street)	U		2	3	5.6	Geom	-	3.65	0.00	N	Arm J2:4 Ahead	Inf
J2:1/3 (Digbeth Street)	U		2	3	5.6	Geom	-	3.65	0.00	N	Arm J2:4 Ahead	Inf
J2:2/1 (Meriden Street)	U		2	3	60.0	Geom	-	4.15	0.00	Y		
J2:3/1 (Meriden Street)	U	G	2	3	60.0	Geom	-	4.15	0.00	Y	Arm J2:4 Left	Inf
J2:4/1 (Digbeth Street)	U		2	3	1.7	Geom	-	3.65	0.00	Y	Arm J5:1 Ahead	Inf
J2:4/2 (Digbeth Street)	U		2	3	1.7	Geom	-	3.65	0.00	Y	Arm J5:1 Ahead	Inf
J2:4/3 (Digbeth Street)	U		2	3	1.7	Geom	-	3.65	0.00	Y	Arm J5:1 Ahead	Inf

Junction: J3: Digbeth Ped. Crossing and Mill Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (Mill Lane)	O		2	3	60.0	Geom	-	4.50	0.00	Y	Arm J3:2 Left	Inf
J3:2/1 (Digbeth Street)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J4:1 Ahead	Inf
J3:2/2 (Digbeth Street)	U		2	3	0.2	Geom	-	3.50	0.00	N	Arm J4:1 Ahead	Inf
J3:2/3 (Digbeth Street)	U		2	3	0.2	Geom	-	3.50	0.00	N	Arm J4:1 Ahead	Inf
J3:3/1 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
J3:3/2 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
J3:3/3 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf

Full Input Data And Results

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J4:1/1 (Digbeth Street)	U	A	2	3	13.6	Geom	-	3.50	0.00	Y	Arm J4:2 Ahead	Inf
J4:1/2 (Digbeth Street)	U	A	2	3	13.6	Geom	-	3.50	0.00	N	Arm J4:2 Ahead	Inf
J4:1/3 (Digbeth Street)	U	A	2	3	13.6	Geom	-	3.50	0.00	N	Arm J4:2 Ahead	Inf
J4:2/1 (Digbeth)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:3 Ahead	Inf
J4:2/2 (Digbeth)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:3 Ahead	Inf
J4:2/3 (Digbeth)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:3 Ahead	Inf

Junction: J5: Digbeth Ped Crossing (NE)												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J5:1/1 (Digbeth Street)	U	F	2	3	6.1	Geom	-	3.65	0.00	Y	Arm J5:2 Ahead	Inf
J5:1/2 (Digbeth Street)	U	F	2	3	6.1	Geom	-	3.65	0.00	N	Arm J5:2 Ahead	Inf
J5:1/3 (Digbeth Street)	U	F	2	3	6.1	Geom	-	3.65	0.00	N	Arm J5:2 Ahead	Inf
J5:2/1 (Digbeth Street)	U		2	3	60.0	Geom	-	3.65	0.00	N		
J5:2/2 (Digbeth Street)	U		2	3	60.0	Geom	-	3.65	0.00	N		
J5:2/3 (Digbeth Street)	U		2	3	60.0	Geom	-	3.65	0.00	N		

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J6:1/1 (Digbeth Street)	U	J	2	3	8.7	Geom	-	3.50	0.00	Y	Arm J6:2 Ahead	Inf
J6:1/2 (Digbeth Street)	U	J	2	3	8.7	Geom	-	3.50	0.00	N	Arm J6:2 Ahead	Inf
J6:1/3 (Digbeth Street)	U	J	2	3	8.7	Geom	-	3.50	0.00	N	Arm J6:2 Ahead	Inf
J6:2/1 (Digbeth Street)	U		2	3	3.3	Geom	-	3.50	0.00	Y	Arm J3:3 Ahead	Inf
J6:2/2 (Digbeth Street)	U		2	3	3.3	Geom	-	3.50	0.00	N	Arm J3:3 Ahead	Inf
J6:2/3 (Digbeth Street)	U		2	3	3.3	Geom	-	3.50	0.00	N	Arm J3:3 Ahead	Inf

Junction: J7: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J7:1/1 (Moat Ln)	U		2	3	7.1	User	1965	-	-	-	-	-
J7:1/2 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	N	Arm J8:1 Ahead	Inf
J7:1/3 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	N	Arm J8:1 Ahead	Inf
J7:2/1 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:2/2 (Digbeth)	U		2	3	60.0	Inf	-	-	-	-	-	-
J7:3/1 (Digbet)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:3/2 (Digbet)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:3/3 (Digbet)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf

Full Input Data And Results

Junction: J8: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J8:1/1 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
											Arm J8:3 Left	Inf
J8:1/2 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J8:1/3 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J8:2/1 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	Y		
J8:2/2 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	N		
J8:2/3 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	N		
J8:3/1 (Bradford Street)	U		2	3	60.0	Geom	-	3.50	0.00	Y		
J8:4/1 (Bradford Street)	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm J8:2 Left	15.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 AM Peak (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	410	410
	B	0	0	0	205	0	205
	C	1	0	0	0	22	23
	D	36	0	0	0	616	652
	E	0	109	0	842	0	951
	Tot.	37	109	0	1047	1048	2241

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2016 AM Peak (Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	491
J1:1/2 (with short)	460(In) 230(Out)
J1:1/3 (short)	230
J1:1/4	0
J1:2/1	491
J1:2/2	230
J1:2/3	230
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	491
J2:1/2	230
J2:1/3	230
J2:2/1	109
J2:3/1	205
J2:4/1	393
J2:4/2	327
J2:4/3	327
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	23
J3:2/1	208
J3:2/2	234
J3:2/3	233
J3:3/1	200
J3:3/2	226
J3:3/3	226
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	208
J4:1/2	234
J4:1/3	233
J4:2/1	208
J4:2/2	234
J4:2/3	233
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	393
J5:1/2	327
J5:1/3	327
J5:2/1	393

Full Input Data And Results

J5:2/2	327
J5:2/3	327
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	200
J6:1/2	226
J6:1/3	226
J6:2/1	200
J6:2/2	226
J6:2/3	226
Junction: J7: Unnamed Junction	
J7:1/1	208
J7:1/2	234
J7:1/3	233
J7:2/1	0
J7:2/2	0
J7:3/1	208
J7:3/2	234
J7:3/3	233
Junction: J8: Unnamed Junction	
J8:1/1	208
J8:1/2	234
J8:1/3	233
J8:2/1	206
J8:2/2	422
J8:2/3	420
J8:3/1	37
J8:4/1	410

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	22.2 %	1980	1980
				Arm J2:4 Ahead	Inf	77.8 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	82.2 %	1965	1965
				Arm J8:3 Left	Inf	17.8 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 2: '2016 PM Peak (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	273	273
	B	0	0	0	314	0	314
	C	2	0	0	0	40	42
	D	33	0	0	0	686	719
	E	0	81	0	1209	0	1290
	Tot.	35	81	0	1523	999	2638

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 PM Peak (Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	636
J1:1/2 (with short)	654(In) 327(Out)
J1:1/3 (short)	327
J1:1/4	0
J1:2/1	636
J1:2/2	327
J1:2/3	327
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	636
J2:1/2	327
J2:1/3	327
J2:2/1	81
J2:3/1	314
J2:4/1	568
J2:4/2	477
J2:4/3	478
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	42
J3:2/1	236
J3:2/2	263
J3:2/3	262
J3:3/1	221
J3:3/2	249
J3:3/3	249
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	236
J4:1/2	263
J4:1/3	262
J4:2/1	236
J4:2/2	263
J4:2/3	262
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	568
J5:1/2	477
J5:1/3	478
J5:2/1	568

Full Input Data And Results

J5:2/2	477
J5:2/3	478
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	221
J6:1/2	249
J6:1/3	249
J6:2/1	221
J6:2/2	249
J6:2/3	249
Junction: J7: Unnamed Junction	
J7:1/1	236
J7:1/2	263
J7:1/3	262
J7:2/1	0
J7:2/2	0
J7:3/1	236
J7:3/2	263
J7:3/3	262
Junction: J8: Unnamed Junction	
J8:1/1	236
J8:1/2	263
J8:1/3	262
J8:2/1	230
J8:2/2	385
J8:2/3	384
J8:3/1	35
J8:4/1	273

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	12.7 %	1980	1980
				Arm J2:4 Ahead	Inf	87.3 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	85.2 %	1965	1965
				Arm J8:3 Left	Inf	14.8 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 3: '2016 AM Peak (Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	454	454
	B	0	0	0	208	0	208
	C	1	0	0	0	22	23
	D	38	0	0	0	698	736
	E	0	110	0	964	0	1074
	Tot.	39	110	0	1172	1174	2495

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2016 AM Peak (Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	540
J1:1/2 (with short)	534(In) 267(Out)
J1:1/3 (short)	267
J1:1/4	0
J1:2/1	540
J1:2/2	267
J1:2/3	267
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	540
J2:1/2	267
J2:1/3	267
J2:2/1	110
J2:3/1	208
J2:4/1	438
J2:4/2	367
J2:4/3	367
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	23
J3:2/1	235
J3:2/2	262
J3:2/3	262
J3:3/1	227
J3:3/2	254
J3:3/3	255
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	235
J4:1/2	262
J4:1/3	262
J4:2/1	235
J4:2/2	262
J4:2/3	262
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	438
J5:1/2	367
J5:1/3	367
J5:2/1	438

Full Input Data And Results

J5:2/2	367
J5:2/3	367
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	227
J6:1/2	254
J6:1/3	255
J6:2/1	227
J6:2/2	254
J6:2/3	255
Junction: J7: Unnamed Junction	
J7:1/1	235
J7:1/2	262
J7:1/3	262
J7:2/1	0
J7:2/2	0
J7:3/1	235
J7:3/2	262
J7:3/3	262
Junction: J8: Unnamed Junction	
J8:1/1	235
J8:1/2	262
J8:1/3	262
J8:2/1	219
J8:2/2	478
J8:2/3	477
J8:3/1	39
J8:4/1	454

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	20.4 %	1980	1980
				Arm J2:4 Ahead	Inf	79.6 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	83.4 %	1965	1965
				Arm J8:3 Left	Inf	16.6 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 4: '2016 PM Peak (Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	305	305
	B	0	0	0	315	0	315
	C	2	0	0	0	40	42
	D	34	0	0	0	758	792
	E	0	81	0	1311	0	1392
	Tot.	36	81	0	1626	1103	2846

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 PM Peak (Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	680
J1:1/2 (with short)	712(In) 356(Out)
J1:1/3 (short)	356
J1:1/4	0
J1:2/1	680
J1:2/2	356
J1:2/3	356
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	680
J2:1/2	356
J2:1/3	356
J2:2/1	81
J2:3/1	315
J2:4/1	613
J2:4/2	507
J2:4/3	506
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	42
J3:2/1	260
J3:2/2	287
J3:2/3	287
J3:3/1	246
J3:3/2	273
J3:3/3	273
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	260
J4:1/2	287
J4:1/3	287
J4:2/1	260
J4:2/2	287
J4:2/3	287
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	613
J5:1/2	507
J5:1/3	506
J5:2/1	613

Full Input Data And Results

J5:2/2	507
J5:2/3	506
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	246
J6:1/2	273
J6:1/3	273
J6:2/1	246
J6:2/2	273
J6:2/3	273
Junction: J7: Unnamed Junction	
J7:1/1	260
J7:1/2	287
J7:1/3	287
J7:2/1	0
J7:2/2	0
J7:3/1	260
J7:3/2	287
J7:3/3	287
Junction: J8: Unnamed Junction	
J8:1/1	260
J8:1/2	287
J8:1/3	287
J8:2/1	252
J8:2/2	425
J8:2/3	426
J8:3/1	36
J8:4/1	305

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	11.9 %	1980	1980
				Arm J2:4 Ahead	Inf	88.1 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

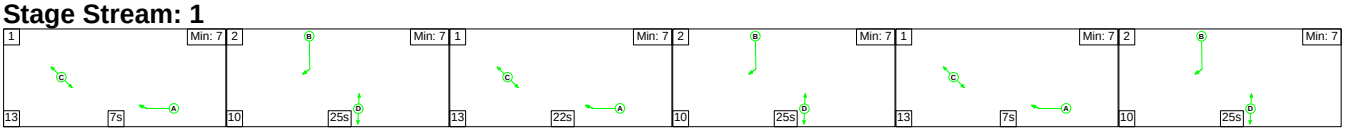
Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	86.2 %	1965	1965
				Arm J8:3 Left	Inf	13.8 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

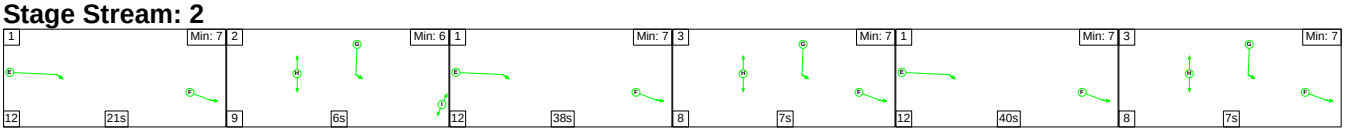
Scenario 1: '2016 AM Peak (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

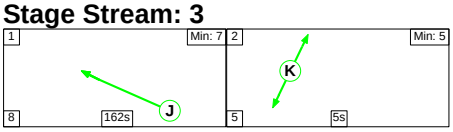
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2
Duration	7	25	22	25	7	25
Change Point	131	151	6	41	76	96

Stage Stream: 2

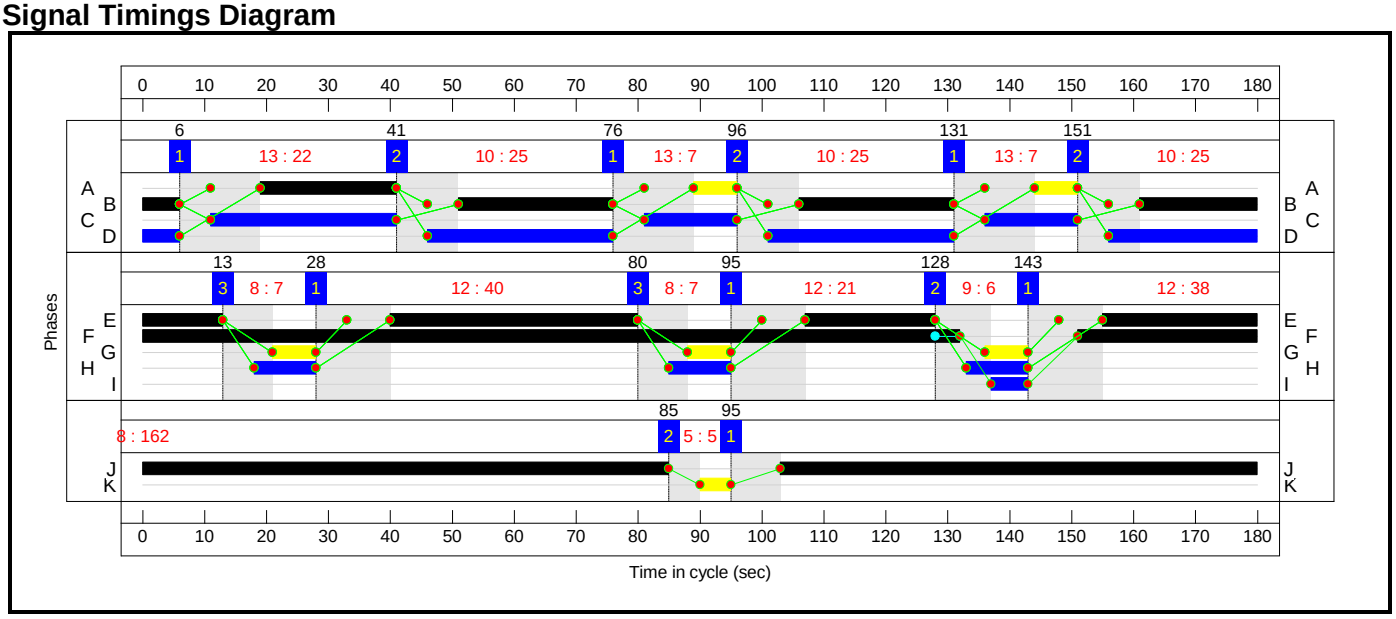
Stage	1	2	1	3	1	3
Duration	21	6	38	7	40	7
Change Point	95	128	143	13	28	80

Full Input Data And Results

Stage Stream: 3

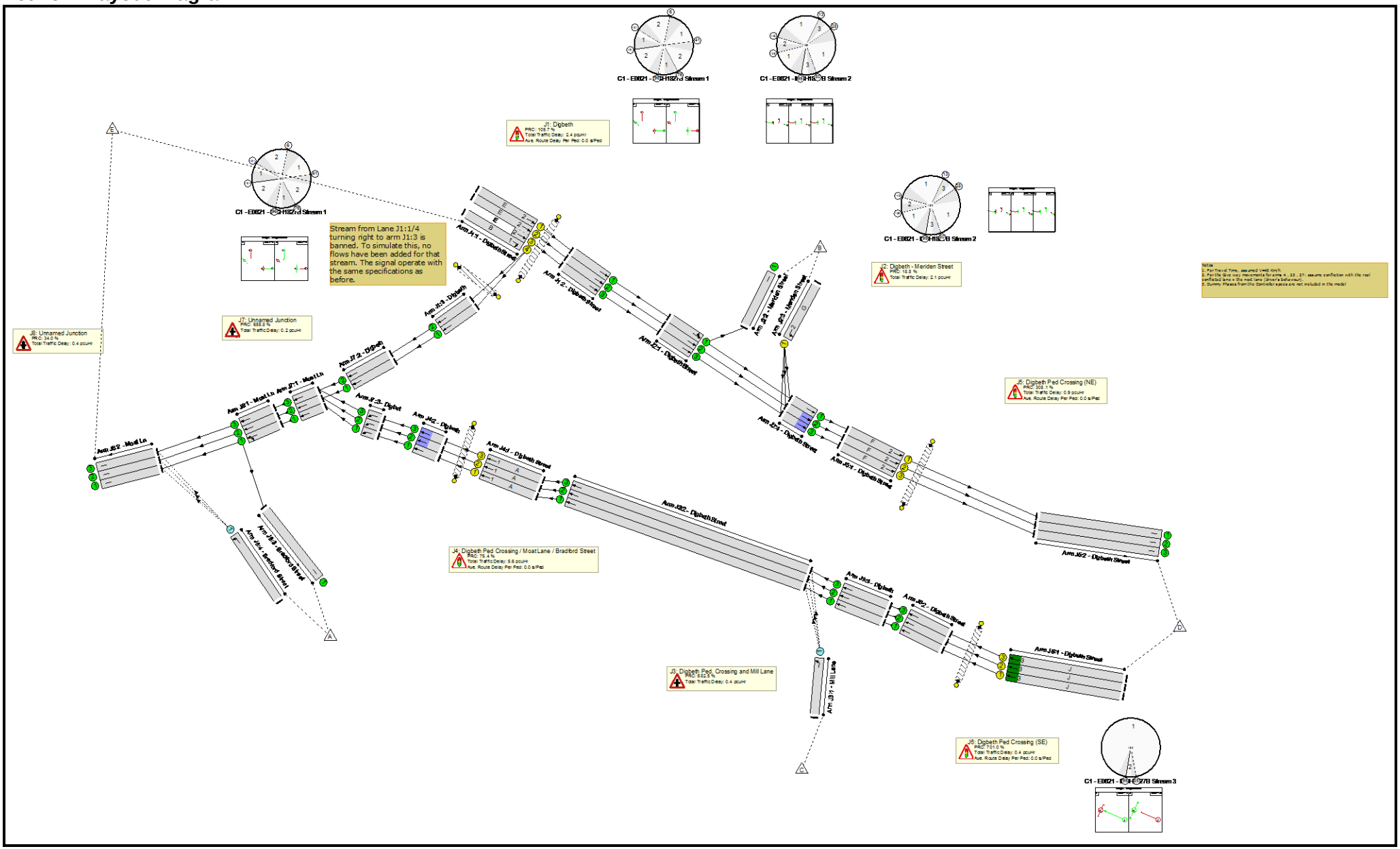
Stage	1	2
Duration	162	5
Change Point	95	85

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.7%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**43.8%**
1/1	Digbeth Street Ahead	U	2	N/A	E		3	99	-	491	1980	1122	43.8%
1/2+1/3	Digbeth Street Ahead	U	2	N/A	E		3	99	-	460	2120:2120	693+693	33.2 : 33.2%
1/4	Digbeth Street Right	U	1	N/A	B		3	75	-	0	2015	873	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	491	1980	1980	24.8%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	230	2120	2120	10.8%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	230	2120	2120	10.8%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
Ped Link: P1	Unnamed Ped Link	-	2	-	H		3	30	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	C		3	60	-	0	-	0	0.0%
J2: Digbeth - Meriden Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.7%**
1/1	Digbeth Street Left Ahead	U	N/A	N/A	-		-	-	-	491	1980	1980	24.8%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	230	2120	2120	10.8%
1/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	230	2120	2120	10.8%
2/1	Meriden Street	U	N/A	N/A	-		-	-	-	109	2030	2030	5.4%

Full Input Data And Results

3/1	Meriden Street Left	U	2	N/A	G		3	21	-	205	2030	271	75.7%
4/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	393	1980	1980	19.8%
4/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	327	1980	1980	16.5%
4/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	327	1980	1980	16.5%
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.5%**
1/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	23	2065	483	4.8%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	208	1965	1965	10.6%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	234	2105	2105	11.1%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	233	2105	2105	11.1%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	200	1965	1965	10.2%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	226	1965	1965	11.5%
3/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	226	1965	1965	11.5%
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.3%**
1/1	Digbeth Street Ahead	U	1	N/A	A		3	36	-	208	1965	426	48.9%
1/2	Digbeth Street Ahead	U	1	N/A	A		3	36	-	234	2105	456	51.3%
1/3	Digbeth Street Ahead	U	1	N/A	A		3	36	-	233	2105	456	51.1%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	208	1965	1965	10.6%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	234	1965	1965	11.9%
2/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	233	1965	1965	11.9%

Full Input Data And Results

Ped Link: P1	Unnamed Ped Link	-	1	-	D		3	90	-	0	-	0	0.0%
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.1%**
1/1	Digbeth Street Ahead	U	2	N/A	F		1	161	-	393	1980	1782	22.1%
1/2	Digbeth Street Ahead	U	2	N/A	F		1	161	-	327	2120	1908	17.1%
1/3	Digbeth Street Ahead	U	2	N/A	F		1	161	-	327	2120	1908	17.1%
2/1	Digbeth Street	U	N/A	N/A	-		-	-	-	393	2120	2120	18.5%
2/2	Digbeth Street	U	N/A	N/A	-		-	-	-	327	2120	2120	15.4%
2/3	Digbeth Street	U	N/A	N/A	-		-	-	-	327	2120	2120	15.4%
Ped Link: P1	Unnamed Ped Link	-	2	-	I		1	6	-	0	-	0	0.0%
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.2%**
1/1	Digbeth Street Ahead	U	3	N/A	J		1	162	-	200	1965	1878	10.7%
1/2	Digbeth Street Ahead	U	3	N/A	J		1	162	-	226	2105	2011	11.2%
1/3	Digbeth Street Ahead	U	3	N/A	J		1	162	-	226	2105	2011	11.2%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	200	1965	1965	10.2%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	226	2105	2105	10.7%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	226	2105	2105	10.7%
Ped Link: P1	Unnamed Ped Link	-	3	-	K		1	5	-	0	-	0	0.0%
J7: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.9%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	208	1965	1965	10.6%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	234	2105	2105	11.1%

Full Input Data And Results

1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	233	2105	2105	11.1%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbet Ahead	U	N/A	N/A	-		-	-	-	208	1965	1965	10.6%
3/2	Digbet Ahead	U	N/A	N/A	-		-	-	-	234	1965	1965	11.9%
3/3	Digbet Ahead	U	N/A	N/A	-		-	-	-	233	1965	1965	11.9%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.2%**
1/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	208	1965	1965	10.6%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	234	1965	1965	11.9%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	233	1965	1965	11.9%
2/1	Moat Ln	U	N/A	N/A	-		-	-	-	206	1965	1965	10.5%
2/2	Moat Ln	U	N/A	N/A	-		-	-	-	422	2105	2105	20.0%
2/3	Moat Ln	U	N/A	N/A	-		-	-	-	420	2105	2105	20.0%
3/1	Bradford Street	U	N/A	N/A	-		-	-	-	37	1965	1965	1.9%
4/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	410	1786	610	67.2%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**433**	**0**	**0**	**7.6**	**4.7**	**0.0**	**12.2**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**1.8**	**0.5**	**0.0**	**2.4**	**-**	**-**	**-**	**-**
1/1	491	491	-	-	-	1.0	0.0	-	1.0	7.5	4.6	0.0	4.6
1/2+1/3	460	460	-	-	-	0.8	0.2	-	1.1	8.3	1.9	0.2	2.1
1/4	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	491	491	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
2/2	230	230	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	230	230	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Digbeth - Meriden Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.6**	**0.0**	**2.1**	**-**	**-**	**-**	**-**
1/1	491	491	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
1/2	230	230	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	230	230	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	109	109	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	205	205	-	-	-	1.5	0.0	-	1.5	25.8	3.7	0.0	3.7
4/1	393	393	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	327	327	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/3	327	327	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**23**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	23	23	23	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

2/1	208	208	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	234	234	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	233	233	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	200	200	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/2	226	226	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	226	226	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**0**	**0**	**0**	**3.9**	**1.7**	**0.0**	**5.6**	**-**	**-**	**-**	**-**
1/1	208	208	-	-	-	1.2	0.5	-	1.7	28.8	3.0	0.5	3.5
1/2	234	234	-	-	-	1.3	0.5	-	1.9	28.7	3.4	0.5	3.9
1/3	233	233	-	-	-	1.3	0.5	-	1.9	28.7	3.4	0.5	3.9
2/1	208	208	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	234	234	-	-	-	0.0	0.1	-	0.1	1.2	0.2	0.1	0.3
2/3	233	233	-	-	-	0.0	0.1	-	0.1	1.2	0.2	0.1	0.3
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**0**	**0**	**0**	**0.2**	**0.6**	**0.0**	**0.9**	**-**	**-**	**-**	**-**
1/1	393	393	-	-	-	0.0	0.1	-	0.2	1.6	0.4	0.1	0.6
1/2	327	327	-	-	-	0.1	0.1	-	0.2	2.1	1.5	0.1	1.6
1/3	327	327	-	-	-	0.1	0.1	-	0.2	2.1	1.5	0.1	1.6
2/1	393	393	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	327	327	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	327	327	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	200	200	-	-	-	0.0	0.1	-	0.1	1.3	0.4	0.1	0.5
1/2	226	226	-	-	-	0.0	0.1	-	0.1	1.2	0.5	0.1	0.6
1/3	226	226	-	-	-	0.0	0.1	-	0.1	1.2	0.5	0.1	0.6
2/1	200	200	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	226	226	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

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2/3	226	226	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	208	208	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	233	233	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	208	208	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/2	234	234	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	233	233	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J8: Unnamed Junction	**-**	**-**	**410**	**0**	**0**	**0.2**	**0.2**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	208	208	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/2	234	234	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	233	233	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	206	206	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	420	420	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	37	37	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	410	410	410	0	0	0.2	0.0	-	0.2	1.3	2.8	0.0	2.8

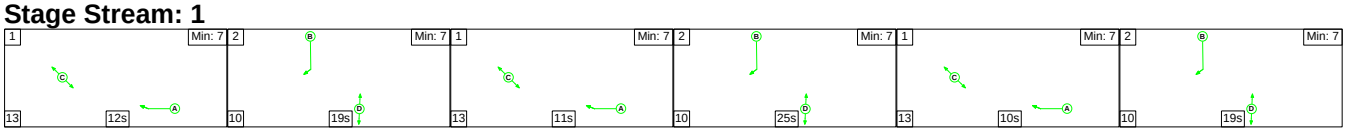
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	75.4	Total Delay for Signalled Lanes (pcuHr):	5.39	Cycle Time (s): 180
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	18.8	Total Delay for Signalled Lanes (pcuHr):	4.10	Cycle Time (s): 180
C1 - E0621 - MCH1827B	Stream: 3 PRC for Signalled Lanes (%):	701.0	Total Delay for Signalled Lanes (pcuHr):	0.22	Cycle Time (s): 180
	PRC Over All Lanes (%):	18.8	Total Delay Over All Lanes(pcuHr):	12.25	

Full Input Data And Results

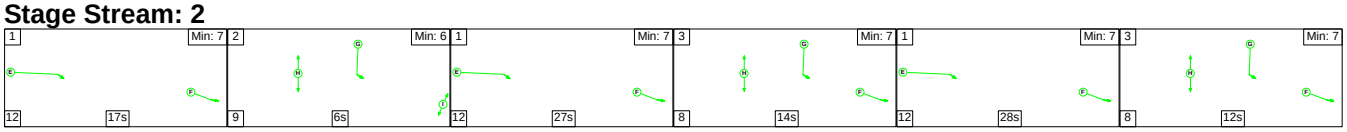
Scenario 2: '2016 PM Peak (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

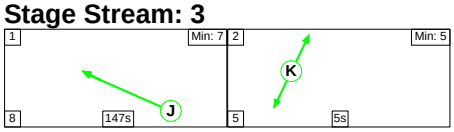
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2
Duration	12	19	11	25	10	19
Change Point	53	78	107	131	1	24

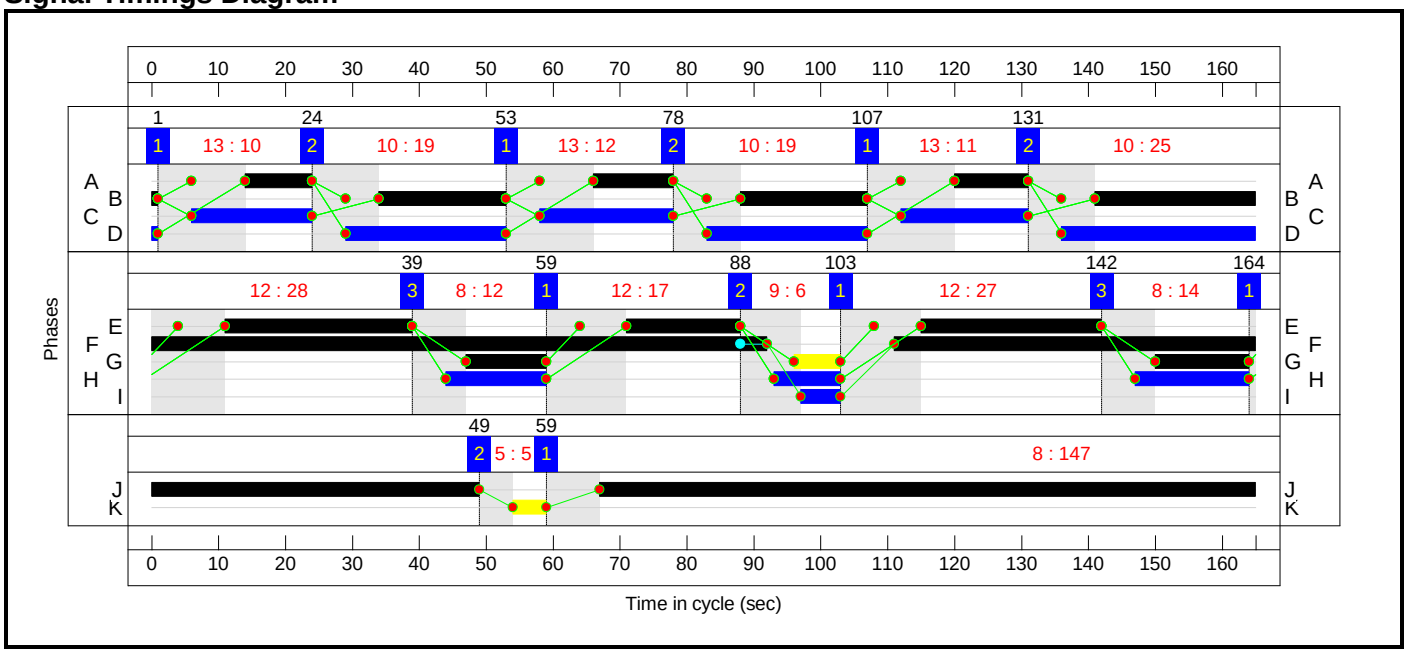
Stage Stream: 2

Stage	1	2	1	3	1	3
Duration	17	6	27	14	28	12
Change Point	59	88	103	142	164	39

Stage Stream: 3

Stage	1	2
Duration	147	5
Change Point	59	49

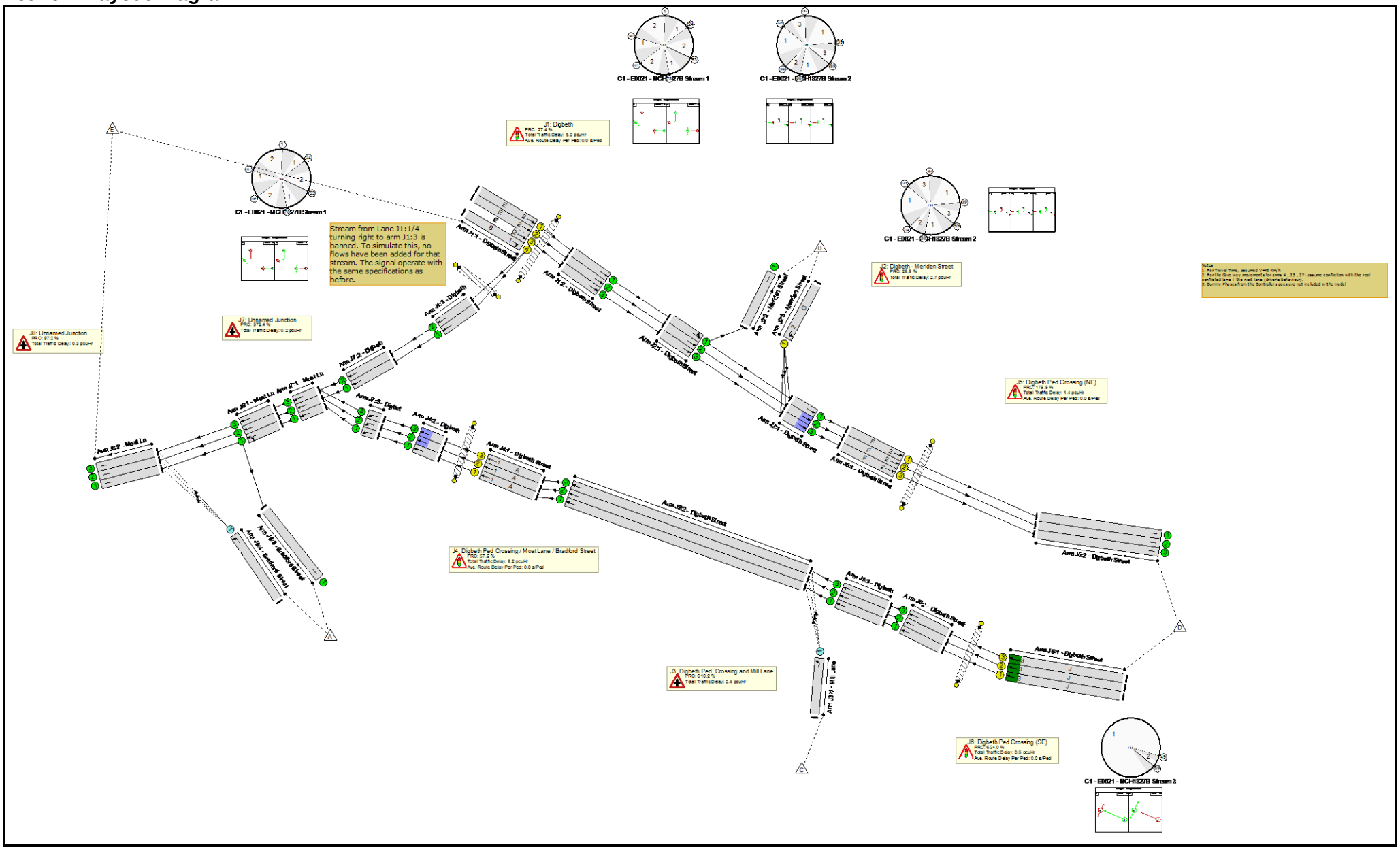
Signal Timings Diagram



Full Input Data And Results

Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.9%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.7%**
1/1	Digbeth Street Ahead	U	2	N/A	E		3	72	-	636	1980	900	70.7%
1/2+1/3	Digbeth Street Ahead	U	2	N/A	E		3	72	-	654	2120:2120	583+583	56.1 : 56.1%
1/4	Digbeth Street Right	U	1	N/A	B		3	63	-	0	2015	806	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	636	1980	1980	32.1%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	327	2120	2120	15.4%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	327	2120	2120	15.4%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
Ped Link: P1	Unnamed Ped Link	-	2	-	H		3	42	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	C		3	57	-	0	-	0	0.0%
J2: Digbeth - Meriden Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.9%**
1/1	Digbeth Street Left Ahead	U	N/A	N/A	-		-	-	-	636	1980	1980	32.1%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	327	2120	2120	15.4%
1/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	327	2120	2120	15.4%
2/1	Meriden Street	U	N/A	N/A	-		-	-	-	81	2030	2030	4.0%

Full Input Data And Results

3/1	Meriden Street Left	U	2	N/A	G		3	33	-	314	2030	443	70.9%
4/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	568	1980	1980	28.7%
4/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	477	1980	1980	24.1%
4/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	478	1980	1980	24.1%
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**12.7%**
1/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	42	2065	454	9.2%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	236	1965	1965	12.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	263	2105	2105	12.5%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	262	2105	2105	12.4%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	249	1965	1965	12.7%
3/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	249	1965	1965	12.7%
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.3%**
1/1	Digbeth Street Ahead	U	1	N/A	A		3	33	-	236	1965	429	55.0%
1/2	Digbeth Street Ahead	U	1	N/A	A		3	33	-	263	2105	459	57.3%
1/3	Digbeth Street Ahead	U	1	N/A	A		3	33	-	262	2105	459	57.0%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	236	1965	1965	12.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	263	1965	1965	13.4%
2/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	262	1965	1965	13.3%

Full Input Data And Results

Ped Link: P1	Unnamed Ped Link	-	1	-	D		3	78	-	0	-	0	0.0%
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**32.2%**
1/1	Digbeth Street Ahead	U	2	N/A	F		1	146	-	568	1980	1764	32.2%
1/2	Digbeth Street Ahead	U	2	N/A	F		1	146	-	477	2120	1889	25.3%
1/3	Digbeth Street Ahead	U	2	N/A	F		1	146	-	478	2120	1889	25.3%
2/1	Digbeth Street	U	N/A	N/A	-		-	-	-	568	2120	2120	26.8%
2/2	Digbeth Street	U	N/A	N/A	-		-	-	-	477	2120	2120	22.5%
2/3	Digbeth Street	U	N/A	N/A	-		-	-	-	478	2120	2120	22.5%
Ped Link: P1	Unnamed Ped Link	-	2	-	I		1	6	-	0	-	0	0.0%
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**12.4%**
1/1	Digbeth Street Ahead	U	3	N/A	J		1	147	-	221	1965	1870	11.8%
1/2	Digbeth Street Ahead	U	3	N/A	J		1	147	-	249	2105	2003	12.4%
1/3	Digbeth Street Ahead	U	3	N/A	J		1	147	-	249	2105	2003	12.4%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	249	2105	2105	11.8%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	249	2105	2105	11.8%
Ped Link: P1	Unnamed Ped Link	-	3	-	K		1	5	-	0	-	0	0.0%
J7: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**13.4%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	236	1965	1965	12.0%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	263	2105	2105	12.5%

Full Input Data And Results

1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	262	2105	2105	12.4%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbet Ahead	U	N/A	N/A	-		-	-	-	236	1965	1965	12.0%
3/2	Digbet Ahead	U	N/A	N/A	-		-	-	-	263	1965	1965	13.4%
3/3	Digbet Ahead	U	N/A	N/A	-		-	-	-	262	1965	1965	13.3%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**45.6%**
1/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	236	1965	1965	12.0%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	263	1965	1965	13.4%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	262	1965	1965	13.3%
2/1	Moat Ln	U	N/A	N/A	-		-	-	-	230	1965	1965	11.7%
2/2	Moat Ln	U	N/A	N/A	-		-	-	-	385	2105	2105	18.3%
2/3	Moat Ln	U	N/A	N/A	-		-	-	-	384	2105	2105	18.2%
3/1	Bradford Street	U	N/A	N/A	-		-	-	-	35	1965	1965	1.8%
4/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	273	1786	598	45.6%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**315**	**0**	**0**	**10.2**	**6.5**	**0.0**	**16.7**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**3.9**	**1.1**	**0.0**	**5.0**	**-**	**-**	**-**	**-**
1/1	636	636	-	-	-	2.2	0.0	-	2.2	12.2	8.5	0.0	8.5
1/2+1/3	654	654	-	-	-	1.8	0.6	-	2.4	13.3	4.7	0.6	5.3
1/4	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	636	636	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
2/2	327	327	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	327	327	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Digbeth - Meriden Street	**-**	**-**	**0**	**0**	**0**	**1.8**	**1.0**	**0.0**	**2.7**	**-**	**-**	**-**	**-**
1/1	636	636	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
1/2	327	327	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	327	327	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	81	81	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	314	314	-	-	-	1.8	0.0	-	1.8	20.2	4.8	0.0	4.8
4/1	568	568	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
4/2	477	477	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
4/3	478	478	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**42**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	42	42	42	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

2/1	236	236	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	263	263	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	262	262	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/2	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**0**	**0**	**0**	**4.1**	**2.2**	**0.0**	**6.2**	**-**	**-**	**-**	**-**
1/1	236	236	-	-	-	1.2	0.6	-	1.9	28.3	3.5	0.6	4.1
1/2	263	263	-	-	-	1.4	0.7	-	2.1	28.3	3.9	0.7	4.5
1/3	262	262	-	-	-	1.4	0.7	-	2.1	28.2	3.9	0.7	4.5
2/1	236	236	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	263	263	-	-	-	0.0	0.1	-	0.1	1.3	0.2	0.1	0.3
2/3	262	262	-	-	-	0.0	0.1	-	0.1	1.2	0.2	0.1	0.3
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**0**	**0**	**0**	**0.3**	**1.0**	**0.0**	**1.4**	**-**	**-**	**-**	**-**
1/1	568	568	-	-	-	0.1	0.2	-	0.3	1.9	0.7	0.2	1.0
1/2	477	477	-	-	-	0.1	0.2	-	0.3	2.3	2.1	0.2	2.3
1/3	478	478	-	-	-	0.1	0.2	-	0.3	2.3	2.1	0.2	2.3
2/1	568	568	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
2/2	477	477	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/3	478	478	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.5**	**-**	**-**	**-**	**-**
1/1	221	221	-	-	-	0.0	0.1	-	0.1	1.3	0.6	0.1	0.6
1/2	249	249	-	-	-	0.0	0.1	-	0.1	1.2	0.6	0.1	0.7
1/3	249	249	-	-	-	0.0	0.1	-	0.1	1.2	0.6	0.1	0.7
2/1	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

Full Input Data And Results

2/3	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	236	236	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	263	263	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	262	262	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	236	236	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/2	263	263	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/3	262	262	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
J8: Unnamed Junction	**-**	**-**	**273**	**0**	**0**	**0.1**	**0.2**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	236	236	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/2	263	263	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
1/3	262	262	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/1	230	230	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	385	385	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	384	384	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	35	35	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	273	273	273	0	0	0.1	0.0	-	0.1	1.1	1.1	0.0	1.1

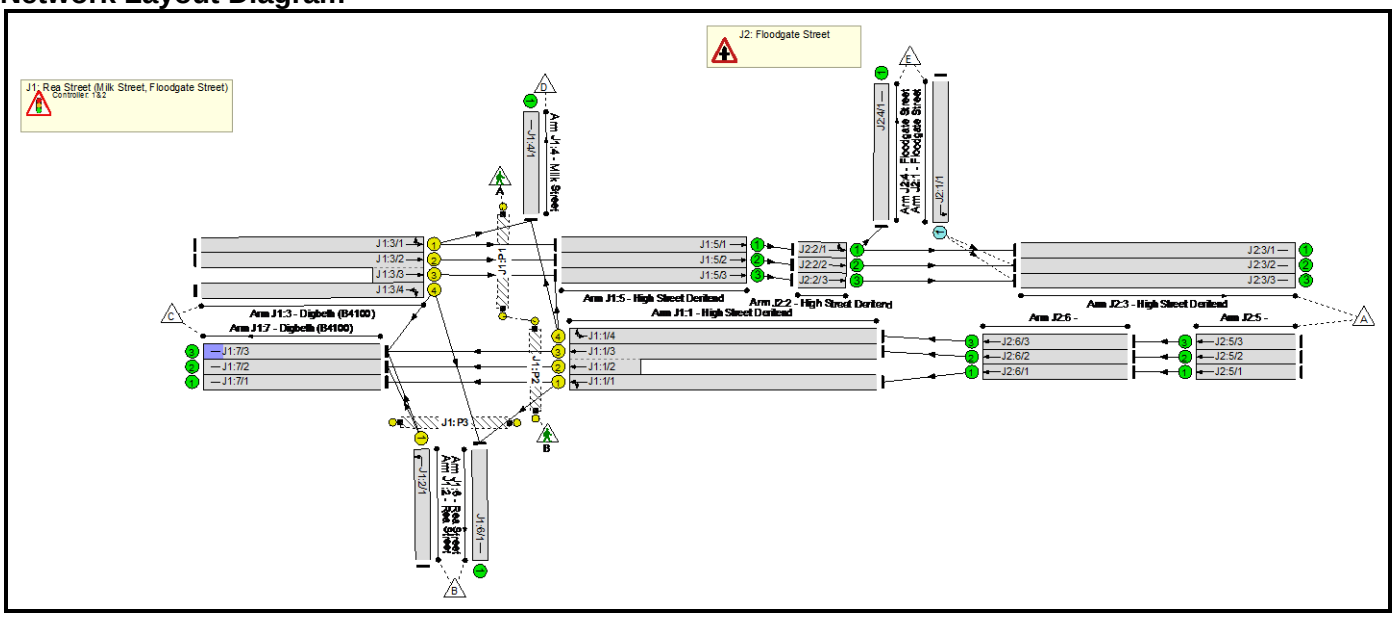
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	57.2	Total Delay for Signalled Lanes (pcuHr):	5.97	Cycle Time (s): 165
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	26.9	Total Delay for Signalled Lanes (pcuHr):	7.23	Cycle Time (s): 165
C1 - E0621 - MCH1827B	Stream: 3 PRC for Signalled Lanes (%):	624.0	Total Delay for Signalled Lanes (pcuHr):	0.25	Cycle Time (s): 165
	PRC Over All Lanes (%):	26.9	Total Delay Over All Lanes(pcuHr):	16.71	

Full Input Data And Results

User and Project Details

Project:	**BEE**
Title:	**High Street Deritend / Rea Street (including Milk Street and Floodgate Street)**
Location:	High Street Deritend
File name:	High Street Deritend - Rea Street TH check 15th Feb 2016.lsg3x
Author:	William Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham
Notes:	

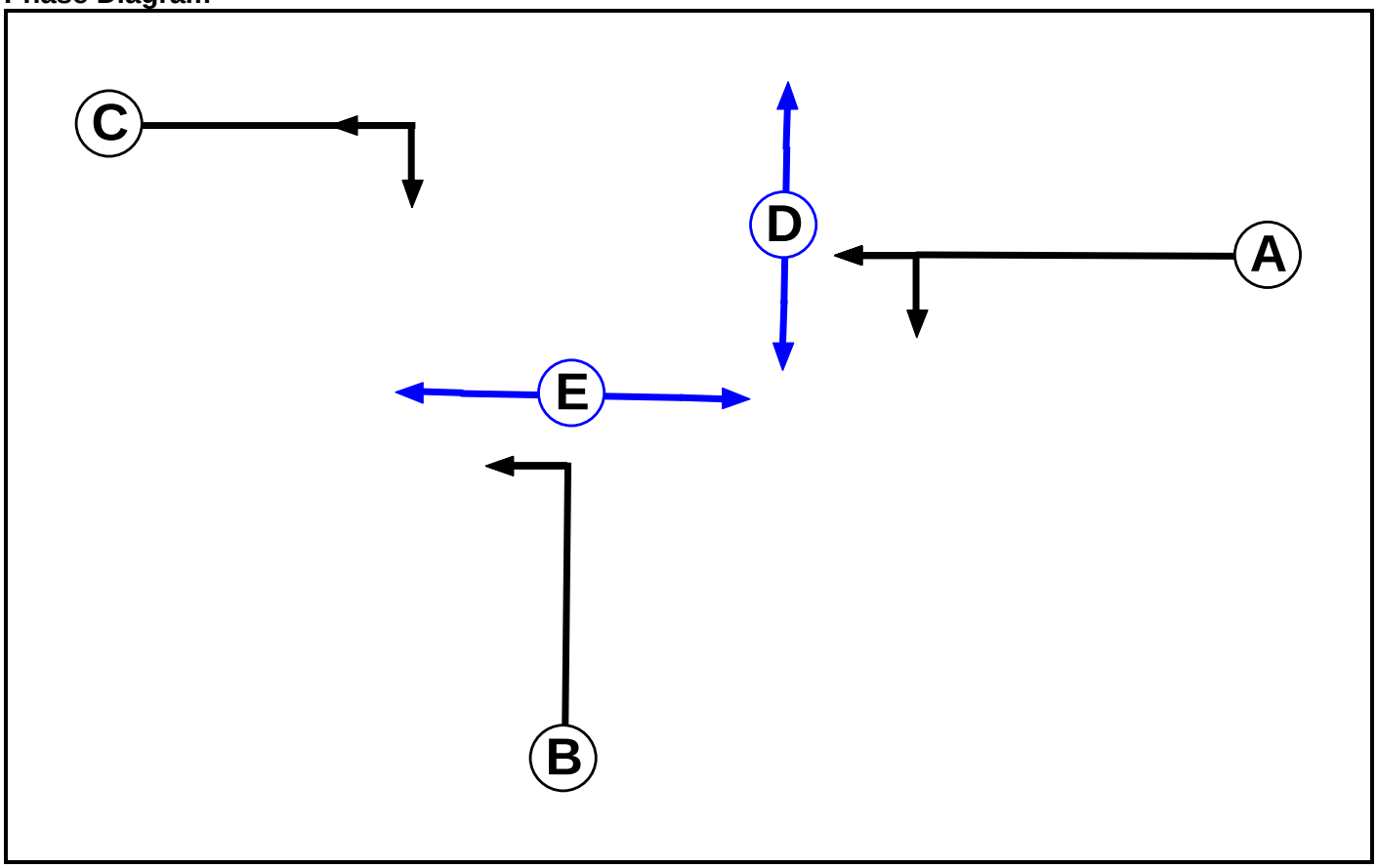
Network Layout Diagram



Full Input Data And Results

C1 - Steam 0

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		10	10
E	Pedestrian		10	10

Full Input Data And Results

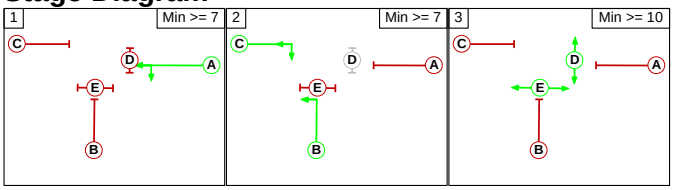
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		6	5	5	6
	B	5		-	-	5
	C	6	-		-	8
	D	10	-	-		-
	E	14	14	14	-	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B C
3	D E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

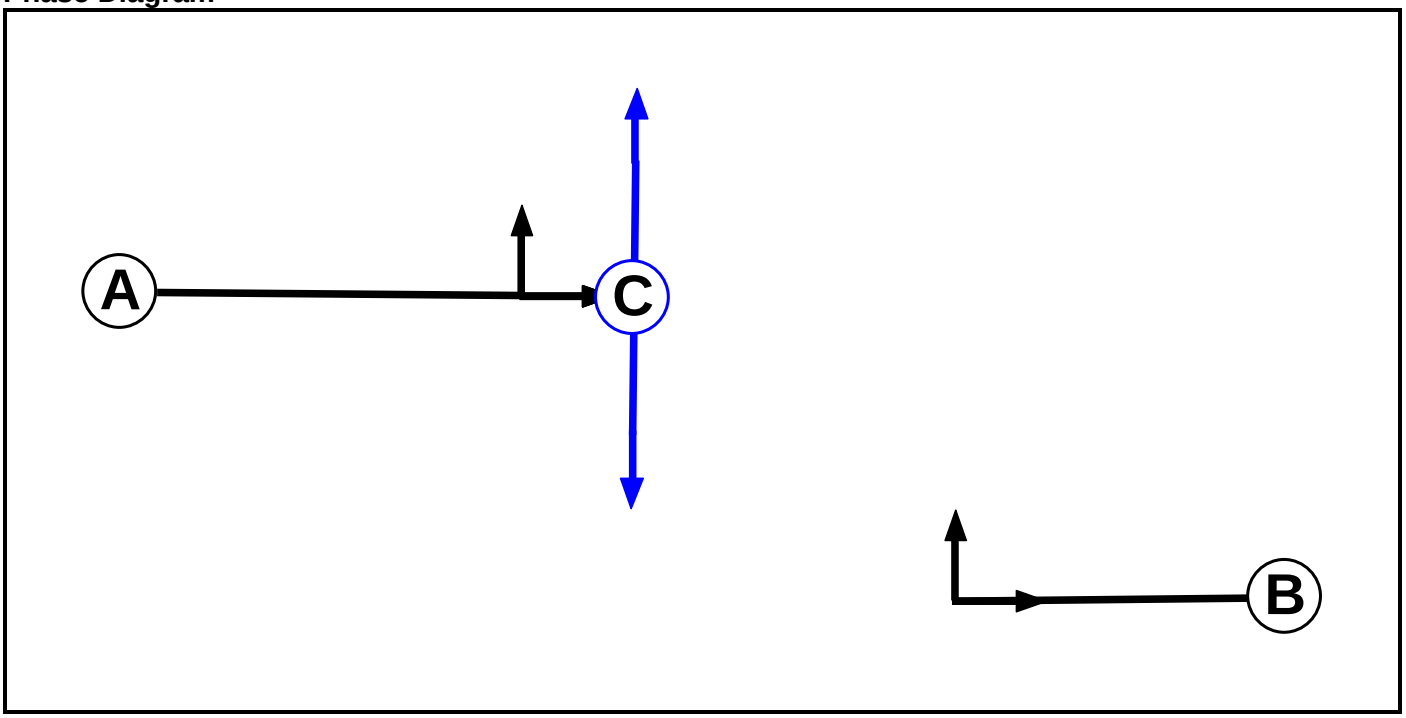
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	6
	2	6		8
	3	14	14	

Full Input Data And Results

C2 - Stream 1

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	4
C	Pedestrian		8	8

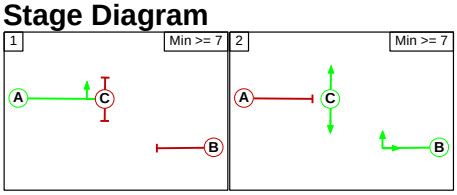
Phase Intergreens Matrix

	Starting Phase			
		A	B	C
Terminating Phase	A		6	5
	B	5		-
	C	8	-	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B C

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	1	B	Losing	3	3

Prohibited Stage Change

	To Stage	
	1	2
From Stage 1		6
2	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Rea Street (Milk Street, Floodgate Street)
There are no Opposed Lanes in this Junction

Junction: J2: Floodgate Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/1 (Floodgate Street)	J2:3/2 (Left)	715	0	J2:2/1	0.22	To J2:3/1 (Ahead)	-	-	-	-	-
				J2:2/2	0.22	All					
				J2:2/3	0.22	All					
	J2:3/3 (Left)	715	0	J2:2/1	0.22	To J2:3/1 (Ahead)					
				J2:2/2	0.22	All					
				J2:2/3	0.22	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Rea Street (Milk Street, Floodgate Street)												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (High Street Deritend)	U	A	2	3	13.6	Geom	-	2.93	0.00	Y	Arm J1:6 Left	12.00
											Arm J1:7 Ahead	Inf
J1:1/2 (High Street Deritend)	U	A	2	3	7.0	Geom	-	3.18	0.00	Y	Arm J1:7 Ahead	Inf
J1:1/3 (High Street Deritend)	U	A	2	3	13.6	Geom	-	3.15	0.00	N	Arm J1:7 Ahead	Inf
J1:1/4 (High Street Deritend)	U	B	2	3	7.0	Geom	-	3.35	0.00	Y	Arm J1:4 Right	15.00
											Arm J1:5 U-Turn	6.00
J1:2/1 (Rea Street)	U	B	2	3	60.0	Geom	-	3.97	0.00	Y	Arm J1:7 Left	14.00
J1:3/1 (Digbeth (B4100))	U	A	2	3	22.6	Geom	-	3.22	0.00	Y	Arm J1:4 Left	11.00
											Arm J1:5 Ahead	Inf
J1:3/2 (Digbeth (B4100))	U	A	2	3	22.6	Geom	-	2.83	0.00	Y	Arm J1:5 Ahead	Inf
J1:3/3 (Digbeth (B4100))	U	A	2	3	5.0	Geom	-	2.88	0.00	N	Arm J1:5 Ahead	Inf
J1:3/4 (Digbeth (B4100))	U	C	2	3	22.6	User	1800	-	-	-	-	-
J1:4/1 (Milk Street)	U		2	3	15.7	Geom	-	5.00	0.00	Y		
J1:5/1 (High Street Deritend)	U		2	3	4.3	Geom	-	3.01	0.00	Y	Arm J2:2 Ahead	Inf
J1:5/2 (High Street Deritend)	U		2	3	4.3	Geom	-	3.13	0.00	Y	Arm J2:2 Ahead	Inf
J1:5/3 (High Street Deritend)	U		2	3	4.3	Geom	-	2.96	0.00	N	Arm J2:2 Ahead	Inf
J1:6/1 (Rea Street)	U		2	3	60.0	Geom	-	3.70	0.00	Y		
J1:7/1 (Digbeth (B4100))	U		2	3	34.8	Geom	-	3.19	0.00	Y		
J1:7/2 (Digbeth (B4100))	U		2	3	34.8	Geom	-	2.57	0.00	N		

J1:7/3 (Digbeth (B4100))	U		2	3	34.8	Geom	-	2.82	0.00	N		

Junction: J2: Floodgate Street

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Floodgate Street)	O		2	3	78.3	Inf	-	-	-	-	-	-
J2:2/1 (High Street Deritend)	U		2	3	4.3	Geom	-	3.16	0.00	Y	Arm J2:3 Ahead	Inf
											Arm J2:4 Left	12.00
J2:2/2 (High Street Deritend)	U		2	3	4.3	Geom	-	3.14	0.00	Y	Arm J2:3 Ahead	Inf
J2:2/3 (High Street Deritend)	U		2	3	4.3	Geom	-	3.04	0.00	N	Arm J2:3 Ahead	Inf
J2:3/1 (High Street Deritend)	U		2	3	26.1	Geom	-	3.18	0.00	Y		
J2:3/2 (High Street Deritend)	U		2	3	26.1	Geom	-	3.15	0.00	N		
J2:3/3 (High Street Deritend)	U		2	3	26.1	Geom	-	2.99	0.00	N		
J2:4/1 (Floodgate Street)	U		2	3	78.3	Geom	-	3.98	0.00	Y		
J2:5/1	U		2	3	7.0	Inf	-	-	-	-	-	-
J2:5/2	U		2	3	7.0	Inf	-	-	-	-	-	-
J2:5/3	U		2	3	7.0	Inf	-	-	-	-	-	-
J2:6/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J2:6/2	U		2	3	0.2	Inf	-	-	-	-	-	-
J2:6/3	U		2	3	0.2	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 Observed AM(Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	24	99	576	229	0	928
	B	0	0	22	0	0	22
	C	455	509	58	18	22	1062
	D	0	0	0	0	0	0
	E	57	0	0	0	0	57
	Tot.	536	608	656	247	22	2069

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2016 Observed AM(Standard PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	148
J1:1/2 (short)	256
J1:1/3 (with short)	527(In) 271(Out)
J1:1/4	253
J1:2/1	22
J1:3/1	93
J1:3/2 (with short)	402(In) 182(Out)
J1:3/3 (short)	220
J1:3/4	567
J1:4/1	247
J1:5/1	75
J1:5/2	182
J1:5/3	244
J1:6/1	608
J1:7/1	49
J1:7/2	263
J1:7/3	344
Junction: J2: Floodgate Street	
J2:1/1	57
J2:2/1	75
J2:2/2	182
J2:2/3	244
J2:3/1	53
J2:3/2	238
J2:3/3	245
J2:4/1	22
J2:5/1	148
J2:5/2	527
J2:5/3	253
J2:6/1	148
J2:6/2	527
J2:6/3	253

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	66.9 %	1761	1761
				Arm J1:7 Ahead	Inf	33.1 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	90.5 %	1750	1750
				Arm J1:5 U-Turn	6.00	9.5 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	19.4 %	1887	1887
				Arm J1:5 Ahead	Inf	80.6 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100) Lane 4)	This lane uses a directly entered Saturation Flow						2200	2200
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	70.7 %	1863	1863
				Arm J2:4 Left	12.00	29.3 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2016 Observed PM(Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	14	132	533	202	0	881
	B	0	0	102	0	0	102
	C	916	553	74	7	16	1566
	D	0	0	0	0	0	0
	E	156	0	0	0	0	156
	Tot.	1086	685	709	209	16	2705

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 Observed PM(Standard PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	142
J1:1/2 (short)	253
J1:1/3 (with short)	523(In) 270(Out)
J1:1/4	216
J1:2/1	102
J1:3/1	42
J1:3/2 (with short)	897(In) 419(Out)
J1:3/3 (short)	478
J1:3/4	627
J1:4/1	209
J1:5/1	35
J1:5/2	419
J1:5/3	492
J1:6/1	685
J1:7/1	10
J1:7/2	327
J1:7/3	372
Junction: J2: Floodgate Street	
J2:1/1	156
J2:2/1	35
J2:2/2	419
J2:2/3	492
J2:3/1	19
J2:3/2	545
J2:3/3	522
J2:4/1	16
J2:5/1	142
J2:5/2	523
J2:5/3	216
J2:6/1	142
J2:6/2	523
J2:6/3	216

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	93.0 %	1709	1709
				Arm J1:7 Ahead	Inf	7.0 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	93.5 %	1757	1757
				Arm J1:5 U-Turn	6.00	6.5 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	16.7 %	1894	1894
				Arm J1:5 Ahead	Inf	83.3 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100) Lane 4)	This lane uses a directly entered Saturation Flow						2200	2200
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	54.3 %	1827	1827
				Arm J2:4 Left	12.00	45.7 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2016 Observed AM(Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	23	99	657	234	0	1013
	B	0	0	22	0	0	22
	C	522	563	58	18	22	1183
	D	0	0	0	0	0	0
	E	58	0	0	0	0	58
	Tot.	603	662	737	252	22	2276

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2016 Observed AM(Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	148
J1:1/2 (short)	295
J1:1/3 (with short)	608(In) 313(Out)
J1:1/4	257
J1:2/1	22
J1:3/1	93
J1:3/2 (with short)	469(In) 216(Out)
J1:3/3 (short)	253
J1:3/4	621
J1:4/1	252
J1:5/1	75
J1:5/2	216
J1:5/3	276
J1:6/1	662
J1:7/1	49
J1:7/2	300
J1:7/3	388
Junction: J2: Floodgate Street	
J2:1/1	58
J2:2/1	75
J2:2/2	216
J2:2/3	276
J2:3/1	53
J2:3/2	273
J2:3/3	277
J2:4/1	22
J2:5/1	148
J2:5/2	608
J2:5/3	257
J2:6/1	148
J2:6/2	608
J2:6/3	257

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	66.9 %	1761	1761
				Arm J1:7 Ahead	Inf	33.1 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	91.1 %	1751	1751
				Arm J1:5 U-Turn	6.00	8.9 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	19.4 %	1887	1887
				Arm J1:5 Ahead	Inf	80.6 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100) Lane 4)	This lane uses a directly entered Saturation Flow						1800	1800
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	70.7 %	1863	1863
				Arm J2:4 Left	12.00	29.3 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2016 Observed PM(Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	14	132	602	202	0	950
	B	0	0	110	0	0	110
	C	978	596	74	7	16	1671
	D	0	0	0	0	0	0
	E	156	0	0	0	0	156
	Tot.	1148	728	786	209	16	2887

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 Observed PM(Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	142
J1:1/2 (short)	136
J1:1/3 (with short)	592(In) 456(Out)
J1:1/4	216
J1:2/1	110
J1:3/1	42
J1:3/2 (with short)	959(In) 448(Out)
J1:3/3 (short)	511
J1:3/4	670
J1:4/1	209
J1:5/1	35
J1:5/2	448
J1:5/3	525
J1:6/1	728
J1:7/1	10
J1:7/2	238
J1:7/3	538
Junction: J2: Floodgate Street	
J2:1/1	156
J2:2/1	35
J2:2/2	448
J2:2/3	525
J2:3/1	19
J2:3/2	576
J2:3/3	553
J2:4/1	16
J2:5/1	142
J2:5/2	592
J2:5/3	216
J2:6/1	142
J2:6/2	592
J2:6/3	216

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	93.0 %	1709	1709
				Arm J1:7 Ahead	Inf	7.0 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	93.5 %	1757	1757
				Arm J1:5 U-Turn	6.00	6.5 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	16.7 %	1894	1894
				Arm J1:5 Ahead	Inf	83.3 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100) Lane 4)	This lane uses a directly entered Saturation Flow						1800	1800
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

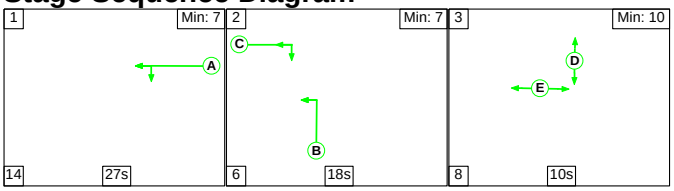
Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	54.3 %	1827	1827
				Arm J2:4 Left	12.00	45.7 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2016 Observed AM(Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Steam 0

Stage Sequence Diagram

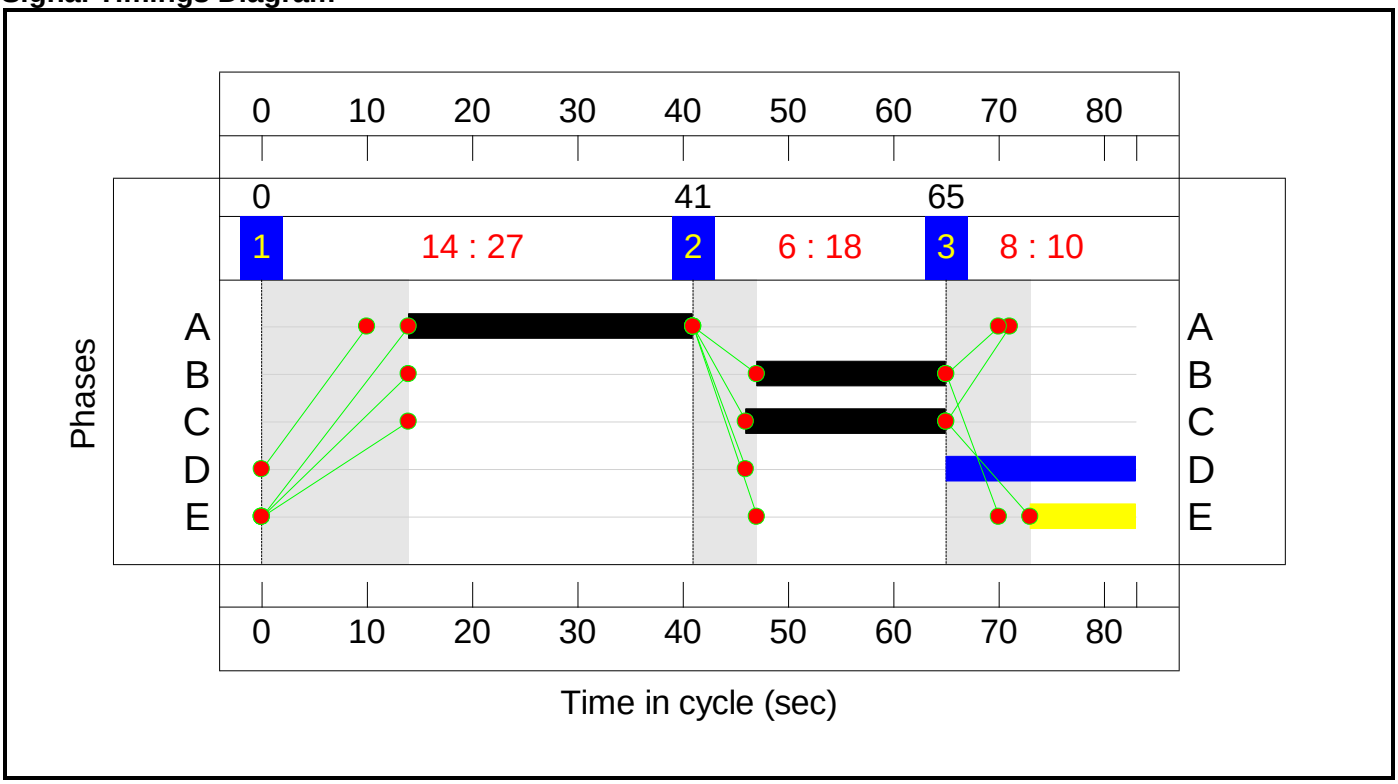


Stage Timings

Stage	1	2	3
Duration	27	18	10
Change Point	0	41	65

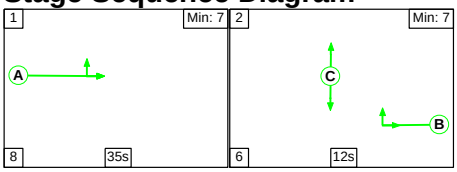
Full Input Data And Results

Signal Timings Diagram



C2 - Stream 1

Stage Sequence Diagram

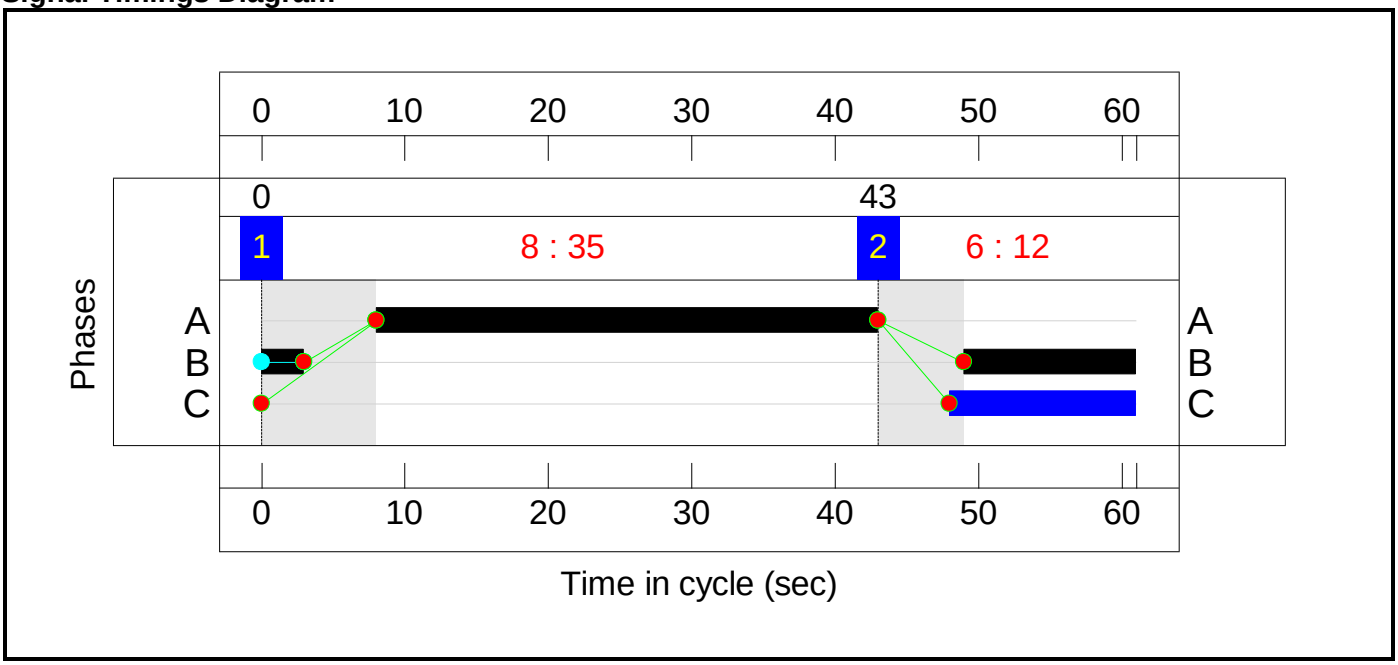


Stage Timings

Stage	1	2
Duration	35	12
Change Point	0	43

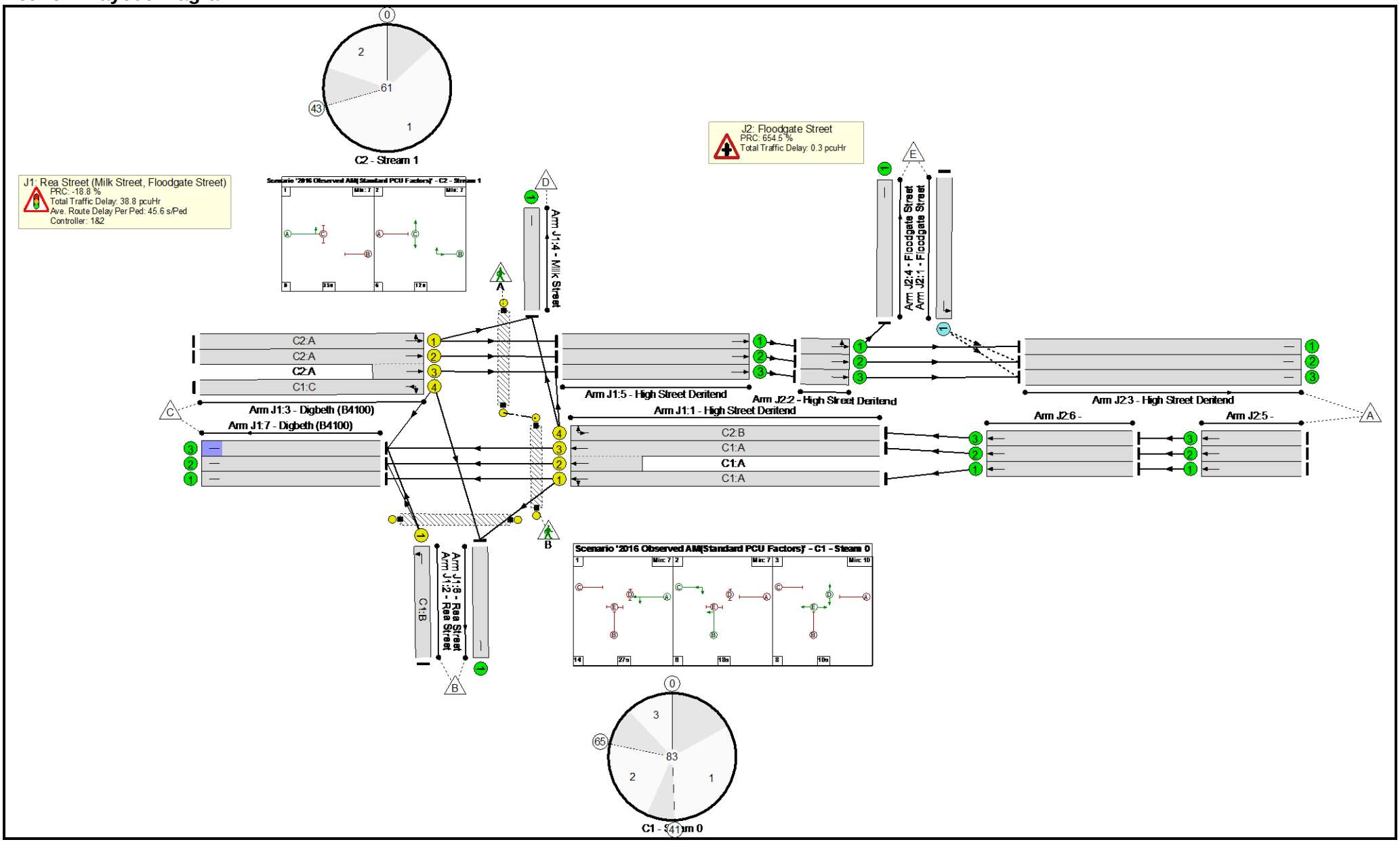
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**107.0%**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**107.0%**
1/1	High Street Deritend Left Ahead	U	N/A	N/A	C1:A		1	27	-	148	1761	594	24.9%
1/3+1/2	High Street Deritend Ahead	U	N/A	N/A	C1:A		1	27	-	527	2070:1933	502+474	54.0 : 54.0%
1/4	High Street Deritend Right U-Turn	U	N/A	N/A	C2:B		1	15	-	253	1750	459	55.1%
2/1	Rea Street Left	U	N/A	N/A	C1:B		1	18	-	22	1817	416	5.3%
3/1	Digbeth (B4100) Left Ahead	U	N/A	N/A	C2:A		1	35	-	93	1887	1114	8.4%
3/2+3/3	Digbeth (B4100) Ahead	U	N/A	N/A	C2:A		1	35	-	402	1898:2043	640+773	28.4 : 28.4%
3/4	Digbeth (B4100) Right U-Turn	U	N/A	N/A	C1:C		1	19	-	567	2200	530	107.0%
4/1	Milk Street	U	N/A	N/A	-		-	-	-	247	2115	2115	11.7%
5/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	75	1916	1916	3.9%
5/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	182	1928	1928	9.4%
5/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	244	2051	2051	11.9%
6/1	Rea Street	U	N/A	N/A	-		-	-	-	608	1985	1985	29.0%
7/1	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	49	1934	1934	2.5%
7/2	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	263	2012	2012	13.1%

Full Input Data And Results

7/3	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	344	2037	2037	16.7%
Ped Link: P1	H	-	N/A	-	C2:C		1	13	-	112	-	15344	0.7%
Ped Link: P2	D	-	N/A	-	C1:D		1	18	-	112	-	15614	0.7%
Ped Link: P3	E	-	N/A	-	C1:E		1	10	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.9%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	57	Inf	610	9.3%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	75	1863	1863	4.0%
2/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	182	1929	1929	9.4%
2/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	244	2059	2059	11.9%
3/1	High Street Deritend	U	N/A	N/A	-		-	-	-	53	1933	1933	2.7%
3/2	High Street Deritend	U	N/A	N/A	-		-	-	-	238	2070	2070	11.5%
3/3	High Street Deritend	U	N/A	N/A	-		-	-	-	245	2054	2054	11.9%
4/1	Floodgate Street	U	N/A	N/A	-		-	-	-	22	2013	2013	1.1%
5/1	Ahead	U	N/A	N/A	-		-	-	-	148	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	527	Inf	Inf	0.0%
5/3	Ahead	U	N/A	N/A	-		-	-	-	253	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	148	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	527	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	253	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**57**	**0**	**0**	**12.3**	**26.9**	**0.0**	**39.1**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**0**	**0**	**0**	**12.3**	**26.5**	**0.0**	**38.8**	**-**	**-**	**-**	**-**
1/1	148	148	-	-	-	0.8	0.2	-	1.0	23.9	2.5	0.2	2.6
1/3+1/2	527	527	-	-	-	3.1	0.6	-	3.7	25.0	4.7	0.6	5.3
1/4	253	253	-	-	-	1.4	0.6	-	2.0	28.1	3.7	0.6	4.3
2/1	22	22	-	-	-	0.2	0.0	-	0.2	29.6	0.4	0.0	0.4
3/1	93	93	-	-	-	0.1	0.0	-	0.2	7.2	0.7	0.0	0.7
3/2+3/3	402	402	-	-	-	0.6	0.2	-	0.8	7.5	1.7	0.2	1.9
3/4	567	530	-	-	-	6.1	24.3	-	30.4	192.7	13.9	24.3	38.2
4/1	247	247	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
5/1	75	75	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/2	182	182	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
5/3	244	244	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/1	575	575	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/1	49	49	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/2	263	263	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
7/3	340	340	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
Ped Link: P1	112	112	-	-	-	-	-	-	0.6	19.5	-	-	1.5
Ped Link: P2	112	112	-	-	-	-	-	-	0.8	26.1	-	-	2.0
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**57**	**0**	**0**	**0.0**	**0.3**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	57	57	57	0	0	0.0	0.1	-	0.1	3.3	0.0	0.1	0.1
2/1	75	75	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	182	182	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

Full Input Data And Results

2/3	244	244	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	53	53	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	238	238	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	245	245	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
4/1	22	22	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
5/1	148	148	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	527	527	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	253	253	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	148	148	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	527	527	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	253	253	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

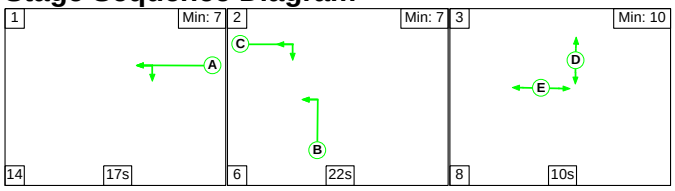
C1 - Steam 0	PRC for Signalled Lanes (%):	-18.8	Total Delay for Signalled Lanes (pcuHr):	35.17	Cycle Time (s): 83
C2 - Stream 1	PRC for Signalled Lanes (%):	63.3	Total Delay for Signalled Lanes (pcuHr):	3.00	Cycle Time (s): 61
	PRC Over All Lanes (%):	-18.8	Total Delay Over All Lanes(pcuHr):	39.11	

Full Input Data And Results

Scenario 2: '2016 Observed PM(Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Steam 0

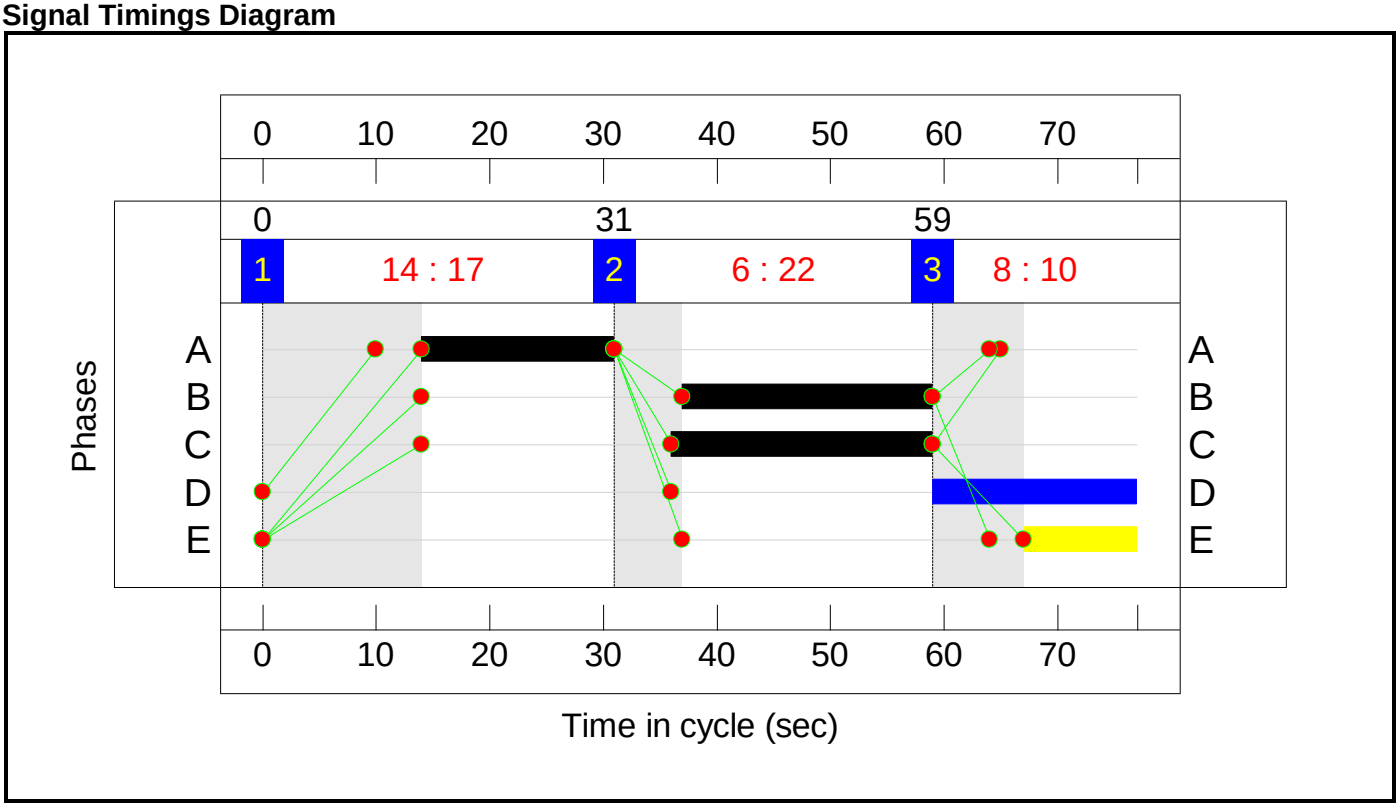
Stage Sequence Diagram



Stage Timings

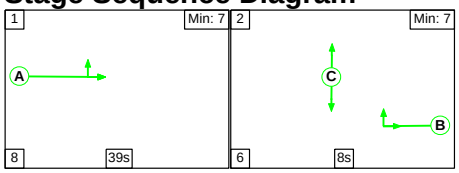
Stage	1	2	3
Duration	17	22	10
Change Point	0	31	59

Signal Timings Diagram



C2 - Stream 1

Stage Sequence Diagram

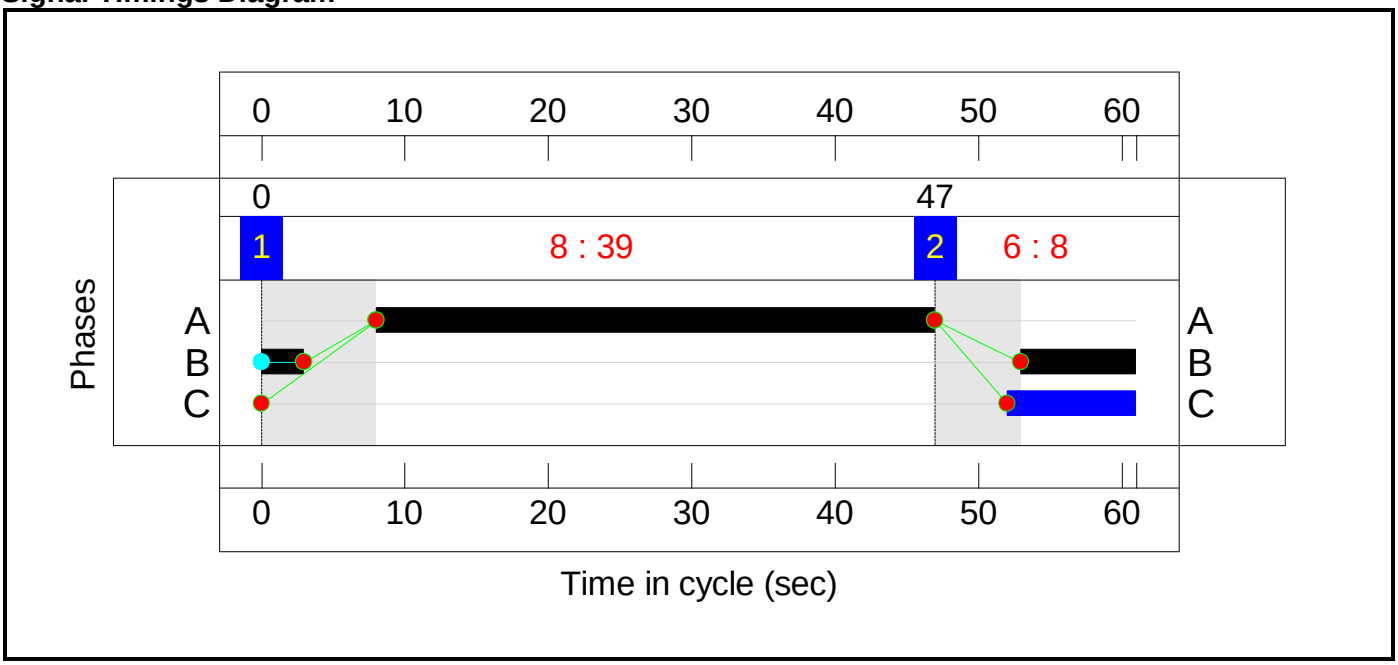


Stage Timings

Stage	1	2
Duration	39	8
Change Point	0	47

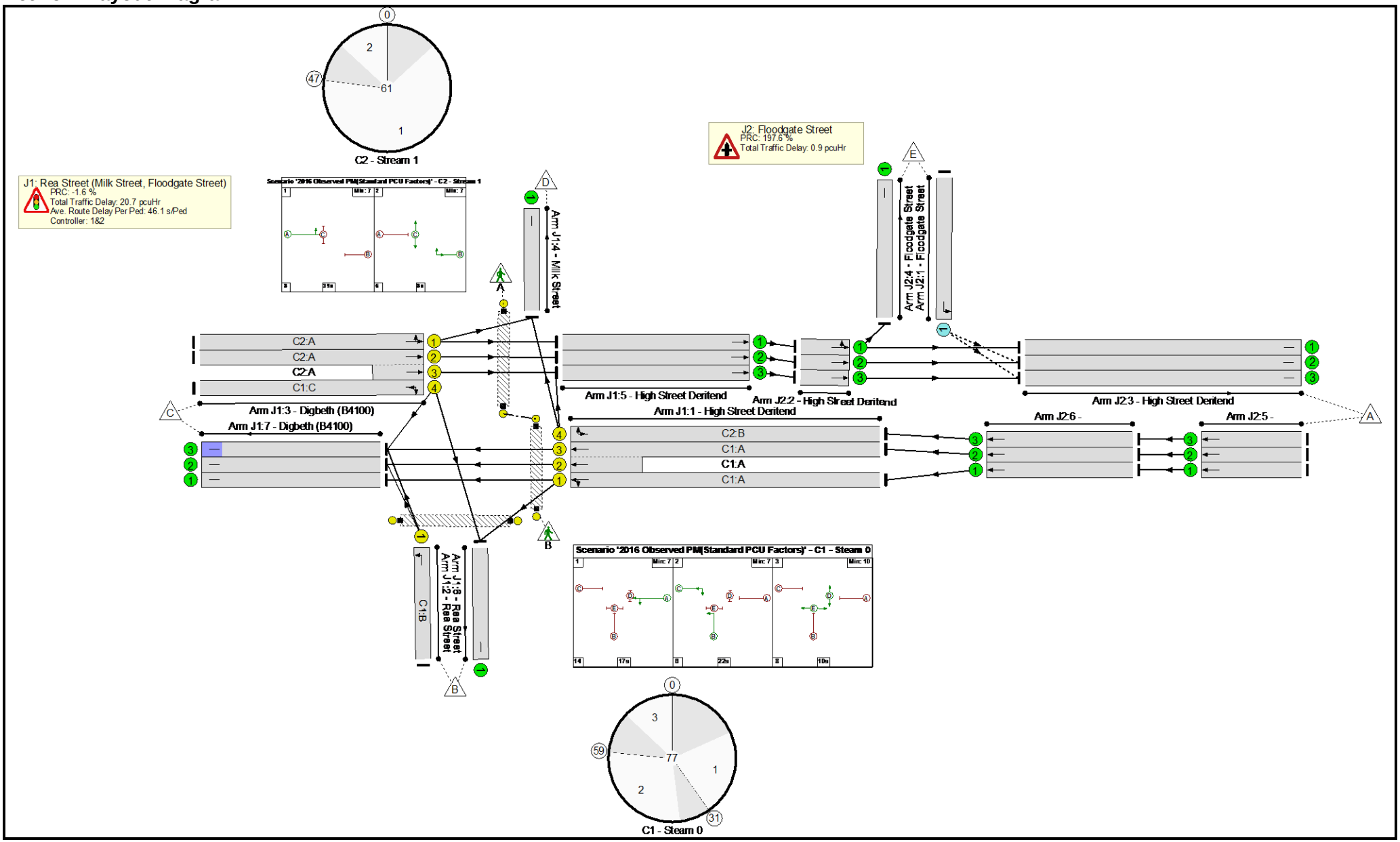
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.4%**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.4%**
1/1	High Street Deritend Left Ahead	U	N/A	N/A	C1:A		1	17	-	142	1709	400	35.5%
1/3+1/2	High Street Deritend Ahead	U	N/A	N/A	C1:A		1	17	-	523	2070:1933	408+382	66.2 : 66.2%
1/4	High Street Deritend Right U-Turn	U	N/A	N/A	C2:B		1	11	-	216	1757	346	62.5%
2/1	Rea Street Left	U	N/A	N/A	C1:B		1	22	-	102	1817	543	18.8%
3/1	Digbeth (B4100) Left Ahead	U	N/A	N/A	C2:A		1	39	-	42	1894	1242	3.4%
3/2+3/3	Digbeth (B4100) Ahead	U	N/A	N/A	C2:A		1	39	-	897	1898:2043	727+829	57.6 : 57.6%
3/4	Digbeth (B4100) Right U-Turn	U	N/A	N/A	C1:C		1	23	-	627	2200	686	91.4%
4/1	Milk Street	U	N/A	N/A	-		-	-	-	209	2115	2115	9.9%
5/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	35	1916	1916	1.8%
5/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	419	1928	1928	21.7%
5/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	492	2051	2051	24.0%
6/1	Rea Street	U	N/A	N/A	-		-	-	-	685	1985	1985	34.5%
7/1	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	10	1934	1934	0.5%
7/2	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	327	2012	2012	16.3%

Full Input Data And Results

7/3	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	372	2037	2037	18.3%
Ped Link: P1	H	-	N/A	-	C2:C		1	9	-	130	-	10623	1.2%
Ped Link: P2	D	-	N/A	-	C1:D		1	18	-	130	-	16831	0.8%
Ped Link: P3	E	-	N/A	-	C1:E		1	10	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**30.2%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	156	Inf	516	30.2%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	35	1827	1827	1.9%
2/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	419	1929	1929	21.7%
2/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	492	2059	2059	23.9%
3/1	High Street Deritend	U	N/A	N/A	-		-	-	-	19	1933	1933	1.0%
3/2	High Street Deritend	U	N/A	N/A	-		-	-	-	545	2070	2070	26.3%
3/3	High Street Deritend	U	N/A	N/A	-		-	-	-	522	2054	2054	25.4%
4/1	Floodgate Street	U	N/A	N/A	-		-	-	-	16	2013	2013	0.8%
5/1	Ahead	U	N/A	N/A	-		-	-	-	142	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	523	Inf	Inf	0.0%
5/3	Ahead	U	N/A	N/A	-		-	-	-	216	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	142	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	523	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	216	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**156**	**0**	**0**	**12.3**	**9.2**	**0.0**	**21.6**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**0**	**0**	**0**	**12.3**	**8.3**	**0.0**	**20.7**	**-**	**-**	**-**	**-**
1/1	142	142	-	-	-	1.0	0.3	-	1.2	31.6	2.5	0.3	2.8
1/3+1/2	523	523	-	-	-	3.8	1.0	-	4.8	32.7	5.0	1.0	6.0
1/4	216	216	-	-	-	1.3	0.8	-	2.2	36.2	3.3	0.8	4.1
2/1	102	102	-	-	-	0.6	0.1	-	0.7	24.2	1.6	0.1	1.7
3/1	42	42	-	-	-	0.0	0.0	-	0.1	5.3	0.2	0.0	0.3
3/2+3/3	897	897	-	-	-	1.2	0.7	-	1.8	7.4	3.6	0.7	4.3
3/4	627	627	-	-	-	4.4	4.6	-	9.1	52.0	12.9	4.6	17.5
4/1	209	209	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
5/1	35	35	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/2	419	419	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
5/3	492	492	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
6/1	685	685	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
7/1	10	10	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/2	327	327	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
7/3	372	372	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
Ped Link: P1	130	130	-	-	-	-	-	-	0.8	22.9	-	-	1.9
Ped Link: P2	130	130	-	-	-	-	-	-	0.8	23.2	-	-	2.1
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**156**	**0**	**0**	**0.0**	**0.9**	**0.0**	**0.9**	**-**	**-**	**-**	**-**
1/1	156	156	156	0	0	0.0	0.2	-	0.2	5.4	0.4	0.2	0.6
2/1	35	35	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	419	419	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1

Full Input Data And Results

2/3	492	492	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
3/1	19	19	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/2	545	545	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/3	522	522	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
4/1	16	16	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
5/1	142	142	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	523	523	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	216	216	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	142	142	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	523	523	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	216	216	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

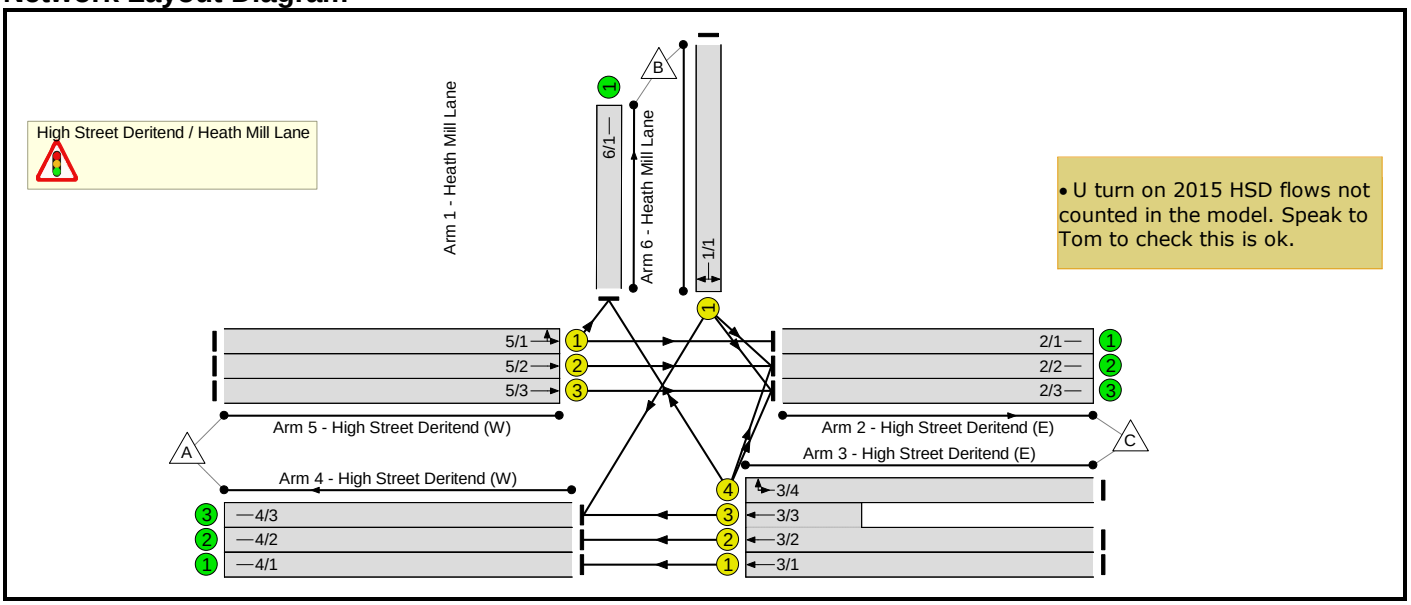
C1 - Steam 0	PRC for Signalled Lanes (%):	-1.6	Total Delay for Signalled Lanes (pcuHr):	15.74	Cycle Time (s): 77
C2 - Stream 1	PRC for Signalled Lanes (%):	44.0	Total Delay for Signalled Lanes (pcuHr):	4.08	Cycle Time (s): 61
	PRC Over All Lanes (%):	-1.6	Total Delay Over All Lanes(pcuHr):	21.55	

Full Input Data And Results

User and Project Details

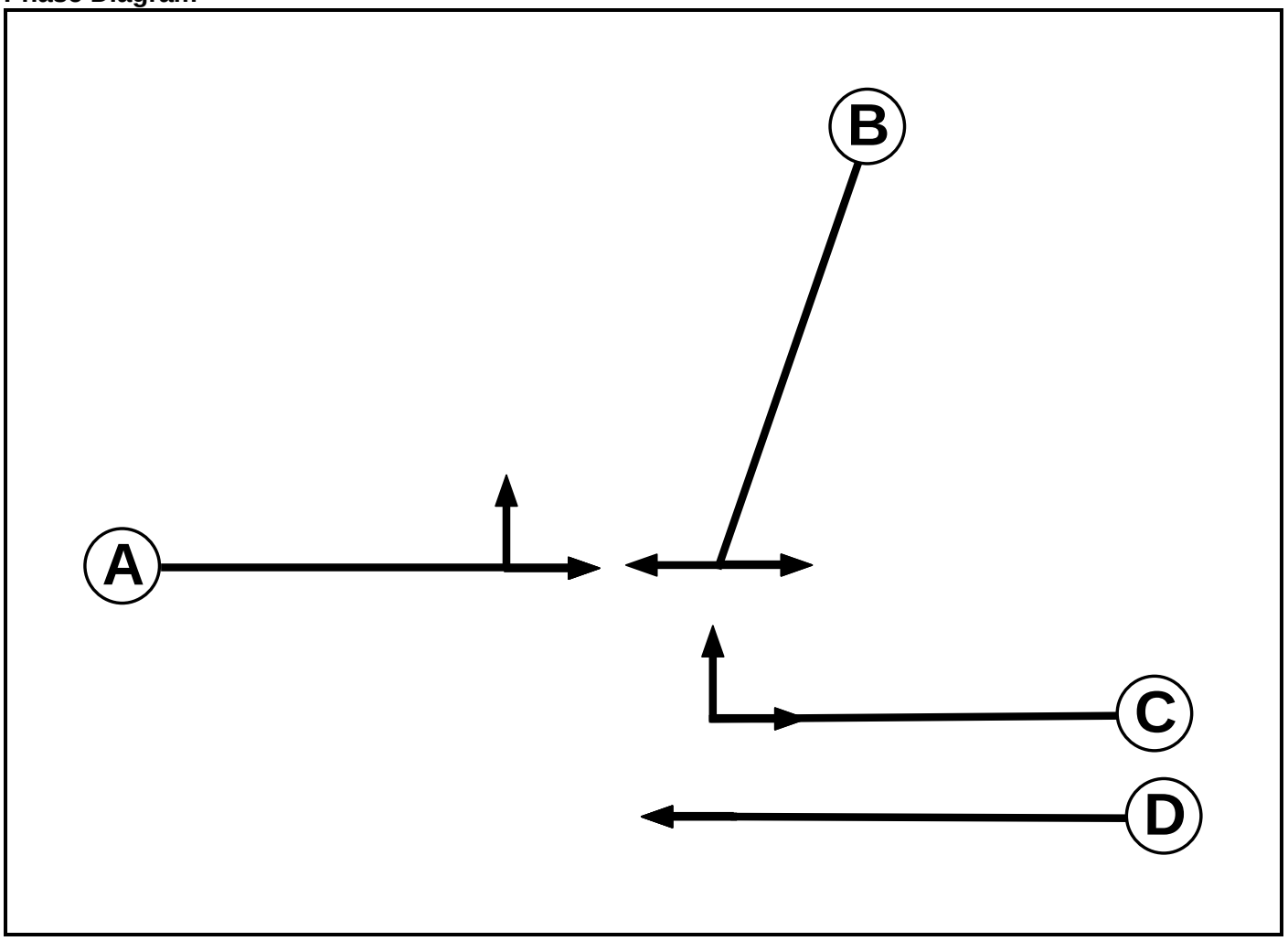
Project:	**BEE**
Title:	**High Street Deritend / Heath Mill Lane**
Location:	High Street Deritend, Digbeth, Birmingham
File name:	High Street Deritend - Heath Mill Lane TH check 15.02.lsg3x
Author:	William Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7

Full Input Data And Results

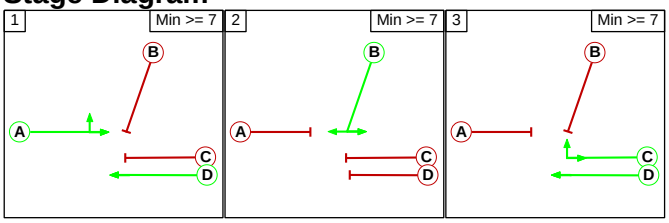
Phase Intergreens Matrix

Terminating Phase	Starting Phase			
	A	B	C	D
A		6	6	-
B	7		7	7
C	6	6		-
D	-	6	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D
2	B
3	C D

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage		
	1	2	3
1		6	6
2	7		7
3	6	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: High Street Deritend / Heath Mill Lane
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: High Street Deritend / Heath Mill Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Heath Mill Lane)	U	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	9.62
											Arm 4 Right	12.04
2/1 (High Street Deritend (E))	U		2	3	10.4	Inf	-	-	-	-	-	-
2/2 (High Street Deritend (E))	U		2	3	10.4	Inf	-	-	-	-	-	-
2/3 (High Street Deritend (E))	U		2	3	10.4	Inf	-	-	-	-	-	-
3/1 (High Street Deritend (E))	U	D	2	3	12.2	Geom	-	2.94	0.00	Y	Arm 4 Ahead	Inf
3/2 (High Street Deritend (E))	U	D	2	3	12.2	Geom	-	3.13	0.00	N	Arm 4 Ahead	Inf
3/3 (High Street Deritend (E))	U	D	2	3	7.0	Geom	-	3.03	0.00	N	Arm 4 Ahead	Inf
3/4 (High Street Deritend (E))	U	C	2	3	13.6	Geom	-	3.32	0.00	N	Arm 2 U-Turn	Inf
											Arm 6 Right	22.87
4/1 (High Street Deritend (W))	U		2	3	24.3	Inf	-	-	-	-	-	-
4/2 (High Street Deritend (W))	U		2	3	24.3	Inf	-	-	-	-	-	-
4/3 (High Street Deritend (W))	U		2	3	24.3	Inf	-	-	-	-	-	-
5/1 (High Street Deritend (W))	U	A	2	3	17.4	Geom	-	3.02	0.00	Y	Arm 2 Ahead	Inf
											Arm 6 Left	7.10
5/2 (High Street Deritend (W))	U	A	2	3	17.4	Geom	-	3.06	0.00	N	Arm 2 Ahead	Inf
5/3 (High Street Deritend (W))	U	A	2	3	17.4	Geom	-	3.07	0.00	N	Arm 2 Ahead	Inf
6/1 (Heath Mill Lane)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 AM Peak (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	70	421	491
	B	205	0	101	306
	C	732	299	0	1031
	Tot.	937	369	522	1828

Traffic Lane Flows

Lane	Scenario 1: 2016 AM Peak (Standard PCU Factors)
Junction: High Street Deritend / Heath Mill Lane	
1/1	306
2/1	55
2/2	233
2/3	234
3/1	226
3/2 (with short)	506(In) 253(Out)
3/3 (short)	253
3/4	299
4/1	226
4/2	253
4/3	458
5/1	125
5/2	183
5/3	183
6/1	369

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	33.0 %	1709	1709
				Arm 4 Right	12.04	67.0 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	44.0 %	1714	1714
				Arm 6 Left	7.10	56.0 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2016 PM Peak (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	94	1017	1111
	B	257	0	120	377
	C	549	299	0	848
	Tot.	806	393	1137	2336

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 PM Peak (Standard PCU Factors)
Junction: High Street Deritend / Heath Mill Lane	
1/1	377
2/1	66
2/2	535
2/3	536
3/1	160
3/2 (with short)	389(In) 195(Out)
3/3 (short)	194
3/4	299
4/1	160
4/2	195
4/3	451
5/1	160
5/2	475
5/3	476
6/1	393

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	31.8 %	1710	1710
				Arm 4 Right	12.04	68.2 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	41.3 %	1705	1705
				Arm 6 Left	7.10	58.8 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2016 AM Peak (Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	84	475	559
	B	227	0	106	333
	C	793	301	0	1094
	Tot.	1020	385	581	1986

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2016 AM Peak (Saturn PCU Factors)
Junction: High Street Deritend / Heath Mill Lane	
1/1	333
2/1	55
2/2	263
2/3	263
3/1	248
3/2 (with short)	545(In) 273(Out)
3/3 (short)	272
3/4	301
4/1	248
4/2	273
4/3	499
5/1	139
5/2	210
5/3	210
6/1	385

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	31.8 %	1710	1710
				Arm 4 Right	12.04	68.2 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	39.6 %	1700	1700
				Arm 6 Left	7.10	60.4 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2016 PM Peak (Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	106	1066	1172
	B	274	0	120	394
	C	599	303	0	902
	Tot.	873	409	1186	2468

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 PM Peak (Saturn PCU Factors)
Junction: High Street Deritend / Heath Mill Lane	
1/1	394
2/1	66
2/2	560
2/3	560
3/1	177
3/2 (with short)	422(In) 212(Out)
3/3 (short)	210
3/4	303
4/1	177
4/2	212
4/3	484
5/1	172
5/2	500
5/3	500
6/1	409

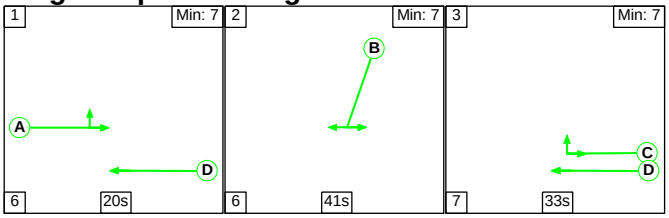
Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	30.5 %	1711	1711
				Arm 4 Right	12.04	69.5 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	38.4 %	1696	1696
				Arm 6 Left	7.10	61.6 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2016 AM Peak (Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

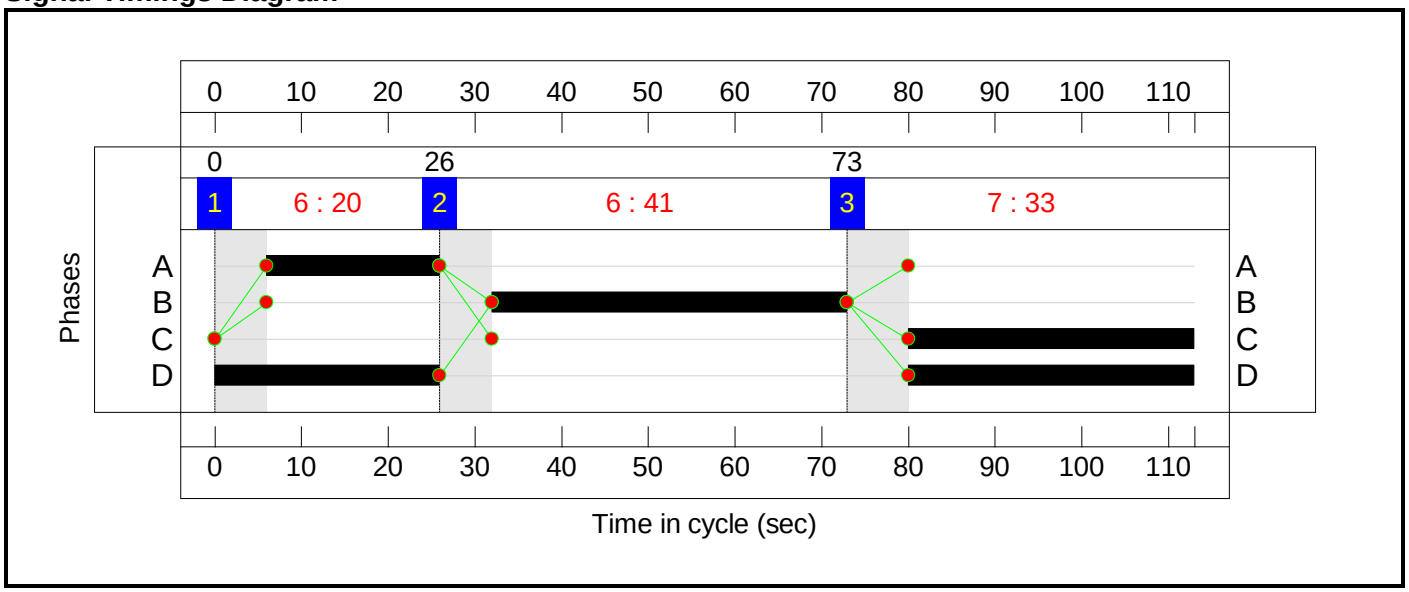


Full Input Data And Results

Stage Timings

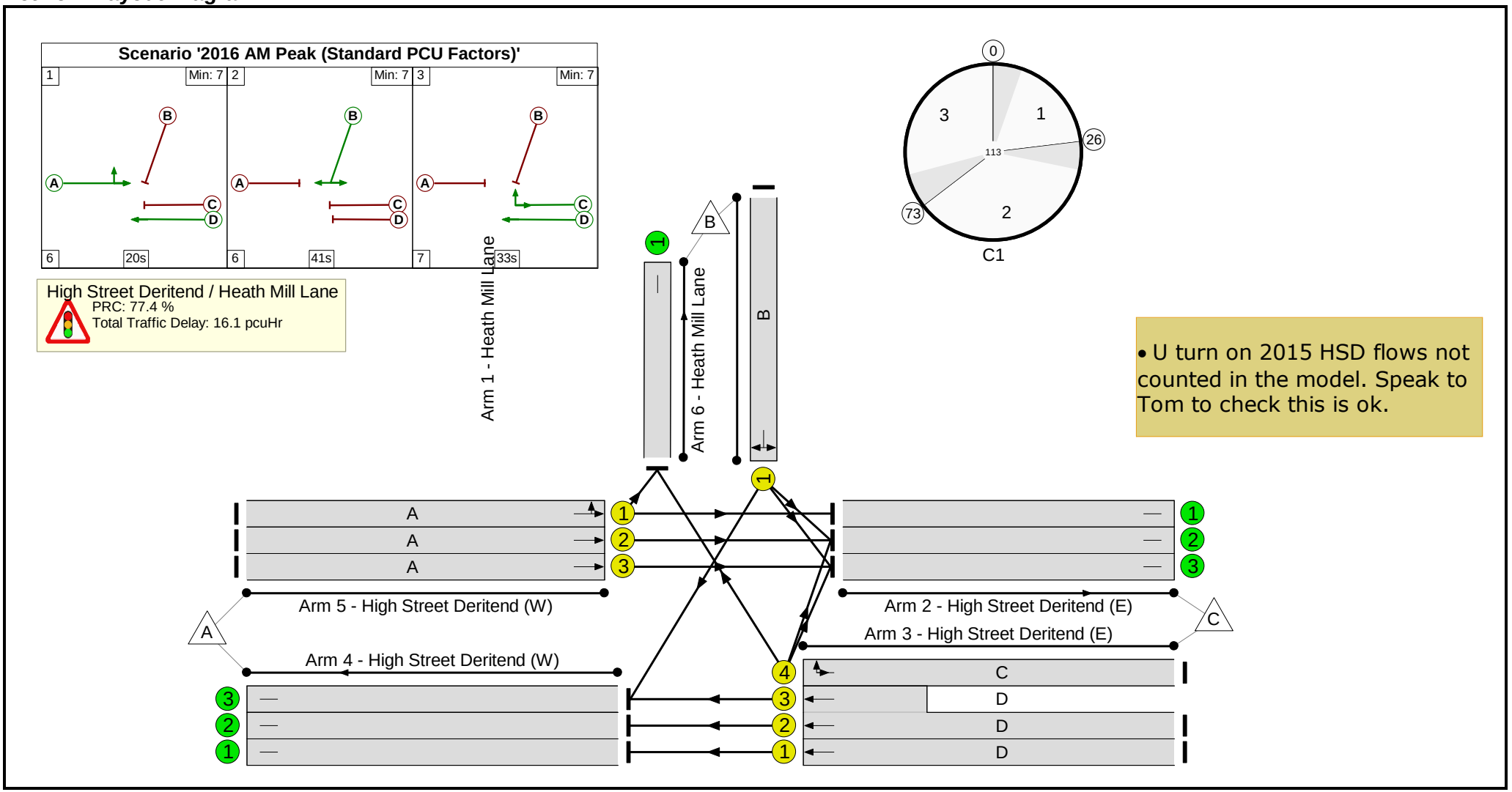
Stage	1	2	3
Duration	20	41	33
Change Point	0	26	73

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.7%**
High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.7%**
1/1	Heath Mill Lane Left Right	U	N/A	N/A	B		1	41	-	306	1709	635	48.2%
2/1	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	55	Inf	Inf	0.0%
2/2	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	233	Inf	Inf	0.0%
2/3	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	234	Inf	Inf	0.0%
3/1	High Street Deritend (E) Ahead	U	N/A	N/A	D		1	59	-	226	1909	1014	22.3%
3/2+3/3	High Street Deritend (E) Ahead	U	N/A	N/A	D		1	59	-	506	2068:2058	661+661	38.3 : 38.3%
3/4	High Street Deritend (E) U-Turn Right	U	N/A	N/A	C		1	33	-	299	1959	589	50.7%
4/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	226	Inf	Inf	0.0%
4/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	253	Inf	Inf	0.0%
4/3	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	458	Inf	Inf	0.0%
5/1	High Street Deritend (W) Ahead Left	U	N/A	N/A	A		1	20	-	125	1714	319	39.2%
5/2	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	20	-	183	2061	383	47.8%

Full Input Data And Results

5/3	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	20	-	183	2062	383	47.8%
6/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%

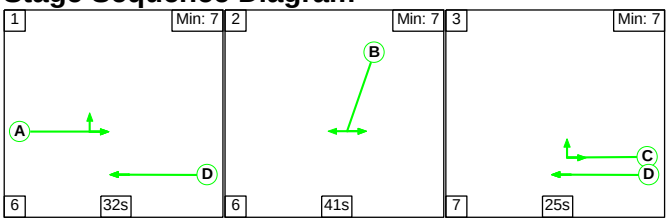
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**13.5**	**2.7**	**0.0**	**16.1**	**-**	**-**	**-**	**-**
High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**13.5**	**2.7**	**0.0**	**16.1**	**-**	**-**	**-**	**-**
1/1	306	306	-	-	-	2.3	0.5	-	2.8	32.6	7.3	0.5	7.8
2/1	55	55	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	233	233	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	226	226	-	-	-	0.9	0.1	-	1.0	16.4	3.8	0.1	3.9
3/2+3/3	506	506	-	-	-	2.0	0.3	-	2.3	16.4	4.2	0.3	4.5
3/4	299	299	-	-	-	2.7	0.5	-	3.2	38.8	7.7	0.5	8.2
4/1	226	226	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	253	253	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	458	458	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	125	125	-	-	-	1.4	0.3	-	1.7	49.7	3.4	0.3	3.8
5/2	183	183	-	-	-	2.1	0.5	-	2.5	50.1	5.1	0.5	5.5
5/3	183	183	-	-	-	2.1	0.5	-	2.5	50.1	5.1	0.5	5.5
6/1	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 77.4 Total Delay for Signalled Lanes (pcuHr): 16.14 Cycle Time (s): 113
PRC Over All Lanes (%): 77.4 Total Delay Over All Lanes(pcuHr): 16.14

Full Input Data And Results

Scenario 2: '2016 PM Peak (Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

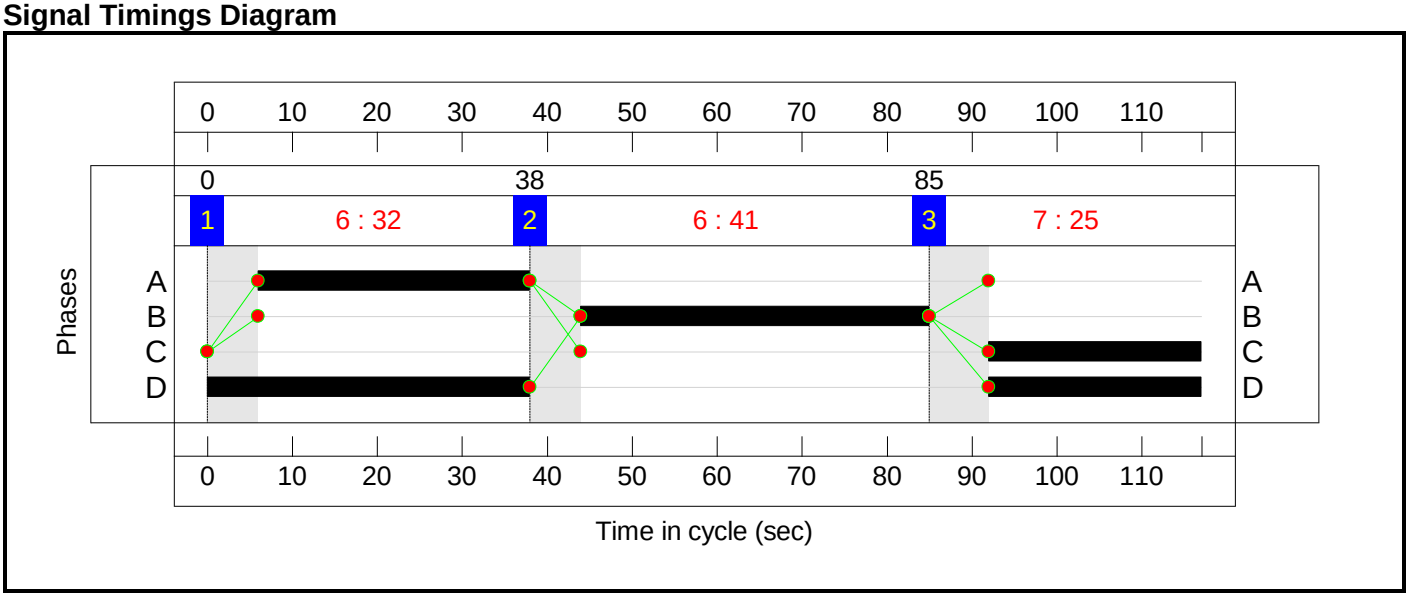
Stage Sequence Diagram



Stage Timings

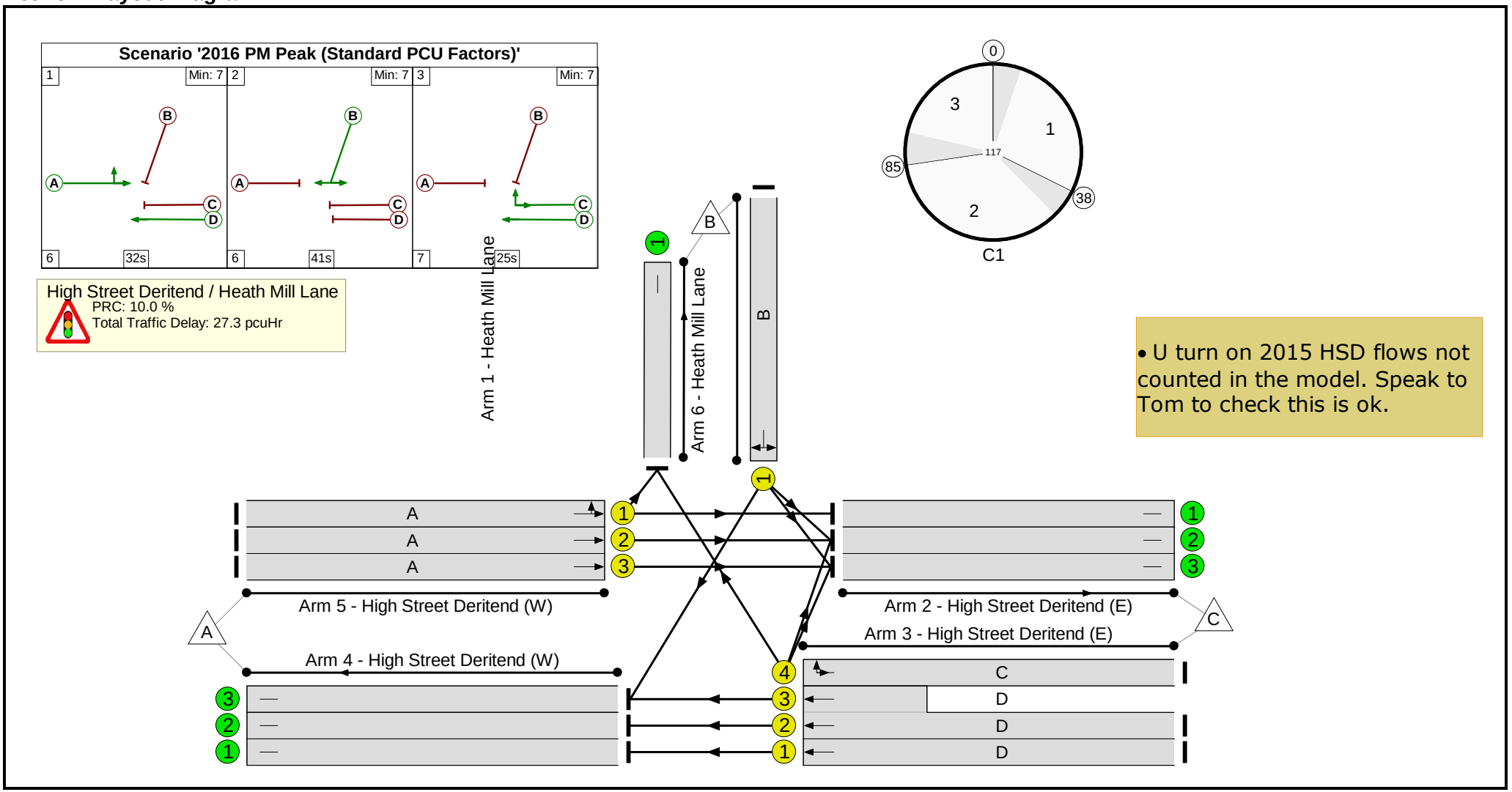
Stage	1	2	3
Duration	32	41	25
Change Point	0	38	85

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.8%**
High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.8%**
1/1	Heath Mill Lane Left Right	U	N/A	N/A	B		1	41	-	377	1710	614	61.4%
2/1	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	66	Inf	Inf	0.0%
2/2	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	535	Inf	Inf	0.0%
2/3	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	536	Inf	Inf	0.0%
3/1	High Street Deritend (E) Ahead	U	N/A	N/A	D		1	63	-	160	1909	1044	15.3%
3/2+3/3	High Street Deritend (E) Ahead	U	N/A	N/A	D		1	63	-	389	2068:2058	675+672	28.9 : 28.9%
3/4	High Street Deritend (E) U-Turn Right	U	N/A	N/A	C		1	25	-	299	1959	435	68.7%
4/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	160	Inf	Inf	0.0%
4/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	195	Inf	Inf	0.0%
4/3	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%
5/1	High Street Deritend (W) Ahead Left	U	N/A	N/A	A		1	32	-	160	1705	481	33.3%
5/2	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	32	-	475	2061	581	81.7%

Full Input Data And Results

5/3	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	32	-	476	2062	582	81.8%
6/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	393	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**20.5**	**6.7**	**0.0**	**27.3**	**-**	**-**	**-**	**-**
High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**20.5**	**6.7**	**0.0**	**27.3**	**-**	**-**	**-**	**-**
1/1	377	377	-	-	-	3.2	0.8	-	4.0	38.4	10.1	0.8	10.8
2/1	66	66	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	535	535	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	536	536	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	160	160	-	-	-	0.6	0.1	-	0.7	15.1	2.5	0.1	2.6
3/2+3/3	389	389	-	-	-	1.4	0.2	-	1.6	15.1	3.1	0.2	3.3
3/4	299	299	-	-	-	3.5	1.1	-	4.5	54.8	8.9	1.1	10.0
4/1	160	160	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	195	195	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	451	451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	160	160	-	-	-	1.5	0.2	-	1.7	38.9	4.1	0.2	4.3
5/2	475	475	-	-	-	5.2	2.1	-	7.3	55.5	14.4	2.1	16.5
5/3	476	476	-	-	-	5.2	2.2	-	7.3	55.6	14.4	2.2	16.6
6/1	393	393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

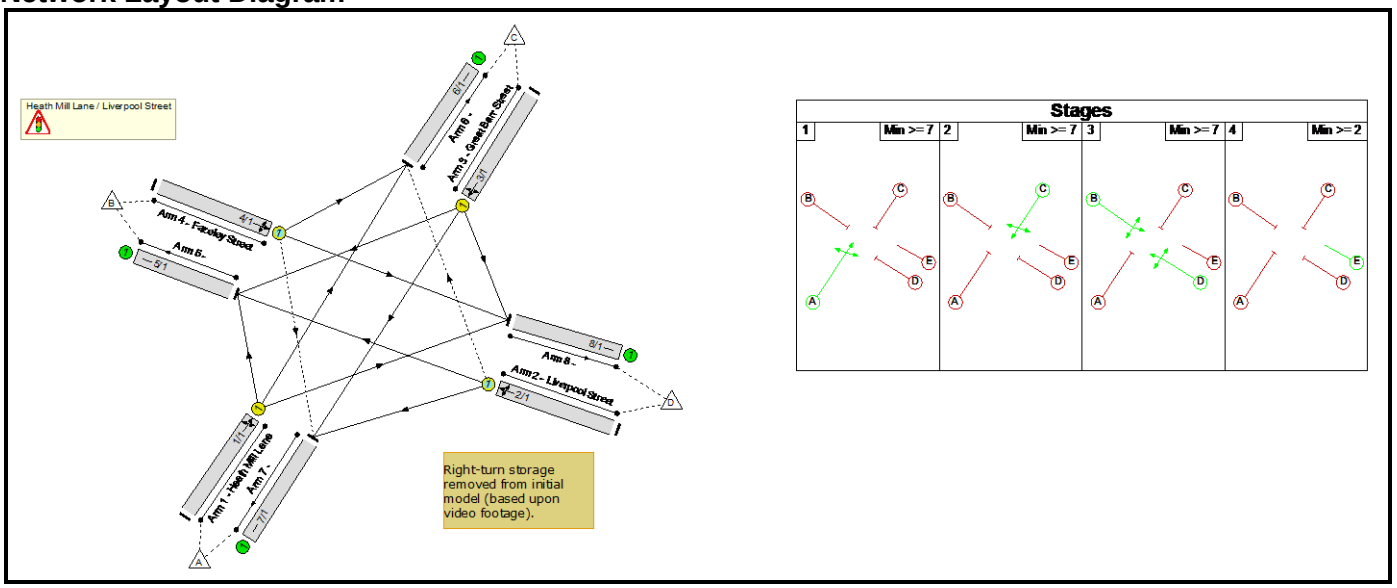
C1 PRC for Signalled Lanes (%): 10.0 Total Delay for Signalled Lanes (pcuHr): 27.27 Cycle Time (s): 117
PRC Over All Lanes (%): 10.0 Total Delay Over All Lanes(pcuHr): 27.27

Full Input Data And Results

User and Project Details

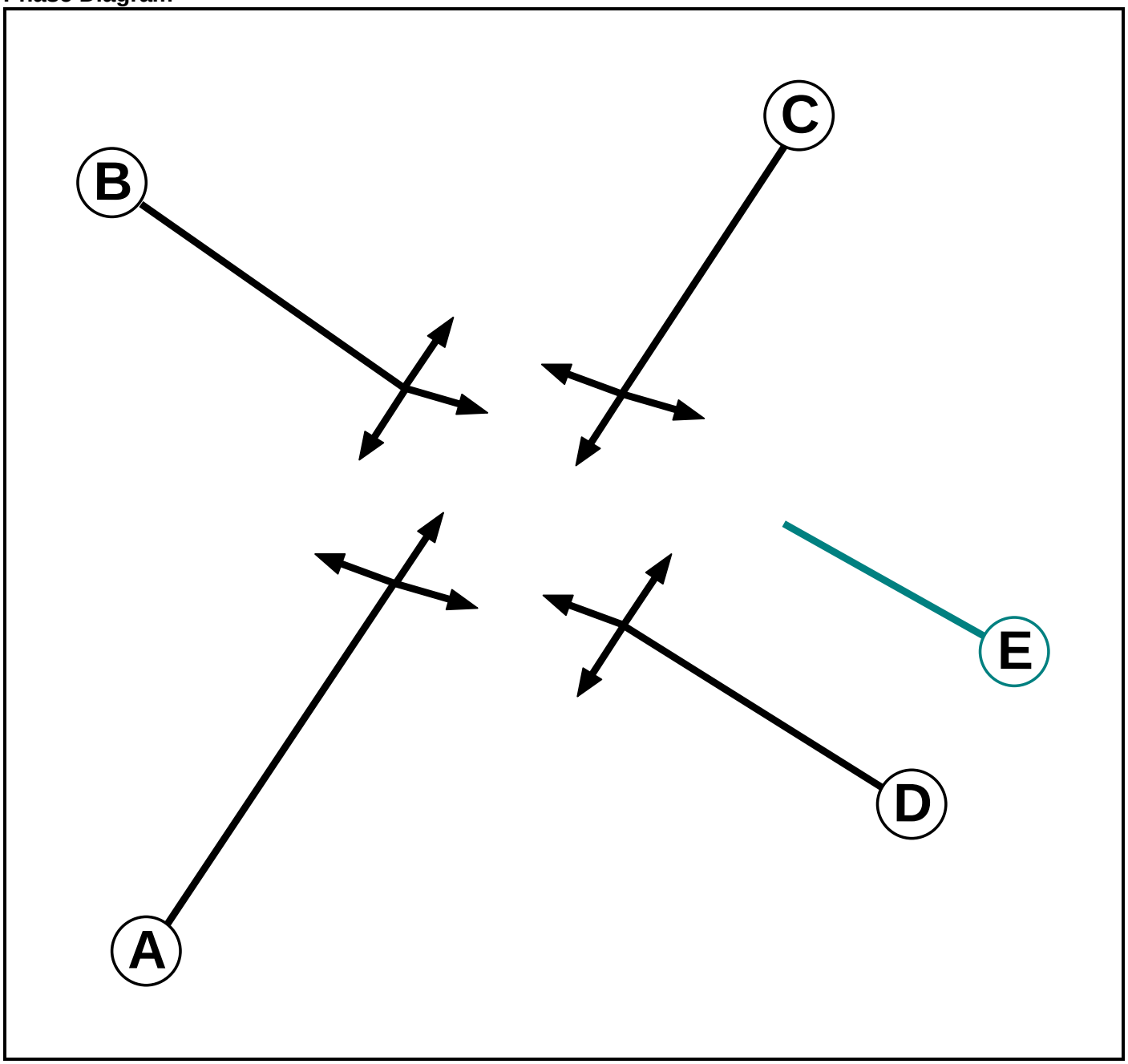
Project:	**Birmingham Eastside Extension**
Title:	**Heath Mill Lane/Liverpool Street Junction**
Location:	Heath Mill Lane/Liverpool Street, Digbeth
File name:	Heath Mill Lane - Liverpool Street.lsg3x
Author:	Ben Cooke
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Dummy		2	2

Full Input Data And Results

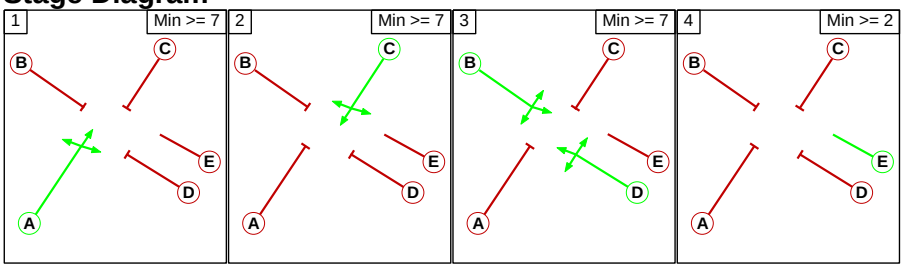
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	3
	B	5		5	-	3
	C	5	5		5	3
	D	5	-	5		3
	E	2	2	2	2	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	C
3	B D
4	E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
4	1	A	Gaining absolute	3	3
4	2	C	Gaining absolute	3	3
4	3	B	Gaining absolute	3	3
4	3	D	Gaining absolute	3	3

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		5	5	3
	2	5		5	3
	3	5	5		3
	4	3	3	3	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Heath Mill Lane / Liverpool Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/1 (Liverpool Street)	6/1 (Right)	1439	0	4/1	1.09	To 6/1 (Left) To 8/1 (Ahead)	-	-	-	-	-
4/1 (Fazeley Street)	7/1 (Right)	1439	0	2/1	1.09	To 5/1 (Ahead) To 7/1 (Left)	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: Heath Mill Lane / Liverpool Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Heath Mill Lane)	U	A	2	3	60.0	Geom	-	3.95	0.00	Y	Arm 5 Left	5.00
											Arm 6 Ahead	Inf
											Arm 8 Right	14.00
2/1 (Liverpool Street)	O	D	2	3	60.0	User	1900	-	-	-	-	-
3/1 (Great Barr Street)	U	C	2	3	60.0	Geom	-	4.20	0.00	Y	Arm 5 Right	12.00
											Arm 7 Ahead	Inf
											Arm 8 Left	6.00
4/1 (Fazeley Street)	O	B	2	3	60.0	Geom	-	4.40	0.00	Y	Arm 6 Left	5.00
											Arm 7 Right	10.00
											Arm 8 Ahead	Inf
5/1	U		2	3	60.0	Geom	-	4.65	0.00	Y		
6/1	U		2	3	60.0	Geom	-	3.90	0.00	Y		
7/1	U		2	3	60.0	Geom	-	4.25	0.00	Y		
8/1	U		2	3	60.0	Geom	-	3.15	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 Weekday AM(Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	123	179	11	313
	B	34	0	104	36	174
	C	293	166	0	43	502
	D	12	51	24	0	87
	Tot.	339	340	307	90	1076

Traffic Lane Flows

Lane	Scenario 1: 2016 Weekday AM(Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	313
2/1	87
3/1	502
4/1	174
5/1	340
6/1	307
7/1	339
8/1	90

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	39.3 %	1792	1792
				Arm 6 Ahead	Inf	57.2 %		
				Arm 8 Right	14.00	3.5 %		
2/1 (Liverpool Street Lane 1)	This lane uses a directly entered Saturation Flow						2100	2100
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	33.1 %	1915	1915
				Arm 7 Ahead	Inf	58.4 %		
				Arm 8 Left	6.00	8.6 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	59.8 %	1700	1700
				Arm 7 Right	10.00	19.5 %		
				Arm 8 Ahead	Inf	20.7 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 2: '2016 Weekday PM(Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	84	345	3	432
	B	39	0	277	115	431
	C	297	101	0	17	415
	D	3	39	34	0	76
	Tot.	339	224	656	135	1354

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 Weekday PM(Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	432
2/1	76
3/1	415
4/1	431
5/1	224
6/1	656
7/1	339
8/1	135

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	19.4 %	1898	1898
				Arm 6 Ahead	Inf	79.9 %		
				Arm 8 Right	14.00	0.7 %		
2/1 (Liverpool Street Lane 1)	This lane uses a directly entered Saturation Flow						2100	2100
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	24.3 %	1955	1955
				Arm 7 Ahead	Inf	71.6 %		
				Arm 8 Left	6.00	4.1 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	64.3 %	1703	1703
				Arm 7 Right	10.00	9.0 %		
				Arm 8 Ahead	Inf	26.7 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 3: '2016 Weekday AM(Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	123	194	13	330
	B	35	0	107	37	179
	C	313	167	0	46	526
	D	14	52	27	0	93
	Tot.	362	342	328	96	1128

Traffic Lane Flows

Lane	Scenario 3: 2016 Weekday AM(Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	330
2/1	93
3/1	526
4/1	179
5/1	342
6/1	328
7/1	362
8/1	96

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	37.3 %	1801	1801
				Arm 6 Ahead	Inf	58.8 %		
				Arm 8 Right	14.00	3.9 %		
2/1 (Liverpool Street Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	31.7 %	1917	1917
				Arm 7 Ahead	Inf	59.5 %		
				Arm 8 Left	6.00	8.7 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	59.8 %	1700	1700
				Arm 7 Right	10.00	19.6 %		
				Arm 8 Ahead	Inf	20.7 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 4: '2016 Weekday PM(Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	85	362	4	451
	B	39	0	282	116	437
	C	309	101	0	17	427
	D	4	40	35	0	79
	Tot.	352	226	679	137	1394

Traffic Lane Flows

Lane	Scenario 4: 2016 Weekday PM(Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	451
2/1	79
3/1	427
4/1	437
5/1	226
6/1	679
7/1	352
8/1	137

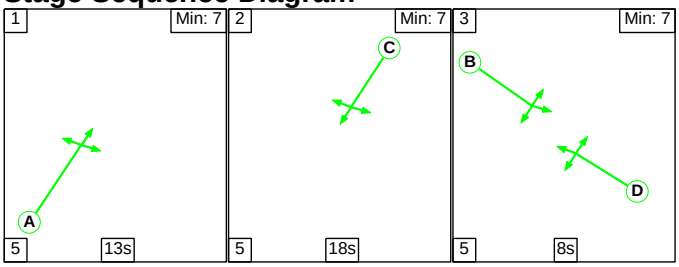
Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	18.8 %	1901	1901
				Arm 6 Ahead	Inf	80.3 %		
				Arm 8 Right	14.00	0.9 %		
2/1 (Liverpool Street Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	23.7 %	1958	1958
				Arm 7 Ahead	Inf	72.4 %		
				Arm 8 Left	6.00	4.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	64.5 %	1703	1703
				Arm 7 Right	10.00	8.9 %		
				Arm 8 Ahead	Inf	26.5 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 1: '2016 Weekday AM(Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

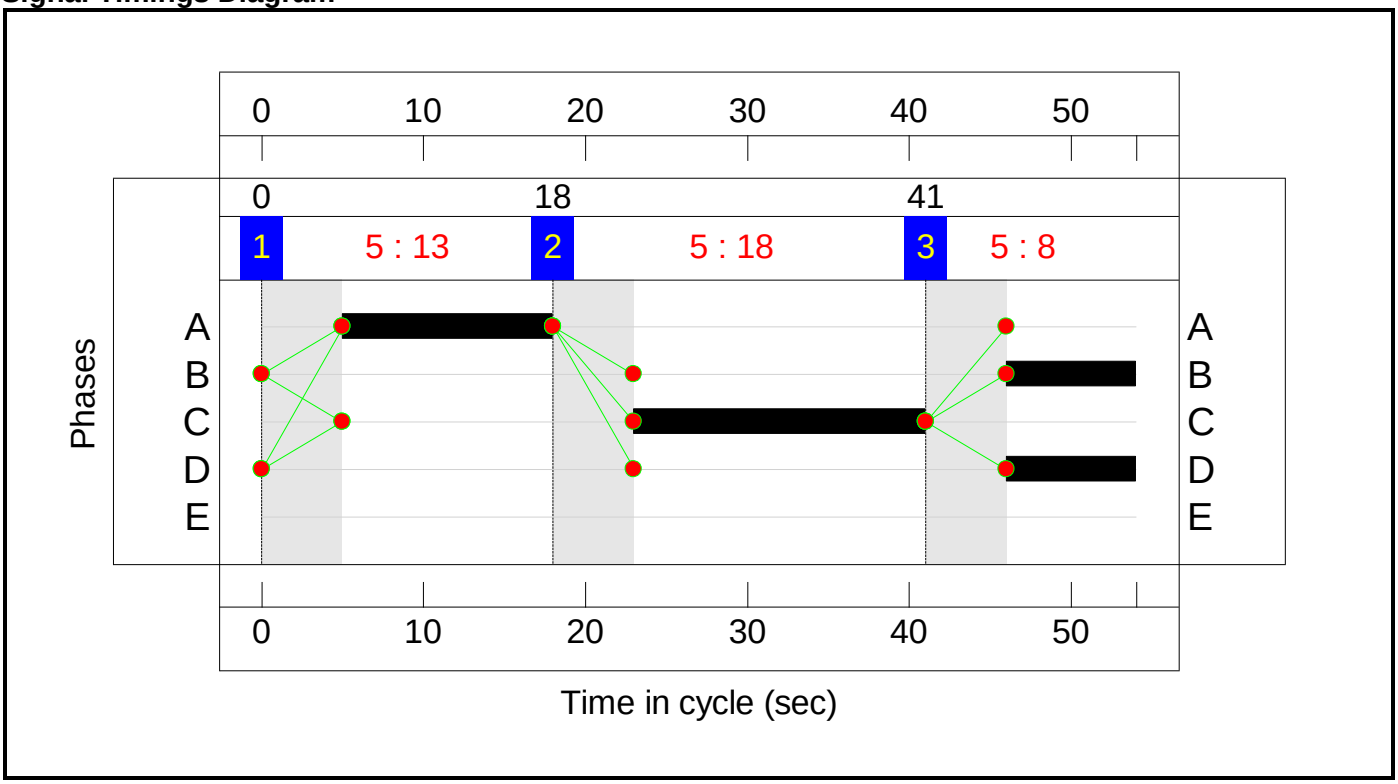


Stage Timings

Stage	1	2	3
Duration	13	18	8
Change Point	0	18	41

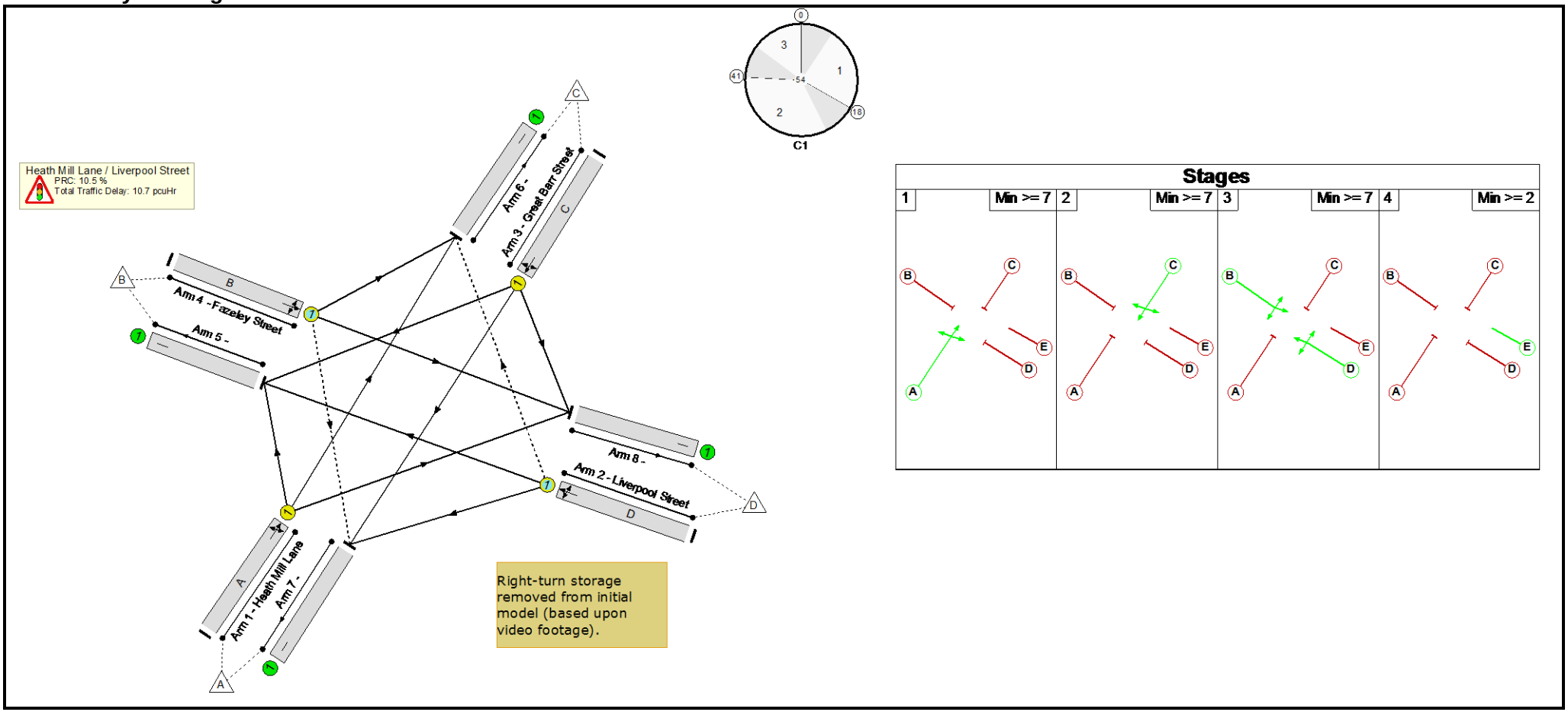
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.5%**
Heath Mill Lane / Liverpool Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.5%**
1/1	Heath Mill Lane Left Ahead Right	U	N/A	N/A	A		1	13	-	313	1792	465	67.4%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	8	-	87	2100	150	58.0%
3/1	Great Barr Street Right Ahead Left	U	N/A	N/A	C		1	18	-	502	1915	674	74.5%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	8	-	174	1700	214	81.5%
5/1		U	N/A	N/A	-		-	-	-	340	2080	2080	16.3%
6/1		U	N/A	N/A	-		-	-	-	307	2005	2005	15.3%
7/1		U	N/A	N/A	-		-	-	-	339	2040	2040	16.6%
8/1		U	N/A	N/A	-		-	-	-	90	1930	1930	4.7%

Full Input Data And Results

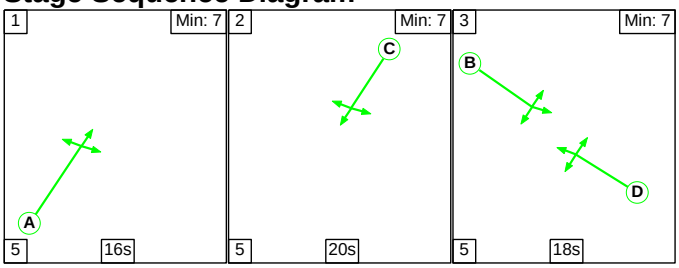
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**24**	**34**	**0**	**5.3**	**5.4**	**0.0**	**10.7**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**24**	**34**	**0**	**5.3**	**5.4**	**0.0**	**10.7**	**-**	**-**	**-**	**-**
1/1	313	313	-	-	-	1.6	1.0	-	2.6	29.7	4.2	1.0	5.2
2/1	87	87	3	21	0	0.5	0.7	-	1.2	48.5	1.1	0.7	1.8
3/1	502	502	-	-	-	2.1	1.4	-	3.6	25.7	6.6	1.4	8.0
4/1	174	174	22	12	0	1.1	2.0	-	3.1	63.5	2.5	2.0	4.5
5/1	340	340	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/1	307	307	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
7/1	339	339	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	90	90	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 10.5 Total Delay for Signalled Lanes (pcuHr): 10.40 Cycle Time (s): 54
PRC Over All Lanes (%): 10.5 Total Delay Over All Lanes(pcuHr): 10.71

Full Input Data And Results

Scenario 2: '2016 Weekday PM(Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

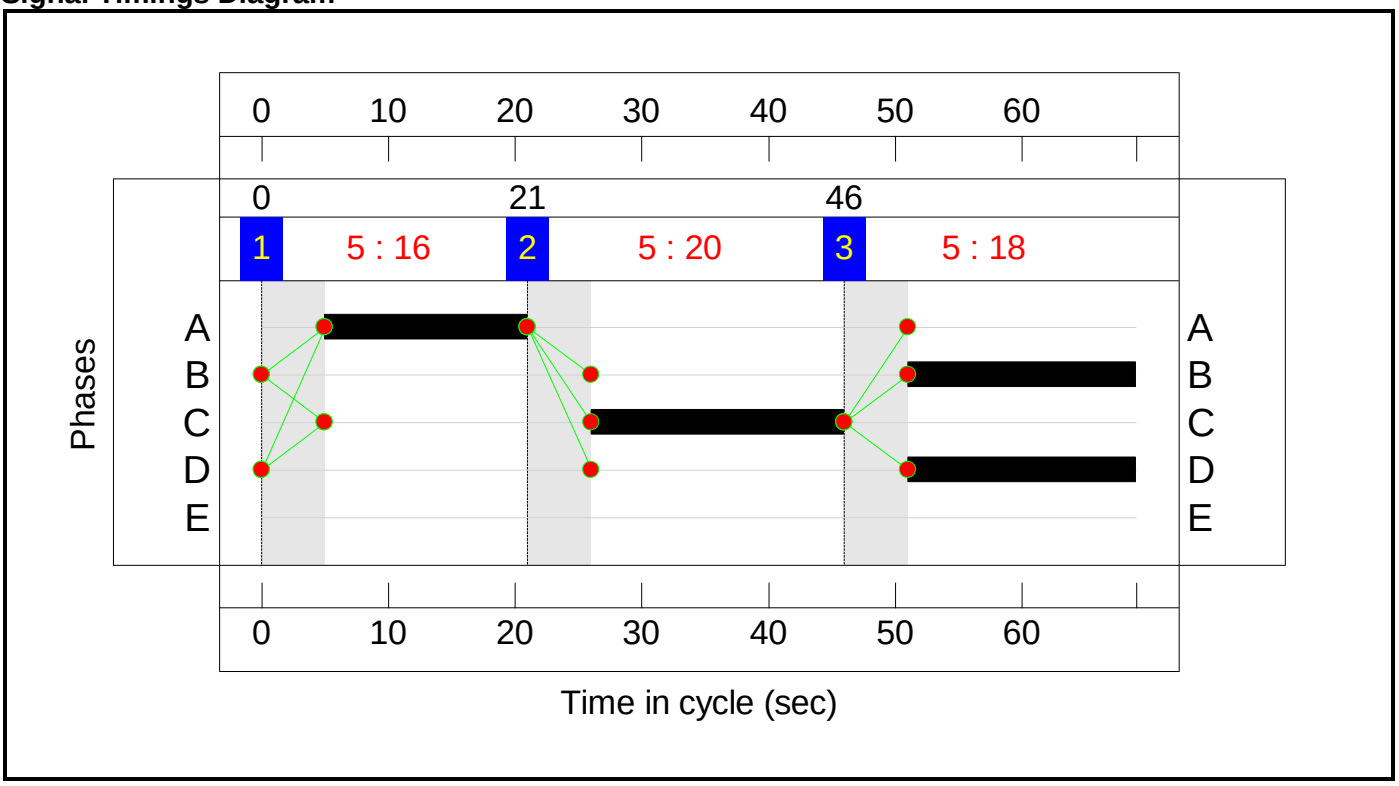
Stage Sequence Diagram



Stage Timings

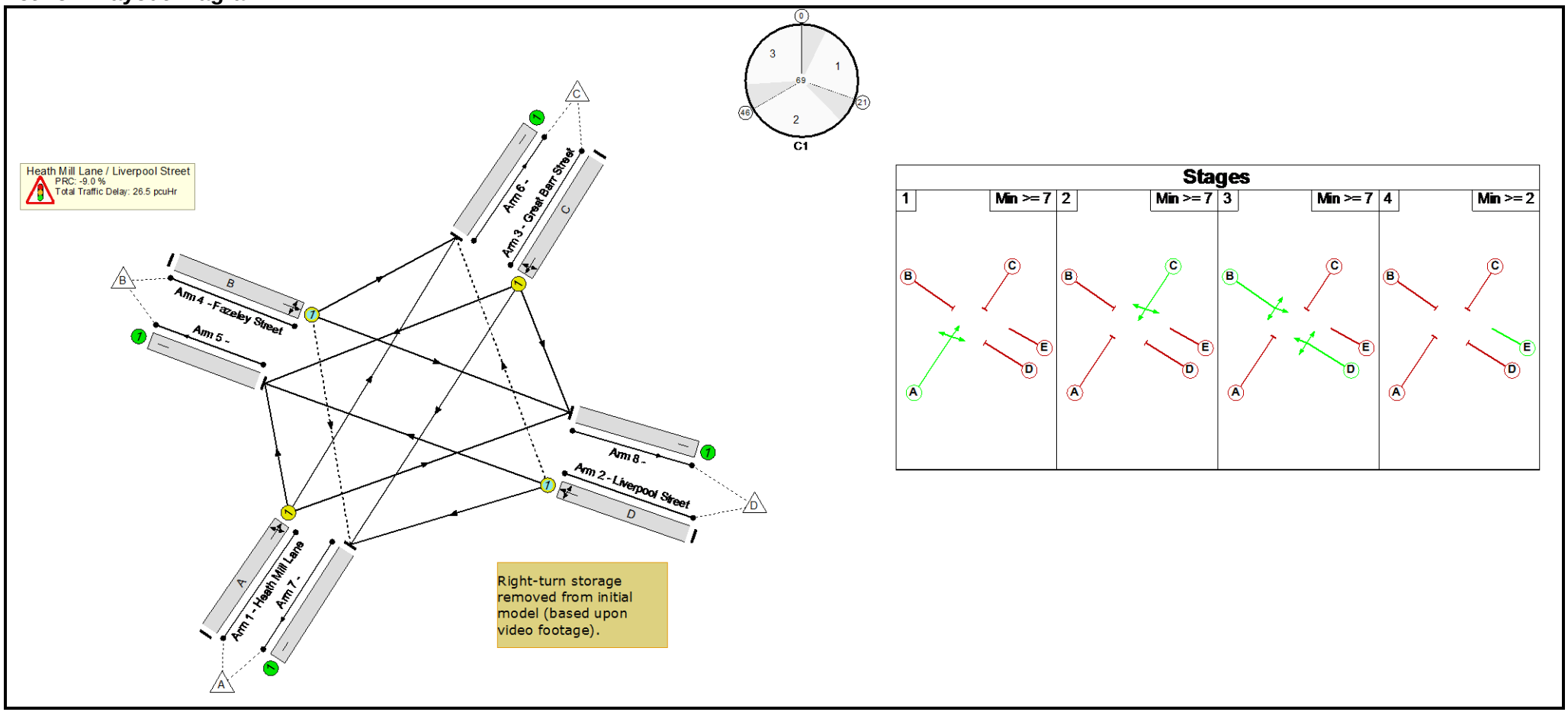
Stage	1	2	3
Duration	16	20	18
Change Point	0	21	46

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**98.1%**
Heath Mill Lane / Liverpool Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**98.1%**
1/1	Heath Mill Lane Left Ahead Right	U	N/A	N/A	A		1	16	-	432	1898	468	92.4%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	18	-	76	2100	86	88.5%
3/1	Great Barr Street Right Ahead Left	U	N/A	N/A	C		1	20	-	415	1955	595	69.7%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	18	-	431	1703	439	98.1%
5/1		U	N/A	N/A	-		-	-	-	224	2080	2080	10.8%
6/1		U	N/A	N/A	-		-	-	-	656	2005	2005	32.7%
7/1		U	N/A	N/A	-		-	-	-	339	2040	2040	16.6%
8/1		U	N/A	N/A	-		-	-	-	135	1930	1930	7.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**41**	**32**	**0**	**9.1**	**17.4**	**0.0**	**26.5**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**41**	**32**	**0**	**9.1**	**17.4**	**0.0**	**26.5**	**-**	**-**	**-**	**-**
1/1	432	432	-	-	-	3.0	4.8	-	7.8	65.2	8.0	4.8	12.8
2/1	76	76	7	27	0	0.6	2.5	-	3.2	150.7	1.4	2.5	4.0
3/1	415	415	-	-	-	2.4	1.1	-	3.6	31.1	6.9	1.1	8.1
4/1	431	431	35	4	0	3.0	8.5	-	11.5	96.0	8.1	8.5	16.6
5/1	224	224	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
6/1	656	656	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
7/1	339	339	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	135	135	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

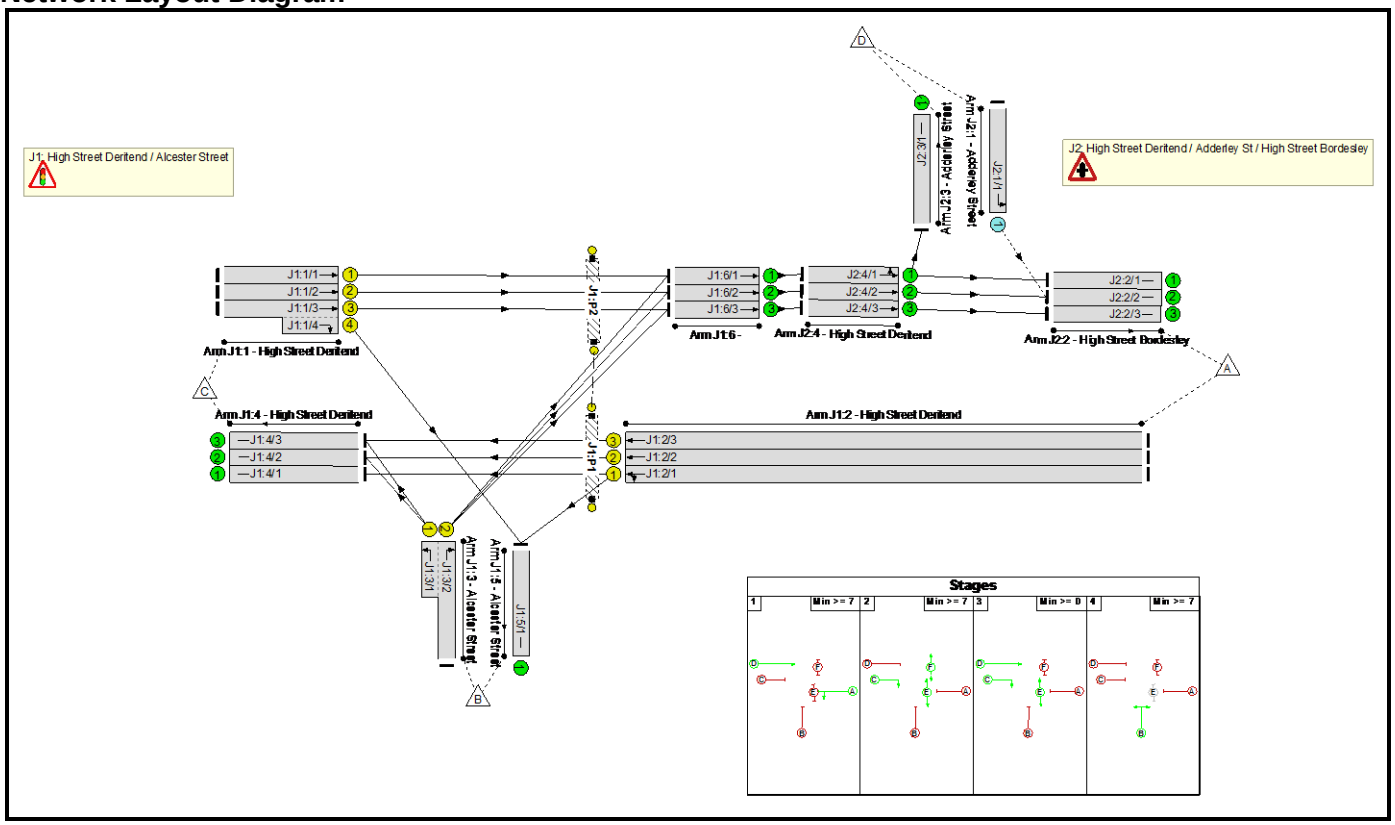
C1 PRC for Signalled Lanes (%): -9.0 Total Delay for Signalled Lanes (pcuHr): 26.08 Cycle Time (s): 69
PRC Over All Lanes (%): -9.0 Total Delay Over All Lanes(pcuHr): 26.52

Full Input Data And Results

User and Project Details

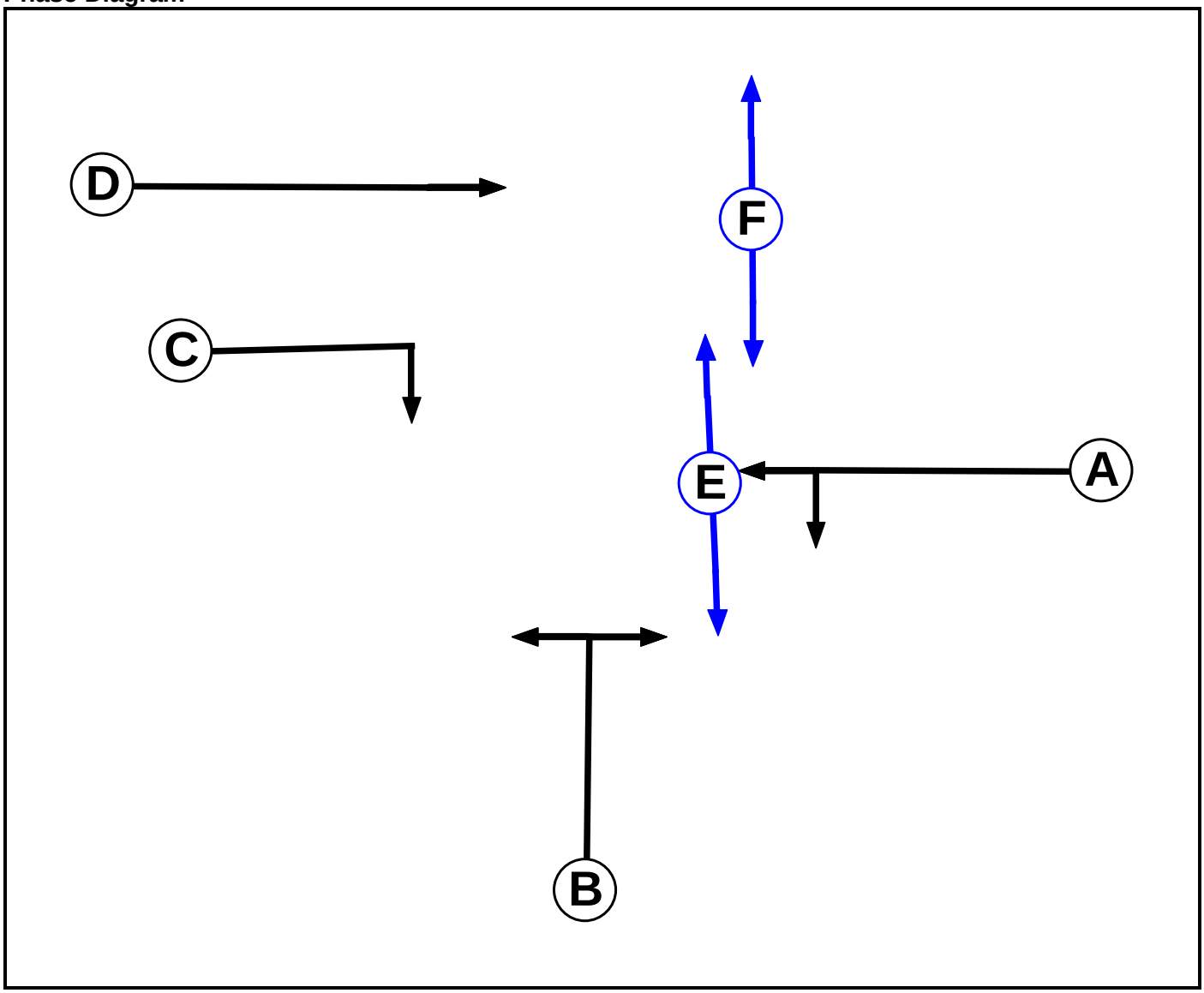
Project:	**Eastside Extension**
Title:	**High Street Deritend - Alcester Street**
Location:	High Street Deritend - Alcester Street
File name:	HIGH STREET DERITEND - ALCESTER STREET.lsg3x
Author:	Ben Cooke
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7

Full Input Data And Results

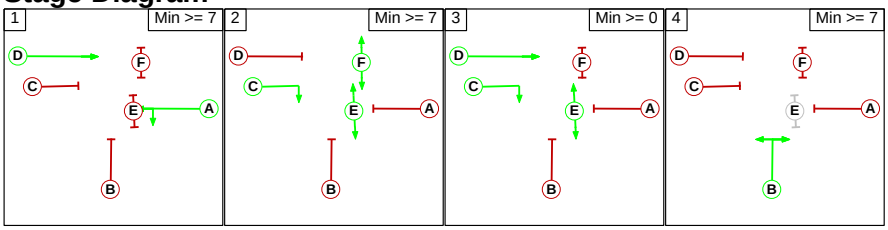
Phase Intergreens Matrix

Terminating Phase	Starting Phase A	B	C	D	E	F
A		6	6	-	5	-
B	6		6	6	-	8
C	6	6		-	-	-
D	-	6	-		-	8
E	15	-	-	-		-
F	-	14	-	14	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D
2	C E F
3	C D E
4	B

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	2	2
2	1	C	Losing	9	9
2	4	C	Losing	8	8
3	1	C	Losing	9	9

Prohibited Stage Change

From Stage	To Stage 1	2	3	4
1		8	6	6
2	15		14	14
3	15	8		6
4	6	8	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: High Street Deritend / Alcester Street
There are no Opposed Lanes in this Junction

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/1 (Adderley Street)	J2:2/2 (Left)	715	0	J2:4/1	0.22	To J2:2/1 (Ahead)	-	-	-	-	-
				J2:4/2	0.22	To J2:2/2 (Ahead)					
				J2:4/3	0.22	To J2:2/3 (Ahead)					

Full Input Data And Results

Lane Input Data

Junction: J1: High Street Deritend / Alcester Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (High Street Deritend)	U	D	2	3	60.0	User	1800	-	-	-	-	-
J1:1/2 (High Street Deritend)	U	D	2	3	60.0	User	1800	-	-	-	-	-
J1:1/3 (High Street Deritend)	U	D	2	3	60.0	User	1800	-	-	-	-	-
J1:1/4 (High Street Deritend)	U	C	2	3	5.0	User	2000	-	-	-	-	-
J1:2/1 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.15	0.00	Y	Arm J1:4 Ahead	Inf
											Arm J1:5 Left	14.00
J1:2/2 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.16	0.00	Y	Arm J1:4 Ahead	Inf
J1:2/3 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.12	0.00	N	Arm J1:4 Ahead	Inf
J1:3/1 (Alcester Street)	U	B	2	3	5.0	Geom	-	2.69	0.00	Y	Arm J1:4 Left	14.00
J1:3/2 (Alcester Street)	U	B	2	3	60.0	Geom	-	3.08	0.00	Y	Arm J1:6 Right	Inf
J1:4/1 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:4/2 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:4/3 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Alcester Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:6/2	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:6/3	U		2	3	0.2	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J2:1/1 (Adderley Street)	O		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/1 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/2 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/3 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:3/1 (Adderley Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:4/1 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-
J2:4/2 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-
J2:4/3 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2016 AM Peak (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2016 PM Peak (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2016 AM Peak (Saturn PCU Factors)'	08:45	09:45	01:00	
4: '2016 PM Peak (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2016 Observed AM(Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	113	879	0	992
	B	158	0	144	16	318
	C	340	121	0	51	512
	D	61	0	0	0	61
	Tot.	559	234	1023	67	1883

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2016 Observed AM(Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	130
J1:1/2	131
J1:1/3 (with short)	251(In) 130(Out)
J1:1/4 (short)	121
J1:2/1	178
J1:2/2	407
J1:2/3	407
J1:3/1 (short)	144
J1:3/2 (with short)	318(In) 174(Out)
J1:4/1	65
J1:4/2	479
J1:4/3	479
J1:5/1	234
J1:6/1	198
J1:6/2	184
J1:6/3	183
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	61
J2:2/1	131
J2:2/2	245
J2:2/3	183
J2:3/1	67
J2:4/1	198
J2:4/2	184
J2:4/3	183

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend Lane 1)	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/2 (High Street Deritend Lane 2)	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/3 (High Street Deritend Lane 3)	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/4 (High Street Deritend Lane 4)	This lane uses a directly entered Saturation Flow						2000	2000
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	36.5 %	1807	1807
				Arm J1:5 Left	14.00	63.5 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2016 Observed PM(Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	98	649	0	747
	B	265	0	203	14	482
	C	801	257	0	77	1135
	D	130	0	0	0	130
	Tot.	1196	355	852	91	2494

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2016 Observed PM(Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	293
J1:1/2	292
J1:1/3 (with short)	550(In) 293(Out)
J1:1/4 (short)	257
J1:2/1	207
J1:2/2	270
J1:2/3	270
J1:3/1 (short)	203
J1:3/2 (with short)	482(In) 279(Out)
J1:4/1	109
J1:4/2	372
J1:4/3	371
J1:5/1	355
J1:6/1	396
J1:6/2	380
J1:6/3	381
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	130
J2:2/1	305
J2:2/2	510
J2:2/3	381
J2:3/1	91
J2:4/1	396
J2:4/2	380
J2:4/3	381

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend Lane 1)	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/2 (High Street Deritend Lane 2)	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/3 (High Street Deritend Lane 3)	This lane uses a directly entered Saturation Flow						2100	2100
J1:1/4 (High Street Deritend Lane 4)	This lane uses a directly entered Saturation Flow						2000	2000
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	52.7 %	1837	1837
				Arm J1:5 Left	14.00	47.3 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2016 Observed AM(Saturn PCU Factors)' (FG3: '2016 AM Peak (Saturn PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	114	938	0	1052
	B	163	0	148	14	325
	C	390	126	0	53	569
	D	63	0	0	0	63
	Tot.	616	240	1086	67	2009

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2016 Observed AM(Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	148
J1:1/2	147
J1:1/3 (with short)	274(In) 148(Out)
J1:1/4 (short)	126
J1:2/1	179
J1:2/2	437
J1:2/3	436
J1:3/1 (short)	148
J1:3/2 (with short)	325(In) 177(Out)
J1:4/1	65
J1:4/2	511
J1:4/3	510
J1:5/1	240
J1:6/1	217
J1:6/2	201
J1:6/3	202
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	63
J2:2/1	150
J2:2/2	264
J2:2/3	202
J2:3/1	67
J2:4/1	217
J2:4/2	201
J2:4/3	202

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2 (High Street Deritend Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/3 (High Street Deritend Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/4 (High Street Deritend Lane 4)	This lane uses a directly entered Saturation Flow						2000	2000
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	36.3 %	1807	1807
				Arm J1:5 Left	14.00	63.7 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2016 Observed PM(Saturn PCU Factors)' (FG4: '2016 PM Peak (Saturn PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	100	698	0	798
	B	271	0	207	14	492
	C	848	259	0	78	1185
	D	131	0	0	0	131
	Tot.	1250	359	905	92	2606

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2016 Observed PM(Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	309
J1:1/2	308
J1:1/3 (with short)	568(In) 309(Out)
J1:1/4 (short)	259
J1:2/1	209
J1:2/2	295
J1:2/3	294
J1:3/1 (short)	207
J1:3/2 (with short)	492(In) 285(Out)
J1:4/1	109
J1:4/2	399
J1:4/3	397
J1:5/1	359
J1:6/1	414
J1:6/2	398
J1:6/3	399
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	131
J2:2/1	322
J2:2/2	529
J2:2/3	399
J2:3/1	92
J2:4/1	414
J2:4/2	398
J2:4/3	399

Full Input Data And Results

Lane Saturation Flows

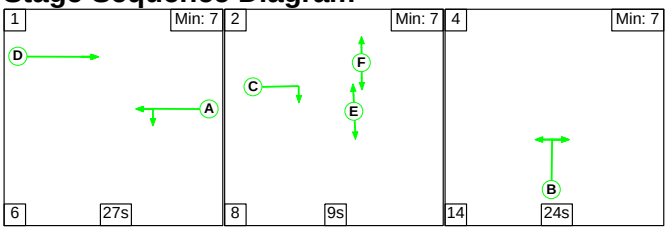
Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/2 (High Street Deritend Lane 2)	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/3 (High Street Deritend Lane 3)	This lane uses a directly entered Saturation Flow						1800	1800
J1:1/4 (High Street Deritend Lane 4)	This lane uses a directly entered Saturation Flow						2000	2000
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	52.2 %	1836	1836
				Arm J1:5 Left	14.00	47.8 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2016 Observed AM(Standard PCU Factors)' (FG1: '2016 AM Peak (Standard PCU Factors)', Plan 1: 'F Called')

Stage Sequence Diagram

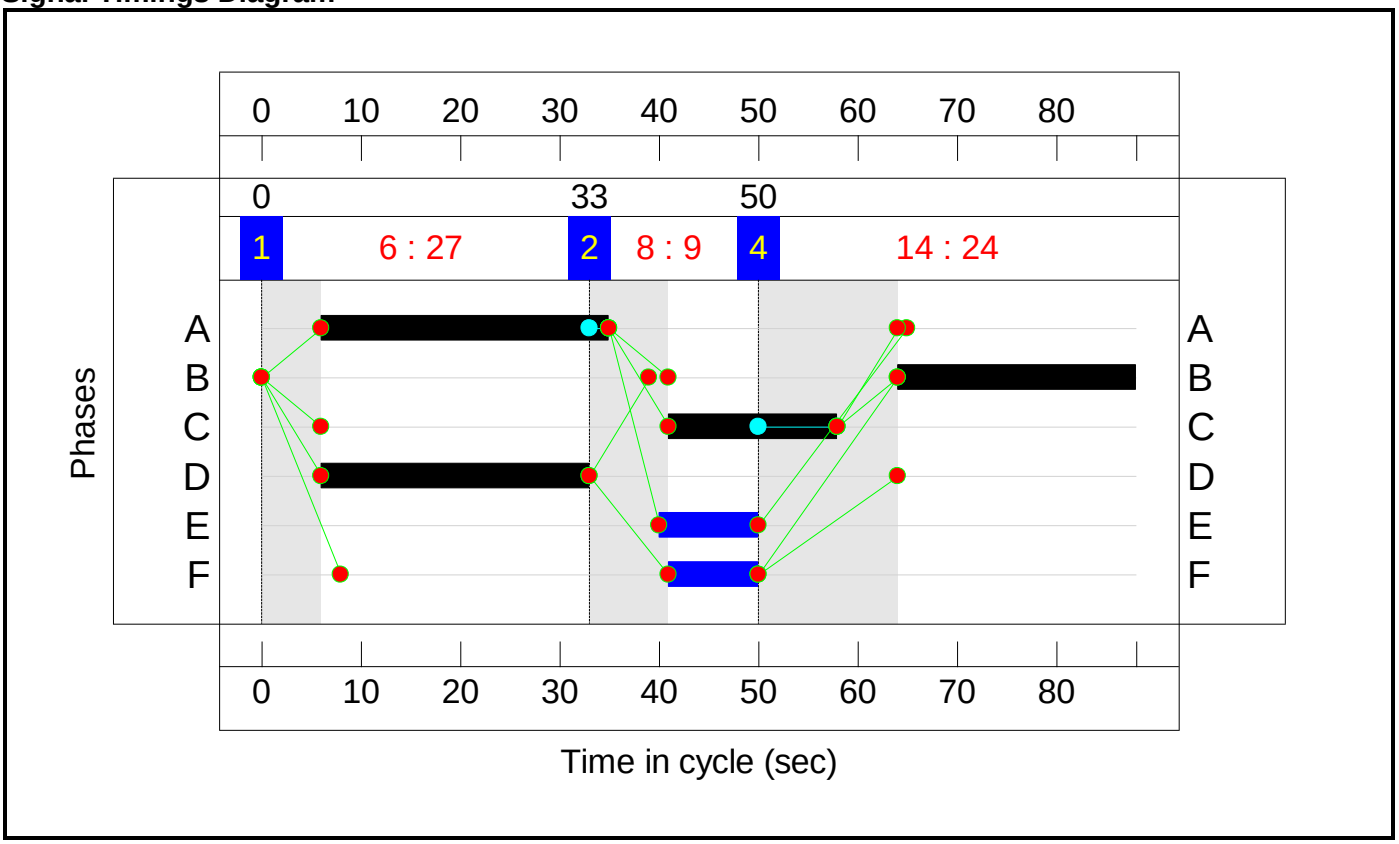


Stage Timings

Stage	1	2	4
Duration	27	9	24
Change Point	0	33	50

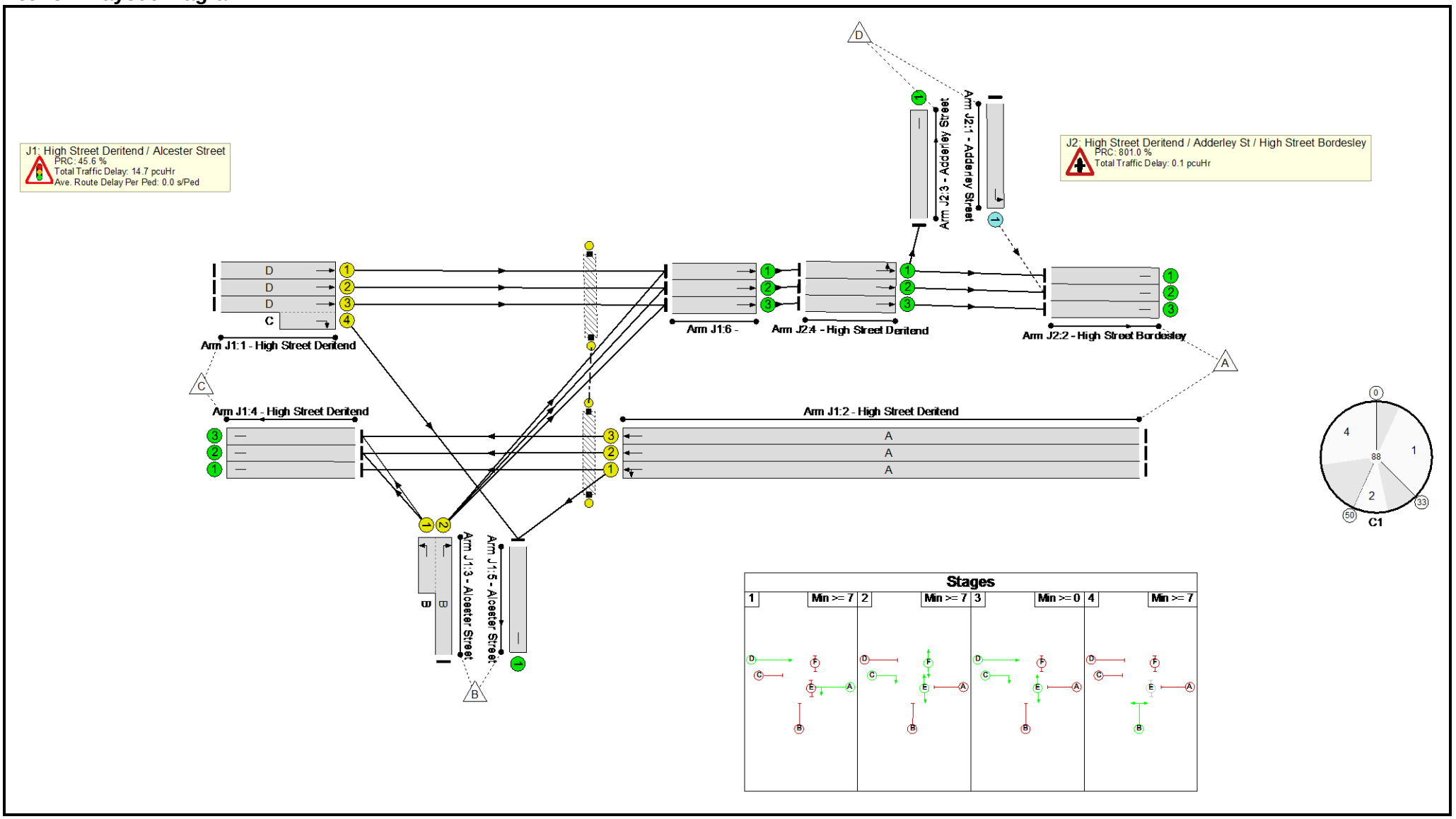
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**61.8%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**61.8%**
1/1	High Street Deritend Ahead	U	N/A	N/A	D		1	27	-	130	2100	668	19.5%
1/2	High Street Deritend Ahead	U	N/A	N/A	D		1	27	-	131	2100	668	19.6%
1/3+1/4	High Street Deritend Right Ahead	U	N/A	N/A	D C		1	27:17	-	251	2100:2000	328+306	39.6 : 39.6%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	A		1	29	-	178	1807	616	28.9%
2/2	High Street Deritend Ahead	U	N/A	N/A	A		1	29	-	407	1931	658	61.8%
2/3	High Street Deritend Ahead	U	N/A	N/A	A		1	29	-	407	2067	705	57.8%
3/2+3/1	Alcester Street Left Right	U	N/A	N/A	B		1	24	-	318	1923:1702	385+319	45.2 : 45.2%
4/1	High Street Deritend	U	N/A	N/A	-		-	-	-	65	Inf	Inf	0.0%
4/2	High Street Deritend	U	N/A	N/A	-		-	-	-	479	Inf	Inf	0.0%
4/3	High Street Deritend	U	N/A	N/A	-		-	-	-	479	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	234	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	198	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	184	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	183	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	10	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	9	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**10.0%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	61	Inf	611	10.0%
2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	131	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	245	Inf	Inf	0.0%
2/3	High Street Bordesley	U	N/A	N/A	-		-	-	-	183	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	67	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	198	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	184	Inf	Inf	0.0%
4/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	183	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**61**	**0**	**0**	**12.0**	**2.7**	**0.0**	**14.8**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**12.0**	**2.7**	**0.0**	**14.7**	**-**	**-**	**-**	**-**
1/1	130	130	-	-	-	0.8	0.1	-	0.9	25.2	2.3	0.1	2.4
1/2	131	131	-	-	-	0.8	0.1	-	0.9	25.2	2.3	0.1	2.4
1/3+1/4	251	251	-	-	-	1.8	0.3	-	2.1	30.3	2.5	0.3	2.8
2/1	178	178	-	-	-	1.0	0.2	-	1.3	25.3	3.2	0.2	3.4
2/2	407	407	-	-	-	2.7	0.8	-	3.5	31.3	8.3	0.8	9.1
2/3	407	407	-	-	-	2.7	0.7	-	3.4	29.8	8.1	0.7	8.8
3/2+3/1	318	318	-	-	-	2.2	0.4	-	2.6	29.4	3.3	0.4	3.7
4/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	479	479	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	479	479	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	198	198	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	184	184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	183	183	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**61**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	61	61	61	0	0	0.0	0.1	-	0.1	3.4	0.1	0.1	0.1
2/1	131	131	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	245	245	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	183	183	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

3/1	67	67	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	198	198	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	184	184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	183	183	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 45.6
PRC Over All Lanes (%): 45.6

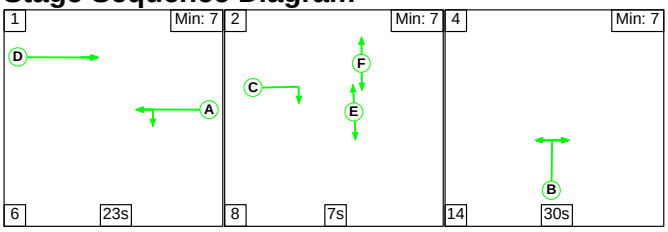
Total Delay for Signalled Lanes (pcuHr): 14.70
Total Delay Over All Lanes(pcuHr): 14.76

Cycle Time (s): 88

Full Input Data And Results

Scenario 2: '2016 Observed PM(Standard PCU Factors)' (FG2: '2016 PM Peak (Standard PCU Factors)', Plan 1: 'F Called')

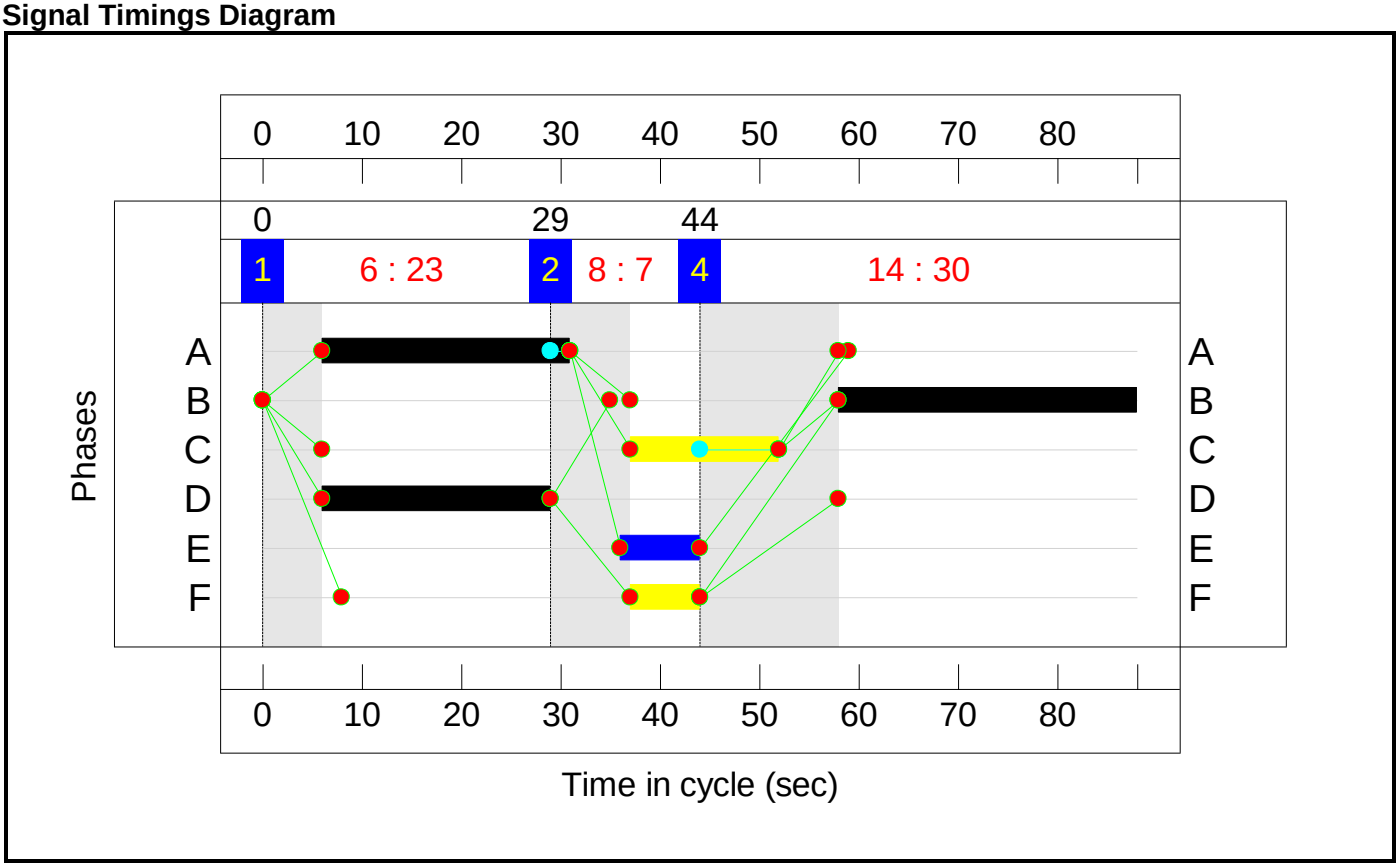
Stage Sequence Diagram



Stage Timings

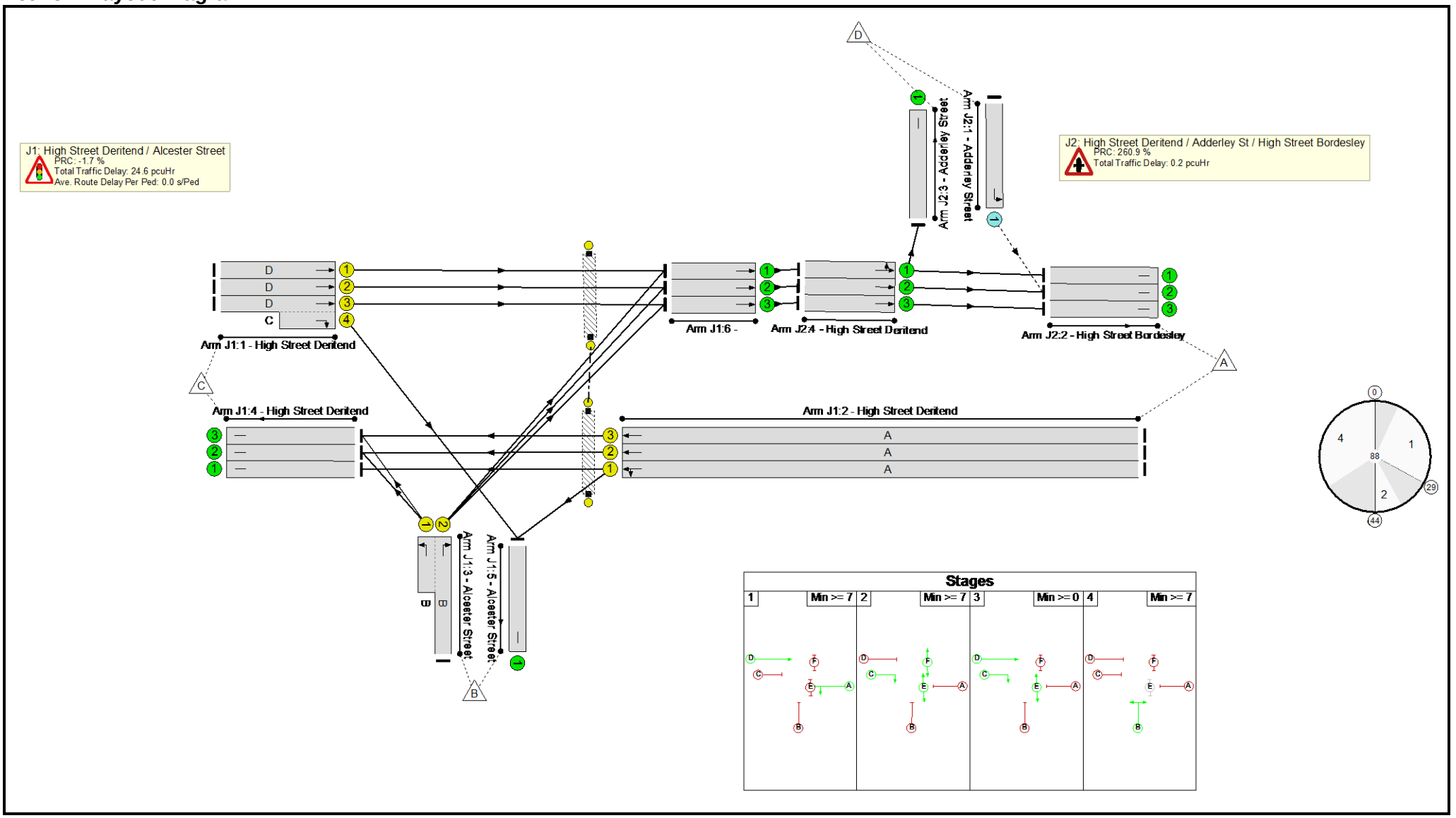
Stage	1	2	4
Duration	23	7	30
Change Point	0	29	44

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.5%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.5%**
1/1	High Street Deritend Ahead	U	N/A	N/A	D		1	23	-	293	2100	573	51.2%
1/2	High Street Deritend Ahead	U	N/A	N/A	D		1	23	-	292	2100	573	51.0%
1/3+1/4	High Street Deritend Right Ahead	U	N/A	N/A	D C		1	23:15	-	550	2100:2000	320+281	91.5 : 91.5%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	A		1	25	-	207	1837	543	38.1%
2/2	High Street Deritend Ahead	U	N/A	N/A	A		1	25	-	270	1931	571	47.3%
2/3	High Street Deritend Ahead	U	N/A	N/A	A		1	25	-	270	2067	611	44.2%
3/2+3/1	Alcester Street Left Right	U	N/A	N/A	B		1	30	-	482	1923:1702	468+341	59.6 : 59.6%
4/1	High Street Deritend	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
4/2	High Street Deritend	U	N/A	N/A	-		-	-	-	372	Inf	Inf	0.0%
4/3	High Street Deritend	U	N/A	N/A	-		-	-	-	371	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	355	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	396	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	380	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	381	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	8	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**24.9%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	130	Inf	521	24.9%
2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	305	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	510	Inf	Inf	0.0%
2/3	High Street Bordesley	U	N/A	N/A	-		-	-	-	381	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	396	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	380	Inf	Inf	0.0%
4/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	381	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**130**	**0**	**0**	**17.1**	**7.7**	**0.0**	**24.8**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**17.1**	**7.5**	**0.0**	**24.6**	**-**	**-**	**-**	**-**
1/1	293	293	-	-	-	2.2	0.5	-	2.7	33.5	6.0	0.5	6.5
1/2	292	292	-	-	-	2.2	0.5	-	2.7	33.4	6.0	0.5	6.5
1/3+1/4	550	550	-	-	-	4.6	4.6	-	9.2	60.3	7.4	4.6	12.0
2/1	207	207	-	-	-	1.4	0.3	-	1.7	30.0	4.0	0.3	4.3
2/2	270	270	-	-	-	1.9	0.4	-	2.4	31.4	5.4	0.4	5.8
2/3	270	270	-	-	-	1.9	0.4	-	2.3	30.4	5.3	0.4	5.7
3/2+3/1	482	482	-	-	-	2.9	0.7	-	3.6	26.8	5.3	0.7	6.0
4/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	372	372	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	371	371	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	355	355	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	396	396	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	380	380	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	381	381	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**130**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	130	130	130	0	0	0.0	0.2	-	0.2	5.8	0.6	0.2	0.8
2/1	305	305	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	510	510	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	381	381	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

3/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	396	396	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	380	380	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	381	381	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -1.7 Total Delay for Signalled Lanes (pcuHr): 24.60 Cycle Time (s): 88

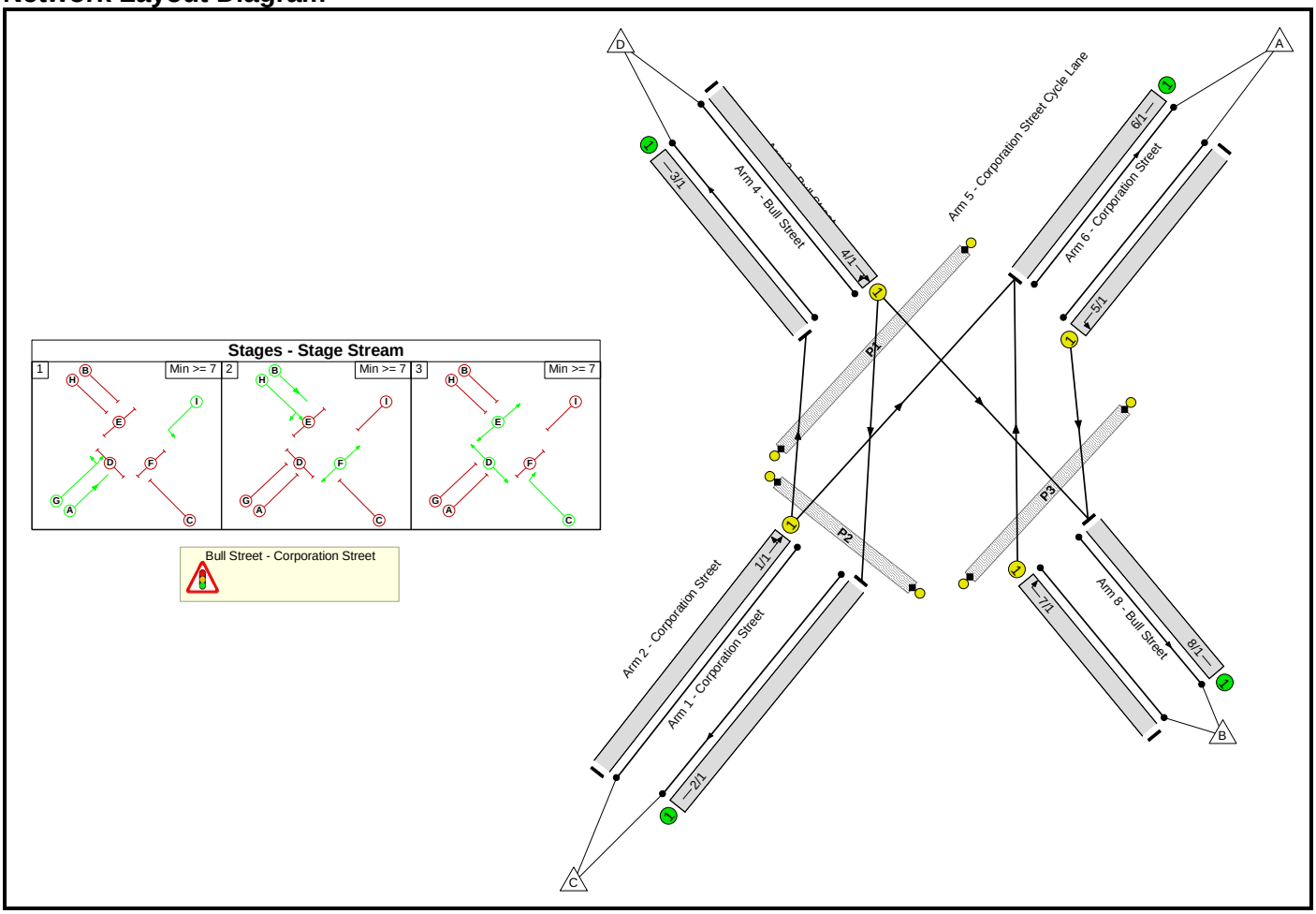
PRC Over All Lanes (%): -1.7 Total Delay Over All Lanes(pcuHr): 24.81

Full Input Data And Results

User and Project Details

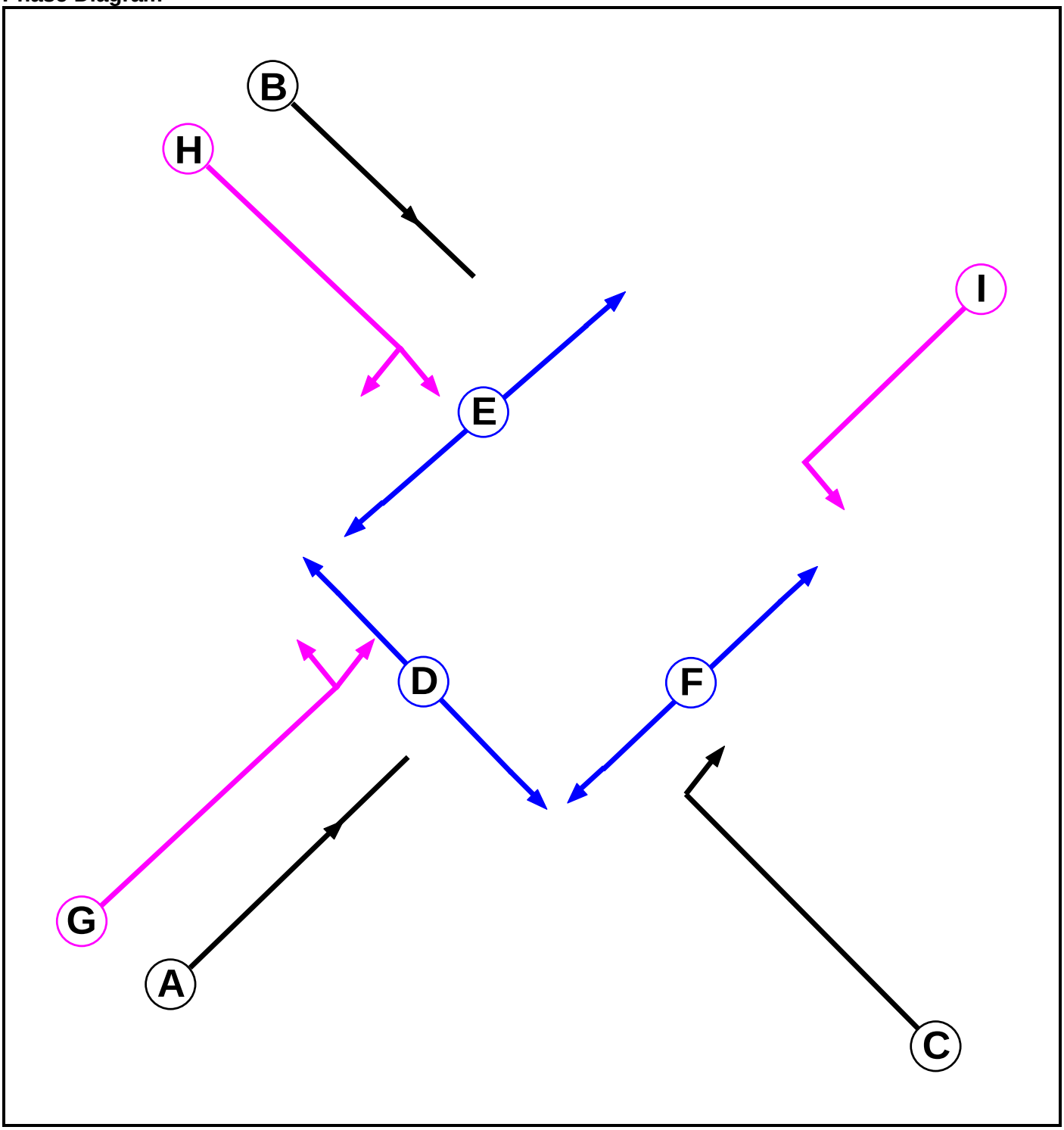
Project:	**359345 - Birmingham Eastside Extension**
Title:	**Bull Street/Corporation Street**
Location:	Birmingham
File name:	Bull Street - Corporation Street.lsg3x
Author:	Dragos Suciu
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU, UK
Notes:	Existing/Do Minimum

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Pedestrian	1		7	7
E	Pedestrian	1		7	7
F	Pedestrian	1		7	7
G	LRT	1		7	7
H	LRT	1		7	7
I	Cycle	1		7	7

Phase Intergreens Matrix

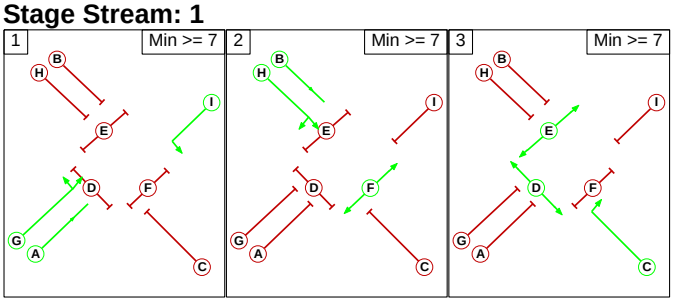
		Starting Phase								
		A	B	C	D	E	F	G	H	I
Terminating Phase	A		6	5	5	11	-	-	6	-
	B	6		5	12	5	-	6	-	-
	C	5	5		-	-	5	5	5	7
	D	12	12	-		-	-	12	12	-
	E	12	12	-	-		-	12	12	-
	F	-	-	11	-	-		-	-	11
	G	-	6	5	9	11	-		-	-
	H	6	-	5	12	9	-	-		-
	I	-	-	6	-	-	6	-	-	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A G I
1	2	B F H
1	3	C D E

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

	To Stage			
		1	2	3
From Stage	1		6	11
	2	11		12
	3	12	12	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Bull Street - Corporation Street
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Bull Street - Corporation Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Corporation Street)	U	G	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 3 Left	Inf
											Arm 6 Ahead	Inf
2/1 (Corporation Street)	U		2	3	60.0	Geom	-	3.60	0.00	Y		
3/1 (Bull Street)	U		2	3	60.0	Geom	-	3.80	0.00	Y		
4/1 (Bull Street)	U	H	2	3	60.0	Geom	-	3.80	0.00	Y	Arm 2 Right	Inf
											Arm 8 Ahead	Inf
5/1 (Corporation Street Cycle Lane)	U	I	2	3	60.0	Geom	-	2.00	0.00	Y	Arm 8 Left	Inf
6/1 (Corporation Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Bull Street)	U	C	2	3	60.0	Geom	-	3.35	0.00	Y	Arm 6 Right	Inf
8/1 (Bull Street)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	164	0	0	0	164
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	164	0	58	58	280

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM(Standard PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	164
7/1	164
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	152	0	0	0	152
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	152	0	58	58	268

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM(Standard PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	152
7/1	152
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	164	0	0	0	164
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	164	0	58	58	280

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM(Standard PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	164
7/1	164
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	152	0	0	0	152
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	152	0	58	58	268

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM(Standard PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	152
7/1	152
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 DM AM(Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	246	0	0	0	246
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	246	0	58	58	362

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM(Saturn PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	246
7/1	246
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 DM PM(Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	228	0	0	0	228
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	228	0	58	58	344

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM(Saturn PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	228
7/1	228
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 DM AM(Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	246	0	0	0	246
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	246	0	58	58	362

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM(Saturn PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	246
7/1	246
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 DM PM(Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	228	0	0	0	228
	C	0	0	0	58	58
	D	0	0	58	0	58
	Tot.	228	0	58	58	344

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM(Saturn PCU Factors)
Junction: Bull Street - Corporation Street	
1/1	58
2/1	58
3/1	58
4/1	58
5/1	0
6/1	228
7/1	228
8/1	0

Full Input Data And Results

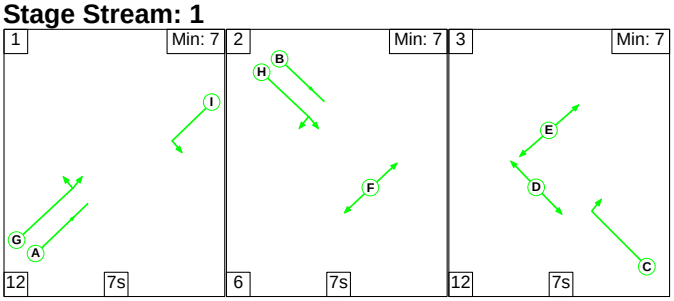
Lane Saturation Flows

Junction: Bull Street - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Corporation Street)	4.00	0.00	Y	Arm 3 Left	Inf	100.0 %	2015	2015
				Arm 6 Ahead	Inf	0.0 %		
2/1 (Corporation Street)	3.60	0.00	Y				1975	1975
3/1 (Bull Street)	3.80	0.00	Y				1995	1995
4/1 (Bull Street)	3.80	0.00	Y	Arm 2 Right	Inf	100.0 %	1995	1995
				Arm 8 Ahead	Inf	0.0 %		
5/1 (Corporation Street Cycle Lane)	2.00	0.00	Y	Arm 8 Left	Inf	0.0 %	1815	1815
6/1 (Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Bull Street)	3.35	0.00	Y	Arm 6 Right	Inf	100.0 %	1950	1950
8/1 (Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1



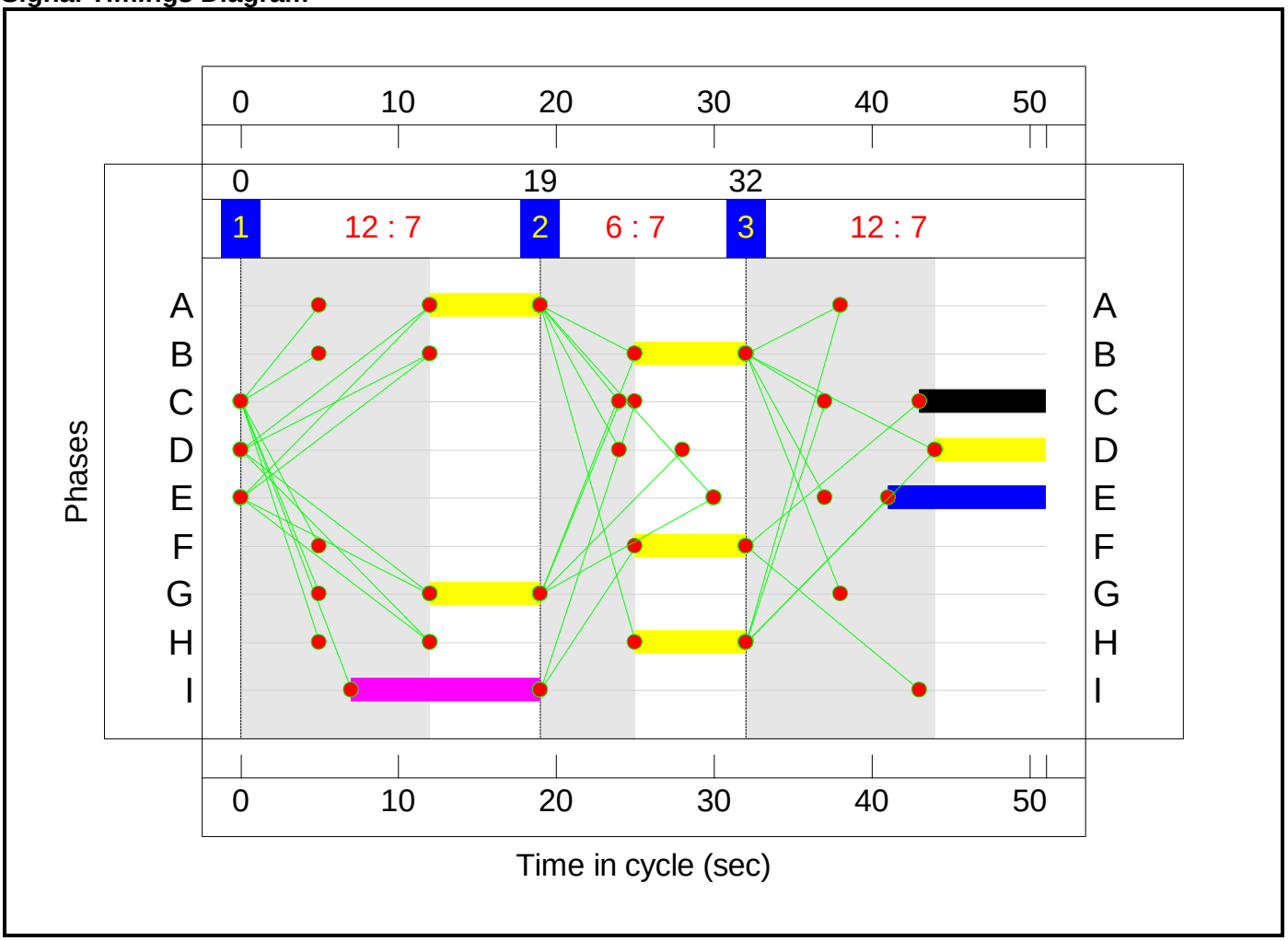
Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	7	7	7
Change Point	0	19	32

Full Input Data And Results

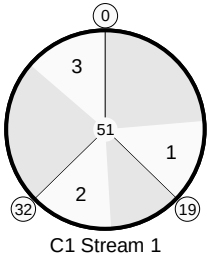
Signal Timings Diagram



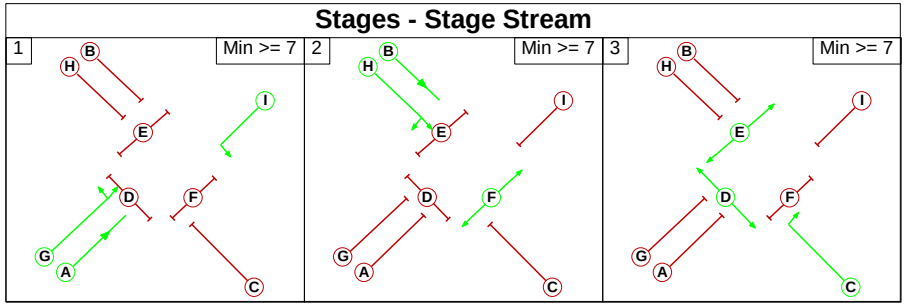
Full Input Data And Results

Network Layout Diagram

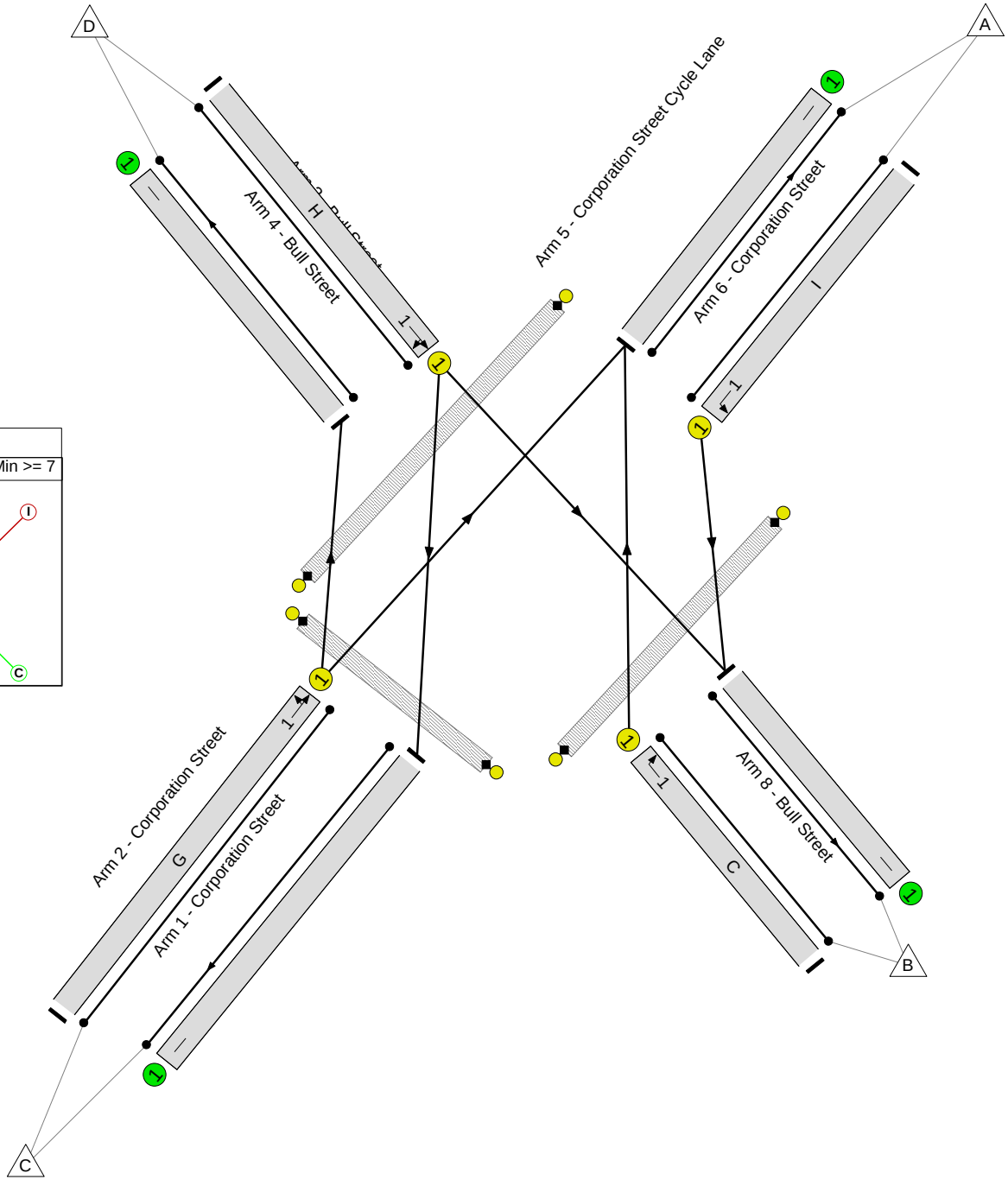
Full Input Data And Results



C1 Stream 1



Bull Street - Corporation Street
PRC: 88.8 %
Total Traffic Delay: 2.2 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Street/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.7%**
Bull Street - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.7%**
1/1	Corporation Street Left Ahead	U	1	N/A	G		1	7	-	58	2015	316	18.3%
2/1	Corporation Street	U	N/A	N/A	-		-	-	-	58	1975	1975	2.9%
3/1	Bull Street	U	N/A	N/A	-		-	-	-	58	1995	1995	2.9%
4/1	Bull Street Right Ahead	U	1	N/A	H		1	7	-	58	1995	313	18.5%
5/1	Corporation Street Cycle Lane Left	U	1	N/A	I		1	12	-	0	1815	463	0.0%
6/1	Corporation Street	U	N/A	N/A	-		-	-	-	164	Inf	Inf	0.0%
7/1	Bull Street Right	U	1	N/A	C		1	8	-	164	1950	344	47.7%
8/1	Bull Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	E		1	10	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	D		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Street/Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.7**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
Bull Street - Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.7**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.3	0.1	-	0.4	25.7	0.7	0.1	0.8
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	58	58	-	-	-	0.3	0.1	-	0.4	25.8	0.7	0.1	0.8
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	164	164	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	164	164	-	-	-	0.9	0.5	-	1.3	28.8	2.1	0.5	2.5
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

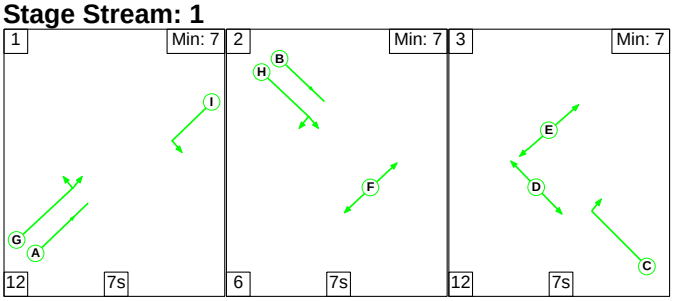
C1 Stream: 1 PRC for Signalled Lanes (%): 88.8 Total Delay for Signalled Lanes (pcuHr): 2.14 Cycle Time (s): 51
PRC Over All Lanes (%): 88.8 Total Delay Over All Lanes(pcuHr): 2.17

Full Input Data And Results

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

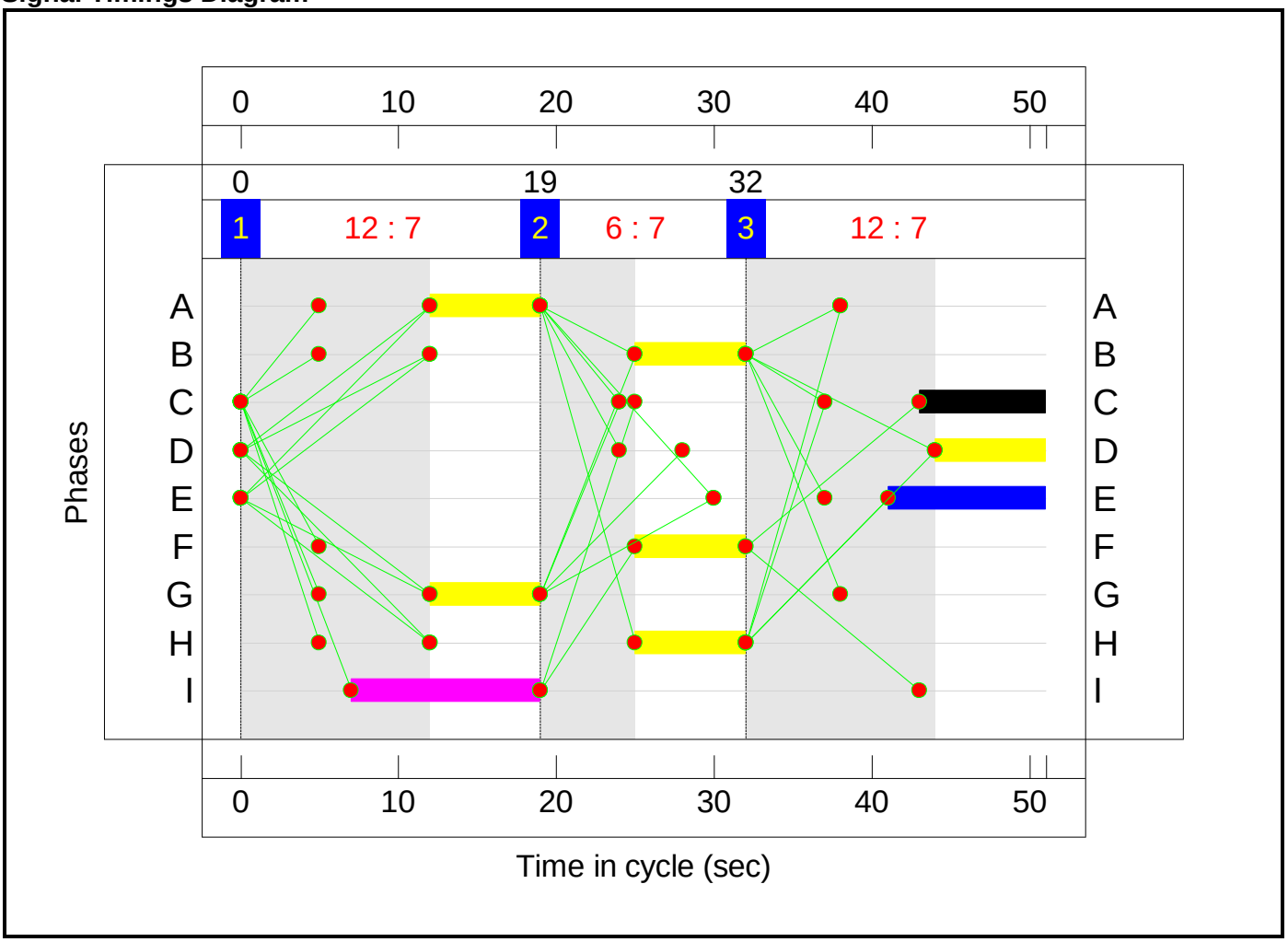


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	7	7	7
Change Point	0	19	32

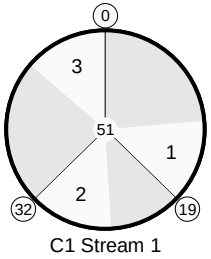
Signal Timings Diagram



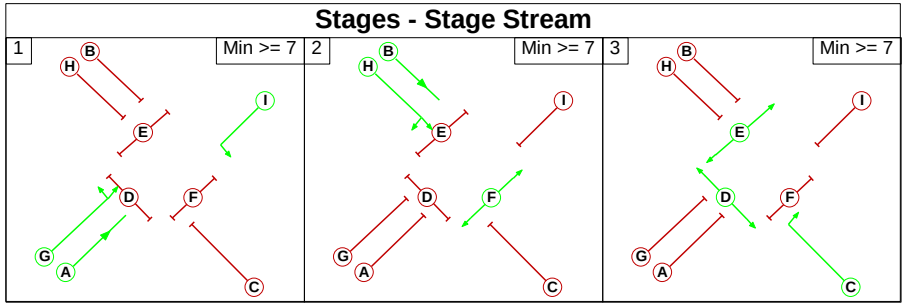
Full Input Data And Results

Network Layout Diagram

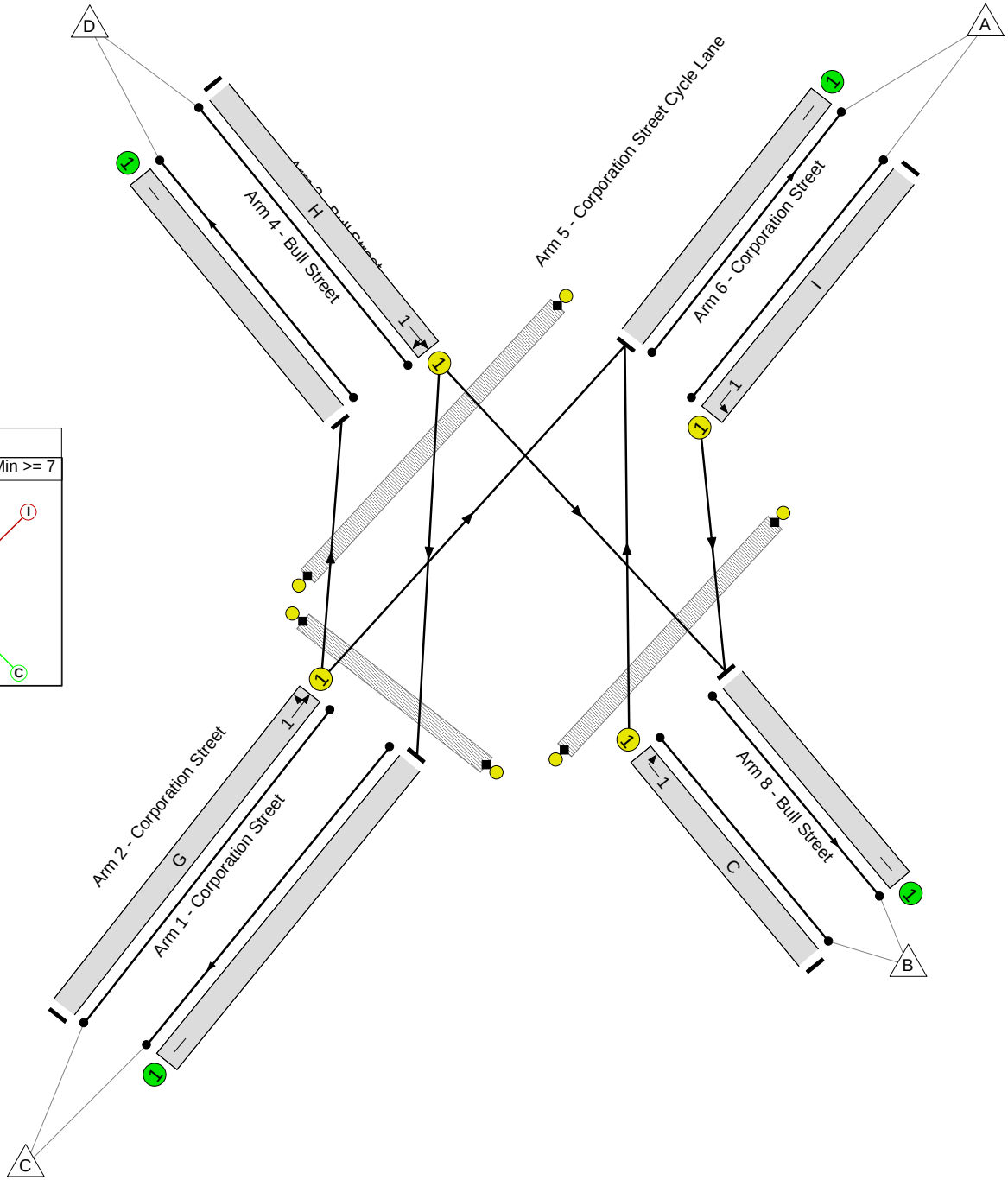
Full Input Data And Results



C1 Stream 1



Bull Street - Corporation Street
PRC: 103.8 %
Total Traffic Delay: 2.0 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Street/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
Bull Street - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
1/1	Corporation Street Left Ahead	U	1	N/A	G		1	7	-	58	2015	316	18.3%
2/1	Corporation Street	U	N/A	N/A	-		-	-	-	58	1975	1975	2.9%
3/1	Bull Street	U	N/A	N/A	-		-	-	-	58	1995	1995	2.9%
4/1	Bull Street Right Ahead	U	1	N/A	H		1	7	-	58	1995	313	18.5%
5/1	Corporation Street Cycle Lane Left	U	1	N/A	I		1	12	-	0	1815	463	0.0%
6/1	Corporation Street	U	N/A	N/A	-		-	-	-	152	Inf	Inf	0.0%
7/1	Bull Street Right	U	1	N/A	C		1	8	-	152	1950	344	44.2%
8/1	Bull Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	E		1	10	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	D		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Street/Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.6**	**0.0**	**2.0**	**-**	**-**	**-**	**-**
Bull Street - Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.6**	**0.0**	**2.0**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.3	0.1	-	0.4	25.7	0.7	0.1	0.8
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	58	58	-	-	-	0.3	0.1	-	0.4	25.8	0.7	0.1	0.8
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	152	152	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	152	152	-	-	-	0.8	0.4	-	1.2	28.1	1.9	0.4	2.3
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

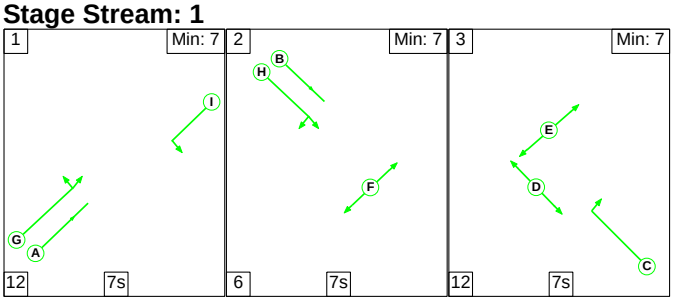
C1 Stream: 1 PRC for Signalled Lanes (%): 103.8 Total Delay for Signalled Lanes (pcuHr): 2.02 Cycle Time (s): 51
PRC Over All Lanes (%): 103.8 Total Delay Over All Lanes(pcuHr): 2.05

Full Input Data And Results

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

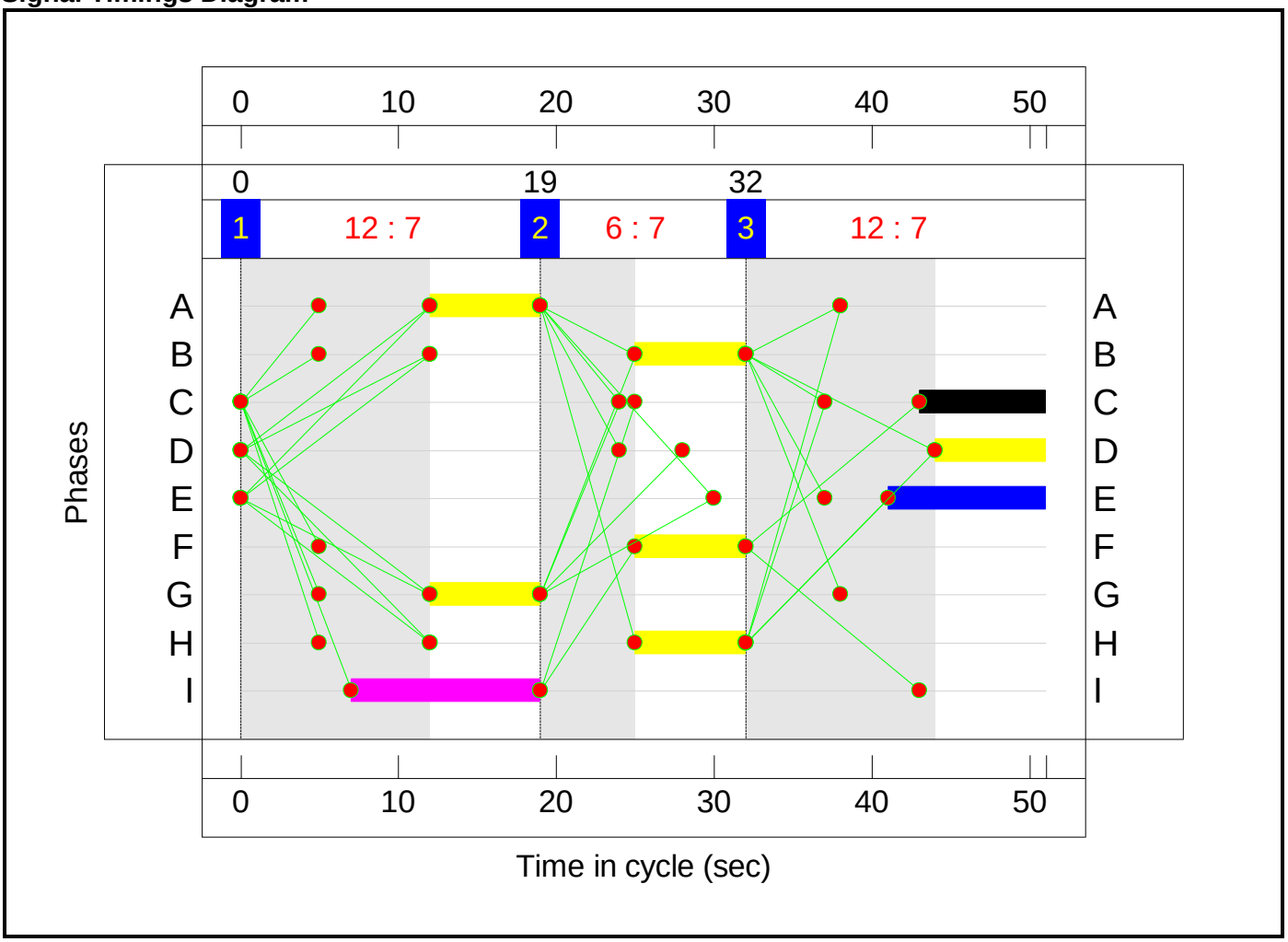


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	7	7	7
Change Point	0	19	32

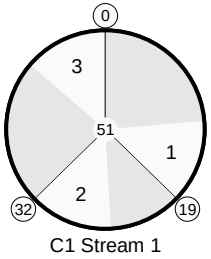
Signal Timings Diagram



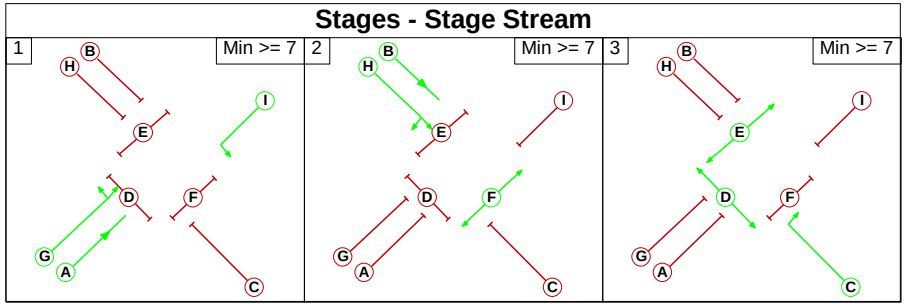
Full Input Data And Results

Network Layout Diagram

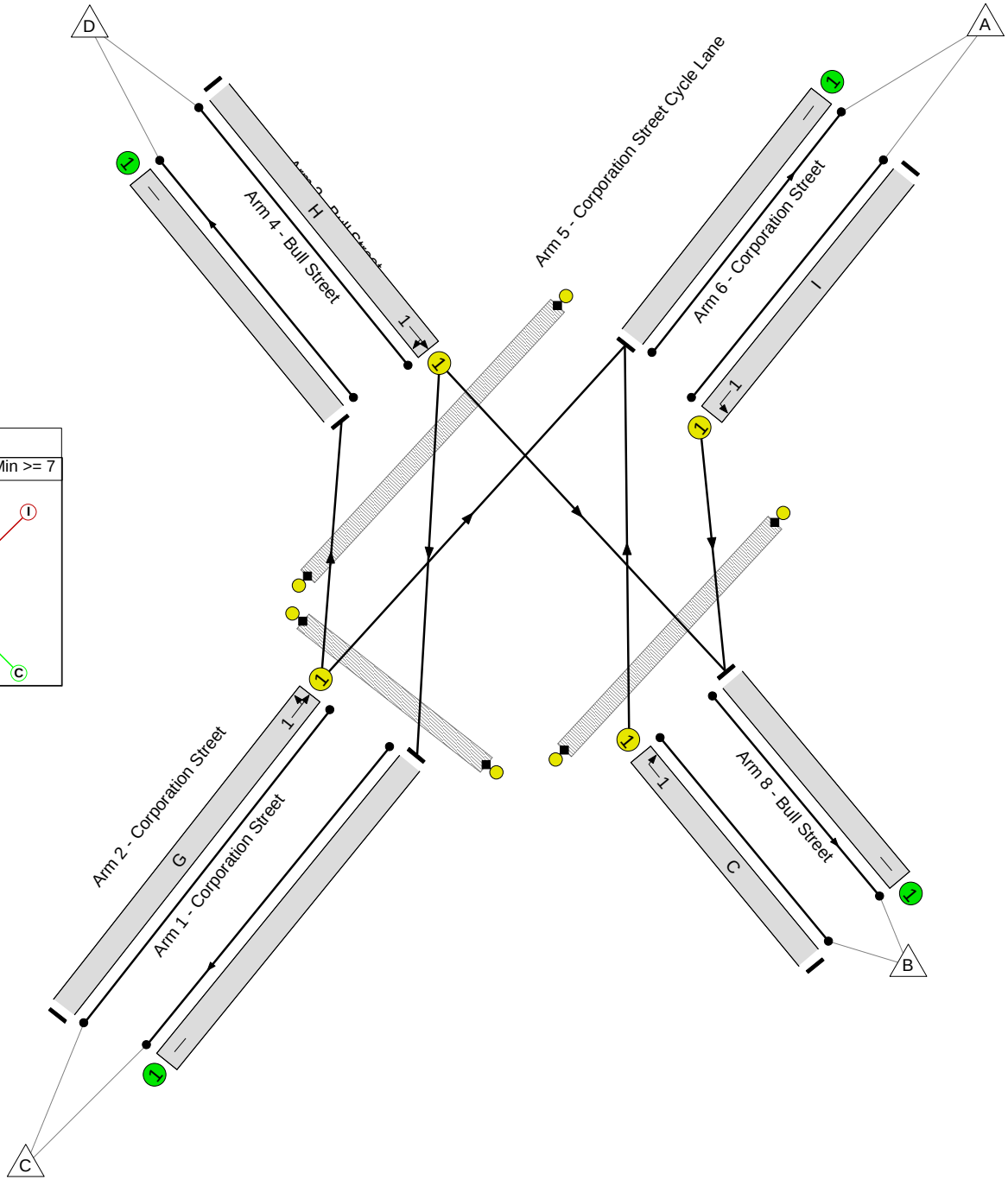
Full Input Data And Results



C1 Stream 1



Bull Street - Corporation Street
PRC: 88.8 %
Total Traffic Delay: 2.2 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Street/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.7%**
Bull Street - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.7%**
1/1	Corporation Street Left Ahead	U	1	N/A	G		1	7	-	58	2015	316	18.3%
2/1	Corporation Street	U	N/A	N/A	-		-	-	-	58	1975	1975	2.9%
3/1	Bull Street	U	N/A	N/A	-		-	-	-	58	1995	1995	2.9%
4/1	Bull Street Right Ahead	U	1	N/A	H		1	7	-	58	1995	313	18.5%
5/1	Corporation Street Cycle Lane Left	U	1	N/A	I		1	12	-	0	1815	463	0.0%
6/1	Corporation Street	U	N/A	N/A	-		-	-	-	164	Inf	Inf	0.0%
7/1	Bull Street Right	U	1	N/A	C		1	8	-	164	1950	344	47.7%
8/1	Bull Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	E		1	10	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	D		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Street/Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.7**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
Bull Street - Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.7**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.3	0.1	-	0.4	25.7	0.7	0.1	0.8
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	58	58	-	-	-	0.3	0.1	-	0.4	25.8	0.7	0.1	0.8
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	164	164	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	164	164	-	-	-	0.9	0.5	-	1.3	28.8	2.1	0.5	2.5
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

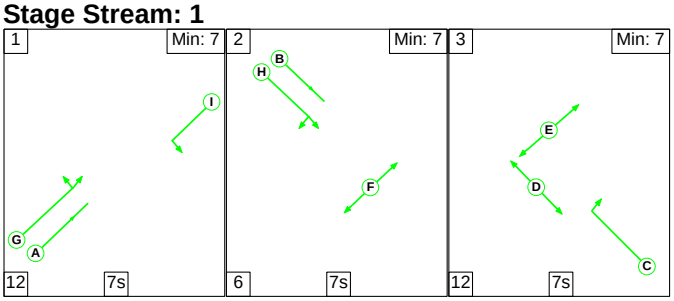
C1 Stream: 1 PRC for Signalled Lanes (%): 88.8 Total Delay for Signalled Lanes (pcuHr): 2.14 Cycle Time (s): 51
PRC Over All Lanes (%): 88.8 Total Delay Over All Lanes(pcuHr): 2.17

Full Input Data And Results

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

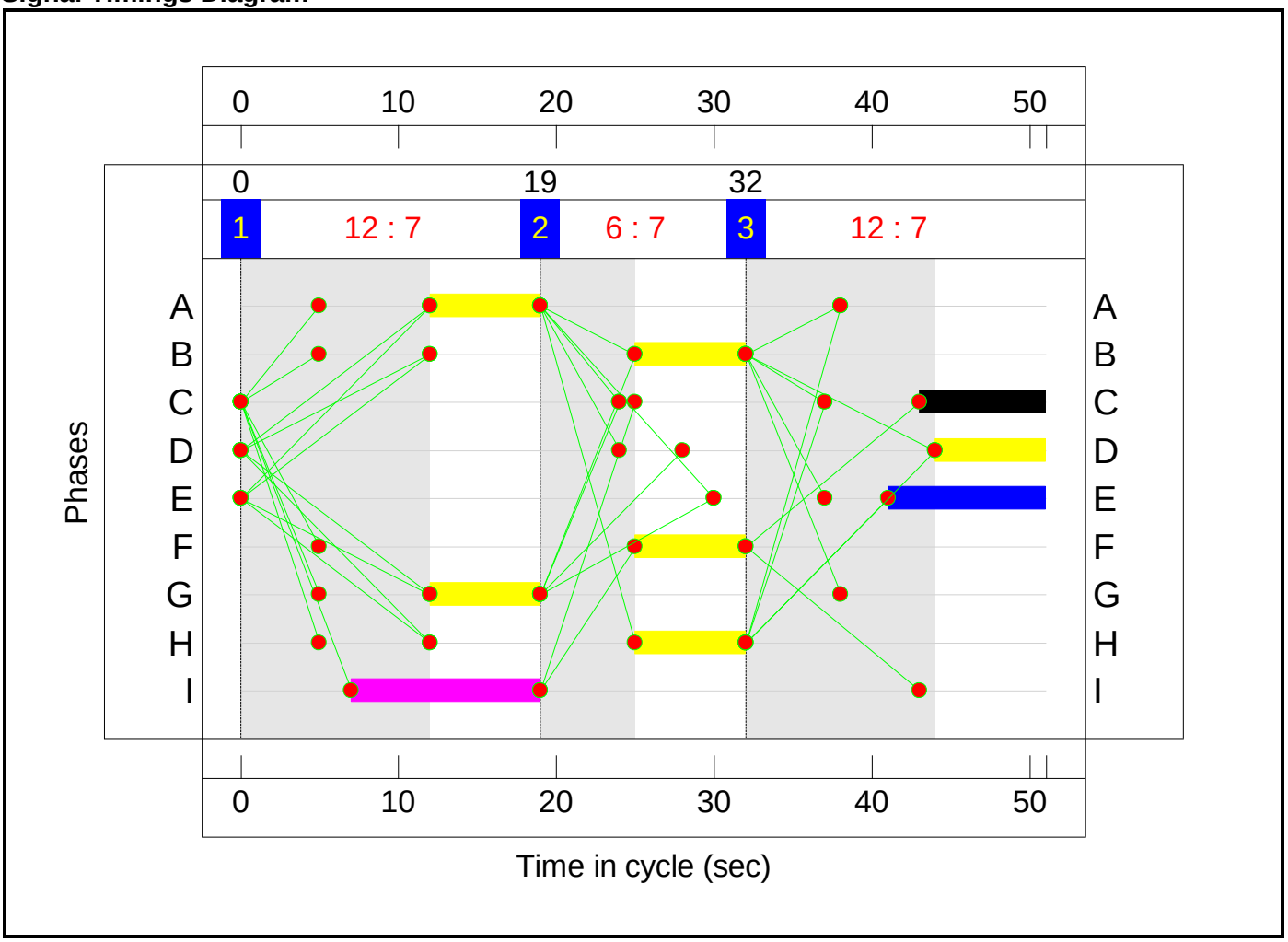


Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	7	7	7
Change Point	0	19	32

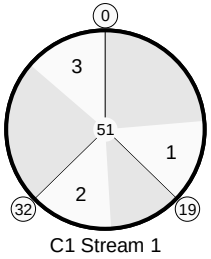
Signal Timings Diagram



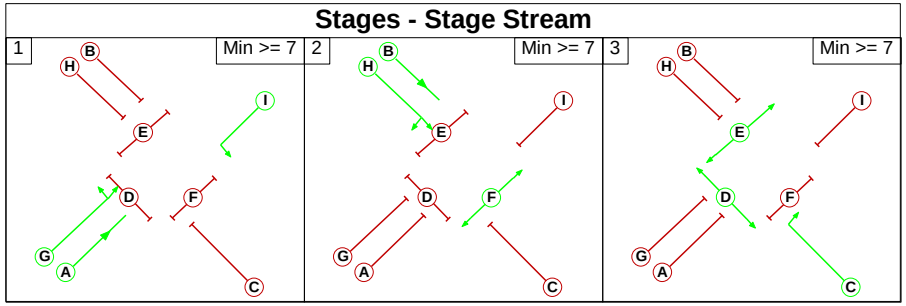
Full Input Data And Results

Network Layout Diagram

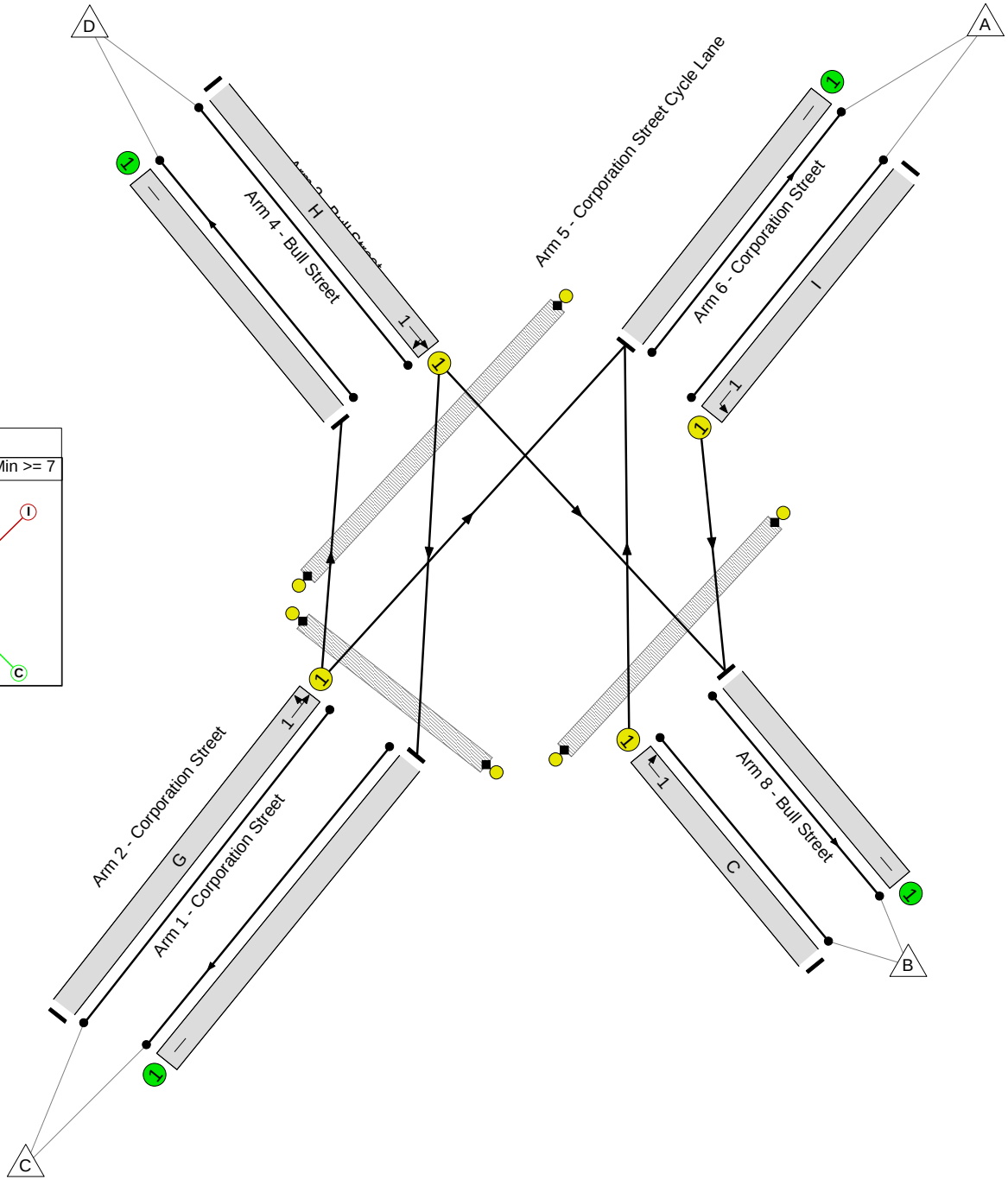
Full Input Data And Results



C1 Stream 1



Bull Street - Corporation Street
PRC: 103.8 %
Total Traffic Delay: 2.0 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Street/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
Bull Street - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
1/1	Corporation Street Left Ahead	U	1	N/A	G		1	7	-	58	2015	316	18.3%
2/1	Corporation Street	U	N/A	N/A	-		-	-	-	58	1975	1975	2.9%
3/1	Bull Street	U	N/A	N/A	-		-	-	-	58	1995	1995	2.9%
4/1	Bull Street Right Ahead	U	1	N/A	H		1	7	-	58	1995	313	18.5%
5/1	Corporation Street Cycle Lane Left	U	1	N/A	I		1	12	-	0	1815	463	0.0%
6/1	Corporation Street	U	N/A	N/A	-		-	-	-	152	Inf	Inf	0.0%
7/1	Bull Street Right	U	1	N/A	C		1	8	-	152	1950	344	44.2%
8/1	Bull Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	1	-	E		1	10	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	D		1	7	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	1	-	F		1	7	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Street/Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.6**	**0.0**	**2.0**	**-**	**-**	**-**	**-**
Bull Street - Corporation Street	**-**	**-**	**0**	**0**	**0**	**1.4**	**0.6**	**0.0**	**2.0**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.3	0.1	-	0.4	25.7	0.7	0.1	0.8
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	58	58	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	58	58	-	-	-	0.3	0.1	-	0.4	25.8	0.7	0.1	0.8
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	152	152	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	152	152	-	-	-	0.8	0.4	-	1.2	28.1	1.9	0.4	2.3
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 Stream: 1 PRC for Signalled Lanes (%): 103.8 Total Delay for Signalled Lanes (pcuHr): 2.02 Cycle Time (s): 51
PRC Over All Lanes (%): 103.8 Total Delay Over All Lanes(pcuHr): 2.05

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: J2 Bull Street - Dale End.j9
Path: P:\Birmingham\ITB\359345 BEE Addendum Work\3.0 Calculations\Junction Capacity Assessments\Junctions 9 Assessments\Existing and DM
Report generation date: 25/09/2017 11:49:07

»2016-Standard, AM
»2016-Standard, PM
»2026-Standard, AM
»2026-Standard, PM
»2031-Standard, AM
»2031-Standard, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016-Standard							
Stream B-AC	0.1	14.90	0.07	B	0.1	14.78	0.06	B
Stream C-AB	0.8	13.31	0.26	B	0.8	13.06	0.26	B
	2026-Standard							
Stream B-AC	0.0	7.60	0.04	A	0.0	7.83	0.05	A
Stream C-AB	0.5	7.66	0.28	A	0.8	8.63	0.36	A
	2031-Standard							
Stream B-AC	0.0	7.60	0.04	A	0.0	7.60	0.04	A
Stream C-AB	0.5	7.66	0.28	A	0.5	7.66	0.28	A

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	BEE Bull Street / Dale End
Location	BEE
Site number	Junction 2
Date	03/11/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	359345
Enumerator	MOTTMAC\HOD76167
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D5	2026-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D6	2026-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D7	2031-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D8	2031-Standard	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

2016-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	9.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Bull Street		Major
B	Dale End		Minor
C	High Street		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	4.30			93.3	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.38	27	40

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	576	0.093	0.235	0.148	0.336
1	B-C	739	0.100	0.254	-	-
1	C-B	628	0.216	0.216	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	30	100.000
C		ONE HOUR	✓	260	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	30	0	0
	C	122	138	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.47	0.53	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	95	0	0
	C	95	95	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.950	1.000	1.000
	C	1.950	1.950	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:30-08:45	A	0	0
	B	23	23
	C	196	196
08:45-09:00	A	0	0
	B	27	27
	C	234	234
09:00-09:15	A	0	0
	B	33	33
	C	286	286
09:15-09:30	A	0	0
	B	33	33
	C	286	286
09:30-09:45	A	0	0
	B	27	27
	C	234	234
09:45-10:00	A	0	0
	B	23	23
	C	196	196

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.07	14.90	0.1	B	28	41
C-AB	0.26	13.31	0.8	B	152	228
C-A					87	130
A-B					0	0
A-C					0	0

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	527	0.043	22	0.0	0.1	13.888	B
C-AB	120	30	688	0.174	118	0.0	0.5	12.293	B
C-A	76	19			76				
A-B	0	0			0				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27	7	517	0.052	27	0.1	0.1	14.309	B
C-AB	147	37	700	0.211	147	0.5	0.6	12.703	B
C-A	86	22			86				
A-B	0	0			0				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	33	8	504	0.066	33	0.1	0.1	14.890	B
C-AB	188	47	716	0.262	187	0.6	0.8	13.272	B
C-A	99	25			99				
A-B	0	0			0				
A-C	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	33	8	504	0.066	33	0.1	0.1	14.903	B
C-AB	188	47	716	0.262	188	0.8	0.8	13.309	B
C-A	99	25			99				
A-B	0	0			0				
A-C	0	0			0				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	27	7	517	0.052	27	0.1	0.1	14.330	B
C-AB	148	37	700	0.211	148	0.8	0.6	12.762	B
C-A	86	22			86				
A-B	0	0			0				
A-C	0	0			0				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	527	0.043	23	0.1	0.1	13.933	B
C-AB	120	30	688	0.175	121	0.6	0.5	12.398	B
C-A	76	19			76				
A-B	0	0			0				
A-C	0	0			0				

2016-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	8.56	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)	Run automatically
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	26	100.000
C		ONE HOUR	✓	268	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	26	0	0
	C	134	134	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.50	0.50	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	95	0	0
	C	95	95	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.950	1.000	1.000
	C	1.950	1.950	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A	0	0
	B	20	20
	C	202	202
16:15-16:30	A	0	0
	B	23	23
	C	241	241
16:30-16:45	A	0	0
	B	29	29
	C	295	295
16:45-17:00	A	0	0
	B	29	29
	C	295	295
17:00-17:15	A	0	0
	B	23	23
	C	241	241
17:15-17:30	A	0	0
	B	20	20
	C	202	202

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.06	14.78	0.1	B	24	36
C-AB	0.26	13.06	0.8	B	150	225
C-A					96	144
A-B					0	0
A-C					0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	20	5	527	0.037	19	0.0	0.1	13.817	B
C-AB	118	30	694	0.170	116	0.0	0.5	12.130	B
C-A	84	21			84				
A-B	0	0			0				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	517	0.045	23	0.1	0.1	14.216	B
C-AB	146	36	707	0.206	145	0.5	0.6	12.504	B
C-A	95	24			95				
A-B	0	0			0				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	29	7	504	0.057	29	0.1	0.1	14.766	B
C-AB	186	46	724	0.257	185	0.6	0.8	13.019	B
C-A	109	27			109				
A-B	0	0			0				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	29	7	504	0.057	29	0.1	0.1	14.779	B
C-AB	186	46	724	0.257	186	0.8	0.8	13.058	B
C-A	109	27			109				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	23	6	517	0.045	23	0.1	0.1	14.235	B
C-AB	146	36	707	0.206	147	0.8	0.6	12.560	B
C-A	95	24			95				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	20	5	526	0.037	20	0.1	0.1	13.855	B
C-AB	118	30	694	0.171	119	0.6	0.5	12.229	B
C-A	83	21			83				
A-B	0	0			0				
A-C	0	0			0				

2026-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	4.74	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)	Run automatically
D5	2026-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	308	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	164	144	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.53	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:30-08:45	A	0	0
	B	15	15
	C	232	232
08:45-09:00	A	0	0
	B	18	18
	C	277	277
09:00-09:15	A	0	0
	B	22	22
	C	339	339
09:15-09:30	A	0	0
	B	22	22
	C	339	339
09:30-09:45	A	0	0
	B	18	18
	C	277	277
09:45-10:00	A	0	0
	B	15	15
	C	232	232

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	7.60	0.0	A	18	28
C-AB	0.28	7.66	0.5	A	168	252
C-A					115	172
A-B					0	0
A-C					0	0

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.108	A
C-AB	131	33	708	0.185	130	0.0	0.3	6.811	A
C-A	101	25			101				
A-B	0	0			0				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.312	A
C-AB	163	41	724	0.225	162	0.3	0.4	7.075	A
C-A	114	29			114				
A-B	0	0			0				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.602	A
C-AB	210	52	746	0.281	209	0.4	0.5	7.540	A
C-A	130	32			130				
A-B	0	0			0				
A-C	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.605	A
C-AB	210	52	746	0.281	210	0.5	0.5	7.658	A
C-A	129	32			129				
A-B	0	0			0				
A-C	0	0			0				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.320	A
C-AB	163	41	724	0.225	164	0.5	0.4	7.284	A
C-A	114	28			114				
A-B	0	0			0				
A-C	0	0			0				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.119	A
C-AB	132	33	709	0.186	132	0.4	0.3	6.933	A
C-A	100	25			100				
A-B	0	0			0				
A-C	0	0			0				

2026-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	6.04	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)	Run automatically
D6	2026-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	338	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	152	186	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.45	0.55	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A	0	0
	B	15	15
	C	254	254
16:15-16:30	A	0	0
	B	18	18
	C	304	304
16:30-16:45	A	0	0
	B	22	22
	C	372	372
16:45-17:00	A	0	0
	B	22	22
	C	372	372
17:00-17:15	A	0	0
	B	18	18
	C	304	304
17:15-17:30	A	0	0
	B	15	15
	C	254	254

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.05	7.83	0.0	A	18	28
C-AB	0.36	8.63	0.8	A	213	320
C-A					97	145
A-B					0	0
A-C					0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	512	0.029	15	0.0	0.0	7.241	A
C-AB	167	42	703	0.238	166	0.0	0.4	7.287	A
C-A	87	22			87				
A-B	0	0			0				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	499	0.036	18	0.0	0.0	7.482	A
C-AB	207	52	717	0.289	206	0.4	0.5	7.721	A
C-A	97	24			97				
A-B	0	0			0				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	482	0.046	22	0.0	0.0	7.830	A
C-AB	265	66	737	0.360	265	0.5	0.7	8.481	A
C-A	107	27			107				
A-B	0	0			0				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	481	0.046	22	0.0	0.0	7.834	A
C-AB	266	66	737	0.360	266	0.7	0.8	8.629	A
C-A	106	27			106				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	499	0.036	18	0.0	0.0	7.492	A
C-AB	207	52	717	0.289	208	0.8	0.5	7.969	A
C-A	97	24			97				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	511	0.029	15	0.0	0.0	7.254	A
C-AB	168	42	703	0.239	168	0.5	0.4	7.433	A
C-A	87	22			87				
A-B	0	0			0				
A-C	0	0			0				

2031-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	4.74	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)	Run automatically
D7	2031-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	308	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	164	144	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.53	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:30-08:45	A	0	0
	B	15	15
	C	232	232
08:45-09:00	A	0	0
	B	18	18
	C	277	277
09:00-09:15	A	0	0
	B	22	22
	C	339	339
09:15-09:30	A	0	0
	B	22	22
	C	339	339
09:30-09:45	A	0	0
	B	18	18
	C	277	277
09:45-10:00	A	0	0
	B	15	15
	C	232	232

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	7.60	0.0	A	18	28
C-AB	0.28	7.66	0.5	A	168	252
C-A					115	172
A-B					0	0
A-C					0	0

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.108	A
C-AB	131	33	708	0.185	130	0.0	0.3	6.811	A
C-A	101	25			101				
A-B	0	0			0				
A-C	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.312	A
C-AB	163	41	724	0.225	162	0.3	0.4	7.075	A
C-A	114	29			114				
A-B	0	0			0				
A-C	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.602	A
C-AB	210	52	746	0.281	209	0.4	0.5	7.540	A
C-A	130	32			130				
A-B	0	0			0				
A-C	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.605	A
C-AB	210	52	746	0.281	210	0.5	0.5	7.658	A
C-A	129	32			129				
A-B	0	0			0				
A-C	0	0			0				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.320	A
C-AB	163	41	724	0.225	164	0.5	0.4	7.284	A
C-A	114	28			114				
A-B	0	0			0				
A-C	0	0			0				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.119	A
C-AB	132	33	709	0.186	132	0.4	0.3	6.933	A
C-A	100	25			100				
A-B	0	0			0				
A-C	0	0			0				

2031-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	One-way from C to A	4.74	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)	Run automatically
D8	2031-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	0	100.000
B		ONE HOUR	✓	20	100.000
C		ONE HOUR	✓	308	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	0	0
	B	20	0	0
	C	164	144	0

Proportions

		To		
		A	B	C
From	A	0.33	0.33	0.33
	B	1.00	0.00	0.00
	C	0.53	0.47	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	100	0	0

Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	2.000	1.000	1.000

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
16:00-16:15	A	0	0
	B	15	15
	C	232	232
16:15-16:30	A	0	0
	B	18	18
	C	277	277
16:30-16:45	A	0	0
	B	22	22
	C	339	339
16:45-17:00	A	0	0
	B	22	22
	C	339	339
17:00-17:15	A	0	0
	B	18	18
	C	277	277
17:15-17:30	A	0	0
	B	15	15
	C	232	232

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.04	7.60	0.0	A	18	28
C-AB	0.28	7.66	0.5	A	168	252
C-A					115	172
A-B					0	0
A-C					0	0

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.108	A
C-AB	131	33	708	0.185	130	0.0	0.3	6.811	A
C-A	101	25			101				
A-B	0	0			0				
A-C	0	0			0				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.312	A
C-AB	163	41	724	0.225	162	0.3	0.4	7.075	A
C-A	114	29			114				
A-B	0	0			0				
A-C	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.602	A
C-AB	210	52	746	0.281	209	0.4	0.5	7.540	A
C-A	130	32			130				
A-B	0	0			0				
A-C	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	22	6	495	0.044	22	0.0	0.0	7.605	A
C-AB	210	52	746	0.281	210	0.5	0.5	7.658	A
C-A	129	32			129				
A-B	0	0			0				
A-C	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	18	4	510	0.035	18	0.0	0.0	7.320	A
C-AB	163	41	724	0.225	164	0.5	0.4	7.284	A
C-A	114	28			114				
A-B	0	0			0				
A-C	0	0			0				

17:15 - 17:30

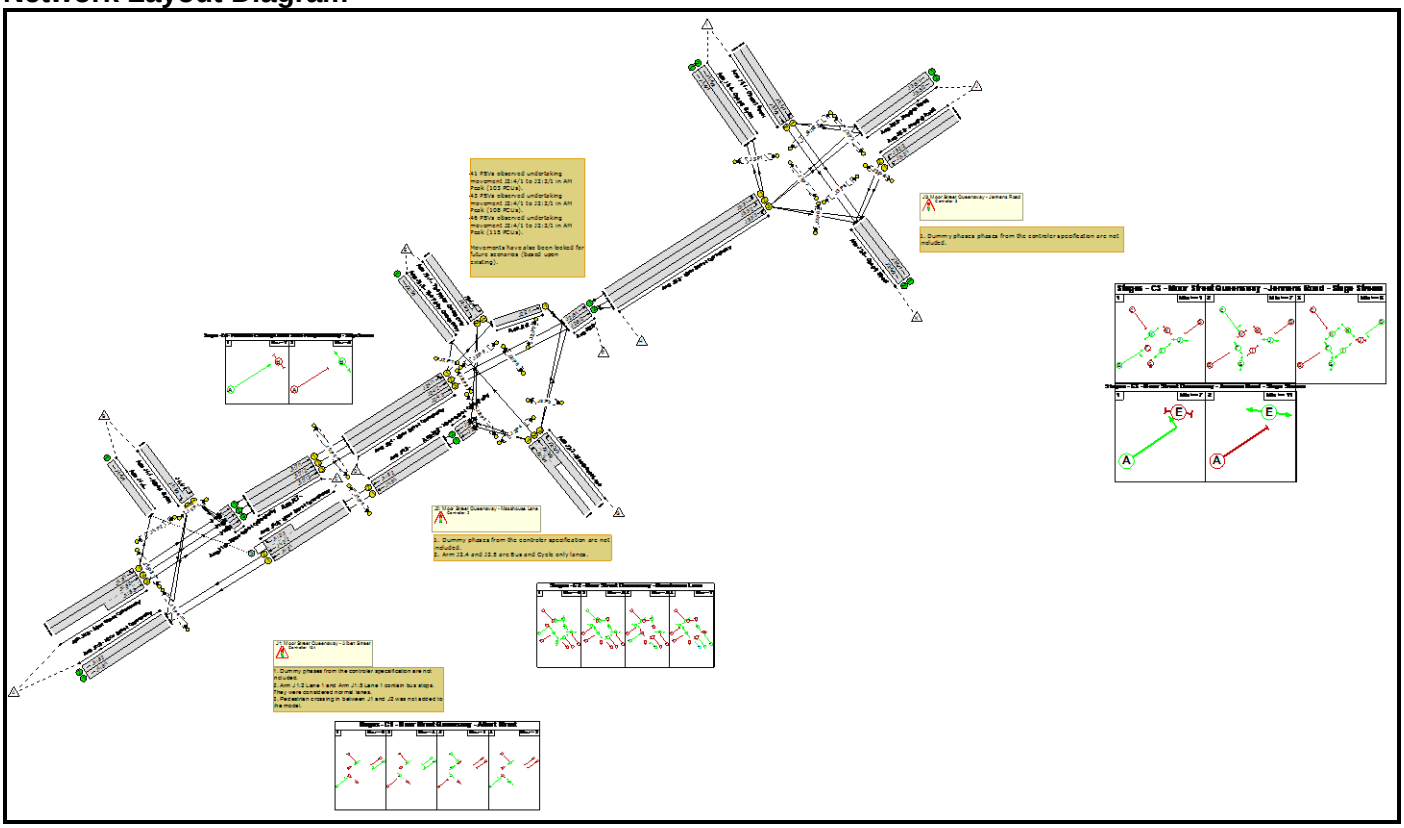
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-AC	15	4	521	0.029	15	0.0	0.0	7.119	A
C-AB	132	33	709	0.186	132	0.4	0.3	6.933	A
C-A	100	25			100				
A-B	0	0			0				
A-C	0	0			0				

Full Input Data And Results

User and Project Details

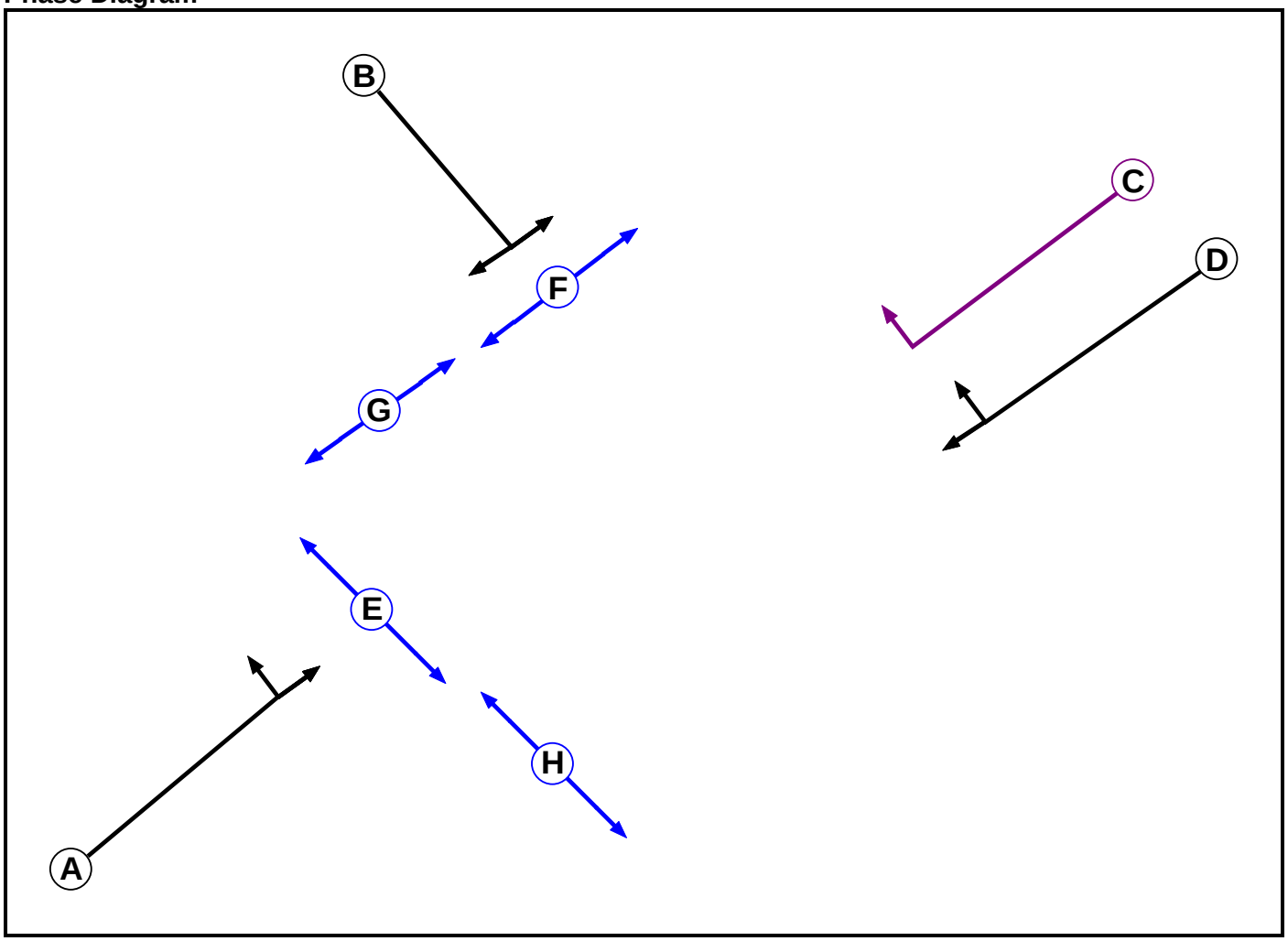
Project:	**359345 - Birmingham Eastside Extension**
Title:	**Moor Street Queensway/Albert Street**
Location:	Birmingham
File name:	Moor Street Queensway - Albert Street.lsg3x
Author:	Dragos Suciu
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU, UK
Notes:	

Network Layout Diagram



C1 - Moor Street Queensway - Albert Street

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	0
C	Ind. Arrow	D	4	4
D	Traffic		7	7
E	Pedestrian		13	13
F	Pedestrian		8	8
G	Pedestrian		7	1
H	Pedestrian		7	7

Full Input Data And Results

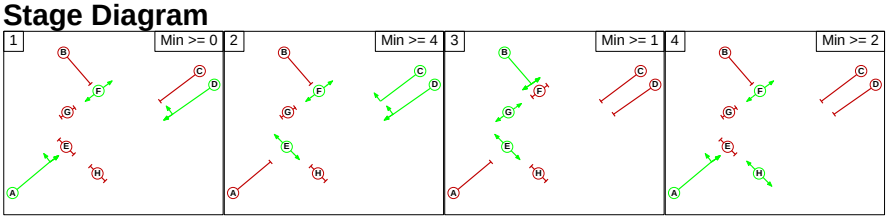
Phase Intergreens Matrix

Terminating Phase	Starting Phase							
	A	B	C	D	E	F	G	H
A		6	5	-	5	-	7	-
B	5		7	7	-	5	-	10
C	6	5		-	-	-	8	-
D	-	5	-		-	-	8	8
E	13	-	-	-		-	-	-
F	-	8	-	-	-		-	-
G	7	-	7	7	-	-		-
H	-	8	-	8	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D F
2	C D E F
3	B E G
4	A F H

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	A	Losing	2	2
1	3	D	Losing	3	3
2	3	D	Losing	3	3
3	1	B	Losing	8	8
3	1	G	Losing	6	6
3	4	B	Losing	8	8
3	4	G	Losing	6	6
4	3	A	Losing	2	2

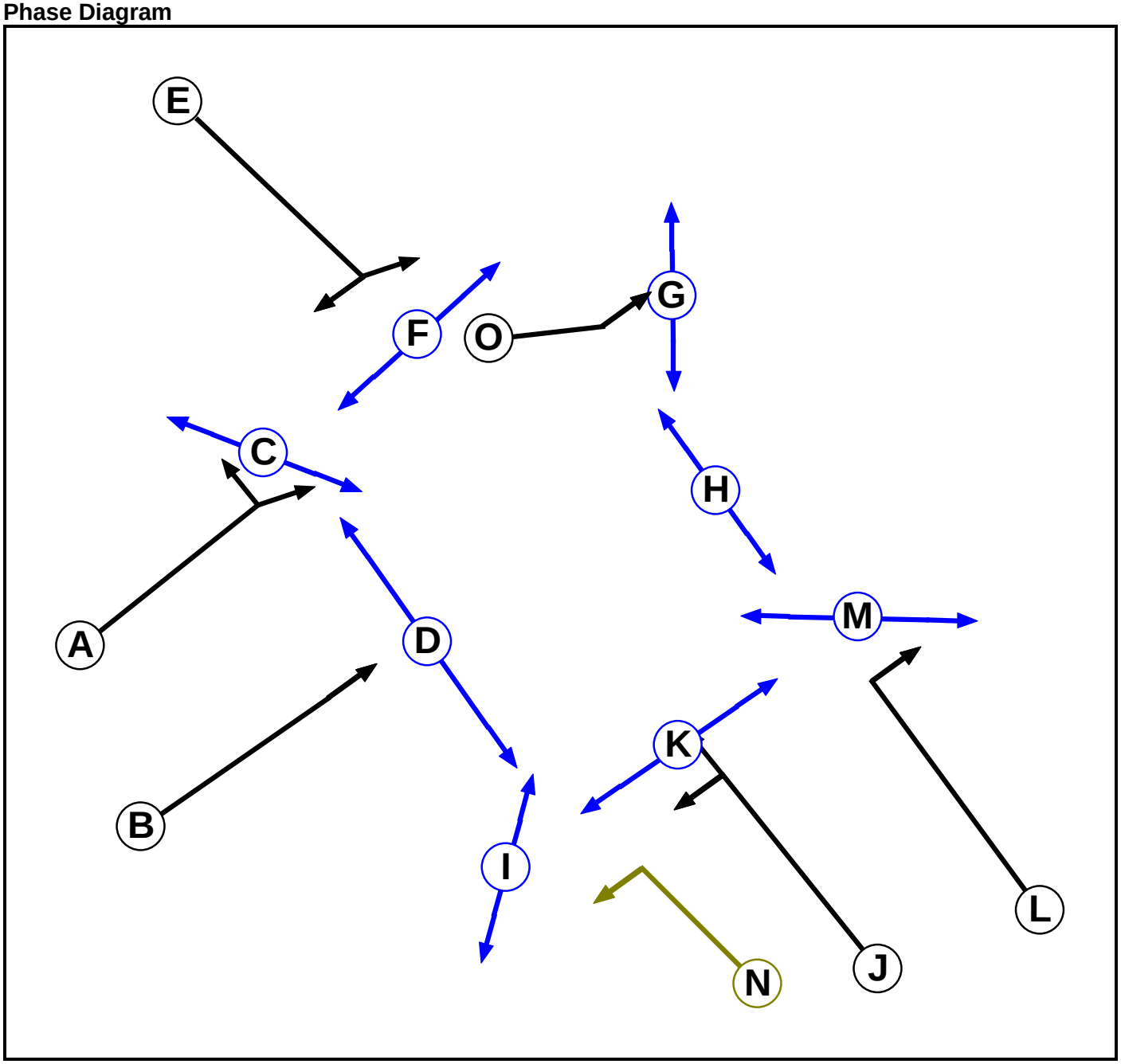
Full Input Data And Results

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		5	11	8
	2	13		11	13
	3	15	X		18
	4	8	X	9	

C2 - Moor Street Queensway - Masshouse Lane

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Pedestrian		6	6
D	Pedestrian		6	6
E	Traffic		7	5
F	Pedestrian		6	6
G	Pedestrian		7	7
H	Pedestrian		6	6
I	Pedestrian		6	6
J	Traffic		7	7
K	Pedestrian		8	8
L	Traffic		7	7
M	Pedestrian		7	7
N	Filter	J	4	0
O	Traffic		7	7

Full Input Data And Results

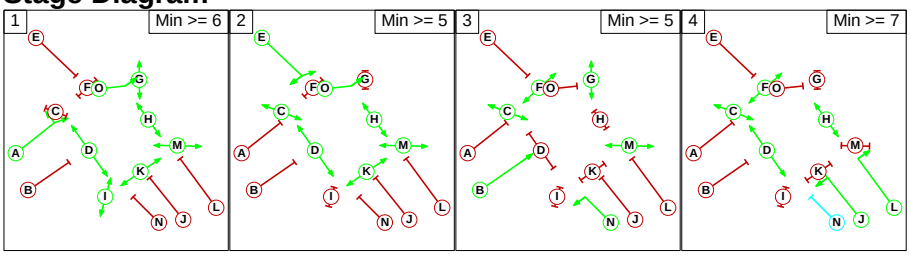
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A		6	5	-	7	-	-	-	-	5	-	-	-	-	-
B	5		-	5	5	-	-	7	-	5	-	7	-	-	8
C	8	-		-	-	-	-	-	-	-	-	-	-	-	-
D	-	8	-		-	-	-	-	-	-	-	-	-	-	-
E	5	7	-	-		8	7	-	10	8	-	7	-	8	-
F	-	-	-	-	7		-	-	-	-	-	-	-	-	-
G	-	-	-	-	7	-		-	-	7	-	-	-	-	-
H	-	6	-	-	-	-	-		-	-	-	-	-	-	-
I	-	-	-	-	5	-	-	-		7	-	-	-	7	-
J	8	6	-	-	5	-	8	-	7		5	-	-	-	-
K	-	-	-	-	-	-	-	-	-	10		-	-	10	-
L	-	5	-	-	5	-	-	-	-	-	-		5	-	5
M	-	-	-	-	-	-	-	-	-	-	-	7		-	-
N	-	-	-	-	5	-	-	-	7	-	5	-	-		-
O	-	5	-	-	-	5	-	-	-	-	-	5	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D G H I K M O
2	C D E H K M O
3	B C F G M N
4	C D F H J L

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	A	Losing	1	1
1	4	A	Losing	2	2
1	4	G	Losing	3	3
1	4	I	Losing	3	3
1	4	M	Losing	1	1
1	4	O	Losing	5	5
2	1	E	Losing	3	3
2	3	E	Losing	2	2
2	3	H	Losing	2	2
2	3	O	Losing	5	5
2	4	E	Losing	2	2
2	4	M	Losing	2	2
2	4	O	Losing	5	5
4	1	F	Losing	3	3
4	1	L	Losing	3	3

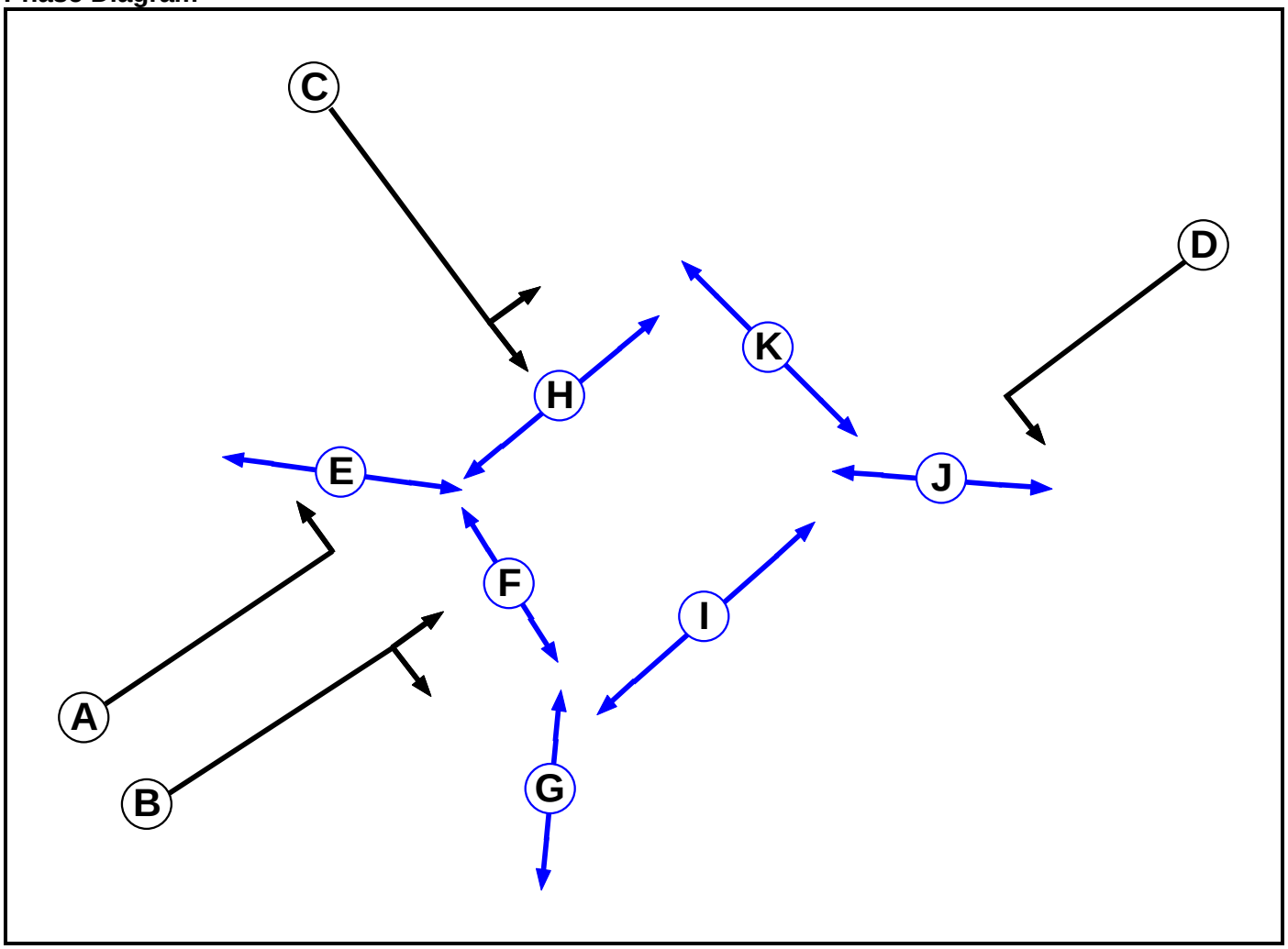
Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		7	10	10
2	13		10	10
3	X	X		7
4	8	7	8	

Full Input Data And Results

C3 - Moor Street Queensway - Jennens Road

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	2		7	7
B	Traffic	1		7	2
C	Traffic	1		7	7
D	Traffic	1		7	3
E	Pedestrian	2		11	11
F	Pedestrian	1		5	5
G	Pedestrian	1		6	6
H	Pedestrian	1		10	10
I	Pedestrian	1		10	10
J	Pedestrian	1		10	10
K	Pedestrian	1		8	8

Full Input Data And Results

Phase Intergreens Matrix

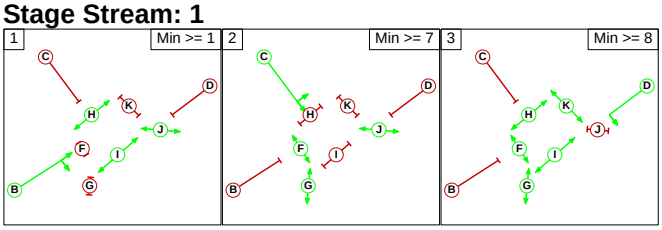
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K
A		-	-	-	5	-	-	-	-	-	-
B	-		5	5	-	5	5	-	-	-	8
C	-	5		7	-	-	-	5	7	-	8
D	-	5	5		-	-	-	-	-	5	-
E	11	-	-	-		-	-	-	-	-	-
F	-	5	-	-	-		-	-	-	-	-
G	-	6	-	-	-	-		-	-	-	-
H	-	-	10	-	-	-	-		-	-	-
I	-	-	8	-	-	-	-	-		-	-
J	-	-	-	10	-	-	-	-	-		-
K	-	9	9	-	-	-	-	-	-	-	

Phases in Stage

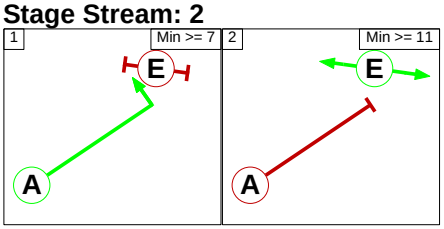
Stream	Stage No.	Phases in Stage
1	1	B H I J
1	2	C F G J
1	3	D F G H I K
2	1	A
2	2	E

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	B	Losing	5	5
1	3	B	Losing	5	5
2	3	C	Losing	4	4
3	1	D	Losing	4	4
3	2	D	Losing	5	5

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

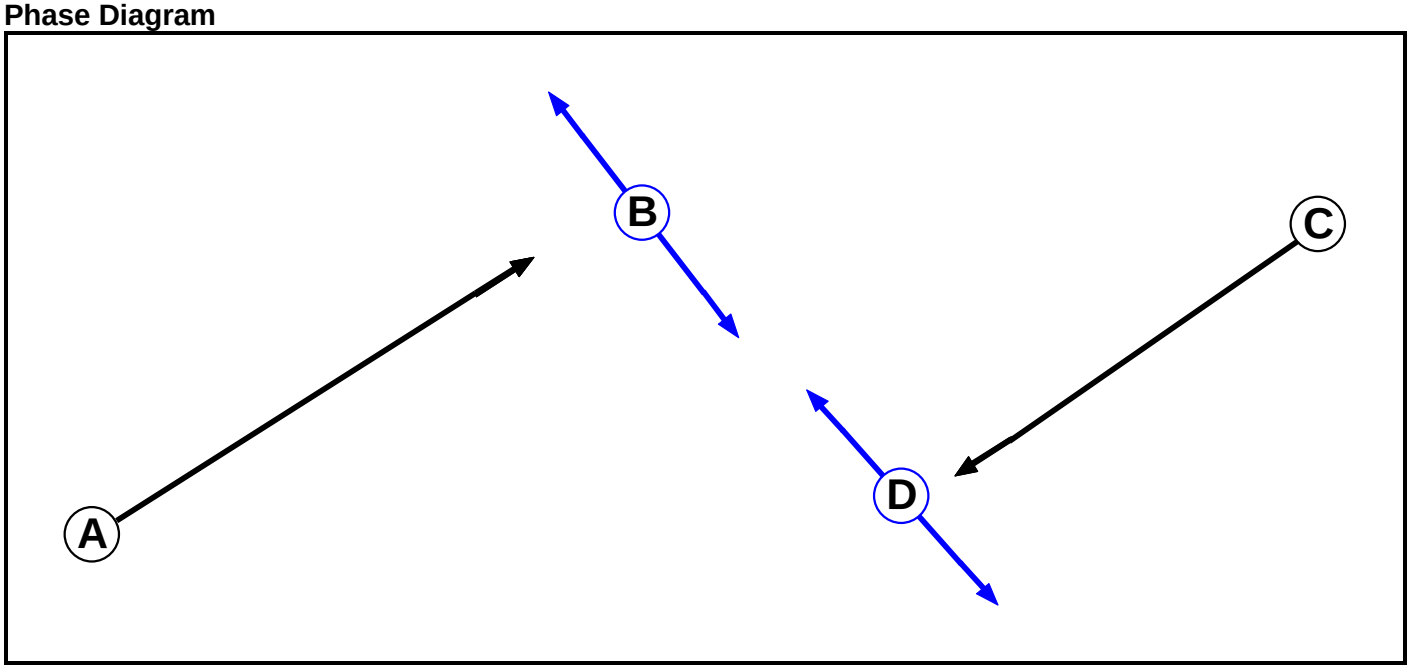
		To Stage		
		1	2	3
From Stage	1		10	13
	2	7		12
	3	9	10	

Stage Stream: 2

		To Stage	
		1	2
From Stage	1		5
	2	11	

C4 - Pedestrian Crossings Albert Street-Priory Queensway

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Pedestrian	1		5	5
C	Traffic	2		7	7
D	Pedestrian	2		5	5

Phase Intergreens Matrix

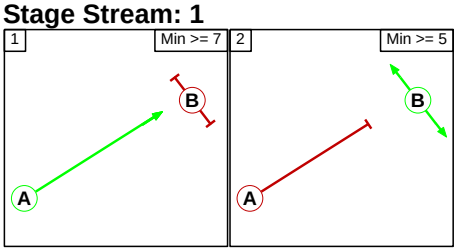
		Starting Phase			
		A	B	C	D
Terminating Phase	A		5	-	-
	B	8		-	-
	C	-	-		5
	D	-	-	8	

Phases in Stage

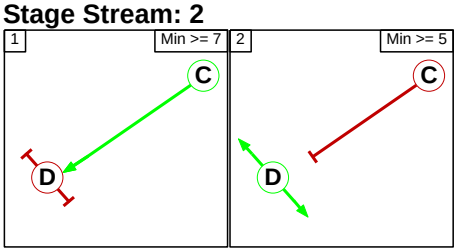
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		5
	2	8	

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		5
	2	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Moor Street Queensway - Albert Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J1:2/3 (Moor Street Queensway)	J1:4/1 (Right)	1439	0	J1:3/2	1.09	All	2.00	-	0.50	2	2.00
				J1:3/3	1.09	To J1:5/3 (Ahead)					
				J1:3/1	1.09	All					

Junction: J2: Moor Street Queensway - Masshouse Lane
There are no Opposed Lanes in this Junction

Junction: J3: Moor Street Queensway - Jennens Road
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: Moor Street Queensway - Albert Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Albert Street)	U	B	2	3	1.9	Geom	-	3.35	0.00	Y	Arm J1:5 Left	19.00
J1:1/2 (Albert Street)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm J1:6 Right	13.00
J1:2/1 (Moor Street Queensway)	U	D	2	3	9.7	Geom	-	2.90	0.00	Y	Arm J1:6 Ahead	Inf
J1:2/2 (Moor Street Queensway)	U	D	2	3	9.7	Geom	-	3.50	0.00	N	Arm J1:6 Ahead	Inf
J1:2/3 (Moor Street Queensway)	O	D C	2	3	6.6	Geom	-	2.80	0.00	Y	Arm J1:4 Right	22.00
J1:3/1 (Moor Street Queensway)	U	A	2	3	60.0	Geom	-	3.95	0.00	Y	Arm J1:4 Left	10.00
											Arm J1:5 Ahead	Inf
J1:3/2 (Moor Street Queensway)	U	A	2	3	60.0	Geom	-	3.20	0.00	Y	Arm J1:5 Ahead	Inf
J1:3/3 (Moor Street Queensway)	U	A	2	3	8.5	Geom	-	2.90	0.00	N	Arm J1:5 Ahead	Inf
J1:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.55	0.00	Y	Arm J1:7 Ahead	Inf
J1:5/2 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.55	0.00	Y	Arm J1:7 Ahead	Inf
J1:5/3 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.10	0.00	N	Arm J1:7 Ahead	Inf
J1:6/1 (Moor Street Queensway)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/2 (Moor Street Queensway)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:7/1	U	A	2	3	13.9	Geom	-	3.55	0.00	Y	Arm J2:4 Ahead	Inf
J1:7/2	U	A	2	3	13.9	Geom	-	3.55	0.00	Y	Arm J2:4 Ahead	Inf

Full Input Data And Results

J1:7/3	U	A	2	3	13.9	Geom	-	3.10	0.00	N	Arm J2:4 Ahead	Inf
J1:8/1	U	C	2	3	12.5	Geom	-	3.00	0.00	Y	Arm J1:2 Ahead	Inf
J1:8/2	U	C	2	3	12.5	Geom	-	3.45	0.00	N	Arm J1:2 Ahead	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (The Priory Queensway)	U	E	2	3	1.9	Geom	-	3.00	0.00	Y	Arm J2:2 Left	30.00
J2:1/2 (The Priory Queensway)	U	E	2	3	60.0	Geom	-	3.70	0.00	N	Arm J2:7 Right	9.00
J2:2/1	U	O	2	3	3.8	Geom	-	4.30	0.00	Y	Arm J2:6 Ahead	55.00
J2:3/1 (Masshouse Lane)	U	J N	2	3	60.0	Geom	-	3.30	0.00	Y	Arm J2:7 Left	9.00
J2:3/2 (Masshouse Lane)	U	J	2	3	6.4	Geom	-	4.05	0.00	Y	Arm J2:5 Ahead	Inf
J2:3/3 (Masshouse Lane)	U	L	2	3	60.0	Geom	-	3.30	0.00	Y	Arm J2:6 Right	18.00
J2:4/1 (Moor Street Queensway)	U	A	2	3	9.6	Geom	-	3.30	0.00	Y	Arm J2:2 Ahead	Inf
											Arm J2:5 Left	30.00
J2:4/2 (Moor Street Queensway)	U	B	2	3	10.6	Geom	-	3.65	0.00	Y	Arm J2:6 Ahead	Inf
J2:4/3 (Moor Street Queensway)	U	B	2	3	10.6	Geom	-	3.35	0.00	N	Arm J2:6 Ahead	Inf
J2:5/1 (The Priory Queensway)	U		2	3	60.0	Geom	-	3.80	0.00	Y		
J2:6/1	U		2	3	6.6	Geom	-	3.40	0.00	Y	Arm J3:3 Ahead	Inf
J2:6/2	U		2	3	6.6	Geom	-	3.50	0.00	N	Arm J3:3 Ahead	Inf
J2:7/1 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.00	0.00	Y	Arm J1:8 Ahead	Inf
J2:7/2 (Moor Street Queensway)	U		2	3	0.2	Geom	-	3.45	0.00	N	Arm J1:8 Ahead	Inf

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (Chapel Street)	U	C	2	3	60.0	Geom	-	3.45	0.00	Y	Arm J3:5 Left	17.00
											Arm J3:6 Ahead	Inf
J3:1/2 (Chapel Street)	U	C	2	3	60.0	Geom	-	3.40	0.00	N	Arm J3:6 Ahead	Inf
J3:2/1 (Jennens Road)	U	D	2	3	60.0	Geom	-	3.65	0.00	Y	Arm J3:6 Left	26.00
J3:2/2 (Jennens Road)	U	D	2	3	60.0	Geom	-	3.70	0.00	N	Arm J3:6 Left	26.00
J3:3/1 (Moor Street Queensway)	U	A	2	3	13.6	Geom	-	3.10	0.00	Y	Arm J3:4 Left	35.00
J3:3/2 (Moor Street Queensway)	U	A	2	3	14.3	Geom	-	3.45	0.00	N	Arm J3:4 Left	35.00
J3:3/3 (Moor Street Queensway)	U	B	2	3	14.3	Geom	-	3.75	0.00	Y	Arm J3:5 Ahead	Inf
											Arm J3:6 Right	20.00
J3:4/1 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:4/2 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/1 (Jennens Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/2 (Jennens Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/1 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/2 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	228	0	0	0	0	0	0	0	0	228
	B	144	0	93	0	0	0	0	0	0	0	0	237
	C	478	0	0	0	0	0	0	0	0	0	0	478
	D	0	0	0	0	116	205	0	0	0	0	0	321
	E	0	0	0	28	0	110	0	0	0	0	0	138
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	450	0	500	0	0	0	0	0	950
	H	0	0	0	0	0	0	0	0	183	354	279	816
	I	0	0	0	0	0	0	0	0	0	337	159	496
	J	0	0	0	0	0	0	0	0	0	0	451	451
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	622	0	321	478	116	815	0	0	183	691	889	4115

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM(Standard PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	93
J1:1/2 (with short)	237(In) 144(Out)
J1:2/1	215
J1:2/2 (with short)	263(In) 263(Out)
J1:2/3 (short)	0
J1:3/1	50
J1:3/2 (with short)	178(In) 89(Out)
J1:3/3 (short)	89
J1:4/1	0
J1:5/1	55
J1:5/2	113
J1:5/3	153
J1:6/1	287
J1:6/2	335
J1:7/1	55
J1:7/2	113
J1:7/3	153
J1:8/1	170
J1:8/2	308
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	110
J2:1/2 (with short)	138(In) 28(Out)
J2:2/1	213
J2:3/1 (with short)	450(In) 450(Out)
J2:3/2 (short)	0
J2:3/3	500
J2:4/1	219
J2:4/2	47
J2:4/3	55
J2:5/1	116
J2:6/1	283
J2:6/2	532
J2:7/1	170
J2:7/2	308

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	337
J3:1/2	159
J3:2/1	215
J3:2/2	236
J3:3/1	68
J3:3/2	115
J3:3/3	633
J3:4/1	68
J3:4/2	115
J3:5/1	346
J3:5/2	345
J3:6/1	355
J3:6/2	534

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	47.0 % 53.0 %	1895	1895
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	55.9 %	1926	1926
				Arm J3:6 Right	20.00	44.1 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	210	0	0	0	0	0	0	0	0	210
	B	186	0	184	0	0	0	0	0	0	0	0	370
	C	482	0	0	0	0	0	0	0	0	0	0	482
	D	0	0	0	0	100	294	0	0	0	0	0	394
	E	0	0	0	34	0	124	0	0	0	0	0	158
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	448	0	542	0	0	0	0	0	990
	H	0	0	0	0	0	0	0	0	382	317	262	961
	I	0	0	0	0	0	0	0	0	0	464	167	631
	J	0	0	0	0	0	0	0	0	0	0	486	486
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	668	0	394	482	100	960	0	0	382	781	915	4682

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM(Standard PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	184
J1:1/2 (with short)	370(In) 186(Out)
J1:2/1	218
J1:2/2 (with short)	264(In) 264(Out)
J1:2/3 (short)	0
J1:3/1	58
J1:3/2 (with short)	152(In) 73(Out)
J1:3/3 (short)	79
J1:4/1	0
J1:5/1	69
J1:5/2	139
J1:5/3	186
J1:6/1	311
J1:6/2	357
J1:7/1	69
J1:7/2	139
J1:7/3	186
J1:8/1	196
J1:8/2	286
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	124
J2:1/2 (with short)	158(In) 34(Out)
J2:2/1	232
J2:3/1 (with short)	448(In) 448(Out)
J2:3/2 (short)	0
J2:3/3	542
J2:4/1	208
J2:4/2	88
J2:4/3	98
J2:5/1	100
J2:6/1	353
J2:6/2	607
J2:7/1	196
J2:7/2	286

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	464
J3:1/2	167
J3:2/1	232
J3:2/2	254
J3:3/1	162
J3:3/2	220
J3:3/3	579
J3:4/1	162
J3:4/2	220
J3:5/1	391
J3:5/2	390
J3:6/1	363
J3:6/2	552

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	51.9 % 48.1 %	1899	1899
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	54.7 %	1925	1925
				Arm J3:6 Right	20.00	45.3 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	228	0	0	0	0	0	0	0	0	228
	B	144	0	59	0	0	0	0	0	0	0	0	203
	C	478	0	0	0	0	0	0	0	0	0	0	478
	D	0	0	0	0	116	171	0	0	0	0	0	287
	E	0	0	0	28	0	110	0	0	0	0	0	138
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	450	0	521	0	0	0	0	0	971
	H	0	0	0	0	0	0	0	0	184	343	275	802
	I	0	0	0	0	0	0	0	0	0	332	159	491
	J	0	0	0	0	0	0	0	0	0	0	461	461
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	622	0	287	478	116	802	0	0	184	675	895	4059

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM(Standard PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	59
J1:1/2 (with short)	203(In) 144(Out)
J1:2/1	215
J1:2/2 (with short)	263(In) 263(Out)
J1:2/3 (short)	0
J1:3/1	72
J1:3/2 (with short)	156(In) 75(Out)
J1:3/3 (short)	81
J1:4/1	0
J1:5/1	74
J1:5/2	87
J1:5/3	126
J1:6/1	287
J1:6/2	335
J1:7/1	74
J1:7/2	87
J1:7/3	126
J1:8/1	170
J1:8/2	308
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	110
J2:1/2 (with short)	138(In) 28(Out)
J2:2/1	213
J2:3/1 (with short)	450(In) 450(Out)
J2:3/2 (short)	0
J2:3/3	521
J2:4/1	219
J2:4/2	30
J2:4/3	38
J2:5/1	116
J2:6/1	271
J2:6/2	531
J2:7/1	170
J2:7/2	308

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	332
J3:1/2	159
J3:2/1	219
J3:2/2	242
J3:3/1	67
J3:3/2	117
J3:3/3	618
J3:4/1	67
J3:4/2	117
J3:5/1	338
J3:5/2	337
J3:6/1	357
J3:6/2	538

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	47.0 % 53.0 %	1895	1895
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	55.5 %	1926	1926
				Arm J3:6 Right	20.00	44.5 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	210	0	0	0	0	0	0	0	0	210
	B	186	0	191	0	0	0	0	0	0	0	0	377
	C	482	0	0	0	0	0	0	0	0	0	0	482
	D	0	0	0	0	100	301	0	0	0	0	0	401
	E	0	0	0	34	0	124	0	0	0	0	0	158
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	448	0	545	0	0	0	0	0	993
	H	0	0	0	0	0	0	0	0	400	309	262	971
	I	0	0	0	0	0	0	0	0	0	479	167	646
	J	0	0	0	0	0	0	0	0	0	0	489	489
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	668	0	401	482	100	970	0	0	400	788	918	4727

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM(Standard PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	191
J1:1/2 (with short)	377(In) 186(Out)
J1:2/1	219
J1:2/2 (with short)	263(In) 263(Out)
J1:2/3 (short)	0
J1:3/1	55
J1:3/2 (with short)	155(In) 74(Out)
J1:3/3 (short)	81
J1:4/1	0
J1:5/1	65
J1:5/2	147
J1:5/3	189
J1:6/1	312
J1:6/2	356
J1:7/1	65
J1:7/2	147
J1:7/3	189
J1:8/1	196
J1:8/2	286
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	124
J2:1/2 (with short)	158(In) 34(Out)
J2:2/1	232
J2:3/1 (with short)	448(In) 448(Out)
J2:3/2 (short)	0
J2:3/3	545
J2:4/1	208
J2:4/2	91
J2:4/3	102
J2:5/1	100
J2:6/1	364
J2:6/2	606
J2:7/1	196
J2:7/2	286

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	479
J3:1/2	167
J3:2/1	233
J3:2/2	256
J3:3/1	171
J3:3/2	229
J3:3/3	571
J3:4/1	171
J3:4/2	229
J3:5/1	395
J3:5/2	393
J3:6/1	364
J3:6/2	554

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	51.9 % 48.1 %	1899	1899
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	54.1 %	1924	1924
				Arm J3:6 Right	20.00	45.9 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2026 DM AM(Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	342	0	0	0	0	0	0	0	0	342
	B	216	0	95	0	0	0	0	0	0	0	0	311
	C	717	0	0	0	0	0	0	0	0	0	0	717
	D	0	0	0	0	174	263	0	0	0	0	0	437
	E	0	0	0	42	0	165	0	0	0	0	0	207
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	675	0	569	0	0	0	0	0	1244
	H	0	0	0	0	0	0	0	0	186	421	390	997
	I	0	0	0	0	0	0	0	0	0	342	235	577
	J	0	0	0	0	0	0	0	0	0	0	519	519
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	933	0	437	717	174	997	0	0	186	763	1144	5351

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM(Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	95
J1:1/2 (with short)	311(In) 216(Out)
J1:2/1	330
J1:2/2 (with short)	387(In) 387(Out)
J1:2/3 (short)	0
J1:3/1	85
J1:3/2 (with short)	257(In) 125(Out)
J1:3/3 (short)	132
J1:4/1	0
J1:5/1	89
J1:5/2	151
J1:5/3	197
J1:6/1	438
J1:6/2	495
J1:7/1	89
J1:7/2	151
J1:7/3	197
J1:8/1	287
J1:8/2	430
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	165
J2:1/2 (with short)	207(In) 42(Out)
J2:2/1	268
J2:3/1 (with short)	675(In) 675(Out)
J2:3/2 (short)	0
J2:3/3	569
J2:4/1	277
J2:4/2	76
J2:4/3	84
J2:5/1	174
J2:6/1	397
J2:6/2	600
J2:7/1	287
J2:7/2	430

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	342
J3:1/2	235
J3:2/1	249
J3:2/2	270
J3:3/1	71
J3:3/2	115
J3:3/3	811
J3:4/1	71
J3:4/2	115
J3:5/1	382
J3:5/2	381
J3:6/1	444
J3:6/2	700

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	37.2 % 62.8 %	1886	1886
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	51.9 %	1921	1921
				Arm J3:6 Right	20.00	48.1 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 6: '2026 DM PM(Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	315	0	0	0	0	0	0	0	0	315
	B	279	0	185	0	0	0	0	0	0	0	0	464
	C	723	0	0	0	0	0	0	0	0	0	0	723
	D	0	0	0	0	150	350	0	0	0	0	0	500
	E	0	0	0	51	0	186	0	0	0	0	0	237
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	672	0	605	0	0	0	0	0	1277
	H	0	0	0	0	0	0	0	0	384	379	379	1142
	I	0	0	0	0	0	0	0	0	0	466	236	702
	J	0	0	0	0	0	0	0	0	0	0	548	548
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	1002	0	500	723	150	1141	0	0	384	845	1163	5908

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM(Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	185
J1:1/2 (with short)	464(In) 279(Out)
J1:2/1	334
J1:2/2 (with short)	389(In) 389(Out)
J1:2/3 (short)	0
J1:3/1	73
J1:3/2 (with short)	242(In) 118(Out)
J1:3/3 (short)	124
J1:4/1	0
J1:5/1	111
J1:5/2	171
J1:5/3	218
J1:6/1	474
J1:6/2	528
J1:7/1	111
J1:7/2	171
J1:7/3	218
J1:8/1	312
J1:8/2	411
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	186
J2:1/2 (with short)	237(In) 51(Out)
J2:2/1	294
J2:3/1 (with short)	672(In) 672(Out)
J2:3/2 (short)	0
J2:3/3	605
J2:4/1	258
J2:4/2	116
J2:4/3	126
J2:5/1	150
J2:6/1	449
J2:6/2	692
J2:7/1	312
J2:7/2	411

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	466
J3:1/2	236
J3:2/1	263
J3:2/2	285
J3:3/1	163
J3:3/2	221
J3:3/3	758
J3:4/1	163
J3:4/2	221
J3:5/1	423
J3:5/2	422
J3:6/1	453
J3:6/2	710

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	41.9 % 58.1 %	1890	1890
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	50.0 %	1918	1918
				Arm J3:6 Right	20.00	50.0 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 DM AM(Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	342	0	0	0	0	0	0	0	0	342
	B	216	0	60	0	0	0	0	0	0	0	0	276
	C	717	0	0	0	0	0	0	0	0	0	0	717
	D	0	0	0	0	174	228	0	0	0	0	0	402
	E	0	0	0	42	0	165	0	0	0	0	0	207
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	675	0	590	0	0	0	0	0	1265
	H	0	0	0	0	0	0	0	0	186	409	387	982
	I	0	0	0	0	0	0	0	0	0	337	235	572
	J	0	0	0	0	0	0	0	0	0	0	529	529
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	933	0	402	717	174	983	0	0	186	746	1151	5292

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM(Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	60
J1:1/2 (with short)	276(In) 216(Out)
J1:2/1	329
J1:2/2 (with short)	388(In) 388(Out)
J1:2/3 (short)	0
J1:3/1	89
J1:3/2 (with short)	253(In) 122(Out)
J1:3/3 (short)	131
J1:4/1	0
J1:5/1	92
J1:5/2	136
J1:5/3	174
J1:6/1	437
J1:6/2	496
J1:7/1	92
J1:7/2	136
J1:7/3	174
J1:8/1	285
J1:8/2	432
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	165
J2:1/2 (with short)	207(In) 42(Out)
J2:2/1	268
J2:3/1 (with short)	675(In) 675(Out)
J2:3/2 (short)	0
J2:3/3	590
J2:4/1	277
J2:4/2	58
J2:4/3	67
J2:5/1	174
J2:6/1	381
J2:6/2	602
J2:7/1	285
J2:7/2	432

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	337
J3:1/2	235
J3:2/1	253
J3:2/2	276
J3:3/1	71
J3:3/2	115
J3:3/3	796
J3:4/1	71
J3:4/2	115
J3:5/1	374
J3:5/2	372
J3:6/1	447
J3:6/2	704

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	37.2 % 62.8 %	1886	1886
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	51.4 %	1920	1920
				Arm J3:6 Right	20.00	48.6 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 8: '2031 DM PM(Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination											
		A	B	C	D	E	F	G	H	I	J	K	Tot.
Origin	A	0	0	315	0	0	0	0	0	0	0	0	315
	B	279	0	192	0	0	0	0	0	0	0	0	471
	C	723	0	0	0	0	0	0	0	0	0	0	723
	D	0	0	0	0	150	357	0	0	0	0	0	507
	E	0	0	0	51	0	186	0	0	0	0	0	237
	F	0	0	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	672	0	608	0	0	0	0	0	1280
	H	0	0	0	0	0	0	0	0	401	371	379	1151
	I	0	0	0	0	0	0	0	0	0	481	236	717
	J	0	0	0	0	0	0	0	0	0	0	551	551
	K	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	1002	0	507	723	150	1151	0	0	401	852	1166	5952

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM(Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Albert Street	
J1:1/1 (short)	192
J1:1/2 (with short)	471(In) 279(Out)
J1:2/1	334
J1:2/2 (with short)	389(In) 389(Out)
J1:2/3 (short)	0
J1:3/1	73
J1:3/2 (with short)	242(In) 118(Out)
J1:3/3 (short)	124
J1:4/1	0
J1:5/1	108
J1:5/2	177
J1:5/3	222
J1:6/1	474
J1:6/2	528
J1:7/1	108
J1:7/2	177
J1:7/3	222
J1:8/1	310
J1:8/2	413
Junction: J2: Moor Street Queensway - Masshouse Lane	
J2:1/1 (short)	186
J2:1/2 (with short)	237(In) 51(Out)
J2:2/1	294
J2:3/1 (with short)	672(In) 672(Out)
J2:3/2 (short)	0
J2:3/3	608
J2:4/1	258
J2:4/2	119
J2:4/3	130
J2:5/1	150
J2:6/1	450
J2:6/2	701
J2:7/1	310
J2:7/2	413

Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road	
J3:1/1	481
J3:1/2	236
J3:2/1	264
J3:2/2	287
J3:3/1	172
J3:3/2	229
J3:3/3	750
J3:4/1	172
J3:4/2	229
J3:5/1	427
J3:5/2	425
J3:6/1	454
J3:6/2	712

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Albert Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Albert Street)	3.35	0.00	Y	Arm J1:5 Left	19.00	100.0 %	1807	1807
J1:1/2 (Albert Street)	3.00	0.00	Y	Arm J1:6 Right	13.00	100.0 %	1717	1717
J1:2/1 (Moor Street Queensway)	2.90	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1905	1905
J1:2/2 (Moor Street Queensway)	3.50	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2105	2105
J1:2/3 (Moor Street Queensway)	2.80	0.00	Y	Arm J1:4 Right	22.00	0.0 %	1895	1895
J1:3/1 (Moor Street Queensway)	3.95	0.00	Y	Arm J1:4 Left	10.00	0.0 %	2010	2010
				Arm J1:5 Ahead	Inf	100.0 %		
J1:3/2 (Moor Street Queensway)	3.20	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1935	1935
J1:3/3 (Moor Street Queensway)	2.90	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2045	2045
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/2 (Moor Street Queensway)	3.55	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1970	1970
J1:5/3 (Moor Street Queensway)	3.10	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2065	2065
J1:6/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:7/1	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/2	3.55	0.00	Y	Arm J2:4 Ahead	Inf	0.0 %	1970	1970
J1:7/3	3.10	0.00	N	Arm J2:4 Ahead	Inf	0.0 %	2065	2065
J1:8/1	3.00	0.00	Y	Arm J1:2 Ahead	Inf	0.0 %	1915	1915
J1:8/2	3.45	0.00	N	Arm J1:2 Ahead	Inf	0.0 %	2100	2100

Full Input Data And Results

Junction: J2: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J2:2 Left	30.00	100.0 %	1824	1824
J2:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J2:7 Right	9.00	100.0 %	1821	1821
J2:2/1	4.30	0.00	Y	Arm J2:6 Ahead	55.00	100.0 %	1991	1991
J2:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J2:7 Left	9.00	100.0 %	1667	1667
J2:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J2:5 Ahead	Inf	0.0 %	2020	2020
J2:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J2:6 Right	18.00	100.0 %	1795	1795
J2:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J2:2 Ahead Arm J2:5 Left	Inf 30.00	41.9 % 58.1 %	1890	1890
J2:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J2:6 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Moor Street Queensway)	3.35	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2090	2090
J2:5/1 (The Priory Queensway)	3.80	0.00	Y				1995	1995
J2:6/1	3.40	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1955	1955
J2:6/2	3.50	0.00	N	Arm J3:3 Ahead	Inf	0.0 %	2105	2105
J2:7/1 (Moor Street Queensway)	3.00	0.00	Y	Arm J1:8 Ahead	Inf	100.0 %	1915	1915
J2:7/2 (Moor Street Queensway)	3.45	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2100	2100

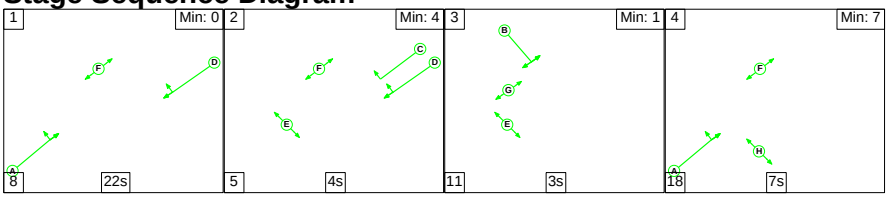
Full Input Data And Results

Junction: J3: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Chapel Street)	3.45	0.00	Y	Arm J3:5 Left	17.00	100.0 %	1801	1801
				Arm J3:6 Ahead	Inf	0.0 %		
J3:1/2 (Chapel Street)	3.40	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2095	2095
J3:2/1 (Jennens Road)	3.65	0.00	Y	Arm J3:6 Left	26.00	100.0 %	1872	1872
J3:2/2 (Jennens Road)	3.70	0.00	N	Arm J3:6 Left	26.00	100.0 %	2009	2009
J3:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J3:4 Left	35.00	100.0 %	1846	1846
J3:3/2 (Moor Street Queensway)	3.45	0.00	N	Arm J3:4 Left	35.00	100.0 %	2014	2014
J3:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J3:5 Ahead	Inf	49.5 %	1917	1917
				Arm J3:6 Right	20.00	50.5 %		
J3:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Moor Street Queensway - Albert Street

Stage Sequence Diagram

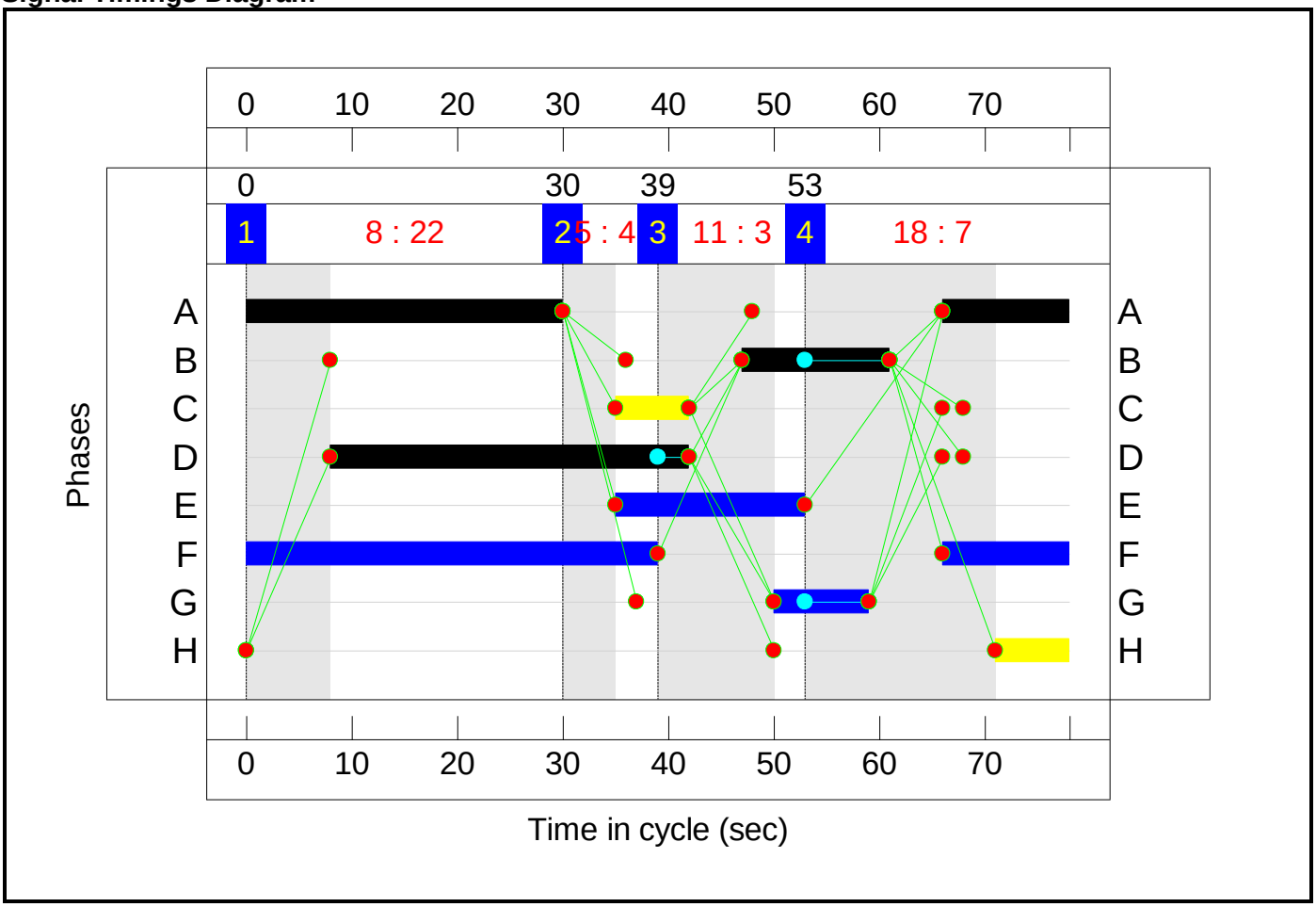


Stage Timings

Stage	1	2	3	4
Duration	22	4	3	7
Change Point	0	30	39	53

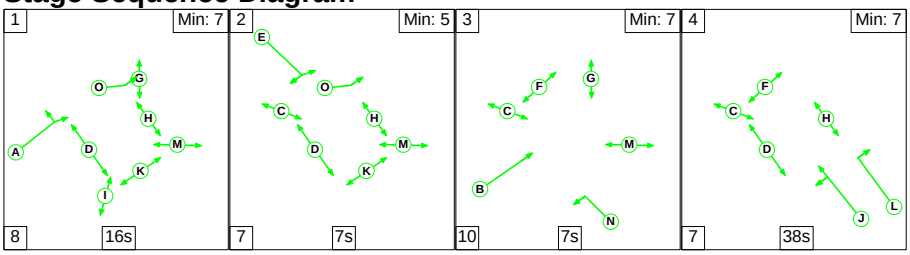
Full Input Data And Results

Signal Timings Diagram



C2 - Moor Street Queensway - Masshouse Lane

Stage Sequence Diagram

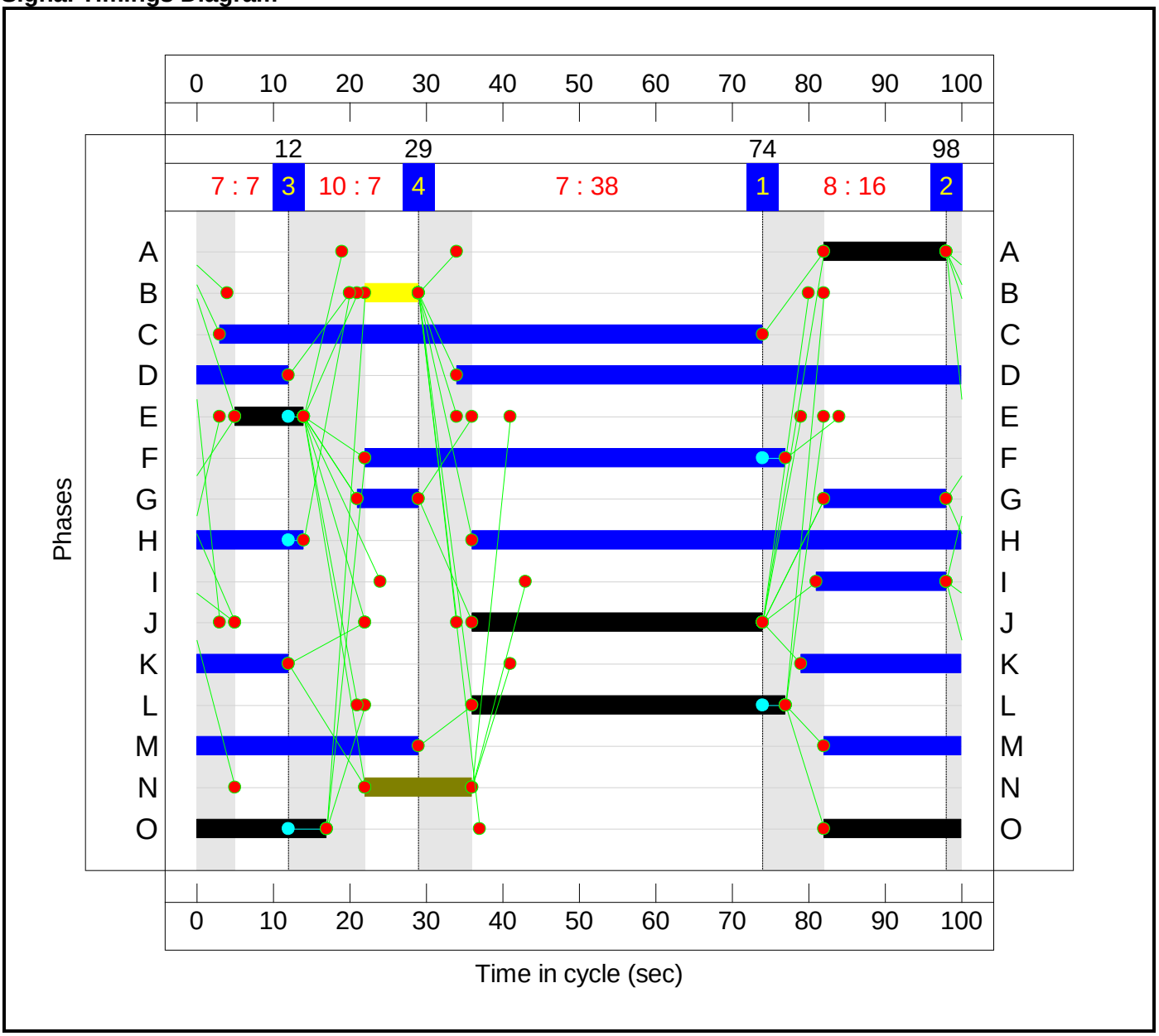


Stage Timings

Stage	1	2	3	4
Duration	16	7	7	38
Change Point	74	98	12	29

Full Input Data And Results

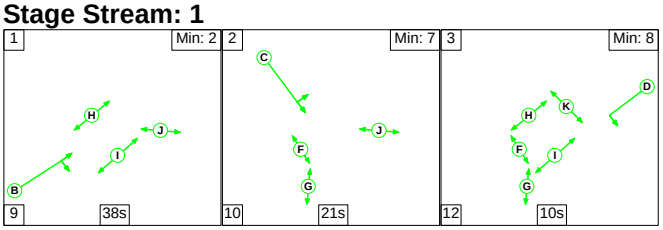
Signal Timings Diagram



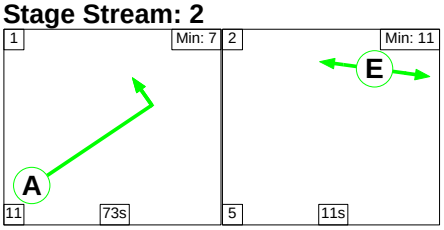
C3 - Moor Street Queensway - Jennens Road

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

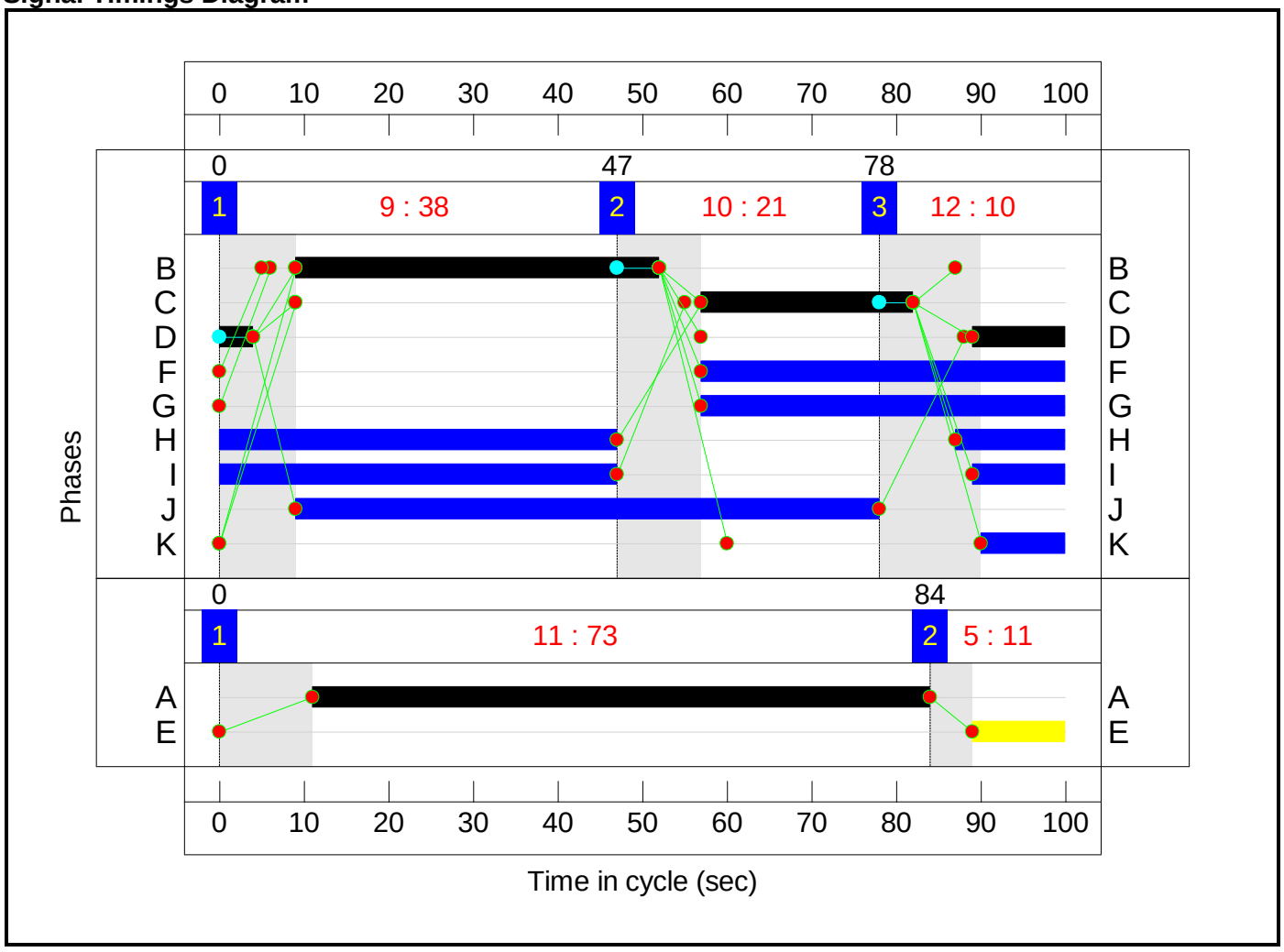
Stage Stream: 1

Stage	1	2	3
Duration	38	21	10
Change Point	0	47	78

Stage Stream: 2

Stage	1	2
Duration	73	11
Change Point	0	84

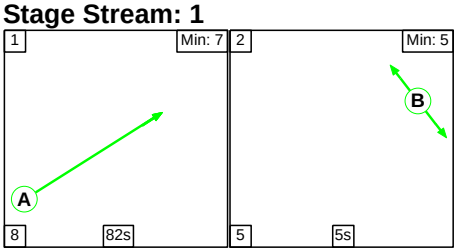
Signal Timings Diagram



C4 - Pedestrian Crossings Albert Street-Priory Queensway

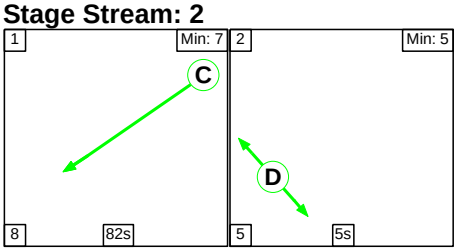
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

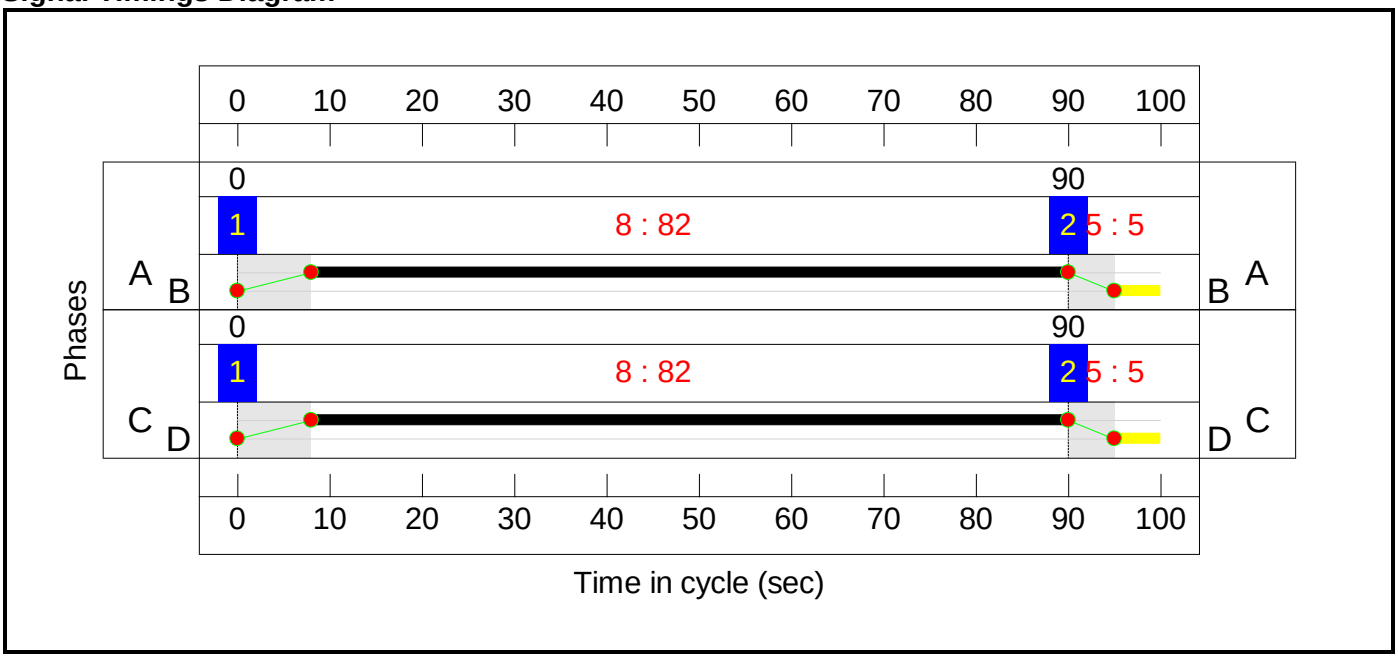
Stage Stream: 1

Stage	1	2
Duration	82	5
Change Point	0	90

Stage Stream: 2

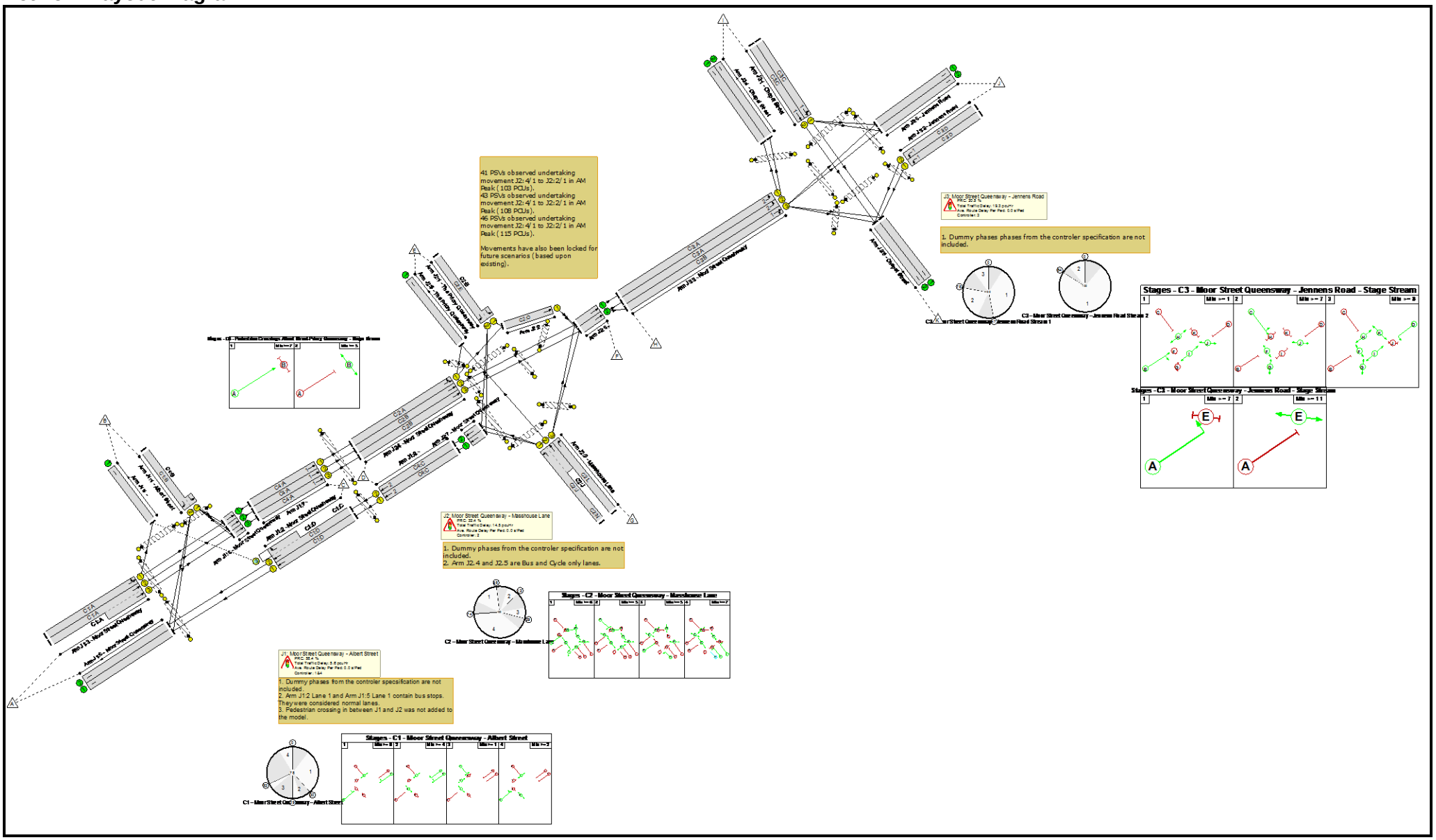
Stage	1	2
Duration	82	5
Change Point	0	90

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.7%**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**56.8%**
1/2+1/1	Albert Street Left Right	U	N/A	N/A	C1:B		1	14	-	237	1717:1807	253+164	56.8 : 56.8%
2/1	Moor Street Queensway Ahead	U	N/A	N/A	C1:D		1	34	-	215	1905	855	25.2%
2/2+2/3	Moor Street Queensway Right Ahead	U+O	N/A	N/A	C1:D	C1:C	1	34	7	263	2105:1895	945+0	27.8 : 0.0%
3/1	Moor Street Queensway Left Ahead	U	N/A	N/A	C1:A		1	42	-	50	2010	1108	4.5%
3/2+3/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:A		1	42	-	178	1935:2045	745+745	11.9 : 11.9%
4/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	55	1970	1970	2.8%
5/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	113	1970	1970	5.7%
5/3	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	153	2065	2065	7.4%
6/1	Moor Street Queensway	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%
6/2	Moor Street Queensway	U	N/A	N/A	-		-	-	-	335	Inf	Inf	0.0%
7/1	Ahead	U	4:1	N/A	C4:A		1	82	-	55	1970	1635	3.4%
7/2	Ahead	U	4:1	N/A	C4:A		1	82	-	113	1970	1635	6.9%

Full Input Data And Results

7/3	Ahead	U	4:1	N/A	C4:A		1	82	-	153	2065	1714	8.9%
8/1	Ahead	U	4:2	N/A	C4:C		1	82	-	170	1915	1589	10.7%
8/2	Ahead	U	4:2	N/A	C4:C		1	82	-	308	2100	1743	17.7%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	51	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	9	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:E		1	18	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:H		1	7	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	4:1	-	C4:B		1	5	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	4:2	-	C4:D		1	5	-	0	-	0	0.0%
J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**68.0%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C2:E		1	9	-	138	1821:1824	44+172	64.0 : 64.0%
2/1	Ahead	U	N/A	N/A	C2:O		1	35	-	213	1991	717	29.7%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C2:J	C2:N	1	52:38	14	450	1667:2020	884+0	50.9 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C2:L		1	41	-	500	1795	754	66.3%
4/1	Moor Street Queensway Ahead Left	U	N/A	N/A	C2:A		1	16	-	219	1895	322	68.0%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	7	-	47	1980	158	29.7%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	7	-	55	2090	167	32.9%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	116	1995	1995	5.8%
6/1	Ahead	U	N/A	N/A	-		-	-	-	283	1955	1955	14.5%

Full Input Data And Results

6/2	Ahead	U	N/A	N/A	-		-	-	-	532	2105	2105	25.3%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	170	1915	1915	8.9%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	308	2100	2100	14.7%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:C		1	71	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:D		1	78	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:I		1	17	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:K		1	33	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C2:M		1	47	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C2:F		1	55	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C2:G		2	24	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C2:H		1	78	-	0	-	0	0.0%
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.7%**
1/1	Chapel Street Left Ahead	U	3:1	N/A	C3:C		1	25	-	337	1801	468	72.0%
1/2	Chapel Street Ahead	U	3:1	N/A	C3:C		1	25	-	159	2095	545	29.2%
2/1	Jennens Road Left	U	3:1	N/A	C3:D		1	15	-	215	1872	300	71.8%
2/2	Jennens Road Left	U	3:1	N/A	C3:D		1	15	-	236	2009	321	73.4%
3/1	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	73	-	68	1846	1366	5.0%
3/2	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	73	-	115	2014	1490	7.7%

Full Input Data And Results

3/3	Moor Street Queensway Ahead Right	U	3:1	N/A	C3:B		1	43	-	633	1926	847	74.7%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	68	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	115	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	346	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
6/1	Chapel Street	U	N/A	N/A	-		-	-	-	355	Inf	Inf	0.0%
6/2	Chapel Street	U	N/A	N/A	-		-	-	-	534	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:2	-	C3:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:H		1	60	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	3:1	-	C3:K		1	10	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:J		1	69	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	3:1	-	C3:I		1	58	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	3:1	-	C3:G		1	43	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	3:1	-	C3:F		1	43	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**28.4**	**11.0**	**0.0**	**39.4**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**4.3**	**1.4**	**0.0**	**5.6**	**-**	**-**	**-**	**-**
1/2+1/1	237	237	-	-	-	1.8	0.7	-	2.5	37.5	3.2	0.7	3.9
2/1	215	215	-	-	-	0.8	0.2	-	1.0	16.2	2.9	0.2	3.0
2/2+2/3	263	263	0	0	0	1.0	0.2	0.0	1.2	16.2	3.6	0.2	3.8
3/1	50	50	-	-	-	0.1	0.0	-	0.1	9.8	0.5	0.0	0.5
3/2+3/3	178	178	-	-	-	0.4	0.1	-	0.5	9.6	0.9	0.1	1.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	55	55	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	113	113	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	153	153	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	335	335	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	55	55	-	-	-	0.0	0.0	-	0.0	2.7	0.3	0.0	0.3
7/2	113	113	-	-	-	0.0	0.0	-	0.1	2.7	0.6	0.0	0.6
7/3	153	153	-	-	-	0.1	0.0	-	0.1	2.7	0.8	0.0	0.8
8/1	170	170	-	-	-	0.0	0.1	-	0.1	1.3	0.0	0.1	0.1
8/2	308	308	-	-	-	0.0	0.1	-	0.1	1.3	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**10.4**	**4.1**	**0.0**	**14.5**	**-**	**-**	**-**	**-**
1/2+1/1	138	138	-	-	-	1.6	0.9	-	2.5	65.6	3.2	0.9	4.0
2/1	213	213	-	-	-	0.0	0.2	-	0.2	3.7	0.0	0.2	0.2
3/1+3/2	450	450	-	-	-	1.9	0.5	-	2.4	19.3	8.0	0.5	8.5
3/3	500	500	-	-	-	3.2	1.0	-	4.2	30.4	11.1	1.0	12.1
4/1	219	219	-	-	-	2.4	1.0	-	3.4	56.1	5.7	1.0	6.7
4/2	47	47	-	-	-	0.6	0.2	-	0.8	59.5	1.2	0.2	1.4
4/3	55	55	-	-	-	0.7	0.2	-	0.9	59.5	1.4	0.2	1.7
5/1	116	116	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	283	283	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	532	532	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	170	170	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**13.8**	**5.6**	**0.0**	**19.3**	**-**	**-**	**-**	**-**
1/1	337	337	-	-	-	3.2	1.3	-	4.4	47.1	8.5	1.3	9.8
1/2	159	159	-	-	-	1.3	0.2	-	1.5	34.3	3.5	0.2	3.7
2/1	215	215	-	-	-	2.4	1.2	-	3.6	60.6	5.6	1.2	6.8
2/2	236	236	-	-	-	2.6	1.3	-	4.0	60.4	6.2	1.3	7.6
3/1	68	68	-	-	-	0.1	0.0	-	0.1	4.9	0.5	0.0	0.5
3/2	115	115	-	-	-	0.1	0.0	-	0.2	4.9	0.9	0.0	0.9

Full Input Data And Results

3/3	633	633	-	-	-	4.1	1.5	-	5.6	31.6	14.6	1.5	16.1
4/1	68	68	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	115	115	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	346	346	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	355	355	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	534	534	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	58.4	Total Delay for Signalled Lanes (pcuHr):	5.23
C2 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	32.4	Total Delay for Signalled Lanes (pcuHr):	14.45
C3 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	20.5	Total Delay for Signalled Lanes (pcuHr):	19.07
C3 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	1066.4	Total Delay for Signalled Lanes (pcuHr):	0.25
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 1	PRC for Signalled Lanes (%):	908.2	Total Delay for Signalled Lanes (pcuHr):	0.24
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 2	PRC for Signalled Lanes (%):	409.3	Total Delay for Signalled Lanes (pcuHr):	0.17
		PRC Over All Lanes (%):	20.5	Total Delay Over All Lanes(pcuHr):	39.44

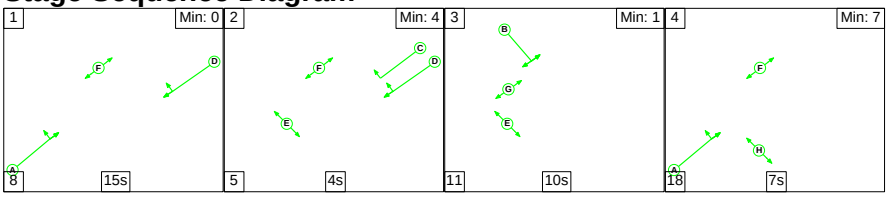
Cycle Time (s):	78
Cycle Time (s):	100
Cycle Time (s):	100
Cycle Time (s):	100
Cycle Time (s):	100
Cycle Time (s):	100

Full Input Data And Results

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Moor Street Queensway - Albert Street

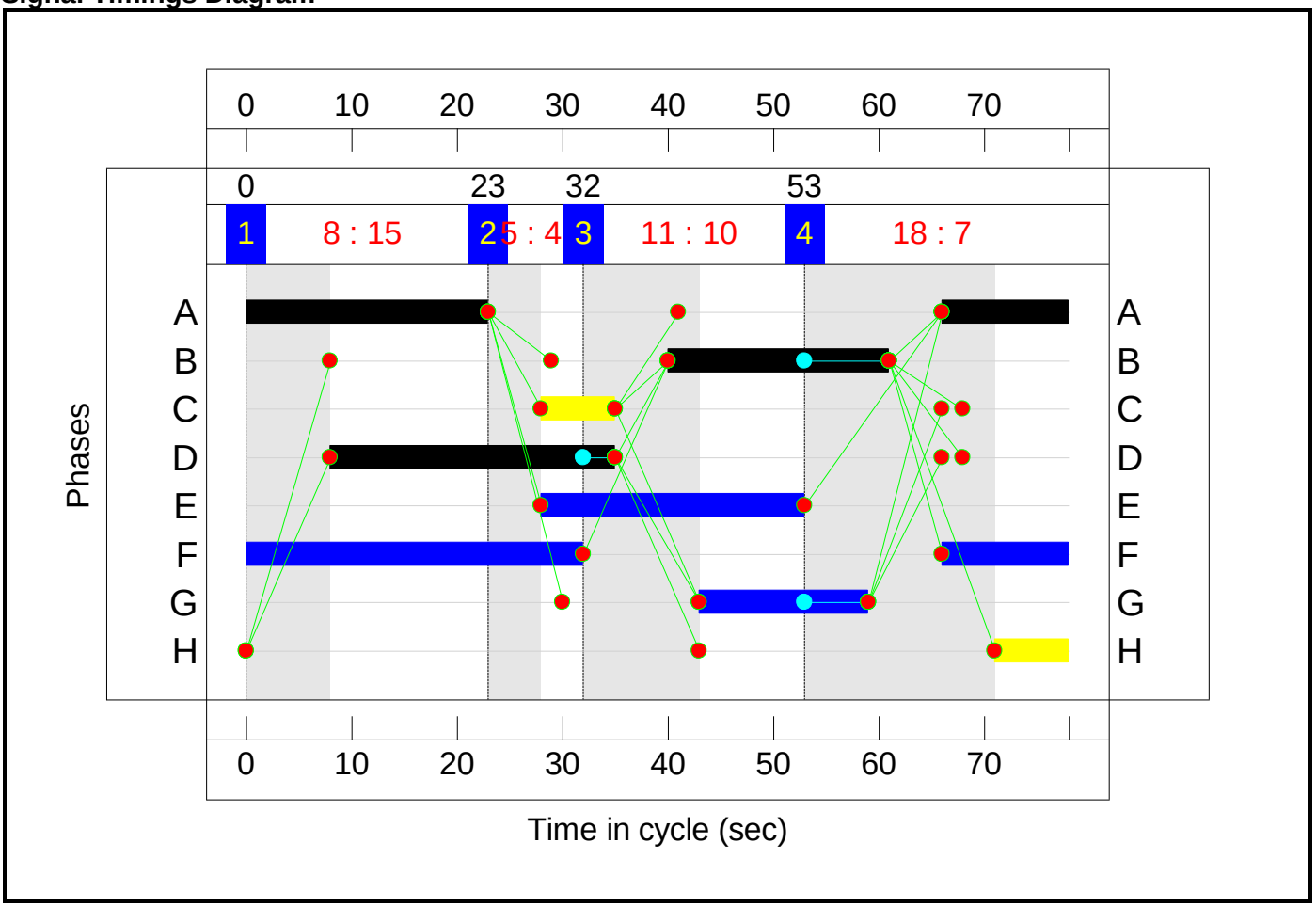
Stage Sequence Diagram



Stage Timings

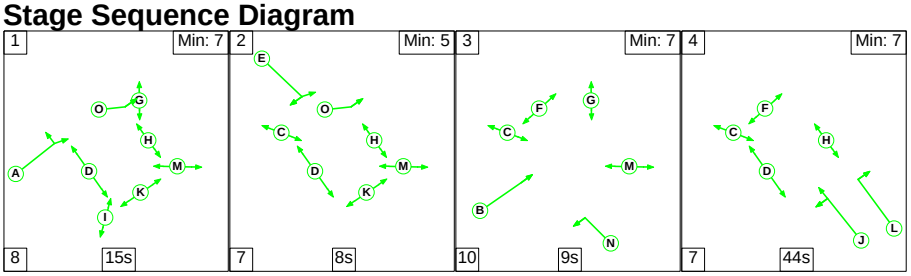
Stage	1	2	3	4
Duration	15	4	10	7
Change Point	0	23	32	53

Signal Timings Diagram



C2 - Moor Street Queensway - Masshouse Lane

Stage Sequence Diagram

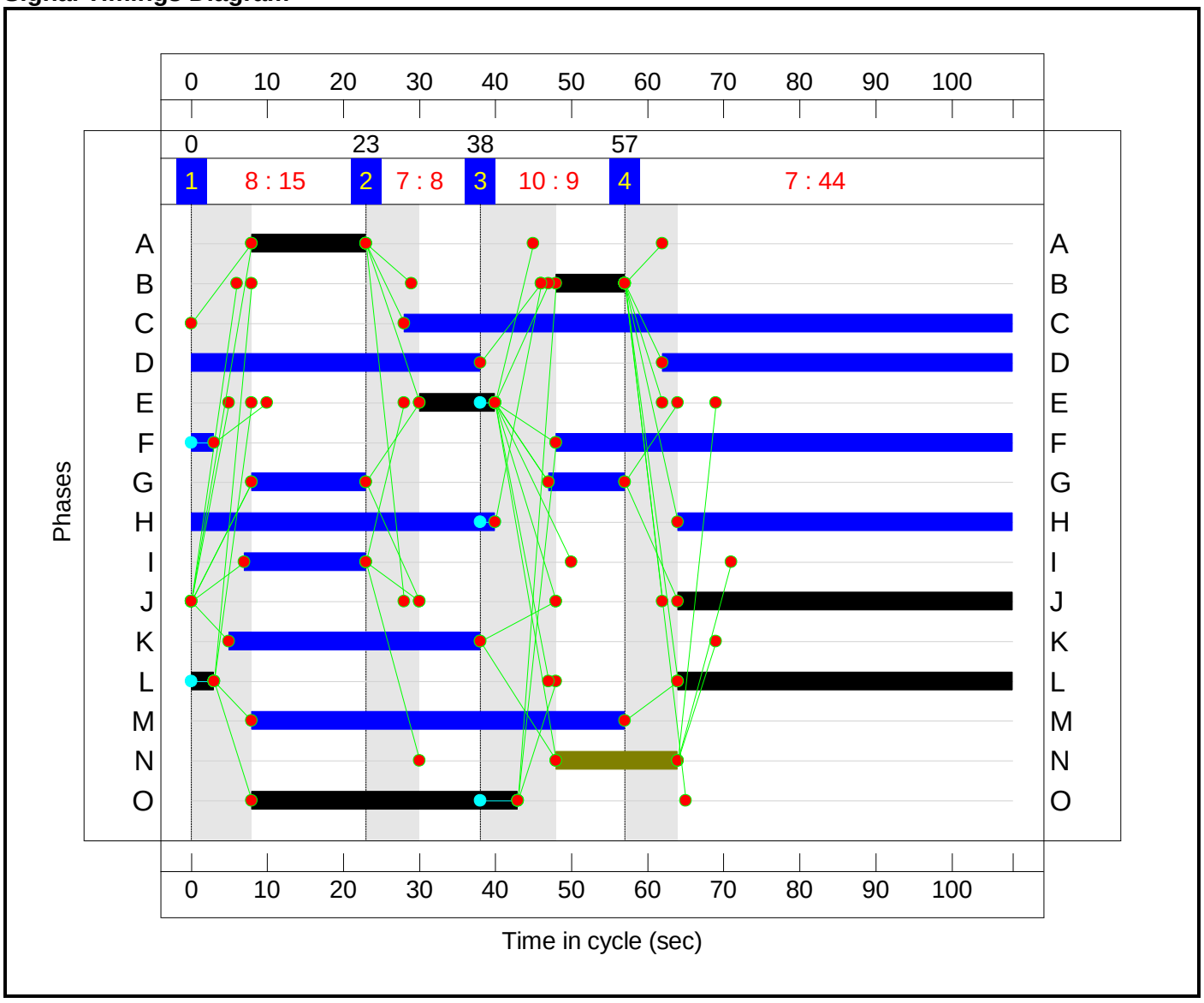


Full Input Data And Results

Stage Timings

Stage	1	2	3	4
Duration	15	8	9	44
Change Point	0	23	38	57

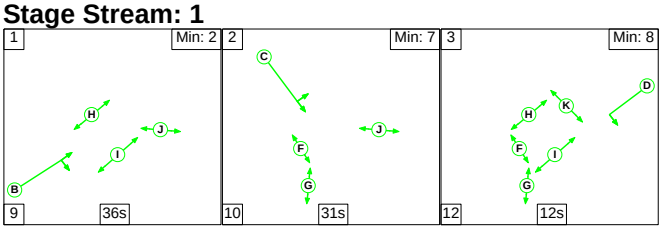
Signal Timings Diagram



C3 - Moor Street Queensway - Jennens Road

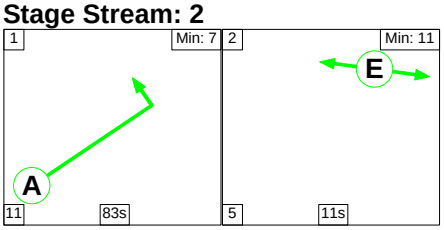
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

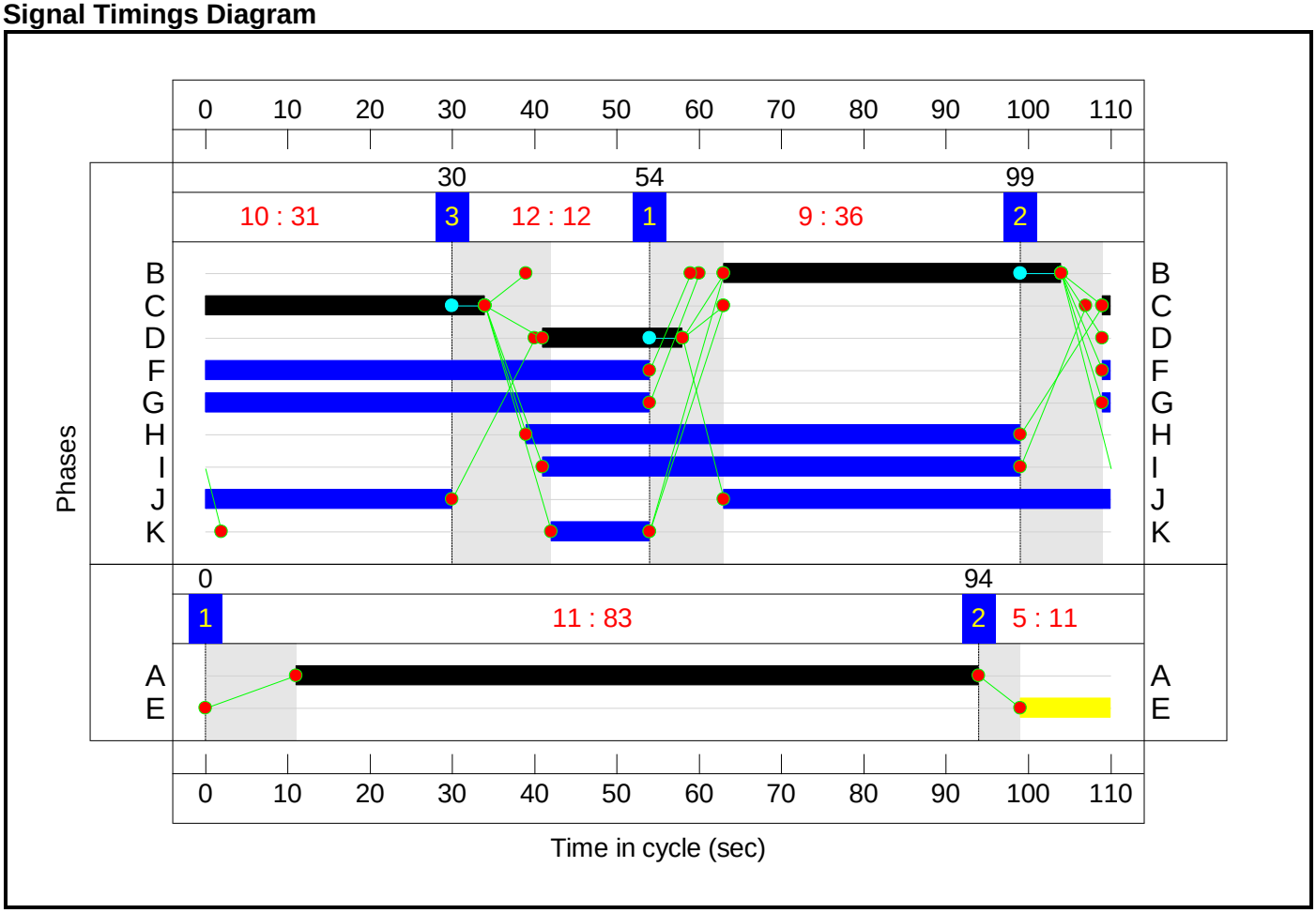
Stage Stream: 1

Stage	1	2	3
Duration	36	31	12
Change Point	54	99	30

Stage Stream: 2

Stage	1	2
Duration	83	11
Change Point	0	94

Signal Timings Diagram

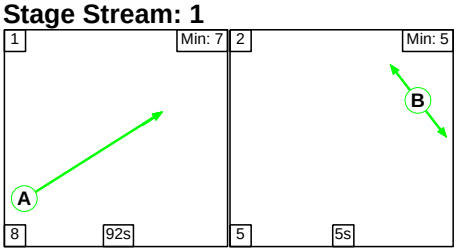


Full Input Data And Results

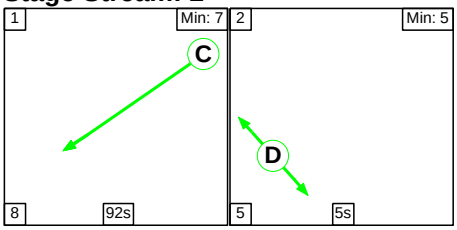
C4 - Pedestrian Crossings Albert Street-Priory Queensway

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

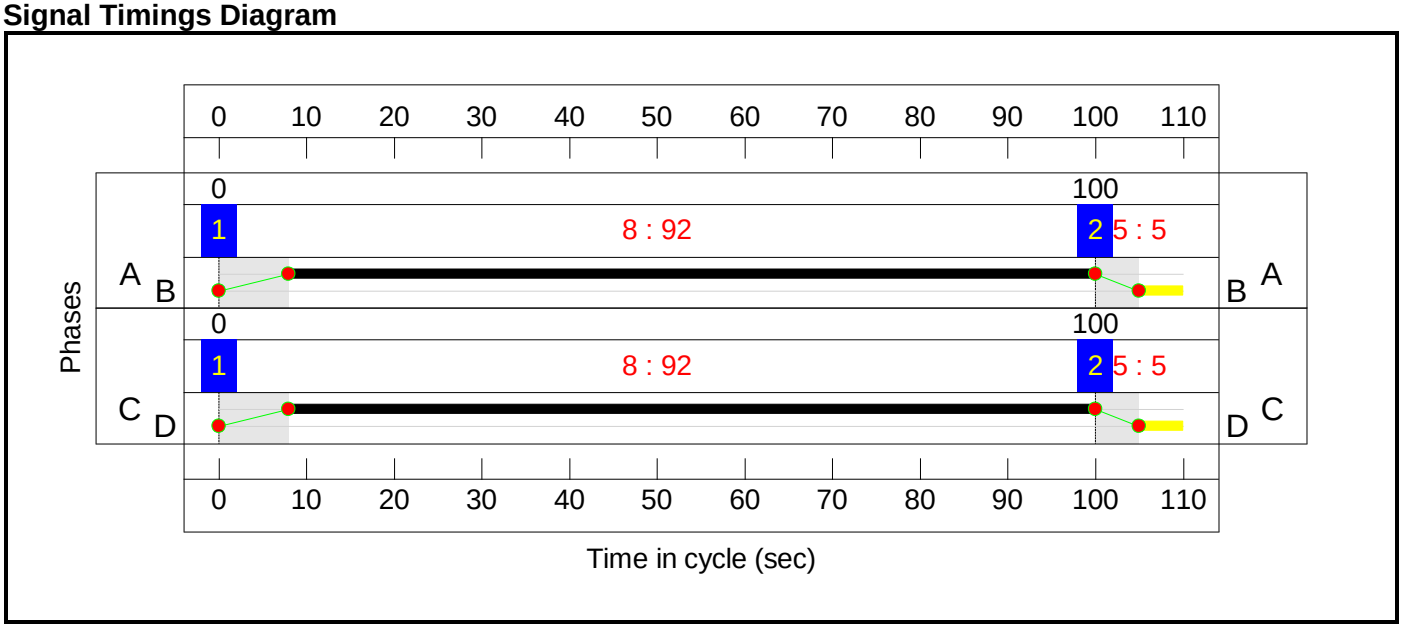
Stage Stream: 1

Stage	1	2
Duration	92	5
Change Point	0	100

Stage Stream: 2

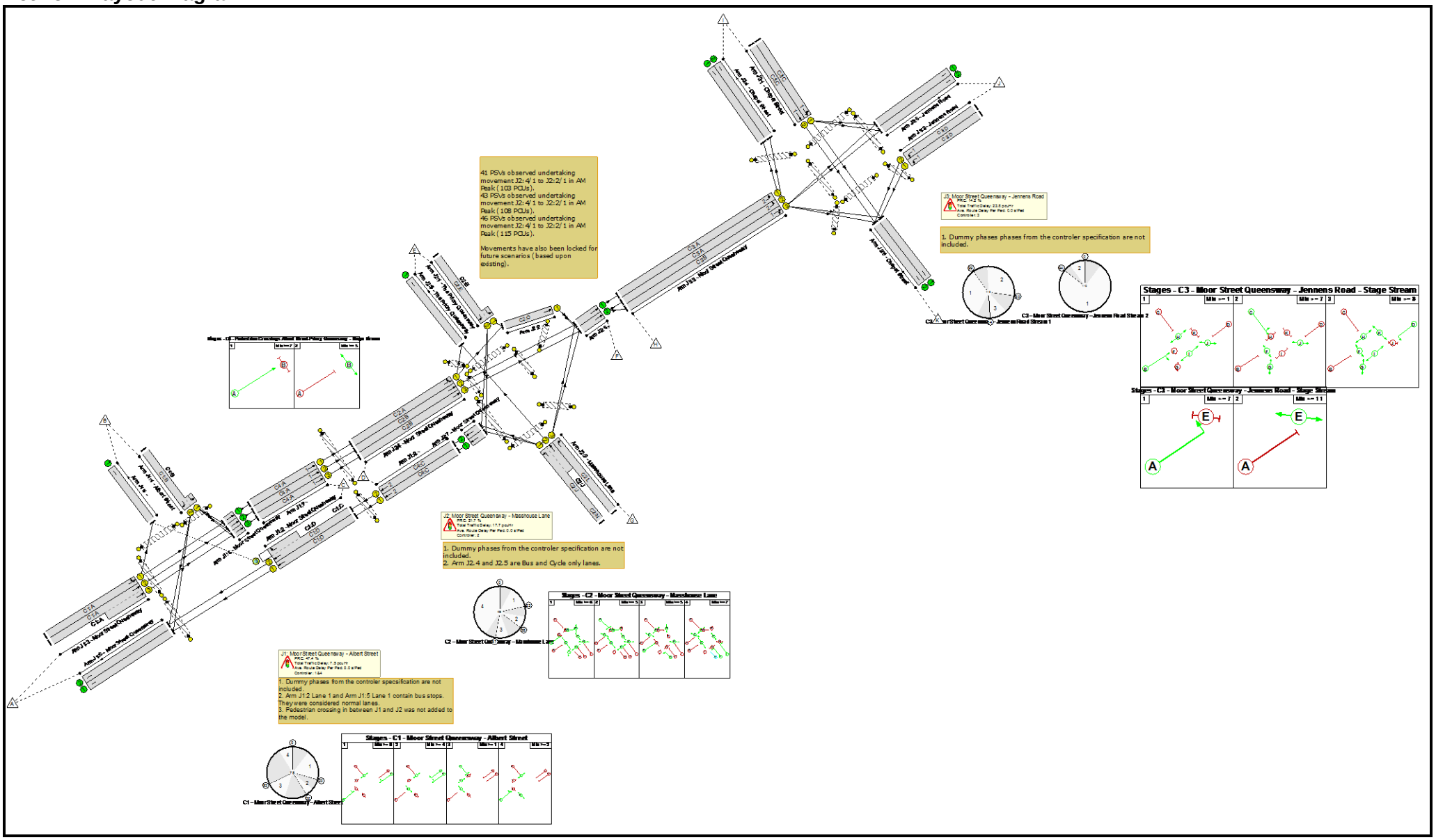
Stage	1	2
Duration	92	5
Change Point	0	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.8%**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**61.0%**
1/2+1/1	Albert Street Left Right	U	N/A	N/A	C1:B		1	21	-	370	1717:1807	305+301	61.0 : 61.0%
2/1	Moor Street Queensway Ahead	U	N/A	N/A	C1:D		1	27	-	218	1905	684	31.9%
2/2+2/3	Moor Street Queensway Right Ahead	U+O	N/A	N/A	C1:D	C1:C	1	27	7	264	2105:1895	756+0	34.9 : 0.0%
3/1	Moor Street Queensway Left Ahead	U	N/A	N/A	C1:A		1	35	-	58	2010	928	6.3%
3/2+3/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:A		1	35	-	152	1935:2045	628+680	11.6 : 11.6%
4/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	69	1970	1970	3.5%
5/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	139	1970	1970	7.1%
5/3	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	186	2065	2065	9.0%
6/1	Moor Street Queensway	U	N/A	N/A	-		-	-	-	311	Inf	Inf	0.0%
6/2	Moor Street Queensway	U	N/A	N/A	-		-	-	-	357	Inf	Inf	0.0%
7/1	Ahead	U	4:1	N/A	C4:A		1	92	-	69	1970	1666	4.1%
7/2	Ahead	U	4:1	N/A	C4:A		1	92	-	139	1970	1666	8.3%

Full Input Data And Results

7/3	Ahead	U	4:1	N/A	C4:A		1	92	-	186	2065	1746	10.7%
8/1	Ahead	U	4:2	N/A	C4:C		1	92	-	196	1915	1619	12.1%
8/2	Ahead	U	4:2	N/A	C4:C		1	92	-	286	2100	1775	16.1%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	44	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	16	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:E		1	25	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:H		1	7	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	4:1	-	C4:B		1	5	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	4:2	-	C4:D		1	5	-	0	-	0	0.0%
J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.9%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C2:E		1	10	-	158	1821:1824	47+171	72.5 : 72.5%
2/1	Ahead	U	N/A	N/A	C2:O		1	35	-	232	1991	664	35.0%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C2:J	C2:N	1	60:44	16	448	1667:2020	942+0	47.6 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C2:L		1	47	-	542	1795	798	67.9%
4/1	Moor Street Queensway Ahead Left	U	N/A	N/A	C2:A		1	15	-	208	1899	281	73.9%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	9	-	88	1980	183	48.0%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	9	-	98	2090	194	50.6%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	100	1995	1995	5.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	353	1955	1955	18.1%

Full Input Data And Results

6/2	Ahead	U	N/A	N/A	-		-	-	-	607	2105	2105	28.8%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	196	1915	1915	10.2%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	286	2100	2100	13.6%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:C		1	80	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:D		1	84	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:I		1	16	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:K		1	33	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C2:M		1	49	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C2:F		1	63	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C2:G		2	25	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C2:H		1	84	-	0	-	0	0.0%
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.8%**
1/1	Chapel Street Left Ahead	U	3:1	N/A	C3:C		1	35	-	464	1801	589	78.7%
1/2	Chapel Street Ahead	U	3:1	N/A	C3:C		1	35	-	167	2095	686	24.4%
2/1	Jennens Road Left	U	3:1	N/A	C3:D		1	17	-	232	1872	306	75.7%
2/2	Jennens Road Left	U	3:1	N/A	C3:D		1	17	-	254	2009	329	77.3%
3/1	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	83	-	162	1846	1410	11.5%
3/2	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	83	-	220	2014	1538	14.3%

Full Input Data And Results

3/3	Moor Street Queensway Ahead Right	U	3:1	N/A	C3:B		1	41	-	579	1925	735	78.8%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	162	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	220	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	391	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	390	Inf	Inf	0.0%
6/1	Chapel Street	U	N/A	N/A	-		-	-	-	363	Inf	Inf	0.0%
6/2	Chapel Street	U	N/A	N/A	-		-	-	-	552	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:2	-	C3:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:H		1	60	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	3:1	-	C3:K		1	12	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:J		1	77	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	3:1	-	C3:I		1	58	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	3:1	-	C3:G		1	55	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	3:1	-	C3:F		1	55	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**34.9**	**14.1**	**0.0**	**49.0**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**5.8**	**1.7**	**0.0**	**7.5**	**-**	**-**	**-**	**-**
1/2+1/1	370	370	-	-	-	2.3	0.8	-	3.1	30.3	4.7	0.8	5.5
2/1	218	218	-	-	-	1.1	0.2	-	1.3	22.0	3.4	0.2	3.6
2/2+2/3	264	264	0	0	0	1.3	0.3	0.0	1.6	22.0	4.2	0.3	4.4
3/1	58	58	-	-	-	0.2	0.0	-	0.2	13.8	0.7	0.0	0.7
3/2+3/3	152	152	-	-	-	0.5	0.1	-	0.6	13.3	0.9	0.1	1.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.6	0.0	0.6
5/2	139	139	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	311	311	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	357	357	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	69	69	-	-	-	0.0	0.0	-	0.0	2.5	0.3	0.0	0.3
7/2	139	139	-	-	-	0.1	0.0	-	0.1	2.6	0.7	0.0	0.7
7/3	186	186	-	-	-	0.1	0.1	-	0.1	2.6	0.9	0.1	1.0
8/1	196	196	-	-	-	0.1	0.1	-	0.1	2.7	1.0	0.1	1.0
8/2	286	286	-	-	-	0.1	0.1	-	0.2	2.7	1.5	0.1	1.6
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**12.3**	**5.4**	**0.0**	**17.7**	**-**	**-**	**-**	**-**
1/2+1/1	158	158	-	-	-	2.0	1.3	-	3.3	75.4	4.0	1.3	5.3
2/1	232	232	-	-	-	0.0	0.3	-	0.3	4.3	0.0	0.3	0.3
3/1+3/2	448	448	-	-	-	1.7	0.5	-	2.2	17.6	8.0	0.5	8.4
3/3	542	542	-	-	-	3.6	1.1	-	4.6	30.9	12.8	1.1	13.8
4/1	208	208	-	-	-	2.5	1.4	-	3.9	67.7	6.0	1.4	7.3
4/2	88	88	-	-	-	1.1	0.5	-	1.6	65.3	2.5	0.5	3.0
4/3	98	98	-	-	-	1.3	0.5	-	1.8	65.3	2.8	0.5	3.3
5/1	100	100	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
6/1	353	353	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	607	607	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	196	196	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	286	286	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**16.7**	**7.0**	**0.0**	**23.8**	**-**	**-**	**-**	**-**
1/1	464	464	-	-	-	4.3	1.8	-	6.1	47.5	12.8	1.8	14.6
1/2	167	167	-	-	-	1.3	0.2	-	1.4	30.5	3.7	0.2	3.9
2/1	232	232	-	-	-	2.8	1.5	-	4.3	67.2	6.8	1.5	8.3
2/2	254	254	-	-	-	3.1	1.6	-	4.7	67.1	7.4	1.6	9.0
3/1	162	162	-	-	-	0.2	0.1	-	0.2	4.8	1.3	0.1	1.3
3/2	220	220	-	-	-	0.2	0.1	-	0.3	4.8	1.8	0.1	1.9

Full Input Data And Results

3/3	579	579	-	-	-	4.8	1.8	-	6.6	41.3	15.6	1.8	17.4
4/1	162	162	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	220	220	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	391	391	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	390	390	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	363	363	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	552	552	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-

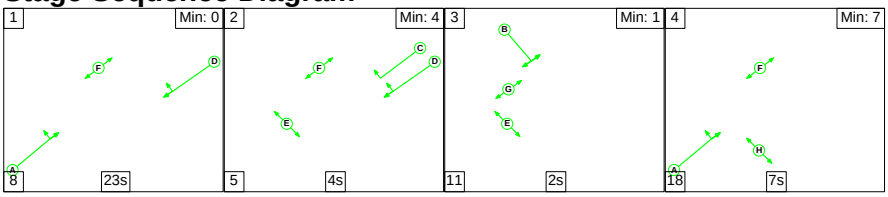
C1 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	47.4	Total Delay for Signalled Lanes (pcuHr):	6.84	Cycle Time (s):	78
C2 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	21.7	Total Delay for Signalled Lanes (pcuHr):	17.71	Cycle Time (s):	108
C3 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	14.2	Total Delay for Signalled Lanes (pcuHr):	23.25	Cycle Time (s):	110
C3 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	529.2	Total Delay for Signalled Lanes (pcuHr):	0.51	Cycle Time (s):	110
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 1	PRC for Signalled Lanes (%):	744.8	Total Delay for Signalled Lanes (pcuHr):	0.28	Cycle Time (s):	110
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 2	PRC for Signalled Lanes (%):	458.7	Total Delay for Signalled Lanes (pcuHr):	0.37	Cycle Time (s):	110
		PRC Over All Lanes (%):	14.2	Total Delay Over All Lanes(pcuHr):	48.99		

Full Input Data And Results

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Moor Street Queensway - Albert Street

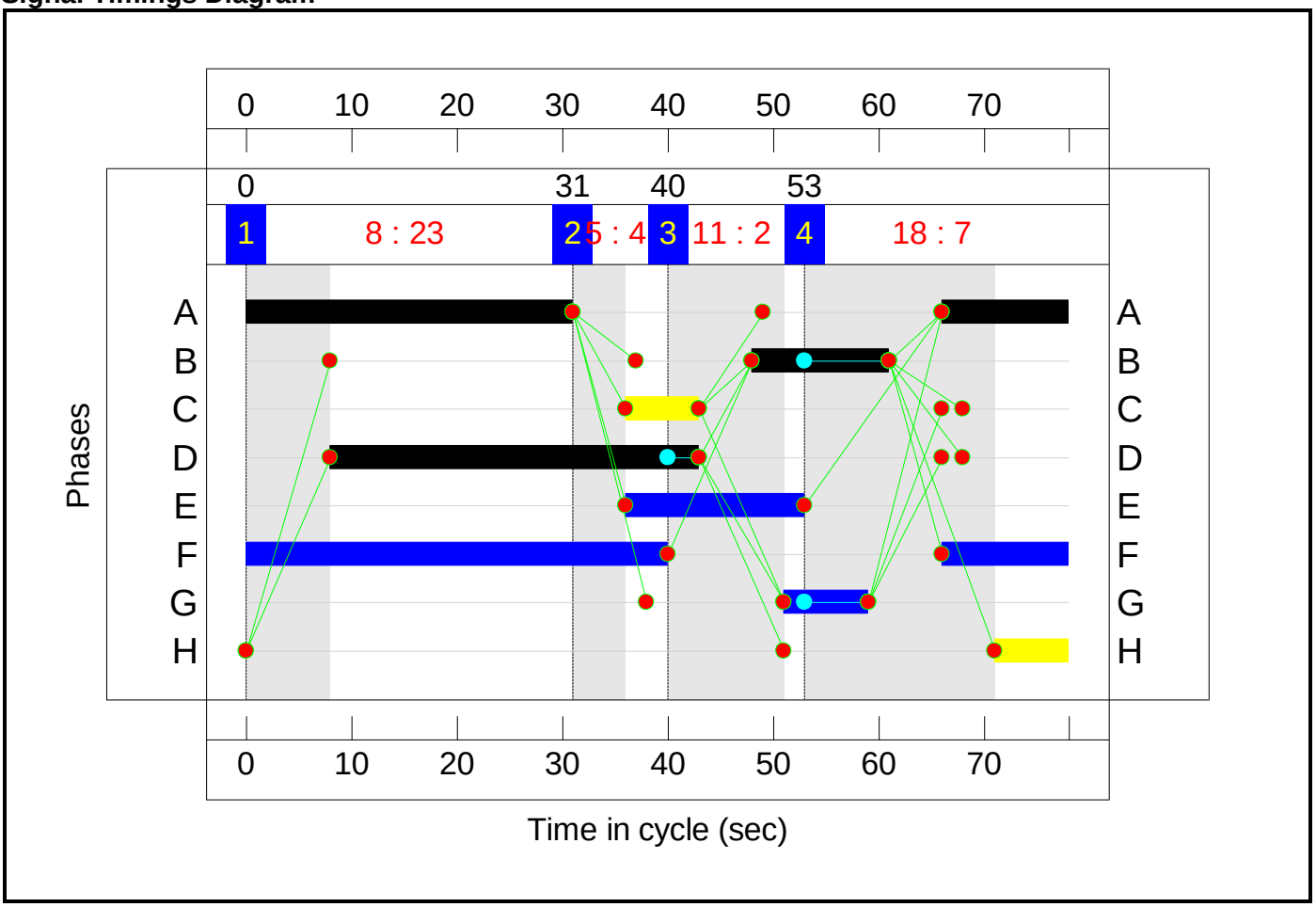
Stage Sequence Diagram



Stage Timings

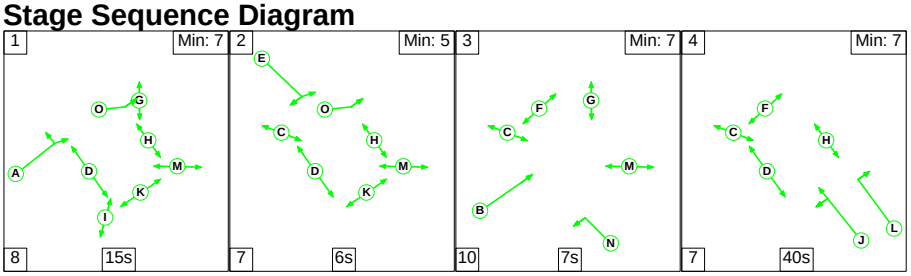
Stage	1	2	3	4
Duration	23	4	2	7
Change Point	0	31	40	53

Signal Timings Diagram



C2 - Moor Street Queensway - Masshouse Lane

Stage Sequence Diagram

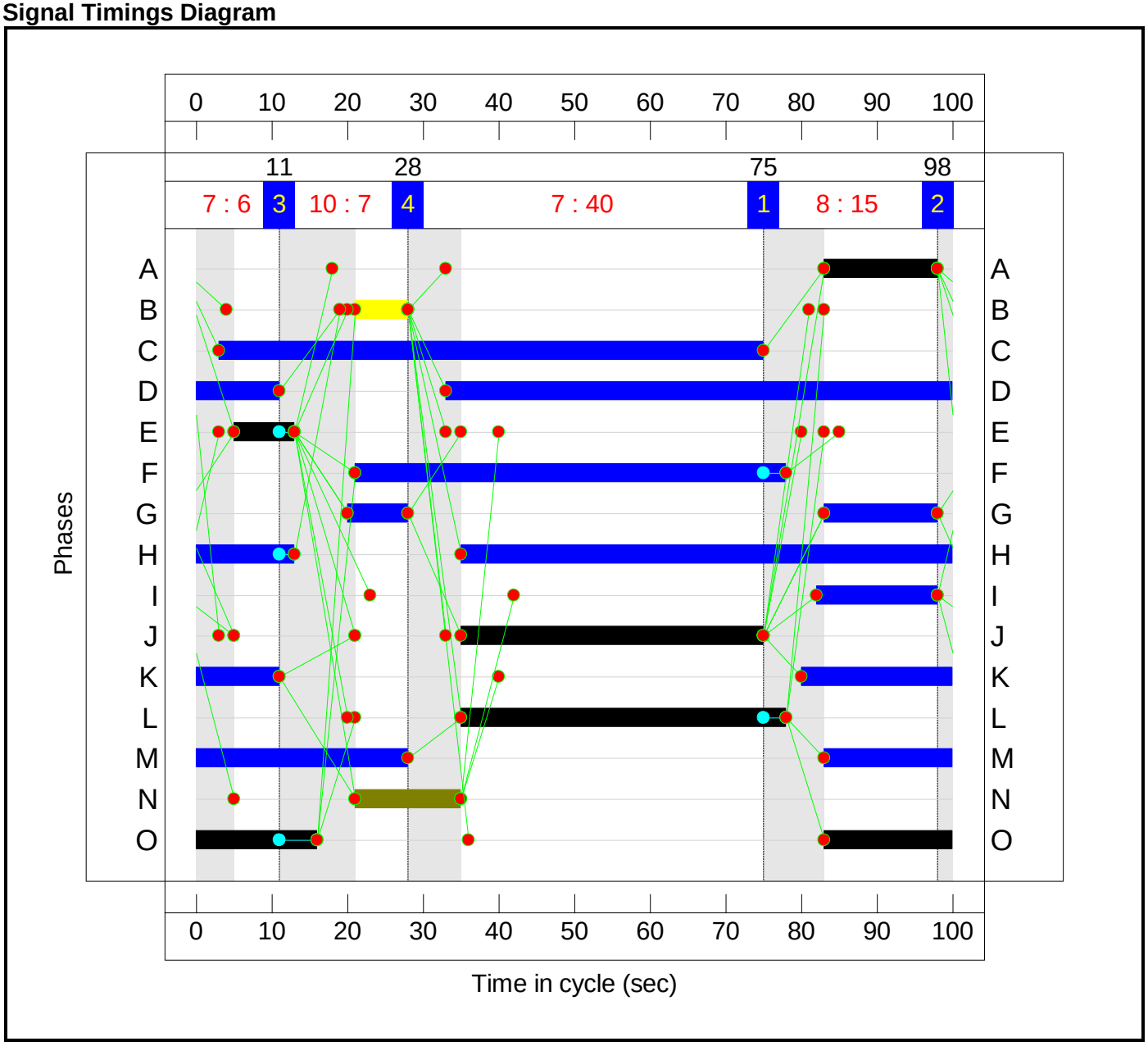


Full Input Data And Results

Stage Timings

Stage	1	2	3	4
Duration	15	6	7	40
Change Point	75	98	11	28

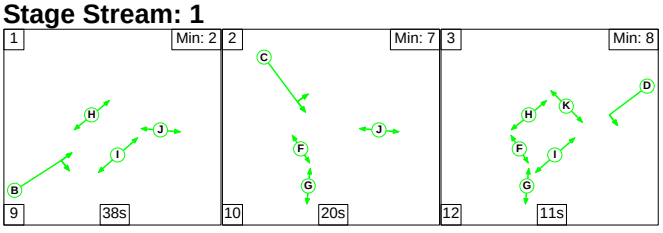
Signal Timings Diagram



C3 - Moor Street Queensway - Jennens Road

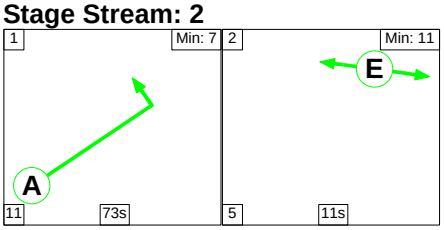
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

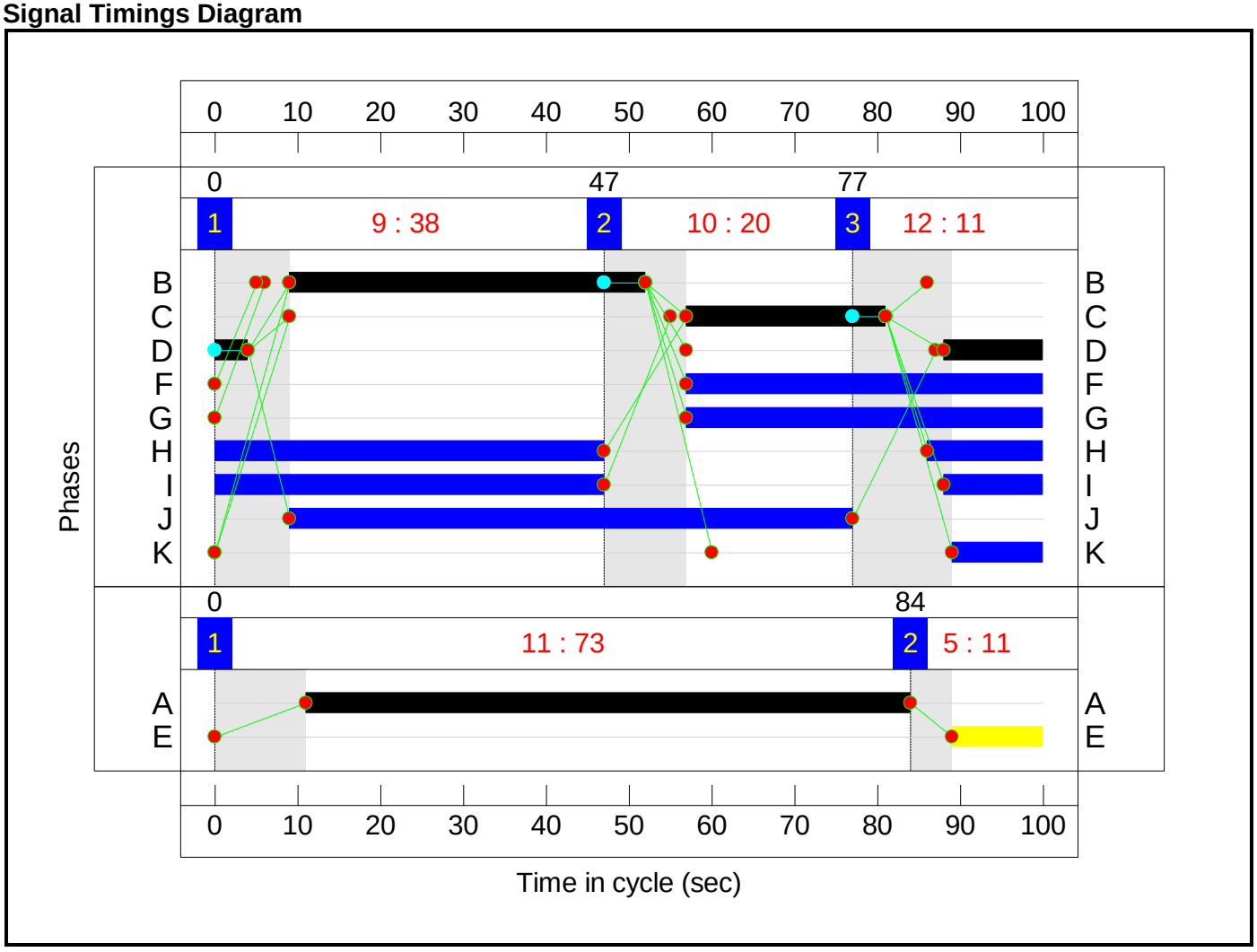
Stage Stream: 1

Stage	1	2	3
Duration	38	20	11
Change Point	0	47	77

Stage Stream: 2

Stage	1	2
Duration	73	11
Change Point	0	84

Signal Timings Diagram

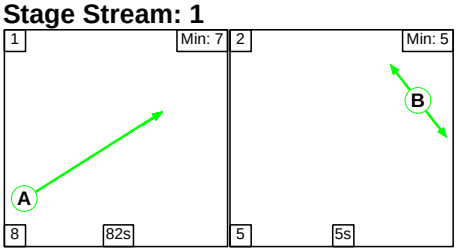


Full Input Data And Results

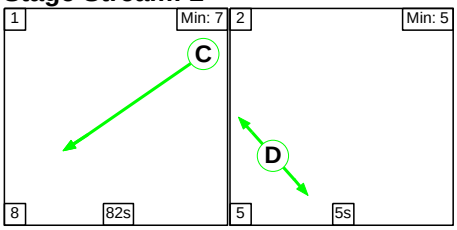
C4 - Pedestrian Crossings Albert Street-Priory Queensway

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

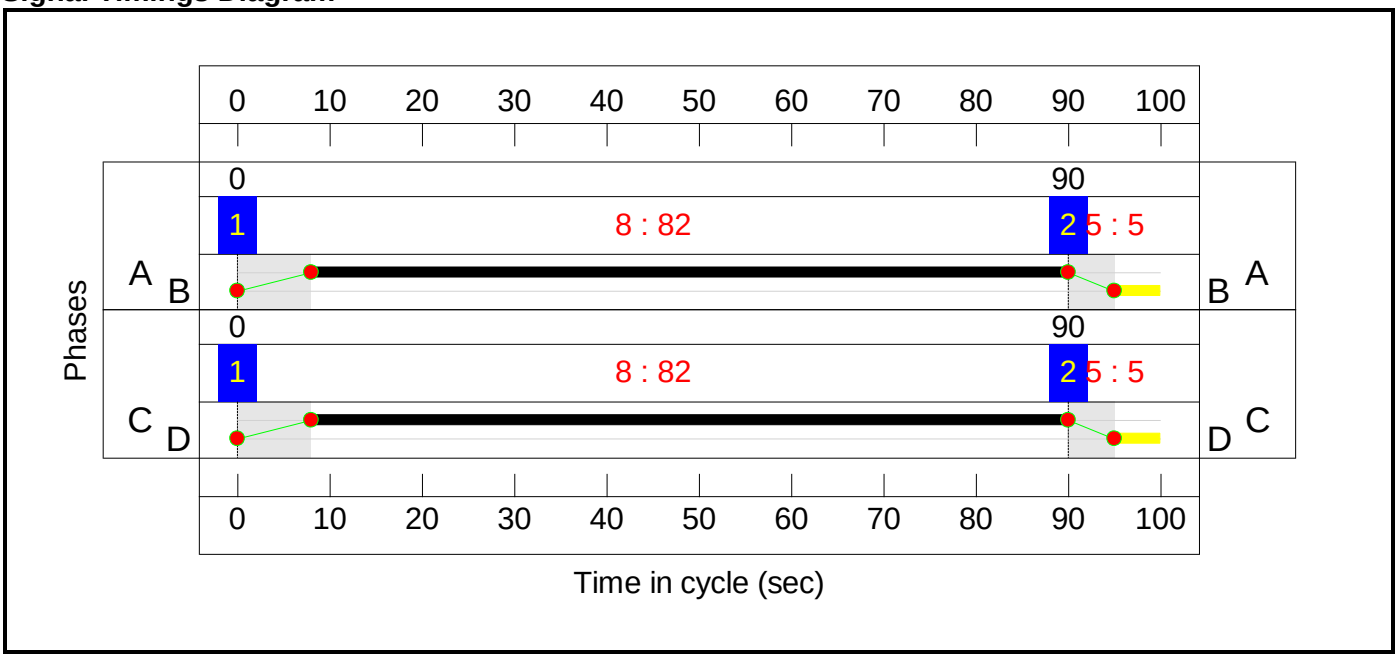
Stage Stream: 1

Stage	1	2
Duration	82	5
Change Point	0	90

Stage Stream: 2

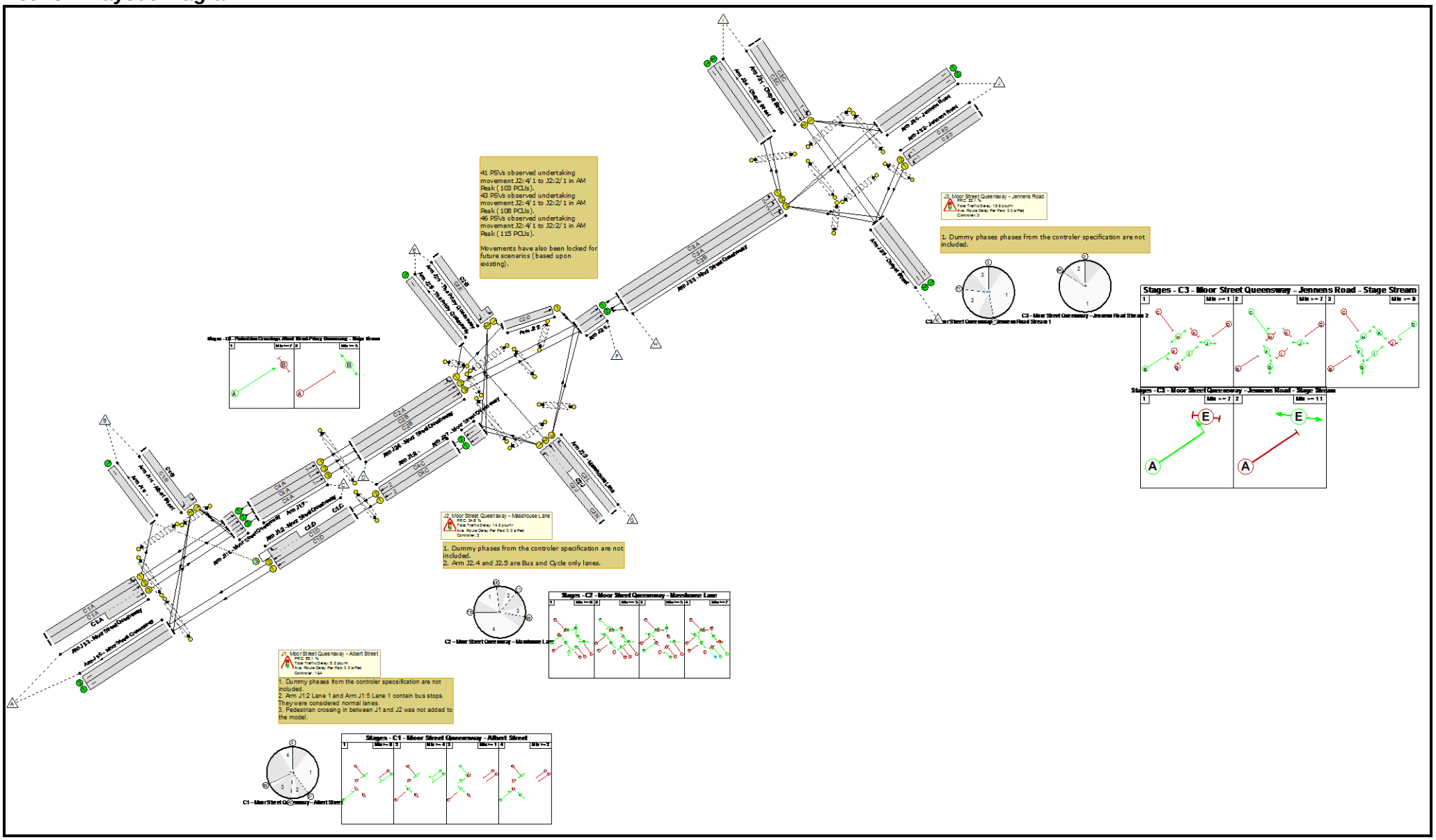
Stage	1	2
Duration	82	5
Change Point	0	90

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.7%**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**54.5%**
1/2+1/1	Albert Street Left Right	U	N/A	N/A	C1:B		1	13	-	203	1717:1807	264+108	54.5 : 54.5%
2/1	Moor Street Queensway Ahead	U	N/A	N/A	C1:D		1	35	-	215	1905	879	24.5%
2/2+2/3	Moor Street Queensway Right Ahead	U+O	N/A	N/A	C1:D	C1:C	1	35	7	263	2105:1895	972+0	27.1 : 0.0%
3/1	Moor Street Queensway Left Ahead	U	N/A	N/A	C1:A		1	43	-	72	2010	1134	6.4%
3/2+3/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:A		1	43	-	156	1935:2045	727+785	10.3 : 10.3%
4/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	74	1970	1970	3.8%
5/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	87	1970	1970	4.4%
5/3	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	126	2065	2065	6.1%
6/1	Moor Street Queensway	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%
6/2	Moor Street Queensway	U	N/A	N/A	-		-	-	-	335	Inf	Inf	0.0%
7/1	Ahead	U	4:1	N/A	C4:A		1	82	-	74	1970	1635	4.5%
7/2	Ahead	U	4:1	N/A	C4:A		1	82	-	87	1970	1635	5.3%

Full Input Data And Results

7/3	Ahead	U	4:1	N/A	C4:A		1	82	-	126	2065	1714	7.4%
8/1	Ahead	U	4:2	N/A	C4:C		1	82	-	170	1915	1589	10.7%
8/2	Ahead	U	4:2	N/A	C4:C		1	82	-	308	2100	1743	17.7%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	52	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	8	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:E		1	17	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:H		1	7	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	4:1	-	C4:B		1	5	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	4:2	-	C4:D		1	5	-	0	-	0	0.0%
J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.2%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C2:E		1	8	-	138	1821:1824	40+157	69.9 : 69.9%
2/1	Ahead	U	N/A	N/A	C2:O		1	33	-	213	1991	677	31.5%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C2:J	C2:N	1	54:40	14	450	1667:2020	917+0	49.1 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C2:L		1	43	-	521	1795	790	66.0%
4/1	Moor Street Queensway Ahead Left	U	N/A	N/A	C2:A		1	15	-	219	1895	303	72.2%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	7	-	30	1980	158	18.9%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	7	-	38	2090	167	22.7%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	116	1995	1995	5.8%
6/1	Ahead	U	N/A	N/A	-		-	-	-	271	1955	1955	13.9%

Full Input Data And Results

6/2	Ahead	U	N/A	N/A	-		-	-	-	531	2105	2105	25.2%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	170	1915	1915	8.9%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	308	2100	2100	14.7%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:C		1	72	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:D		1	78	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:I		1	16	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:K		1	31	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C2:M		1	45	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C2:F		1	57	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C2:G		2	23	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C2:H		1	78	-	0	-	0	0.0%
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.7%**
1/1	Chapel Street Left Ahead	U	3:1	N/A	C3:C		1	24	-	332	1801	450	73.7%
1/2	Chapel Street Ahead	U	3:1	N/A	C3:C		1	24	-	159	2095	524	30.4%
2/1	Jennens Road Left	U	3:1	N/A	C3:D		1	16	-	219	1872	318	68.8%
2/2	Jennens Road Left	U	3:1	N/A	C3:D		1	16	-	242	2009	342	70.9%
3/1	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	73	-	67	1846	1366	4.9%
3/2	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	73	-	117	2014	1490	7.9%

Full Input Data And Results

3/3	Moor Street Queensway Ahead Right	U	3:1	N/A	C3:B		1	43	-	618	1926	847	72.9%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	67	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	117	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	338	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	337	Inf	Inf	0.0%
6/1	Chapel Street	U	N/A	N/A	-		-	-	-	357	Inf	Inf	0.0%
6/2	Chapel Street	U	N/A	N/A	-		-	-	-	538	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:2	-	C3:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:H		1	61	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	3:1	-	C3:K		1	11	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:J		1	68	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	3:1	-	C3:I		1	59	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	3:1	-	C3:G		1	43	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	3:1	-	C3:F		1	43	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**27.5**	**10.9**	**0.0**	**38.4**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**3.9**	**1.3**	**0.0**	**5.2**	**-**	**-**	**-**	**-**
1/2+1/1	203	203	-	-	-	1.6	0.6	-	2.2	39.0	3.1	0.6	3.7
2/1	215	215	-	-	-	0.8	0.2	-	0.9	15.5	2.8	0.2	3.0
2/2+2/3	263	263	0	0	0	0.9	0.2	0.0	1.1	15.5	3.4	0.2	3.6
3/1	72	72	-	-	-	0.2	0.0	-	0.2	9.4	0.7	0.0	0.7
3/2+3/3	156	156	-	-	-	0.3	0.1	-	0.4	9.1	0.8	0.1	0.8
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	74	74	-	-	-	0.0	0.0	-	0.0	0.0	0.6	0.0	0.6
5/2	87	87	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	126	126	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	335	335	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	74	74	-	-	-	0.0	0.0	-	0.1	2.7	0.3	0.0	0.4
7/2	87	87	-	-	-	0.0	0.0	-	0.1	2.7	0.4	0.0	0.4
7/3	126	126	-	-	-	0.1	0.0	-	0.1	2.7	0.6	0.0	0.7
8/1	170	170	-	-	-	0.0	0.1	-	0.1	1.3	0.0	0.1	0.1
8/2	308	308	-	-	-	0.0	0.1	-	0.1	1.3	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**9.9**	**4.3**	**0.0**	**14.2**	**-**	**-**	**-**	**-**
1/2+1/1	138	138	-	-	-	1.7	1.1	-	2.8	73.0	3.2	1.1	4.3
2/1	213	213	-	-	-	0.0	0.2	-	0.2	4.1	0.0	0.2	0.2
3/1+3/2	450	450	-	-	-	1.7	0.5	-	2.2	17.7	7.6	0.5	8.1
3/3	521	521	-	-	-	3.2	1.0	-	4.2	28.7	11.3	1.0	12.3
4/1	219	219	-	-	-	2.4	1.3	-	3.7	60.6	5.7	1.3	7.0
4/2	30	30	-	-	-	0.4	0.1	-	0.5	57.0	0.8	0.1	0.9
4/3	38	38	-	-	-	0.5	0.1	-	0.6	57.1	1.0	0.1	1.1
5/1	116	116	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	531	531	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	170	170	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**13.7**	**5.3**	**0.0**	**18.9**	**-**	**-**	**-**	**-**
1/1	332	332	-	-	-	3.2	1.4	-	4.6	49.4	8.4	1.4	9.8
1/2	159	159	-	-	-	1.3	0.2	-	1.6	35.4	3.6	0.2	3.8
2/1	219	219	-	-	-	2.4	1.1	-	3.5	56.8	5.7	1.1	6.7
2/2	242	242	-	-	-	2.6	1.2	-	3.8	56.8	6.3	1.2	7.5
3/1	67	67	-	-	-	0.1	0.0	-	0.1	4.9	0.5	0.0	0.5
3/2	117	117	-	-	-	0.1	0.0	-	0.2	4.9	0.9	0.0	0.9

Full Input Data And Results

3/3	618	618	-	-	-	4.0	1.3	-	5.3	30.8	14.1	1.3	15.4
4/1	67	67	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	117	117	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	338	338	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	337	337	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	357	357	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	538	538	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	65.1	Total Delay for Signalled Lanes (pcuHr):	4.83
C2 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	24.6	Total Delay for Signalled Lanes (pcuHr):	14.18
C3 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	22.1	Total Delay for Signalled Lanes (pcuHr):	18.68
C3 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	1046.4	Total Delay for Signalled Lanes (pcuHr):	0.25
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 1	PRC for Signalled Lanes (%):	1124.2	Total Delay for Signalled Lanes (pcuHr):	0.21
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 2	PRC for Signalled Lanes (%):	409.3	Total Delay for Signalled Lanes (pcuHr):	0.17
		PRC Over All Lanes (%):	22.1	Total Delay Over All Lanes(pcuHr):	38.36

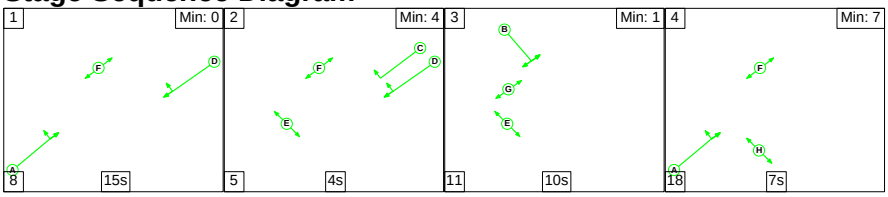
Cycle Time (s):	78
Cycle Time (s):	100
Cycle Time (s):	100
Cycle Time (s):	100
Cycle Time (s):	100
Cycle Time (s):	100

Full Input Data And Results

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Moor Street Queensway - Albert Street

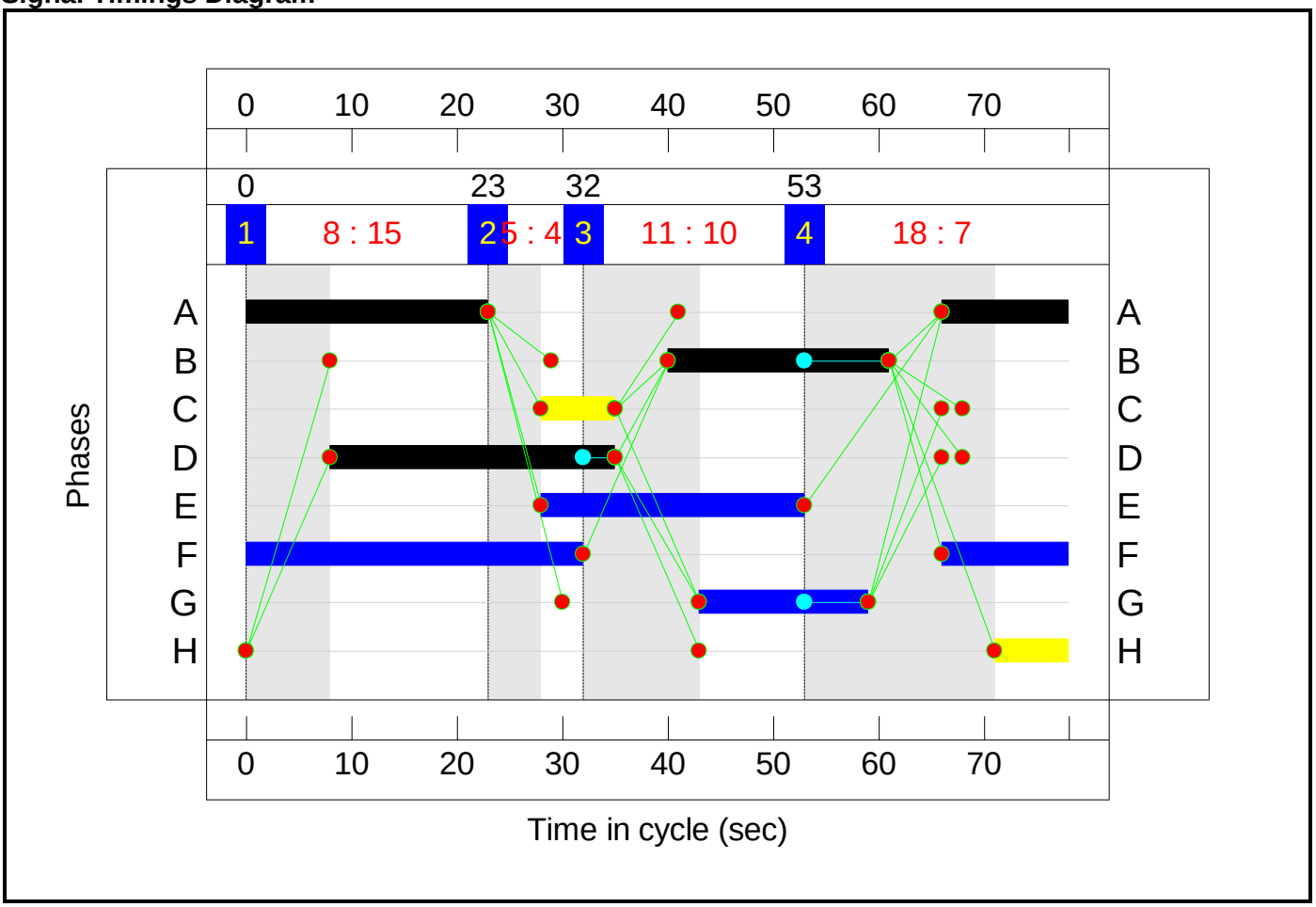
Stage Sequence Diagram



Stage Timings

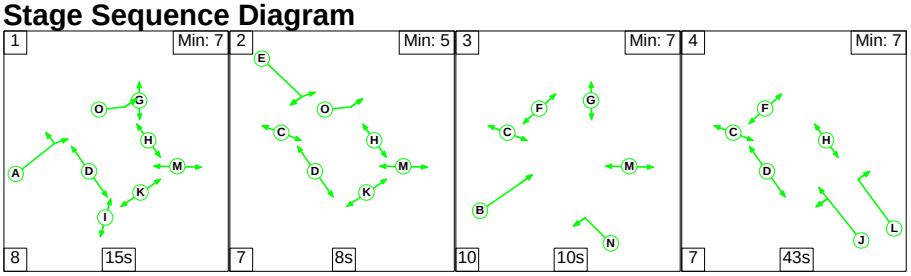
Stage	1	2	3	4
Duration	15	4	10	7
Change Point	0	23	32	53

Signal Timings Diagram



C2 - Moor Street Queensway - Masshouse Lane

Stage Sequence Diagram

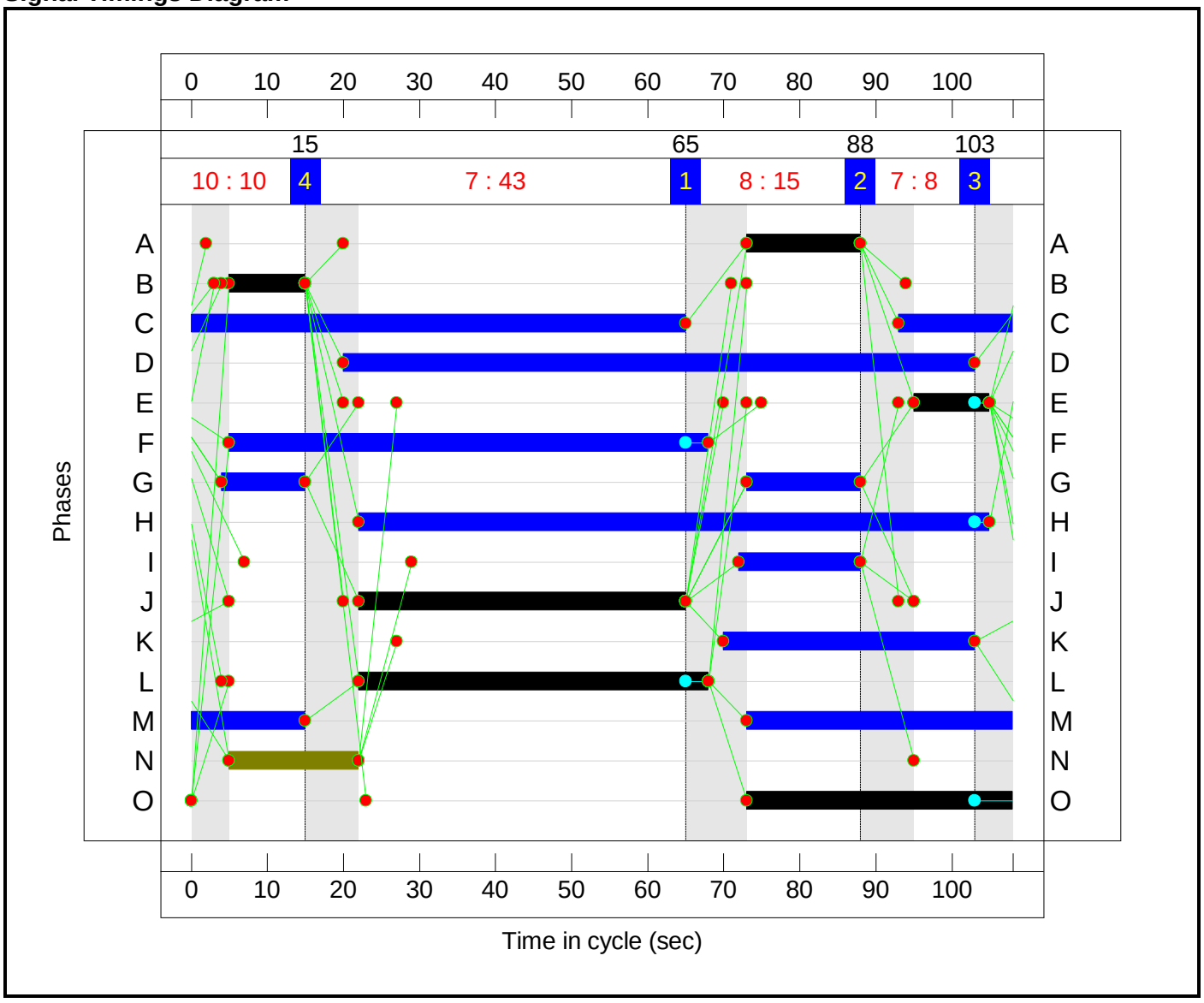


Full Input Data And Results

Stage Timings

Stage	1	2	3	4
Duration	15	8	10	43
Change Point	65	88	103	15

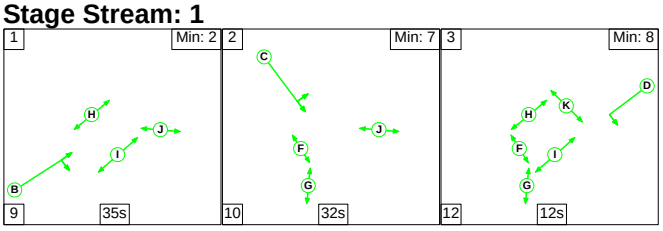
Signal Timings Diagram



C3 - Moor Street Queensway - Jennens Road

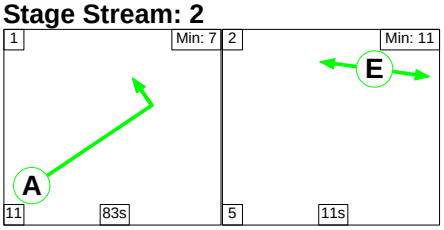
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

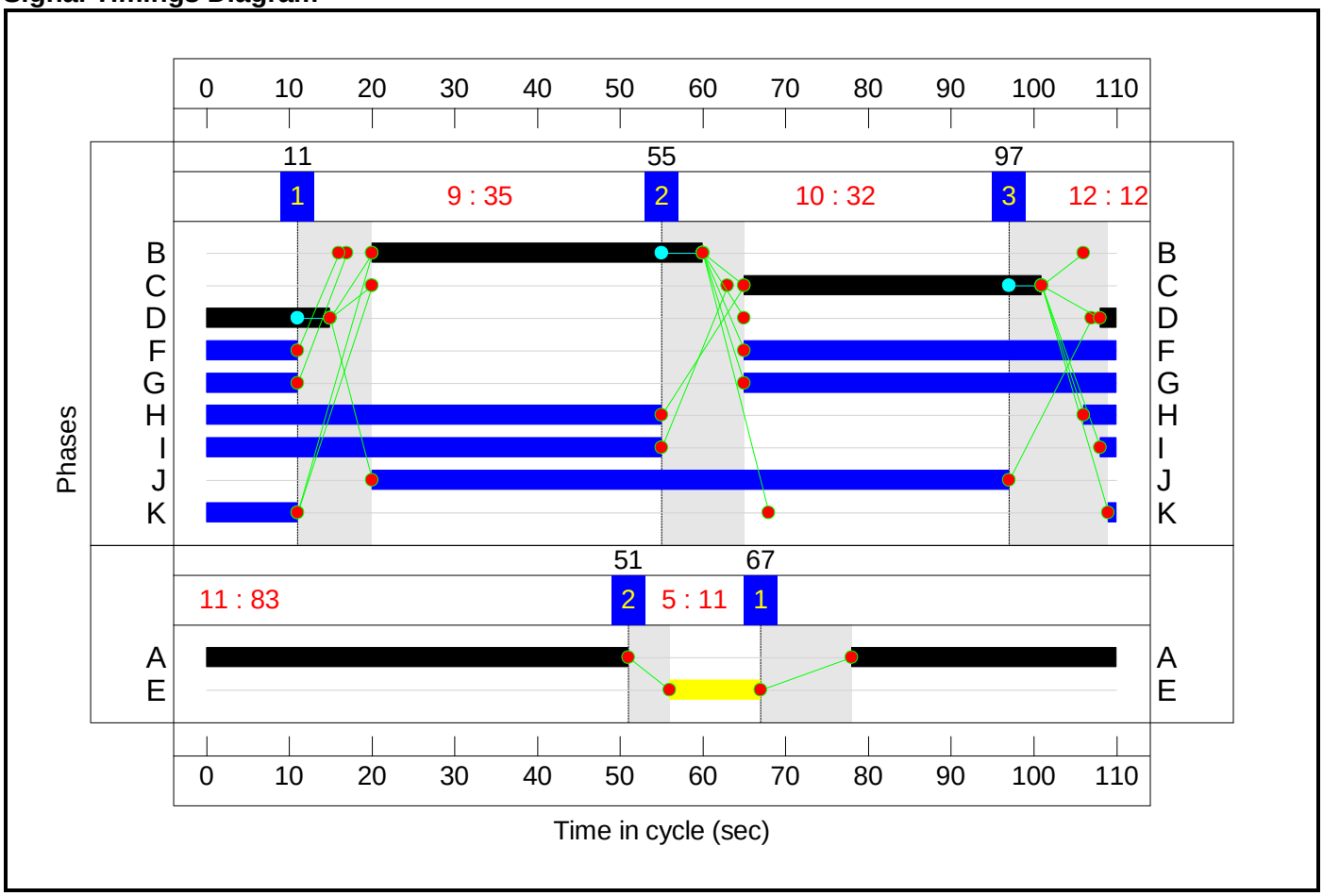
Stage Stream: 1

Stage	1	2	3
Duration	35	32	12
Change Point	11	55	97

Stage Stream: 2

Stage	1	2
Duration	83	11
Change Point	67	51

Signal Timings Diagram

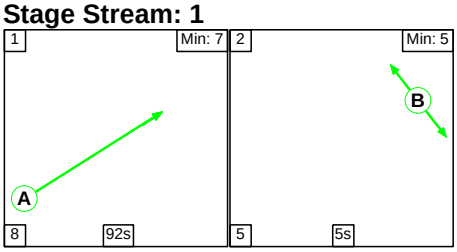


Full Input Data And Results

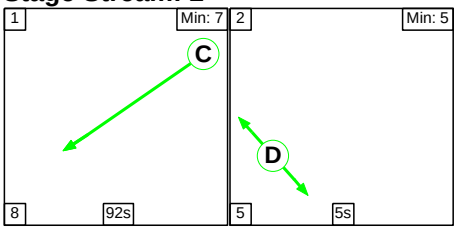
C4 - Pedestrian Crossings Albert Street-Priory Queensway

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

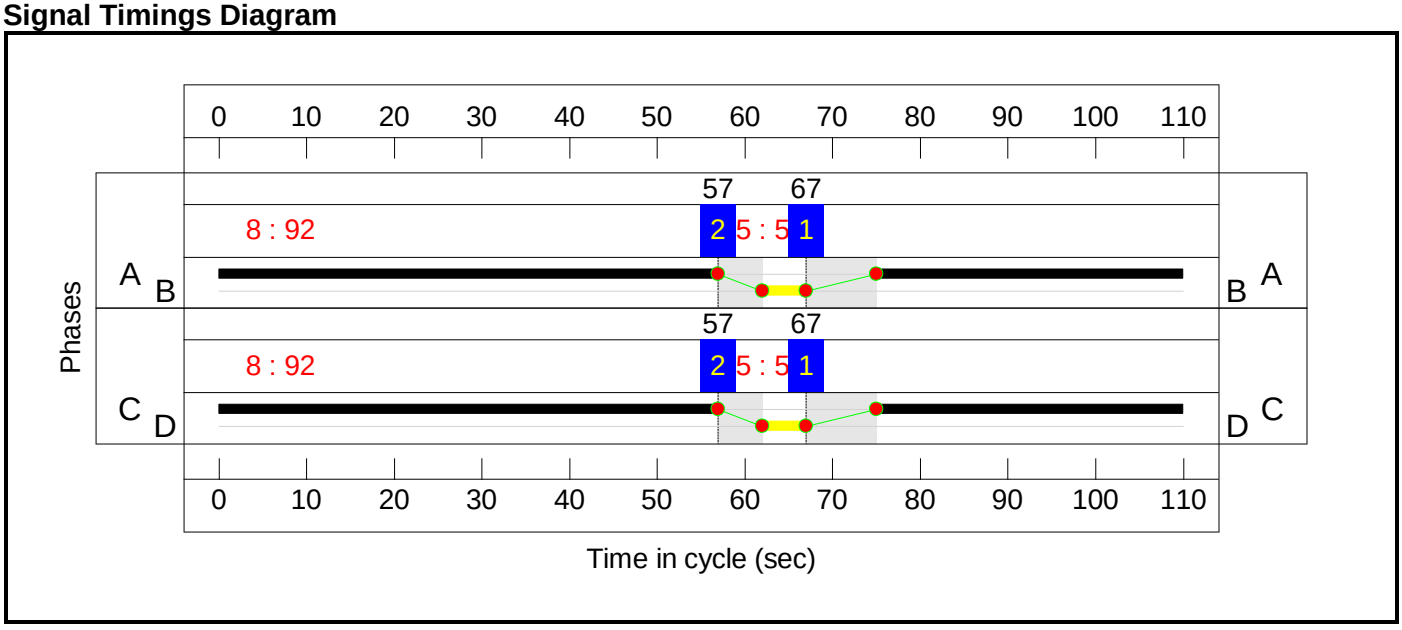
Stage Stream: 1

Stage	1	2
Duration	92	5
Change Point	67	57

Stage Stream: 2

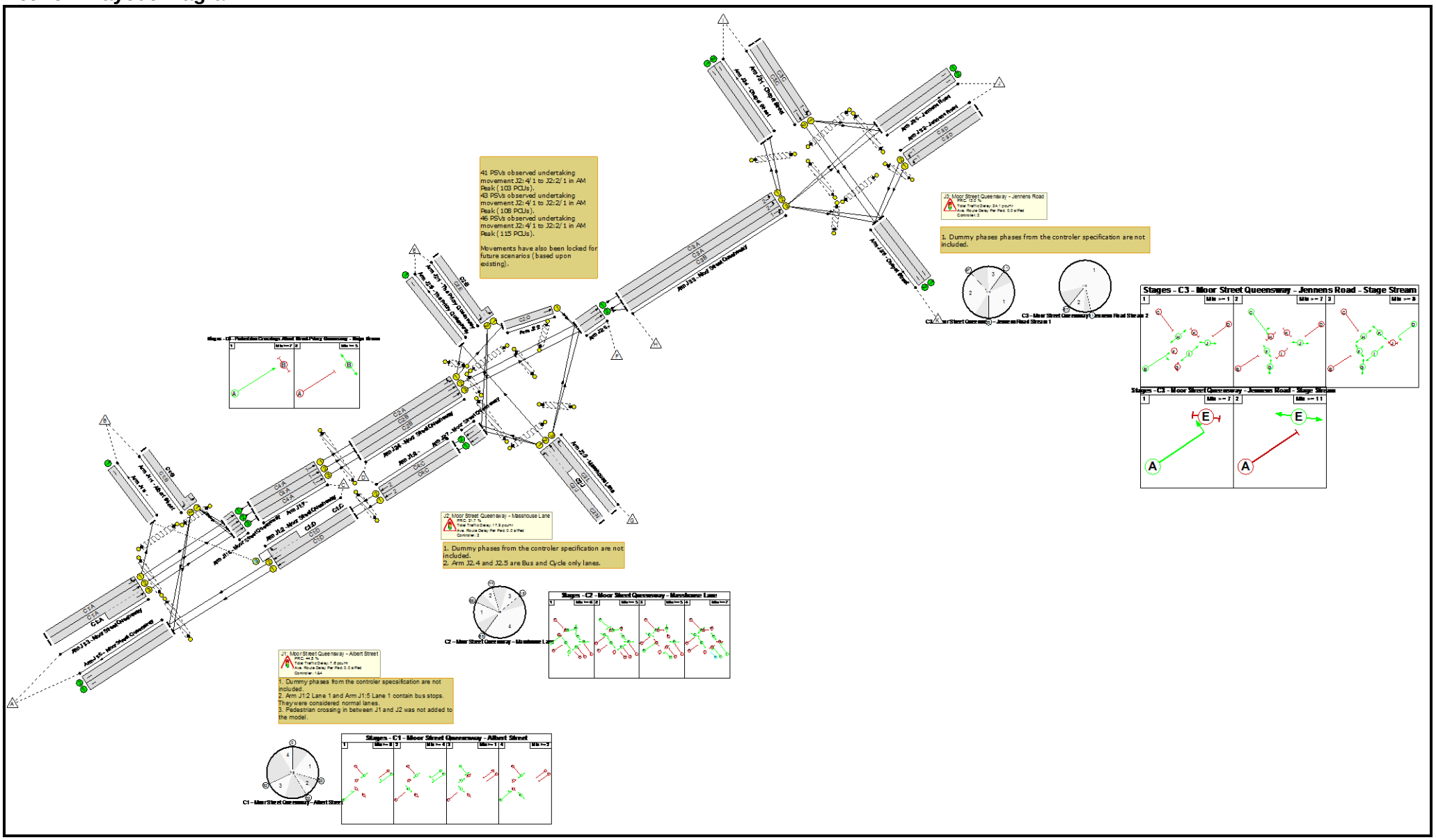
Stage	1	2
Duration	92	5
Change Point	67	57

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.6%**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**62.3%**
1/2+1/1	Albert Street Left Right	U	N/A	N/A	C1:B		1	21	-	377	1717:1807	299+307	62.3 : 62.3%
2/1	Moor Street Queensway Ahead	U	N/A	N/A	C1:D		1	27	-	219	1905	684	32.0%
2/2+2/3	Moor Street Queensway Right Ahead	U+O	N/A	N/A	C1:D	C1:C	1	27	7	263	2105:1895	756+0	34.8 : 0.0%
3/1	Moor Street Queensway Left Ahead	U	N/A	N/A	C1:A		1	35	-	55	2010	928	5.9%
3/2+3/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:A		1	35	-	155	1935:2045	622+681	11.9 : 11.9%
4/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	65	1970	1970	3.3%
5/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	147	1970	1970	7.5%
5/3	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	189	2065	2065	9.2%
6/1	Moor Street Queensway	U	N/A	N/A	-		-	-	-	312	Inf	Inf	0.0%
6/2	Moor Street Queensway	U	N/A	N/A	-		-	-	-	356	Inf	Inf	0.0%
7/1	Ahead	U	4:1	N/A	C4:A		1	92	-	65	1970	1666	3.9%
7/2	Ahead	U	4:1	N/A	C4:A		1	92	-	147	1970	1666	8.8%

Full Input Data And Results

7/3	Ahead	U	4:1	N/A	C4:A		1	92	-	189	2065	1746	10.8%
8/1	Ahead	U	4:2	N/A	C4:C		1	92	-	196	1915	1619	12.1%
8/2	Ahead	U	4:2	N/A	C4:C		1	92	-	286	2100	1775	16.1%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:F		1	44	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:G		1	16	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:E		1	25	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:H		1	7	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	4:1	-	C4:B		1	5	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	4:2	-	C4:D		1	5	-	0	-	0	0.0%
J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.9%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C2:E		1	10	-	158	1821:1824	47+171	72.5 : 72.5%
2/1	Ahead	U	N/A	N/A	C2:O		1	35	-	232	1991	664	35.0%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C2:J	C2:N	1	60:43	17	448	1667:2020	942+0	47.6 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C2:L		1	46	-	545	1795	781	69.8%
4/1	Moor Street Queensway Ahead Left	U	N/A	N/A	C2:A		1	15	-	208	1899	281	73.9%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	10	-	91	1980	202	45.1%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C2:B		1	10	-	102	2090	213	47.9%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	100	1995	1995	5.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	364	1955	1955	18.6%

Full Input Data And Results

6/2	Ahead	U	N/A	N/A	-		-	-	-	606	2105	2105	28.8%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	196	1915	1915	10.2%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	286	2100	2100	13.6%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:C		1	80	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:D		1	83	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:I		1	16	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:K		1	33	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C2:M		1	50	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C2:F		1	63	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C2:G		2	26	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C2:H		1	83	-	0	-	0	0.0%
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.6%**
1/1	Chapel Street Left Ahead	U	3:1	N/A	C3:C		1	36	-	479	1801	606	79.1%
1/2	Chapel Street Ahead	U	3:1	N/A	C3:C		1	36	-	167	2095	705	23.7%
2/1	Jennens Road Left	U	3:1	N/A	C3:D		1	17	-	233	1872	306	76.1%
2/2	Jennens Road Left	U	3:1	N/A	C3:D		1	17	-	256	2009	329	77.9%
3/1	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	83	-	171	1846	1410	12.1%
3/2	Moor Street Queensway Left	U	3:2	N/A	C3:A		1	83	-	229	2014	1538	14.9%

Full Input Data And Results

3/3	Moor Street Queensway Ahead Right	U	3:1	N/A	C3:B		1	40	-	571	1924	717	79.6%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	171	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	229	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	393	Inf	Inf	0.0%
6/1	Chapel Street	U	N/A	N/A	-		-	-	-	364	Inf	Inf	0.0%
6/2	Chapel Street	U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:2	-	C3:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:1	-	C3:H		1	59	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	3:1	-	C3:K		1	12	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	3:1	-	C3:J		1	77	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	3:1	-	C3:I		1	57	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	3:1	-	C3:G		1	56	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	3:1	-	C3:F		1	56	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**35.3**	**14.4**	**0.0**	**49.6**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**5.9**	**1.7**	**0.0**	**7.6**	**-**	**-**	**-**	**-**
1/2+1/1	377	377	-	-	-	2.4	0.8	-	3.2	30.6	5.0	0.8	5.8
2/1	219	219	-	-	-	1.1	0.2	-	1.3	22.0	3.4	0.2	3.6
2/2+2/3	263	263	0	0	0	1.3	0.3	0.0	1.6	22.0	4.2	0.3	4.4
3/1	55	55	-	-	-	0.2	0.0	-	0.2	13.7	0.7	0.0	0.7
3/2+3/3	155	155	-	-	-	0.5	0.1	-	0.6	13.4	1.0	0.1	1.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.6	0.0	0.6
5/2	147	147	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	189	189	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	312	312	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	356	356	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	65	65	-	-	-	0.0	0.0	-	0.0	2.5	0.3	0.0	0.3
7/2	147	147	-	-	-	0.1	0.0	-	0.1	2.6	0.7	0.0	0.8
7/3	189	189	-	-	-	0.1	0.1	-	0.1	2.6	0.9	0.1	1.0
8/1	196	196	-	-	-	0.1	0.1	-	0.1	2.7	1.0	0.1	1.0
8/2	286	286	-	-	-	0.1	0.1	-	0.2	2.7	1.5	0.1	1.6
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

J2: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**12.5**	**5.4**	**0.0**	**17.9**	**-**	**-**	**-**	**-**
1/2+1/1	158	158	-	-	-	2.0	1.3	-	3.3	75.4	4.0	1.3	5.3
2/1	232	232	-	-	-	0.0	0.3	-	0.3	4.3	0.0	0.3	0.3
3/1+3/2	448	448	-	-	-	1.7	0.5	-	2.2	17.6	8.0	0.5	8.4
3/3	545	545	-	-	-	3.7	1.1	-	4.9	32.3	13.2	1.1	14.3
4/1	208	208	-	-	-	2.5	1.4	-	3.9	67.7	6.0	1.4	7.3
4/2	91	91	-	-	-	1.2	0.4	-	1.6	61.8	2.6	0.4	3.0
4/3	102	102	-	-	-	1.3	0.5	-	1.8	61.9	2.9	0.5	3.3
5/1	100	100	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
6/1	364	364	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	606	606	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	196	196	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	286	286	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**16.9**	**7.3**	**0.0**	**24.1**	**-**	**-**	**-**	**-**
1/1	479	479	-	-	-	4.4	1.8	-	6.2	46.8	13.2	1.8	15.0
1/2	167	167	-	-	-	1.2	0.2	-	1.4	29.7	3.7	0.2	3.8
2/1	233	233	-	-	-	2.8	1.5	-	4.4	67.5	6.8	1.5	8.3
2/2	256	256	-	-	-	3.1	1.7	-	4.8	67.7	7.5	1.7	9.1
3/1	171	171	-	-	-	0.2	0.1	-	0.2	4.8	1.3	0.1	1.4
3/2	229	229	-	-	-	0.2	0.1	-	0.3	4.8	1.8	0.1	1.9

Full Input Data And Results

3/3	571	571	-	-	-	4.9	1.9	-	6.8	42.8	15.5	1.9	17.4
4/1	171	171	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	229	229	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	393	393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	364	364	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	554	554	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-

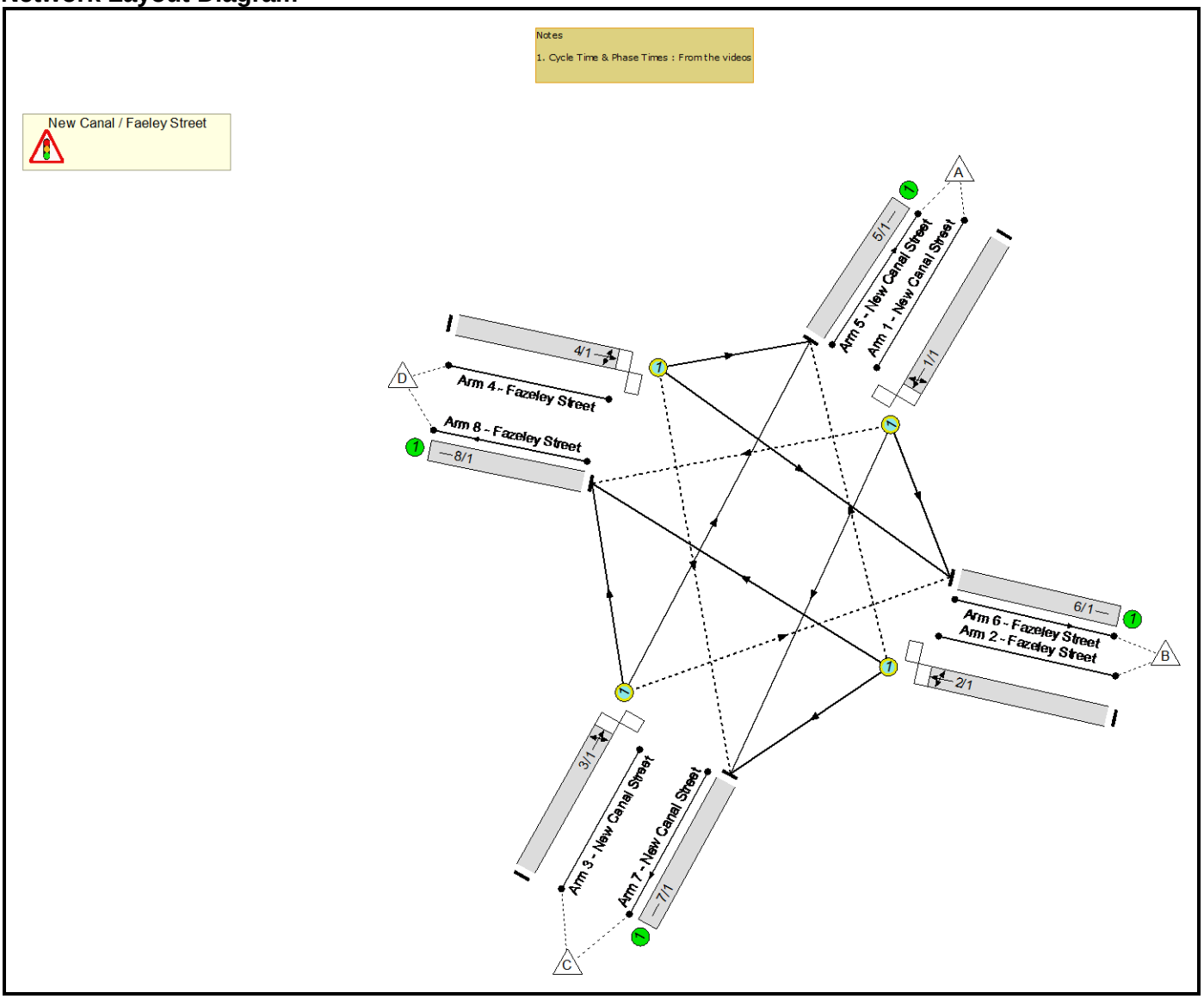
C1 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	44.5	Total Delay for Signalled Lanes (pcuHr):	6.93	Cycle Time (s):	78
C2 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	21.7	Total Delay for Signalled Lanes (pcuHr):	17.90	Cycle Time (s):	108
C3 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	13.0	Total Delay for Signalled Lanes (pcuHr):	23.58	Cycle Time (s):	110
C3 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	504.4	Total Delay for Signalled Lanes (pcuHr):	0.54	Cycle Time (s):	110
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 1	PRC for Signalled Lanes (%):	731.4	Total Delay for Signalled Lanes (pcuHr):	0.29	Cycle Time (s):	110
C4 - Pedestrian Crossings Albert Street-Priory Queensway	Stream: 2	PRC for Signalled Lanes (%):	458.7	Total Delay for Signalled Lanes (pcuHr):	0.37	Cycle Time (s):	110
		PRC Over All Lanes (%):	13.0	Total Delay Over All Lanes(pcuHr):	49.62		

Full Input Data And Results

User and Project Details

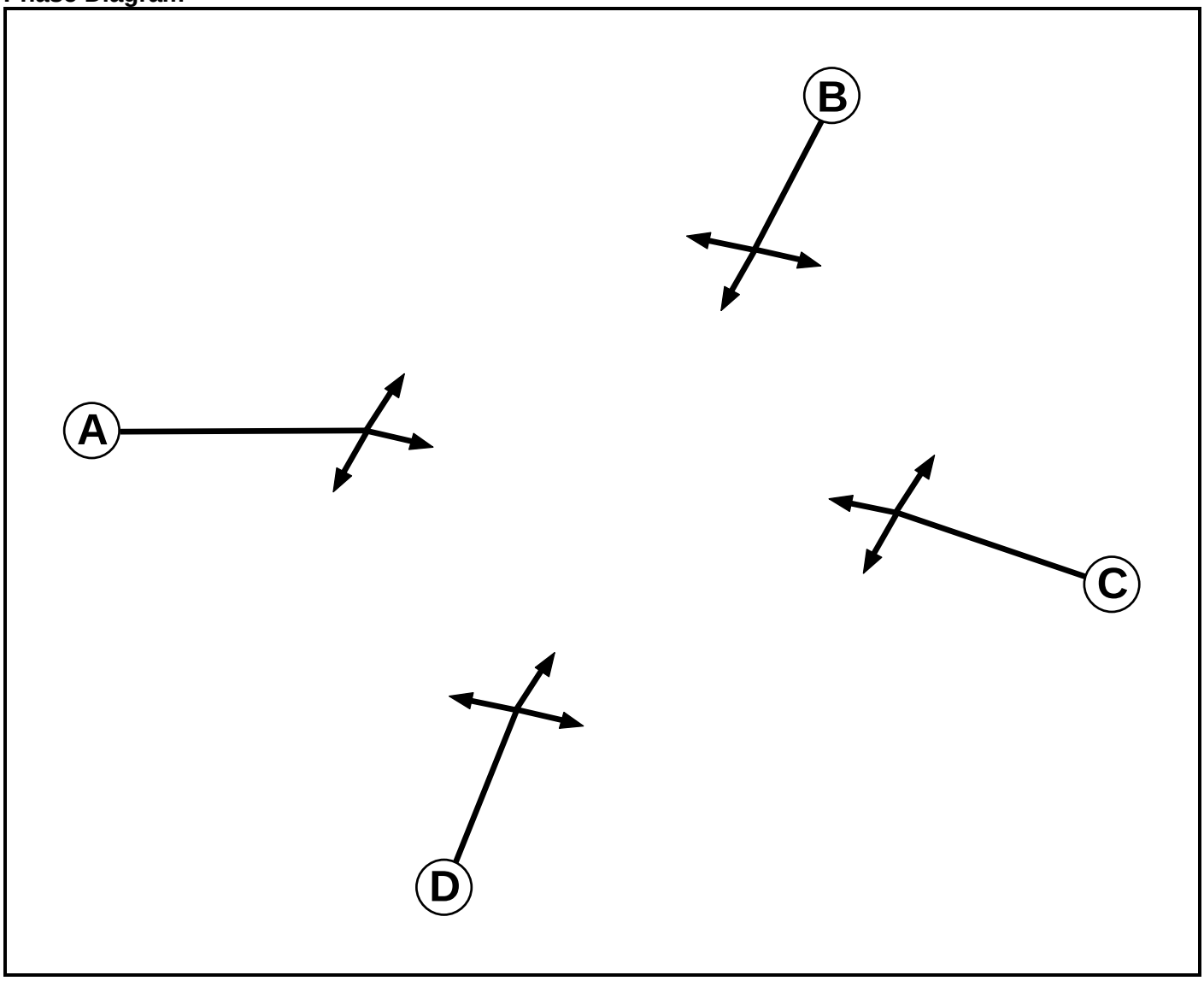
Project:	**Birmingham Eastside Extension**
Title:	**New Canal Street / Fazeley Street Junction**
Location:	Birmingham
File name:	New Canal Street _ Fazeley Street DM.lsg3x
Author:	Andreas Theofanous
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	The Junction is Signalized

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7

Full Input Data And Results

Phase Intergreens Matrix

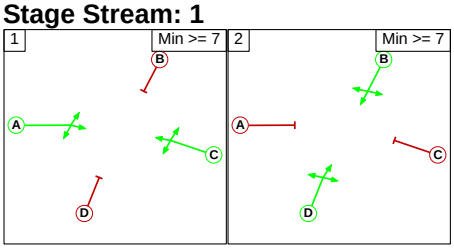
Terminating Phase	Starting Phase				
		A	B	C	D
	A		5	-	5
	B	5		5	-
	C	-	5		5
	D	5	-	5	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B D

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage		
		1	2
	1		5
	2	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: New Canal / Faeley Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (New Canal Street)	8/1 (Right)	1439	0	3/1	1.09	To 5/1 (Ahead) To 8/1 (Left)	2.00	1.00	0.50	2	2.00
2/1 (Fazeley Street)	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	1.00	0.50	2	2.00
3/1 (New Canal Street)	6/1 (Right)	1439	0	1/1	1.09	To 6/1 (Left) To 7/1 (Ahead)	2.00	1.00	0.50	2	2.00
4/1 (Fazeley Street)	7/1 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	2.00	1.00	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: New Canal / Faeley Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (New Canal Street)	O	B	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 6 Left	7.00
											Arm 7 Ahead	Inf
											Arm 8 Right	Inf
2/1 (Fazeley Street)	O	C	2	3	60.0	Geom	-	3.93	0.00	Y	Arm 5 Right	10.00
											Arm 7 Left	Inf
											Arm 8 Ahead	Inf
3/1 (New Canal Street)	O	D	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	7.00
											Arm 8 Left	7.00
4/1 (Fazeley Street)	O	A	2	3	60.0	Geom	-	3.85	0.00	Y	Arm 5 Left	7.00
											Arm 6 Ahead	Inf
											Arm 7 Right	7.00
5/1 (New Canal Street)	U		2	3	60.0	Geom	-	4.00	0.00	Y		
6/1 (Fazeley Street)	U		2	3	60.0	Geom	-	3.95	0.00	Y		
7/1 (New Canal Street)	U		2	3	60.0	Geom	-	3.75	0.00	Y		
8/1 (Fazeley Street)	U		2	3	60.0	Geom	-	3.85	0.00	Y		

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM (Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	299	0	299
	C	0	74	0	0	74
	D	0	0	0	0	0
	Tot.	0	74	299	0	373

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM (Standard PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	299
3/1	74
4/1	0
5/1	0
6/1	74
7/1	299
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 2: '2026 DM PM (Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	362	0	362
	C	0	155	0	0	155
	D	0	0	0	0	0
	Tot.	0	155	362	0	517

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM (Standard PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	362
3/1	155
4/1	0
5/1	0
6/1	155
7/1	362
8/1	0

Lane Saturation Flows

Junction: New Canal / Faeley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Full Input Data And Results

Scenario 3: '2031 DM AM (Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	0	0	0
	B	0	0	300	0	300
	C	0	73	0	0	73
	D	0	0	0	0	0
	Tot.	0	73	300	0	373

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM (Standard PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	300
3/1	73
4/1	0
5/1	0
6/1	73
7/1	300
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 4: '2031 DM PM (Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	363	0	363
	C	0	156	0	0	156
	D	0	0	0	0	0
	Tot.	0	156	363	0	519

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM (Standard PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	363
3/1	156
4/1	0
5/1	0
6/1	156
7/1	363
8/1	0

Lane Saturation Flows

Junction: New Canal / Faeley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Full Input Data And Results

Scenario 5: '2026 DM AM (Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	0	0	0
	B	0	0	304	0	304
	C	0	76	0	0	76
	D	0	0	0	0	0
	Tot.	0	76	304	0	380

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM (Saturn PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	304
3/1	76
4/1	0
5/1	0
6/1	76
7/1	304
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 6: '2026 DM PM (Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	364	0	364
	C	0	155	0	0	155
	D	0	0	0	0	0
	Tot.	0	155	364	0	519

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM (Saturn PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	364
3/1	155
4/1	0
5/1	0
6/1	155
7/1	364
8/1	0

Lane Saturation Flows

Junction: New Canal / Faeley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Full Input Data And Results

Scenario 7: '2031 DM AM (Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	0	0	0
	B	0	0	304	0	304
	C	0	74	0	0	74
	D	0	0	0	0	0
	Tot.	0	74	304	0	378

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM (Saturn PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	304
3/1	74
4/1	0
5/1	0
6/1	74
7/1	304
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Faeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Scenario 8: '2031 DM PM (Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	365	0	365
	C	0	157	0	0	157
	D	0	0	0	0	0
	Tot.	0	157	365	0	522

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM (Saturn PCU Factors)
Junction: New Canal / Faeley Street	
1/1	0
2/1	365
3/1	157
4/1	0
5/1	0
6/1	157
7/1	365
8/1	0

Lane Saturation Flows

Junction: New Canal / Faeley Street

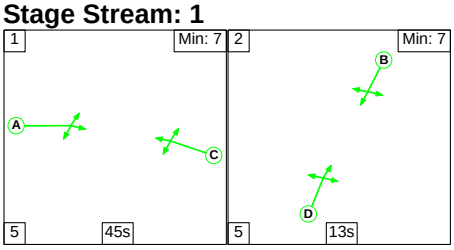
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	4.00	0.00	Y	Arm 6 Left	7.00	0.0 %	2015	2015
				Arm 7 Ahead	Inf	0.0 %		
				Arm 8 Right	Inf	0.0 %		
2/1 (Fazeley Street)	3.93	0.00	Y	Arm 5 Right	10.00	0.0 %	2008	2008
				Arm 7 Left	Inf	100.0 %		
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street)	3.75	0.00	Y	Arm 5 Ahead	Inf	0.0 %	1639	1639
				Arm 6 Right	7.00	100.0 %		
				Arm 8 Left	7.00	0.0 %		
4/1 (Fazeley Street)	3.85	0.00	Y	Arm 5 Left	7.00	0.0 %	2000	2000
				Arm 6 Ahead	Inf	0.0 %		
				Arm 7 Right	7.00	0.0 %		
5/1 (New Canal Street)	4.00	0.00	Y				2015	2015
6/1 (Fazeley Street)	3.95	0.00	Y				2010	2010
7/1 (New Canal Street)	3.75	0.00	Y				1990	1990
8/1 (Fazeley Street)	3.85	0.00	Y				2000	2000

Full Input Data And Results

Scenario 1: '2026 DM AM (Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

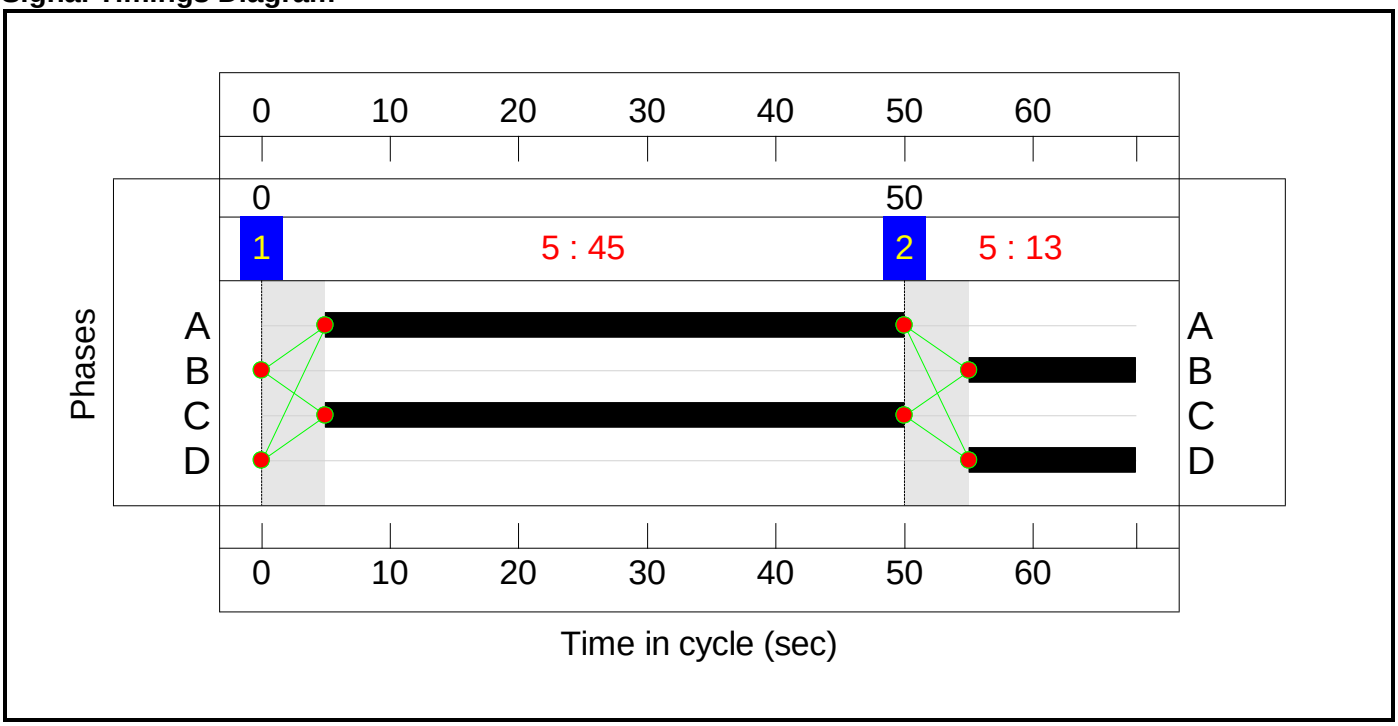


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	45	13
Change Point	0	50

Signal Timings Diagram

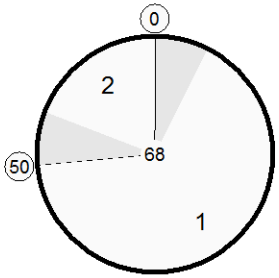


Full Input Data And Results

Network Layout Diagram

Full Input Data And Results

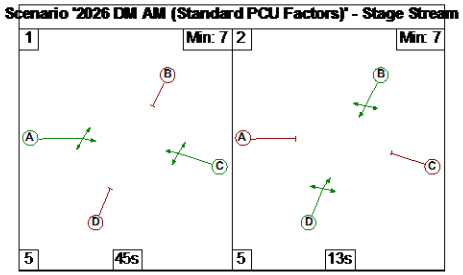
New Canal / Faeley Street
PRC: 308.6 %
Total Traffic Delay: 1.2 pcuHr



C1 Stream 1

Notes

1. Cycle Time & Phase Times : From the videos



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.0%**
New Canal / Faeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.0%**
1/1	New Canal Street Left Ahead Right	O	1	N/A	B		1	13	-	0	2015	415	0.0%
2/1	Fazeley Street Right Left Ahead	O	1	N/A	C		1	45	-	299	2008	1357	22.0%
3/1	New Canal Street Ahead Right Left	O	1	N/A	D		1	13	-	74	1639	337	21.9%
4/1	Fazeley Street Left Ahead Right	O	1	N/A	A		1	45	-	0	2000	1342	0.0%
5/1	New Canal Street	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	74	2010	2010	3.7%
7/1	New Canal Street	U	N/A	N/A	-		-	-	-	299	1990	1990	15.0%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	2000	2000	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**73**	**0**	**1**	**0.8**	**0.4**	**0.0**	**1.2**	**-**	**-**	**-**	**-**
New Canal / Faeley Street	**-**	**-**	**73**	**0**	**1**	**0.8**	**0.4**	**0.0**	**1.2**	**-**	**-**	**-**	**-**
1/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2/1	299	299	0	0	0	0.3	0.1	0.0	0.5	5.9	2.1	0.1	2.2
3/1	74	74	73	0	1	0.5	0.1	0.0	0.6	29.5	1.2	0.1	1.3
4/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	74	74	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/1	299	299	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

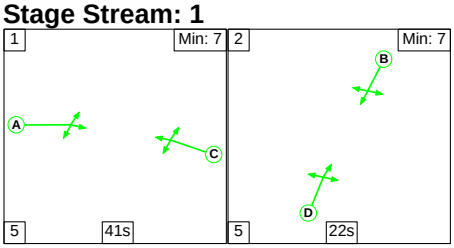
C1 Stream: 1 PRC for Signalled Lanes (%): 308.6 Total Delay for Signalled Lanes (pcuHr): 1.09 Cycle Time (s): 68
PRC Over All Lanes (%): 308.6 Total Delay Over All Lanes(pcuHr): 1.20

Full Input Data And Results

Scenario 2: '2026 DM PM (Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

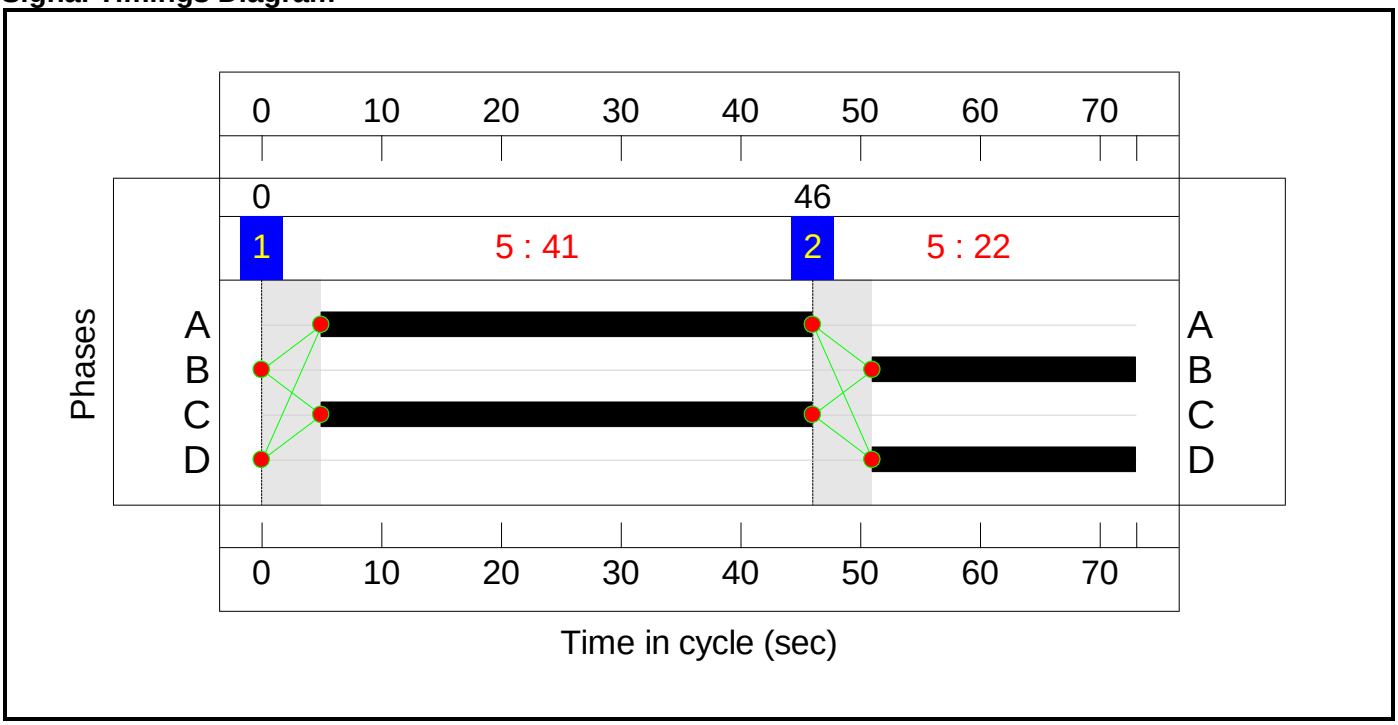


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	41	22
Change Point	0	46

Signal Timings Diagram

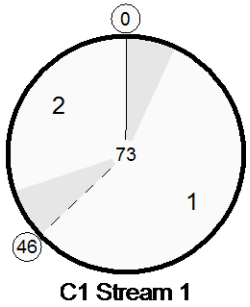


Full Input Data And Results

Network Layout Diagram

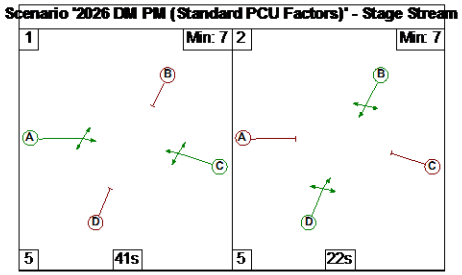
Full Input Data And Results

New Canal / Faeley Street
PRC: 187.0 %
Total Traffic Delay: 2.2 pcuHr



Notes

1. Cycle Time & Phase Times : From the videos



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.4%**
New Canal / Faeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.4%**
1/1	New Canal Street Left Ahead Right	O	1	N/A	B		1	22	-	0	2015	635	0.0%
2/1	Fazeley Street Right Left Ahead	O	1	N/A	C		1	41	-	362	2008	1154	31.4%
3/1	New Canal Street Ahead Right Left	O	1	N/A	D		1	22	-	155	1639	513	30.2%
4/1	Fazeley Street Left Ahead Right	O	1	N/A	A		1	41	-	0	2000	1122	0.0%
5/1	New Canal Street	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	155	2010	2010	7.7%
7/1	New Canal Street	U	N/A	N/A	-		-	-	-	362	1990	1990	18.2%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	2000	2000	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**153**	**0**	**2**	**1.6**	**0.6**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
New Canal / Faeley Street	**-**	**-**	**153**	**0**	**2**	**1.6**	**0.6**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
1/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2/1	362	362	0	0	0	0.8	0.2	0.0	1.0	10.3	3.7	0.2	3.9
3/1	155	155	153	0	2	0.8	0.2	0.0	1.0	24.2	2.4	0.2	2.6
4/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	155	155	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/1	362	362	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

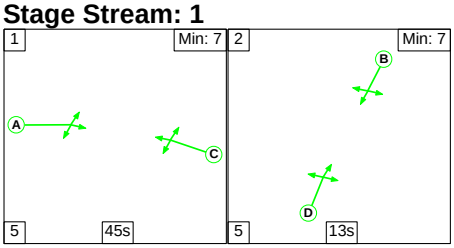
C1 Stream: 1 PRC for Signalled Lanes (%): 187.0 Total Delay for Signalled Lanes (pcuHr): 2.08 Cycle Time (s): 73
PRC Over All Lanes (%): 187.0 Total Delay Over All Lanes(pcuHr): 2.23

Full Input Data And Results

Scenario 3: '2031 DM AM (Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

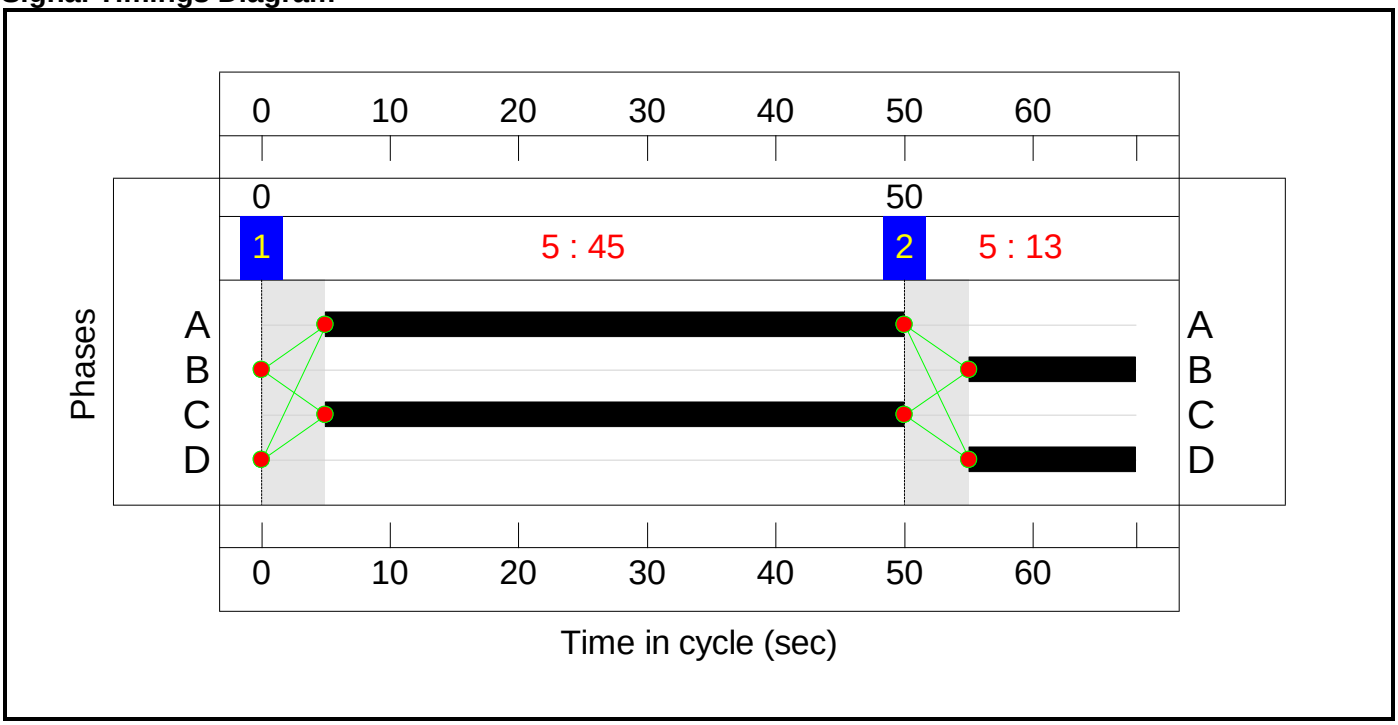


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	45	13
Change Point	0	50

Signal Timings Diagram

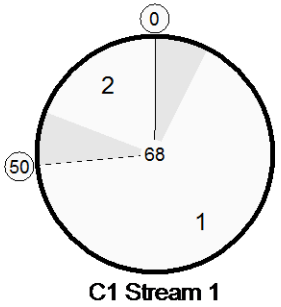


Full Input Data And Results

Network Layout Diagram

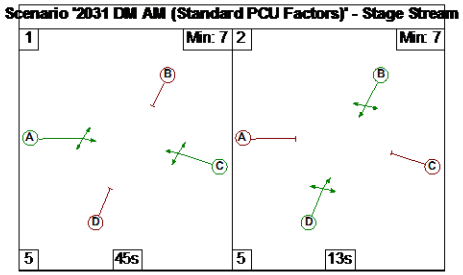
Full Input Data And Results

New Canal / Faeley Street
PRC: 307.2 %
Total Traffic Delay: 1.2 pcuHr



Notes

1. Cycle Time & Phase Times : From the videos



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.1%**
New Canal / Faeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.1%**
1/1	New Canal Street Left Ahead Right	O	1	N/A	B		1	13	-	0	2015	415	0.0%
2/1	Fazeley Street Right Left Ahead	O	1	N/A	C		1	45	-	300	2008	1357	22.1%
3/1	New Canal Street Ahead Right Left	O	1	N/A	D		1	13	-	73	1639	337	21.6%
4/1	Fazeley Street Left Ahead Right	O	1	N/A	A		1	45	-	0	2000	1342	0.0%
5/1	New Canal Street	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	73	2010	2010	3.6%
7/1	New Canal Street	U	N/A	N/A	-		-	-	-	300	1990	1990	15.1%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	2000	2000	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**72**	**0**	**1**	**0.8**	**0.4**	**0.0**	**1.2**	**-**	**-**	**-**	**-**
New Canal / Faeley Street	**-**	**-**	**72**	**0**	**1**	**0.8**	**0.4**	**0.0**	**1.2**	**-**	**-**	**-**	**-**
1/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2/1	300	300	0	0	0	0.3	0.1	0.0	0.5	5.9	2.1	0.1	2.2
3/1	73	73	72	0	1	0.5	0.1	0.0	0.6	29.4	1.1	0.1	1.3
4/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	73	73	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/1	300	300	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

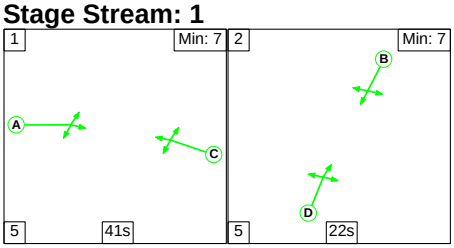
C1 Stream: 1 PRC for Signalled Lanes (%): 307.2 Total Delay for Signalled Lanes (pcuHr): 1.09 Cycle Time (s): 68
PRC Over All Lanes (%): 307.2 Total Delay Over All Lanes(pcuHr): 1.20

Full Input Data And Results

Scenario 4: '2031 DM PM (Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

Stage Stream: 1

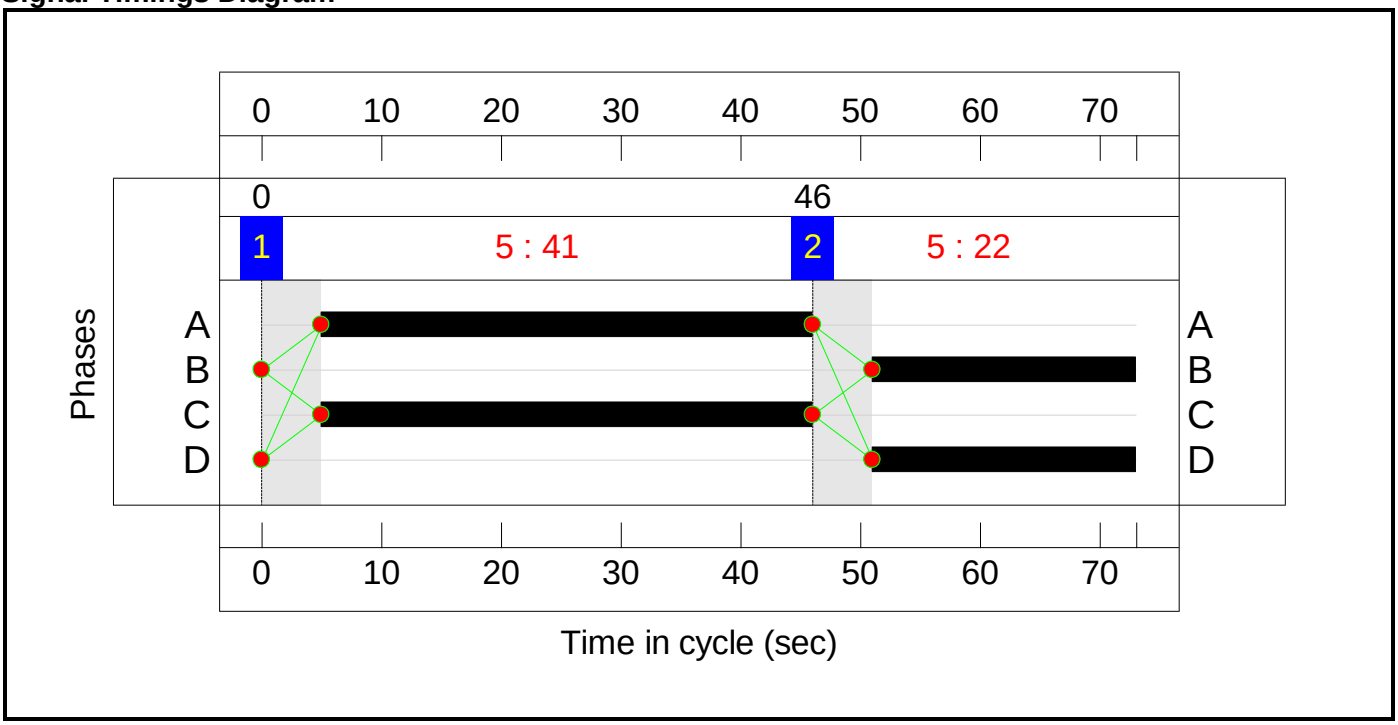


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	41	22
Change Point	0	46

Signal Timings Diagram

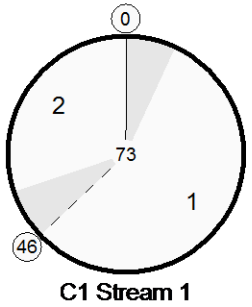


Full Input Data And Results

Network Layout Diagram

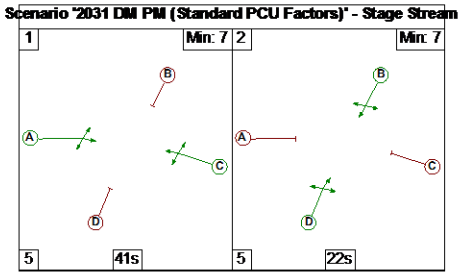
Full Input Data And Results

New Canal / Faeley Street
PRC: 186.2 %
Total Traffic Delay: 2.2 pcuHr



Notes

1. Cycle Time & Phase Times : From the videos



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.4%**
New Canal / Faeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.4%**
1/1	New Canal Street Left Ahead Right	O	1	N/A	B		1	22	-	0	2015	635	0.0%
2/1	Fazeley Street Right Left Ahead	O	1	N/A	C		1	41	-	363	2008	1154	31.4%
3/1	New Canal Street Ahead Right Left	O	1	N/A	D		1	22	-	156	1639	513	30.4%
4/1	Fazeley Street Left Ahead Right	O	1	N/A	A		1	41	-	0	2000	1122	0.0%
5/1	New Canal Street	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	156	2010	2010	7.8%
7/1	New Canal Street	U	N/A	N/A	-		-	-	-	363	1990	1990	18.2%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	2000	2000	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**154**	**0**	**2**	**1.6**	**0.6**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
New Canal / Faeley Street	**-**	**-**	**154**	**0**	**2**	**1.6**	**0.6**	**0.0**	**2.2**	**-**	**-**	**-**	**-**
1/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2/1	363	363	0	0	0	0.8	0.2	0.0	1.0	10.3	3.7	0.2	4.0
3/1	156	156	154	0	2	0.8	0.2	0.0	1.1	24.3	2.4	0.2	2.6
4/1	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	156	156	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/1	363	363	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 Stream: 1 PRC for Signalled Lanes (%): 186.2 Total Delay for Signalled Lanes (pcuHr): 2.09 Cycle Time (s): 73
PRC Over All Lanes (%): 186.2 Total Delay Over All Lanes(pcuHr): 2.25

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.1.4646 []
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Filename: J6 New Canal Street - Bordesley Street.j9
Path: P:\Birmingham\ITB\359345 BEE Addendum Work\3.0 Calculations\Junction Capacity Assessments\Junctions 9 Assessments\Existing and DM
Report generation date: 25/09/2017 11:51:09

»2016-Standard, AM
»2016-Standard, PM
»2026 DM-Standard, AM
»2026 DM-Standard, PM
»2031 DM-Standard, AM
»2031 DM-Standard, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2016-Standard							
Stream B-ACD	0.1	8.65	0.10	A	0.2	9.30	0.19	A
Stream A-BCD	0.1	5.01	0.04	A	0.1	4.91	0.06	A
Stream D-ABC	0.3	9.84	0.24	A	0.6	11.16	0.39	B
Stream C-ABD	0.0	5.85	0.03	A	0.1	6.27	0.07	A
	2026 DM-Standard							
Stream B-ACD	0.2	8.52	0.15	A	0.2	8.32	0.14	A
Stream A-BCD	0.1	4.98	0.04	A	0.1	4.83	0.06	A
Stream D-ABC	0.2	8.32	0.15	A	0.4	8.86	0.26	A
Stream C-ABD	0.1	6.73	0.08	A	0.1	6.56	0.08	A
	2031 DM-Standard							
Stream B-ACD	0.2	8.37	0.13	A	0.2	8.19	0.14	A
Stream A-BCD	0.1	4.98	0.04	A	0.1	4.82	0.06	A
Stream D-ABC	0.2	8.31	0.15	A	0.4	8.87	0.26	A
Stream C-ABD	0.1	6.77	0.08	A	0.1	6.55	0.08	A

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

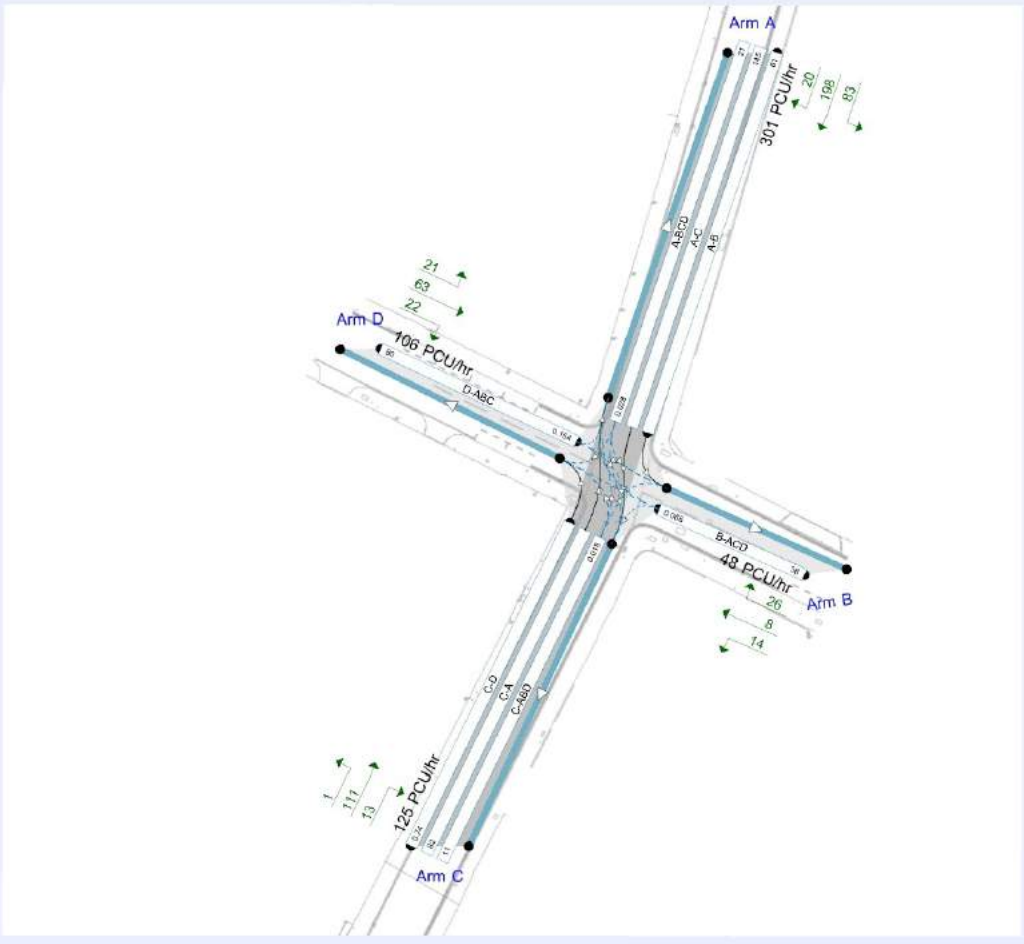
File summary

File Description

Title	J6 New Canal Street / Bordesley Street
Location	BEE
Site number	Junction 6
Date	03/11/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	MOTTMAC\HOD76167
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



Flows show original traffic demand (PCU/hr).
Streams (upstream end) show Total Demand (PCU/hr). Streams (downstream end) show RFC ()

The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D5	2026 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D6	2026 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓
D7	2031 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓
D8	2031 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓

Analysis Set Details

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

2016-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	2.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	New Canal Street (north)		Major
B	untitled		Minor
C	New Canal Street (south)		Major
D	untitled		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	7.50			100.0	✓	0.00
C	7.50			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.65	21	23
D	One lane	4.08	17	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	632	-	-	-	-	-	-	0.229	0.327	0.229	-	-	-
1	B-A	577	0.098	0.248	0.248	-	-	-	0.156	0.355	-	0.248	0.248	0.124
1	B-C	744	0.107	0.269	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	577	0.098	0.248	0.248	-	-	-	0.156	0.355	0.156	-	-	-
1	B-D, offside lane	577	0.098	0.248	0.248	-	-	-	0.156	0.355	0.156	-	-	-
1	C-B	632	0.229	0.229	0.327	-	-	-	-	-	-	-	-	-
1	D-A	706	-	-	-	-	-	-	0.256	-	0.101	-	-	-
1	D-B, nearside lane	547	0.148	0.148	0.336	-	-	-	0.235	0.235	0.093	-	-	-
1	D-B, offside lane	547	0.148	0.148	0.336	-	-	-	0.235	0.235	0.093	-	-	-
1	D-C	547	-	0.148	0.336	0.118	0.235	0.235	0.235	0.235	0.093	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2016-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	301	100.000
B		ONE HOUR	✓	48	100.000
C		ONE HOUR	✓	125	100.000
D		ONE HOUR	✓	106	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	83	198	20
	B	26	0	14	8
	C	111	13	0	1
	D	21	63	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	5	4	0
	B	20	0	0	0
	C	5	0	0	0
	D	10	0	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.10	8.65	0.1	A	44	66
A-BCD	0.04	5.01	0.1	A	28	42
A-B					73	110
A-C					175	262
D-ABC	0.24	9.84	0.3	A	97	146
C-ABD	0.03	5.85	0.0	A	14	21
C-D					0.90	1
C-A					99	149

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	36	9	545	0.066	36	0.0	0.1	7.769	A
A-BCD	21	5	749	0.028	21	0.0	0.0	5.000	A
A-B	61	15			61				
A-C	145	36			145				
D-ABC	80	20	518	0.154	79	0.0	0.2	8.417	A
C-ABD	11	3	636	0.018	11	0.0	0.0	5.800	A
C-D	0.74	0.18			0.74				
C-A	82	21			82				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	43	11	530	0.081	43	0.1	0.1	8.119	A
A-BCD	27	7	773	0.035	27	0.0	0.0	4.887	A
A-B	72	18			72				
A-C	172	43			172				
D-ABC	95	24	508	0.188	95	0.2	0.2	8.971	A
C-ABD	14	3	637	0.022	14	0.0	0.0	5.816	A
C-D	0.88	0.22			0.88				
C-A	98	24			98				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	53	13	511	0.104	53	0.1	0.1	8.642	A
A-BCD	36	9	805	0.044	36	0.0	0.1	4.747	A
A-B	87	22			87				
A-C	208	52			208				
D-ABC	117	29	493	0.237	116	0.2	0.3	9.826	A
C-ABD	18	4	639	0.028	18	0.0	0.0	5.841	A
C-D	1	0.27			1				
C-A	119	30			119				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	53	13	510	0.104	53	0.1	0.1	8.647	A
A-BCD	36	9	805	0.045	36	0.1	0.1	4.755	A
A-B	87	22			87				
A-C	208	52			208				
D-ABC	117	29	493	0.237	117	0.3	0.3	9.842	A
C-ABD	18	4	639	0.028	18	0.0	0.0	5.846	A
C-D	1	0.27			1				
C-A	119	30			119				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	43	11	530	0.081	43	0.1	0.1	8.126	A
A-BCD	27	7	773	0.035	27	0.1	0.0	4.902	A
A-B	72	18			72				
A-C	172	43			172				
D-ABC	95	24	508	0.188	96	0.3	0.2	8.996	A
C-ABD	14	3	637	0.022	14	0.0	0.0	5.826	A
C-D	0.88	0.22			0.88				
C-A	98	24			98				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	36	9	545	0.066	36	0.1	0.1	7.784	A
A-BCD	21	5	749	0.028	21	0.0	0.0	5.007	A
A-B	61	15			61				
A-C	145	36			145				
D-ABC	80	20	518	0.154	80	0.2	0.2	8.454	A
C-ABD	11	3	636	0.018	11	0.0	0.0	5.805	A
C-D	0.74	0.18			0.74				
C-A	82	21			82				

2016-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	4.39	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)	Run automatically
D2	2016-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	351	100.000
B		ONE HOUR	✓	84	100.000
C		ONE HOUR	✓	135	100.000
D		ONE HOUR	✓	188	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	51	273	27
	B	35	0	29	20
	C	99	32	0	4
	D	91	76	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	7
	C	2	0	0	0
	D	2	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.19	9.30	0.2	A	77	116
A-BCD	0.06	4.91	0.1	A	40	60
A-B					44	67
A-C					238	356
D-ABC	0.39	11.16	0.6	B	173	259
C-ABD	0.07	6.27	0.1	A	35	52
C-D					3	5
C-A					86	128

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	63	16	531	0.119	63	0.0	0.1	7.796	A
A-BCD	30	7	768	0.039	30	0.0	0.1	4.899	A
A-B	37	9			37				
A-C	198	49			198				
D-ABC	142	35	561	0.252	140	0.0	0.3	8.680	A
C-ABD	28	7	622	0.044	27	0.0	0.1	6.062	A
C-D	3	0.72			3				
C-A	71	18			71				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	76	19	512	0.147	75	0.1	0.2	8.369	A
A-BCD	38	10	795	0.048	38	0.1	0.1	4.785	A
A-B	44	11			44				
A-C	234	58			234				
D-ABC	169	42	550	0.307	169	0.3	0.4	9.589	A
C-ABD	34	8	621	0.054	34	0.1	0.1	6.144	A
C-D	3	0.85			3				
C-A	84	21			84				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	92	23	486	0.190	92	0.2	0.2	9.285	A
A-BCD	52	13	833	0.063	52	0.1	0.1	4.638	A
A-B	53	13			53				
A-C	282	70			282				
D-ABC	207	52	535	0.387	206	0.4	0.6	11.107	B
C-ABD	43	11	620	0.070	43	0.1	0.1	6.262	A
C-D	4	1			4				
C-A	101	25			101				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	92	23	486	0.190	92	0.2	0.2	9.300	A
A-BCD	52	13	833	0.063	52	0.1	0.1	4.644	A
A-B	53	13			53				
A-C	282	70			282				
D-ABC	207	52	535	0.387	207	0.6	0.6	11.156	B
C-ABD	43	11	620	0.070	43	0.1	0.1	6.268	A
C-D	4	1			4				
C-A	101	25			101				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	76	19	512	0.148	76	0.2	0.2	8.389	A
A-BCD	38	10	795	0.048	39	0.1	0.1	4.792	A
A-B	44	11			44				
A-C	233	58			233				
D-ABC	169	42	550	0.307	170	0.6	0.5	9.649	A
C-ABD	34	8	621	0.055	34	0.1	0.1	6.154	A
C-D	3	0.85			3				
C-A	84	21			84				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	63	16	531	0.119	63	0.2	0.1	7.826	A
A-BCD	30	7	768	0.039	30	0.1	0.1	4.906	A
A-B	37	9			37				
A-C	197	49			197				
D-ABC	142	35	561	0.252	142	0.5	0.3	8.758	A
C-ABD	28	7	622	0.044	28	0.1	0.1	6.069	A
C-D	3	0.72			3				
C-A	71	18			71				

2026 DM-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.13	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)	Run automatically
D5	2026 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	299	100.000
B		ONE HOUR	✓	68	100.000
C		ONE HOUR	✓	79	100.000
D		ONE HOUR	✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	81	198	20
	B	13	0	14	41
	C	39	40	0	0
	D	23	50	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	5	4	0
	B	20	0	0	0
	C	5	0	0	0
	D	10	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.15	8.52	0.2	A	62	94
A-BCD	0.04	4.98	0.1	A	28	42
A-B					72	107
A-C					175	263
D-ABC	0.15	8.32	0.2	A	67	100
C-ABD	0.08	6.73	0.1	A	39	59
C-D					0	0
C-A					33	50

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	541	0.095	51	0.0	0.1	7.573	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.969	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.0	0.1	7.531	A
C-ABD	32	8	599	0.053	31	0.0	0.1	6.360	A
C-D	0	0			0				
C-A	28	7			28				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	529	0.116	61	0.1	0.1	7.947	A
A-BCD	27	7	778	0.034	27	0.0	0.0	4.853	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.1	0.1	7.846	A
C-ABD	38	10	593	0.065	38	0.1	0.1	6.510	A
C-D	0	0			0				
C-A	33	8			33				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	512	0.146	75	0.1	0.2	8.512	A
A-BCD	36	9	811	0.044	35	0.0	0.1	4.710	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.1	0.2	8.313	A
C-ABD	48	12	584	0.081	47	0.1	0.1	6.730	A
C-D	0	0			0				
C-A	39	10			39				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	511	0.146	75	0.2	0.2	8.516	A
A-BCD	36	9	811	0.044	36	0.1	0.1	4.717	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.2	0.2	8.316	A
C-ABD	48	12	584	0.081	48	0.1	0.1	6.734	A
C-D	0	0			0				
C-A	39	10			39				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	529	0.116	61	0.2	0.1	7.957	A
A-BCD	27	7	778	0.034	27	0.1	0.0	4.868	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.2	0.1	7.856	A
C-ABD	38	10	593	0.065	38	0.1	0.1	6.517	A
C-D	0	0			0				
C-A	33	8			33				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	541	0.095	51	0.1	0.1	7.594	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.977	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.1	0.1	7.551	A
C-ABD	32	8	599	0.053	32	0.1	0.1	6.366	A
C-D	0	0			0				
C-A	28	7			28				

2026 DM-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.25	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)	Run automatically
D6	2026 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	362	100.000
B		ONE HOUR	✓	68	100.000
C		ONE HOUR	✓	118	100.000
D		ONE HOUR	✓	132	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	50	288	24
	B	0	0	29	39
	C	80	38	0	0
	D	75	57	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	7
	C	2	0	0	0
	D	2	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.14	8.32	0.2	A	62	94
A-BCD	0.06	4.83	0.1	A	36	54
A-B					44	66
A-C					252	378
D-ABC	0.26	8.86	0.4	A	121	182
C-ABD	0.08	6.56	0.1	A	40	60
C-D					0	0
C-A					68	103

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	561	0.091	51	0.0	0.1	7.328	A
A-BCD	27	7	777	0.035	27	0.0	0.0	4.824	A
A-B	36	9			36				
A-C	209	52			209				
D-ABC	99	25	582	0.171	99	0.0	0.2	7.587	A
C-ABD	32	8	609	0.052	31	0.0	0.1	6.245	A
C-D	0	0			0				
C-A	57	14			57				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	545	0.112	61	0.1	0.1	7.719	A
A-BCD	35	9	806	0.043	35	0.0	0.1	4.694	A
A-B	43	11			43				
A-C	248	62			248				
D-ABC	119	30	572	0.207	118	0.2	0.3	8.083	A
C-ABD	39	10	605	0.064	39	0.1	0.1	6.371	A
C-D	0	0			0				
C-A	67	17			67				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	524	0.143	75	0.1	0.2	8.316	A
A-BCD	47	12	847	0.056	47	0.1	0.1	4.537	A
A-B	52	13			52				
A-C	299	75			299				
D-ABC	145	36	560	0.260	145	0.3	0.4	8.848	A
C-ABD	49	12	600	0.082	49	0.1	0.1	6.553	A
C-D	0	0			0				
C-A	81	20			81				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	75	19	524	0.143	75	0.2	0.2	8.322	A
A-BCD	47	12	847	0.056	47	0.1	0.1	4.538	A
A-B	52	13			52				
A-C	299	75			299				
D-ABC	145	36	560	0.260	145	0.4	0.4	8.865	A
C-ABD	49	12	600	0.082	49	0.1	0.1	6.557	A
C-D	0	0			0				
C-A	81	20			81				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	61	15	545	0.112	61	0.2	0.1	7.730	A
A-BCD	35	9	806	0.043	35	0.1	0.1	4.703	A
A-B	43	11			43				
A-C	248	62			248				
D-ABC	119	30	572	0.207	119	0.4	0.3	8.105	A
C-ABD	39	10	605	0.064	39	0.1	0.1	6.381	A
C-D	0	0			0				
C-A	67	17			67				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	51	13	561	0.091	51	0.1	0.1	7.345	A
A-BCD	27	7	777	0.035	27	0.1	0.0	4.830	A
A-B	36	9			36				
A-C	209	52			209				
D-ABC	99	25	582	0.171	100	0.3	0.2	7.620	A
C-ABD	32	8	609	0.052	32	0.1	0.1	6.252	A
C-D	0	0			0				
C-A	57	14			57				

2031 DM-Standard, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.07	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)	Run automatically
D7	2031 DM-Standard	AM	ONE HOUR	08:30	10:00	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	299	100.000
B		ONE HOUR	✓	62	100.000
C		ONE HOUR	✓	78	100.000
D		ONE HOUR	✓	73	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	81	198	20
	B	13	0	14	35
	C	37	41	0	0
	D	23	50	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	5	4	0
	B	20	0	0	0
	C	5	0	0	0
	D	10	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.13	8.37	0.2	A	57	85
A-BCD	0.04	4.98	0.1	A	28	42
A-B					72	107
A-C					175	263
D-ABC	0.15	8.31	0.2	A	67	100
C-ABD	0.08	6.77	0.1	A	40	60
C-D					0	0
C-A					32	47

Main Results for each time segment

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	47	12	544	0.086	46	0.0	0.1	7.490	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.969	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.0	0.1	7.528	A
C-ABD	32	8	598	0.054	32	0.0	0.1	6.374	A
C-D	0	0			0				
C-A	26	7			26				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	56	14	531	0.105	56	0.1	0.1	7.838	A
A-BCD	27	7	778	0.034	27	0.0	0.0	4.853	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.1	0.1	7.842	A
C-ABD	39	10	591	0.066	39	0.1	0.1	6.534	A
C-D	0	0			0				
C-A	31	8			31				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	68	17	514	0.133	68	0.1	0.2	8.362	A
A-BCD	36	9	811	0.044	35	0.0	0.1	4.711	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.1	0.2	8.307	A
C-ABD	49	12	583	0.083	48	0.1	0.1	6.761	A
C-D	0	0			0				
C-A	37	9			37				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	68	17	514	0.133	68	0.2	0.2	8.368	A
A-BCD	36	9	811	0.044	36	0.1	0.1	4.717	A
A-B	85	21			85				
A-C	208	52			208				
D-ABC	80	20	526	0.153	80	0.2	0.2	8.310	A
C-ABD	49	12	583	0.083	49	0.1	0.1	6.767	A
C-D	0	0			0				
C-A	37	9			37				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	56	14	531	0.105	56	0.2	0.1	7.849	A
A-BCD	27	7	778	0.034	27	0.1	0.0	4.867	A
A-B	70	18			70				
A-C	172	43			172				
D-ABC	66	16	538	0.122	66	0.2	0.1	7.853	A
C-ABD	39	10	591	0.066	39	0.1	0.1	6.543	A
C-D	0	0			0				
C-A	31	8			31				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	47	12	544	0.086	47	0.1	0.1	7.508	A
A-BCD	21	5	754	0.028	21	0.0	0.0	4.976	A
A-B	59	15			59				
A-C	145	36			145				
D-ABC	55	14	546	0.101	55	0.1	0.1	7.545	A
C-ABD	32	8	598	0.054	32	0.1	0.1	6.387	A
C-D	0	0			0				
C-A	26	7			26				

2031 DM-Standard, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	New Canal Street / Bordesley Street	Crossroads	Two-way	3.22	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)	Run automatically
D8	2031 DM-Standard	PM	ONE HOUR	16:00	17:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	363	100.000
B		ONE HOUR	✓	65	100.000
C		ONE HOUR	✓	117	100.000
D		ONE HOUR	✓	133	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	50	289	24
	B	0	0	29	36
	C	80	37	0	0
	D	76	57	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	2	0
	B	0	0	0	7
	C	2	0	0	0
	D	2	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.14	8.19	0.2	A	60	89
A-BCD	0.06	4.82	0.1	A	36	55
A-B					44	66
A-C					253	379
D-ABC	0.26	8.87	0.4	A	122	183
C-ABD	0.08	6.55	0.1	A	39	58
C-D					0	0
C-A					69	103

Main Results for each time segment

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	49	12	564	0.087	49	0.0	0.1	7.241	A
A-BCD	27	7	778	0.035	27	0.0	0.0	4.819	A
A-B	36	9			36				
A-C	210	53			210				
D-ABC	100	25	582	0.172	99	0.0	0.2	7.588	A
C-ABD	31	8	609	0.051	31	0.0	0.1	6.238	A
C-D	0	0			0				
C-A	57	14			57				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	58	15	549	0.106	58	0.1	0.1	7.611	A
A-BCD	35	9	807	0.043	35	0.0	0.1	4.689	A
A-B	43	11			43				
A-C	249	62			249				
D-ABC	120	30	573	0.209	119	0.2	0.3	8.085	A
C-ABD	38	9	605	0.062	38	0.1	0.1	6.362	A
C-D	0	0			0				
C-A	67	17			67				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	72	18	528	0.136	71	0.1	0.2	8.180	A
A-BCD	47	12	848	0.056	47	0.1	0.1	4.529	A
A-B	52	13			52				
A-C	300	75			300				
D-ABC	146	37	560	0.261	146	0.3	0.4	8.854	A
C-ABD	48	12	600	0.080	48	0.1	0.1	6.541	A
C-D	0	0			0				
C-A	81	20			81				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	72	18	528	0.136	72	0.2	0.2	8.185	A
A-BCD	47	12	848	0.056	47	0.1	0.1	4.535	A
A-B	52	13			52				
A-C	300	75			300				
D-ABC	146	37	560	0.261	146	0.4	0.4	8.871	A
C-ABD	48	12	600	0.080	48	0.1	0.1	6.547	A
C-D	0	0			0				
C-A	81	20			81				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	58	15	549	0.106	59	0.2	0.1	7.623	A
A-BCD	35	9	807	0.043	35	0.1	0.1	4.698	A
A-B	43	11			43				
A-C	249	62			249				
D-ABC	120	30	573	0.209	120	0.4	0.3	8.108	A
C-ABD	38	9	605	0.063	38	0.1	0.1	6.371	A
C-D	0	0			0				
C-A	67	17			67				

17:15 - 17:30

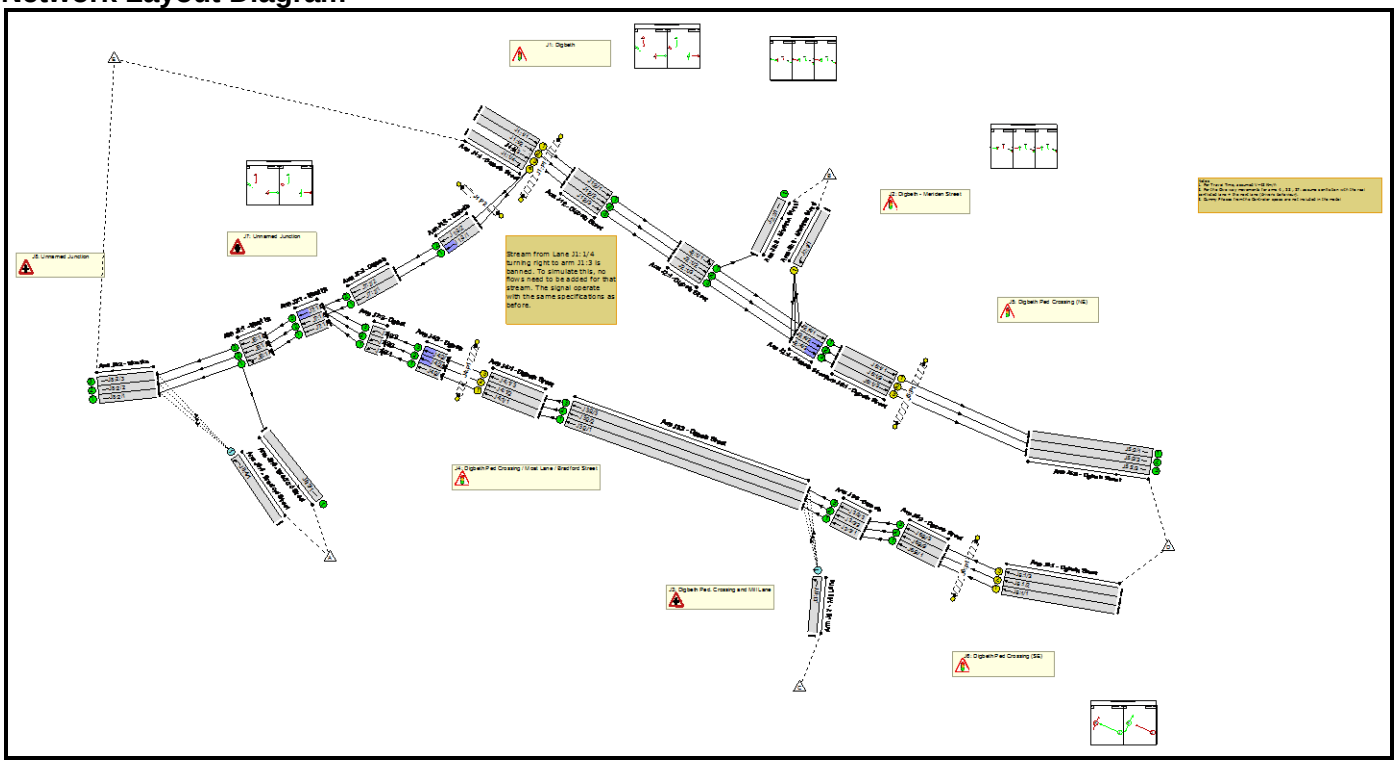
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
B-ACD	49	12	564	0.087	49	0.1	0.1	7.254	A
A-BCD	27	7	778	0.035	27	0.1	0.0	4.824	A
A-B	36	9			36				
A-C	210	52			210				
D-ABC	100	25	582	0.172	100	0.3	0.2	7.620	A
C-ABD	31	8	609	0.051	31	0.1	0.1	6.245	A
C-D	0	0			0				
C-A	57	14			57				

Full Input Data And Results

User and Project Details

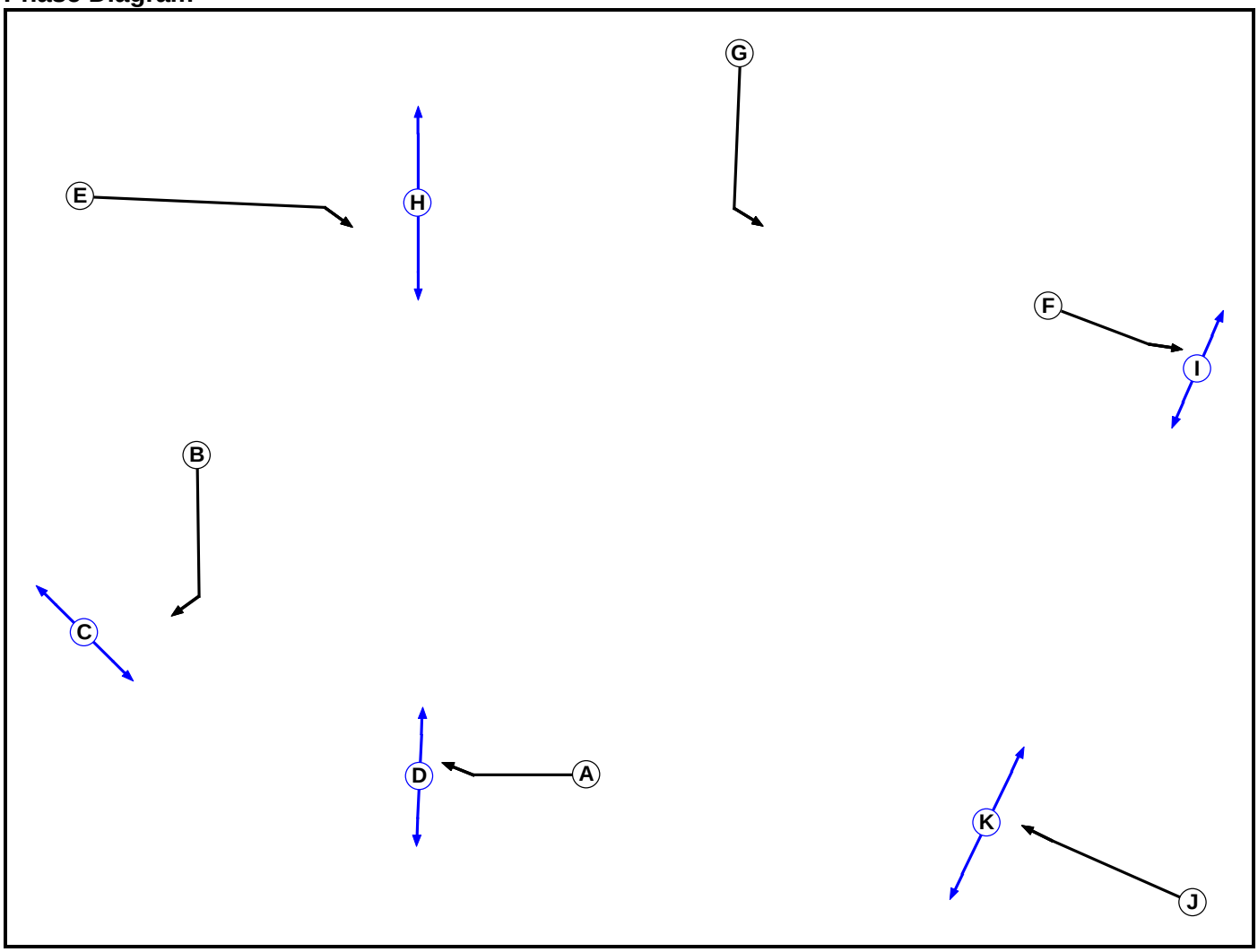
Project:	**Birmingham Eastside Extension**
Title:	**High Street Deritend / Meriden Street (Including Moat Lane Gyratory)**
Location:	Birmingham
File name:	Moat Lane Gyratory (Digbeth Street Only).lsg3x
Author:	Andreas Theofanous
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	Area wih signalized and not signalized junctions

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Pedestrian	1		5	5
D	Pedestrian	1		5	5
E	Traffic	2		7	7
F	Traffic	2		7	7
G	Traffic	2		7	7
H	Pedestrian	2		5	5
I	Pedestrian	2		5	5
J	Traffic	3		7	7
K	Pedestrian	3		5	5

Full Input Data And Results

Phase Intergreens Matrix

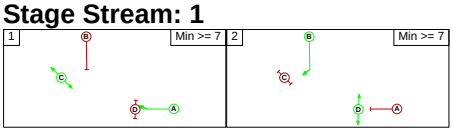
Terminating Phase	Starting Phase											
		A	B	C	D	E	F	G	H	I	J	K
	A		5	-	5	-	-	-	-	-	-	-
	B	5		5	-	-	-	-	-	-	-	-
	C	-	10		-	-	-	-	-	-	-	-
	D	13	-	-		-	-	-	-	-	-	-
	E	-	-	-	-		-	8	5	-	-	-
	F	-	-	-	-	-		-	-	5	-	-
	G	-	-	-	-	5	-		-	-	-	-
	H	-	-	-	-	12	-	-		-	-	-
	I	-	-	-	-	-	8	-	-		-	-
	J	-	-	-	-	-	-	-	-	-		5
	K	-	-	-	-	-	-	-	-	-	8	

Phases in Stage

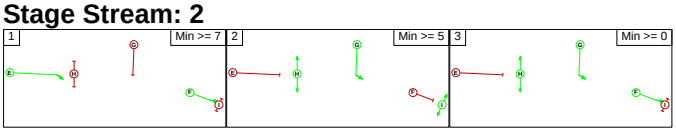
Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B D
2	1	E F
2	2	G H I
2	3	F G H
3	1	J
3	2	K

Stage Diagram

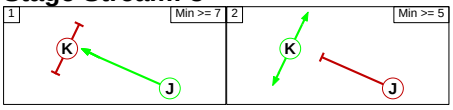
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	F	Losing	4	4

Stage Stream: 3

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage \ To Stage	1	2
1		10
2	13	

Stage Stream: 2

From Stage \ To Stage	1	2	3
1		9	8
2	12		8
3	12	5	

Stage Stream: 3

From Stage \ To Stage	1	2
1		5
2	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Digbeth
There are no Opposed Lanes in this Junction

Junction: J2: Digbeth - Meriden Street
There are no Opposed Lanes in this Junction

Junction: J3: Digbeth Ped. Crossing and Mill Lane

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
J3:1/1 (Mill Lane)	J3:2/1 (Left)	715	0	J3:3/1	0.22	All	-	-	-	-	-
				J3:3/2	0.22	All					
				J3:3/3	1.09	All					
	J3:2/2 (Left)	715	0	J3:3/1	0.22	All					
				J3:3/2	0.22	All					
				J3:3/3	0.22	All					
	J3:2/3 (Left)	715	0	J3:3/1	0.22	All					
				J3:3/2	0.22	All					
				J3:3/3	0.22	All					

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street
There are no Opposed Lanes in this Junction

Junction: J5: Digbeth Ped Crossing (NE)
There are no Opposed Lanes in this Junction

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)
There are no Opposed Lanes in this Junction

Junction: J7: Unnamed Junction
There are no Opposed Lanes in this Junction

Junction: J8: Unnamed Junction											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J8:4/1 (Bradford Street)	J8:2/1 (Left)	715	0	J8:1/1	0.22	To J8:2/1 (Ahead)	-	-	-	-	-
				J8:1/2	0.22	All					
	J8:2/2 (Left)	715	0	J8:1/1	0.22	To J8:2/1 (Ahead)					
				J8:1/2	0.22	All					
				J8:1/3	0.22	All					
	J8:2/3 (Left)	715	0	J8:1/1	0.22	To J8:2/1 (Ahead)					
				J8:1/2	0.22	All					
				J8:1/3	0.22	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Digbeth												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Digbeth Street)	U	E	2	3	6.4	Geom	-	3.65	0.00	Y	Arm J1:2 Ahead	Inf
J1:1/2 (Digbeth Street)	U	E	2	3	6.4	Geom	-	3.65	0.00	N	Arm J1:2 Ahead	Inf
J1:1/3 (Digbeth Street)	U	E	2	3	2.6	Geom	-	3.65	0.00	N	Arm J1:2 Ahead	Inf
J1:1/4 (Digbeth Street)	U	B	2	3	6.4	Geom	-	4.00	0.00	Y	Arm J1:3 Right	10.00
J1:2/1 (Digbeth Street)	U		2	3	0.2	Geom	-	3.65	0.00	Y	Arm J2:1 Ahead	Inf
J1:2/2 (Digbeth Street)	U		2	3	0.2	Geom	-	3.65	0.00	N	Arm J2:1 Ahead	Inf
J1:2/3 (Digbeth Street)	U		2	3	0.2	Geom	-	3.65	0.00	N	Arm J2:1 Ahead	Inf
J1:3/1 (Digbeth)	U		2	3	2.6	Geom	-	3.50	0.00	Y	Arm J7:2 Ahead	Inf
J1:3/2 (Digbeth)	U		2	3	2.6	Geom	-	3.50	0.00	Y	Arm J7:2 Ahead	Inf

Full Input Data And Results

Junction: J2: Digbeth - Meriden Street

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Digbeth Street)	U		2	3	5.6	Geom	-	3.65	0.00	Y	Arm J2:2 Left	Inf
											Arm J2:4 Ahead	Inf
J2:1/2 (Digbeth Street)	U		2	3	5.6	Geom	-	3.65	0.00	N	Arm J2:4 Ahead	Inf
J2:1/3 (Digbeth Street)	U		2	3	5.6	Geom	-	3.65	0.00	N	Arm J2:4 Ahead	Inf
J2:2/1 (Meriden Street)	U		2	3	60.0	Geom	-	4.15	0.00	Y		
J2:3/1 (Meriden Street)	U	G	2	3	60.0	Geom	-	4.15	0.00	Y	Arm J2:4 Left	Inf
J2:4/1 (Digbeth Street)	U		2	3	1.7	Geom	-	3.65	0.00	Y	Arm J5:1 Ahead	Inf
J2:4/2 (Digbeth Street)	U		2	3	1.7	Geom	-	3.65	0.00	Y	Arm J5:1 Ahead	Inf
J2:4/3 (Digbeth Street)	U		2	3	1.7	Geom	-	3.65	0.00	Y	Arm J5:1 Ahead	Inf

Junction: J3: Digbeth Ped. Crossing and Mill Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (Mill Lane)	O		2	3	60.0	Geom	-	4.50	0.00	Y	Arm J3:2 Left	Inf
J3:2/1 (Digbeth Street)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J4:1 Ahead	Inf
J3:2/2 (Digbeth Street)	U		2	3	0.2	Geom	-	3.50	0.00	N	Arm J4:1 Ahead	Inf
J3:2/3 (Digbeth Street)	U		2	3	0.2	Geom	-	3.50	0.00	N	Arm J4:1 Ahead	Inf
J3:3/1 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
J3:3/2 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
J3:3/3 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf

Full Input Data And Results

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J4:1/1 (Digbeth Street)	U	A	2	3	13.6	Geom	-	3.50	0.00	Y	Arm J4:2 Ahead	Inf
J4:1/2 (Digbeth Street)	U	A	2	3	13.6	Geom	-	3.50	0.00	N	Arm J4:2 Ahead	Inf
J4:1/3 (Digbeth Street)	U	A	2	3	13.6	Geom	-	3.50	0.00	N	Arm J4:2 Ahead	Inf
J4:2/1 (Digbeth)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:3 Ahead	Inf
J4:2/2 (Digbeth)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:3 Ahead	Inf
J4:2/3 (Digbeth)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:3 Ahead	Inf

Junction: J5: Digbeth Ped Crossing (NE)												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J5:1/1 (Digbeth Street)	U	F	2	3	6.1	Geom	-	3.65	0.00	Y	Arm J5:2 Ahead	Inf
J5:1/2 (Digbeth Street)	U	F	2	3	6.1	Geom	-	3.65	0.00	N	Arm J5:2 Ahead	Inf
J5:1/3 (Digbeth Street)	U	F	2	3	6.1	Geom	-	3.65	0.00	N	Arm J5:2 Ahead	Inf
J5:2/1 (Digbeth Street)	U		2	3	60.0	Geom	-	3.65	0.00	N		
J5:2/2 (Digbeth Street)	U		2	3	60.0	Geom	-	3.65	0.00	N		
J5:2/3 (Digbeth Street)	U		2	3	60.0	Geom	-	3.65	0.00	N		

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J6:1/1 (Digbeth Street)	U	J	2	3	8.7	Geom	-	3.50	0.00	Y	Arm J6:2 Ahead	Inf
J6:1/2 (Digbeth Street)	U	J	2	3	8.7	Geom	-	3.50	0.00	N	Arm J6:2 Ahead	Inf
J6:1/3 (Digbeth Street)	U	J	2	3	8.7	Geom	-	3.50	0.00	N	Arm J6:2 Ahead	Inf
J6:2/1 (Digbeth Street)	U		2	3	3.3	Geom	-	3.50	0.00	Y	Arm J3:3 Ahead	Inf
J6:2/2 (Digbeth Street)	U		2	3	3.3	Geom	-	3.50	0.00	N	Arm J3:3 Ahead	Inf
J6:2/3 (Digbeth Street)	U		2	3	3.3	Geom	-	3.50	0.00	N	Arm J3:3 Ahead	Inf

Junction: J7: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J7:1/1 (Moat Ln)	U		2	3	7.1	User	1965	-	-	-	-	-
J7:1/2 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	N	Arm J8:1 Ahead	Inf
J7:1/3 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	N	Arm J8:1 Ahead	Inf
J7:2/1 (Digbeth)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:2/2 (Digbeth)	U		2	3	60.0	Inf	-	-	-	-	-	-
J7:3/1 (Digbet)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:3/2 (Digbet)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:3/3 (Digbet)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf

Full Input Data And Results

Junction: J8: Unnamed Junction												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J8:1/1 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
											Arm J8:3 Left	Inf
J8:1/2 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J8:1/3 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J8:2/1 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	Y		
J8:2/2 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	N		
J8:2/3 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	N		
J8:3/1 (Bradford Street)	U		2	3	60.0	Geom	-	3.50	0.00	Y		
J8:4/1 (Bradford Street)	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm J8:2 Left	15.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM (Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	320	320
	B	0	0	0	224	0	224
	C	0	0	0	0	8	8
	D	14	0	0	0	425	439
	E	0	79	0	778	0	857
	Tot.	14	79	0	1002	753	1848

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM (Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	451
J1:1/2 (with short)	406(In) 203(Out)
J1:1/3 (short)	203
J1:1/4	0
J1:2/1	451
J1:2/2	203
J1:2/3	203
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	451
J2:1/2	203
J2:1/3	203
J2:2/1	79
J2:3/1	224
J2:4/1	384
J2:4/2	309
J2:4/3	309
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	8
J3:2/1	130
J3:2/2	158
J3:2/3	159
J3:3/1	126
J3:3/2	156
J3:3/3	157
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	130
J4:1/2	158
J4:1/3	159
J4:2/1	130
J4:2/2	158
J4:2/3	159
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	384
J5:1/2	309
J5:1/3	309
J5:2/1	384

Full Input Data And Results

J5:2/2	309
J5:2/3	309
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	126
J6:1/2	156
J6:1/3	157
J6:2/1	126
J6:2/2	156
J6:2/3	157
Junction: J7: Unnamed Junction	
J7:1/1	130
J7:1/2	158
J7:1/3	159
J7:2/1	0
J7:2/2	0
J7:3/1	130
J7:3/2	158
J7:3/3	159
Junction: J8: Unnamed Junction	
J8:1/1	130
J8:1/2	158
J8:1/3	159
J8:2/1	154
J8:2/2	299
J8:2/3	300
J8:3/1	14
J8:4/1	320

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	17.5 %	1980	1980
				Arm J2:4 Ahead	Inf	82.5 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	89.2 %	1965	1965
				Arm J8:3 Left	Inf	10.8 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 2: '2026 DM PM (Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	233	233
	B	0	0	0	334	0	334
	C	24	0	0	0	26	50
	D	18	0	0	0	564	582
	E	0	118	0	1090	0	1208
	Tot.	42	118	0	1424	823	2407

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM (Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	608
J1:1/2 (with short)	600(In) 300(Out)
J1:1/3 (short)	300
J1:1/4	0
J1:2/1	608
J1:2/2	300
J1:2/3	300
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	608
J2:1/2	300
J2:1/3	300
J2:2/1	118
J2:3/1	334
J2:4/1	515
J2:4/2	455
J2:4/3	454
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	50
J3:2/1	190
J3:2/2	221
J3:2/3	221
J3:3/1	156
J3:3/2	213
J3:3/3	213
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	190
J4:1/2	221
J4:1/3	221
J4:2/1	190
J4:2/2	221
J4:2/3	221
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	515
J5:1/2	455
J5:1/3	454
J5:2/1	515

Full Input Data And Results

J5:2/2	455
J5:2/3	454
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	156
J6:1/2	213
J6:1/3	213
J6:2/1	156
J6:2/2	213
J6:2/3	213
Junction: J7: Unnamed Junction	
J7:1/1	190
J7:1/2	221
J7:1/3	221
J7:2/1	0
J7:2/2	0
J7:3/1	190
J7:3/2	221
J7:3/3	221
Junction: J8: Unnamed Junction	
J8:1/1	190
J8:1/2	221
J8:1/3	221
J8:2/1	171
J8:2/2	326
J8:2/3	326
J8:3/1	42
J8:4/1	233

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	19.4 %	1980	1980
				Arm J2:4 Ahead	Inf	80.6 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	77.9 %	1965	1965
				Arm J8:3 Left	Inf	22.1 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 3: '2031 DM AM (Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	328	328
	B	0	0	0	224	0	224
	C	0	0	0	0	8	8
	D	15	0	0	0	438	453
	E	0	78	0	790	0	868
	Tot.	15	78	0	1014	774	1881

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM (Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	454
J1:1/2 (with short)	414(In) 207(Out)
J1:1/3 (short)	207
J1:1/4	0
J1:2/1	454
J1:2/2	207
J1:2/3	207
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	454
J2:1/2	207
J2:1/3	207
J2:2/1	78
J2:3/1	224
J2:4/1	389
J2:4/2	312
J2:4/3	313
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	8
J3:2/1	129
J3:2/2	166
J3:2/3	166
J3:3/1	125
J3:3/2	164
J3:3/3	164
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	129
J4:1/2	166
J4:1/3	166
J4:2/1	129
J4:2/2	166
J4:2/3	166
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	389
J5:1/2	312
J5:1/3	313
J5:2/1	389

Full Input Data And Results

J5:2/2	312
J5:2/3	313
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	125
J6:1/2	164
J6:1/3	164
J6:2/1	125
J6:2/2	164
J6:2/3	164
Junction: J7: Unnamed Junction	
J7:1/1	129
J7:1/2	166
J7:1/3	166
J7:2/1	0
J7:2/2	0
J7:3/1	129
J7:3/2	166
J7:3/3	166
Junction: J8: Unnamed Junction	
J8:1/1	129
J8:1/2	166
J8:1/3	166
J8:2/1	159
J8:2/2	307
J8:2/3	308
J8:3/1	15
J8:4/1	328

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	17.2 %	1980	1980
				Arm J2:4 Ahead	Inf	82.8 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	88.4 %	1965	1965
				Arm J8:3 Left	Inf	11.6 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 4: '2031 DM PM (Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	229	229
	B	0	0	0	335	0	335
	C	3	0	0	0	47	50
	D	39	0	0	0	555	594
	E	0	118	0	1102	0	1220
	Tot.	42	118	0	1437	831	2428

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM (Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	614
J1:1/2 (with short)	606(In) 303(Out)
J1:1/3 (short)	303
J1:1/4	0
J1:2/1	614
J1:2/2	303
J1:2/3	303
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	614
J2:1/2	303
J2:1/3	303
J2:2/1	118
J2:3/1	335
J2:4/1	520
J2:4/2	458
J2:4/3	459
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	50
J3:2/1	194
J3:2/2	225
J3:2/3	225
J3:3/1	172
J3:3/2	211
J3:3/3	211
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	194
J4:1/2	225
J4:1/3	225
J4:2/1	194
J4:2/2	225
J4:2/3	225
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	520
J5:1/2	458
J5:1/3	459
J5:2/1	520

Full Input Data And Results

J5:2/2	458
J5:2/3	459
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	172
J6:1/2	211
J6:1/3	211
J6:2/1	172
J6:2/2	211
J6:2/3	211
Junction: J7: Unnamed Junction	
J7:1/1	194
J7:1/2	225
J7:1/3	225
J7:2/1	0
J7:2/2	0
J7:3/1	194
J7:3/2	225
J7:3/3	225
Junction: J8: Unnamed Junction	
J8:1/1	194
J8:1/2	225
J8:1/3	225
J8:2/1	179
J8:2/2	326
J8:2/3	326
J8:3/1	42
J8:4/1	229

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	19.2 %	1980	1980
				Arm J2:4 Ahead	Inf	80.8 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	78.4 %	1965	1965
				Arm J8:3 Left	Inf	21.6 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 5: '2026 DM AM (Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	373	373
	B	0	0	0	227	0	227
	C	0	0	0	0	8	8
	D	14	0	0	0	527	541
	E	0	80	0	944	0	1024
	Tot.	14	80	0	1171	908	2173

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM (Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	516
J1:1/2 (with short)	508(In) 254(Out)
J1:1/3 (short)	254
J1:1/4	0
J1:2/1	516
J1:2/2	254
J1:2/3	254
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	516
J2:1/2	254
J2:1/3	254
J2:2/1	80
J2:3/1	227
J2:4/1	444
J2:4/2	364
J2:4/3	363
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	8
J3:2/1	171
J3:2/2	189
J3:2/3	189
J3:3/1	168
J3:3/2	187
J3:3/3	186
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	171
J4:1/2	189
J4:1/3	189
J4:2/1	171
J4:2/2	189
J4:2/3	189
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	444
J5:1/2	364
J5:1/3	363
J5:2/1	444
J5:2/2	364

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J5:2/3	363
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	168
J6:1/2	187
J6:1/3	186
J6:2/1	168
J6:2/2	187
J6:2/3	186
Junction: J7: Unnamed Junction	
J7:1/1	171
J7:1/2	189
J7:1/3	189
J7:2/1	0
J7:2/2	0
J7:3/1	171
J7:3/2	189
J7:3/3	189
Junction: J8: Unnamed Junction	
J8:1/1	171
J8:1/2	189
J8:1/3	189
J8:2/1	169
J8:2/2	370
J8:2/3	369
J8:3/1	14
J8:4/1	373

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	15.5 %	1980	1980
				Arm J2:4 Ahead	Inf	84.5 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	91.8 %	1965	1965
				Arm J8:3 Left	Inf	8.2 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 6: '2026 DM PM (Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	286	286
	B	0	0	0	335	0	335
	C	3	0	0	0	47	50
	D	39	0	0	0	644	683
	E	0	118	0	1253	0	1371
	Tot.	42	118	0	1588	977	2725

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM (Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	681
J1:1/2 (with short)	690(In) 345(Out)
J1:1/3 (short)	345
J1:1/4	0
J1:2/1	681
J1:2/2	345
J1:2/3	345
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	681
J2:1/2	345
J2:1/3	345
J2:2/1	118
J2:3/1	335
J2:4/1	581
J2:4/2	503
J2:4/3	504
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	50
J3:2/1	222
J3:2/2	256
J3:2/3	255
J3:3/1	200
J3:3/2	242
J3:3/3	241
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	222
J4:1/2	256
J4:1/3	255
J4:2/1	222
J4:2/2	256
J4:2/3	255
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	581
J5:1/2	503
J5:1/3	504
J5:2/1	581
J5:2/2	503

Full Input Data And Results

J5:2/3	504
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	200
J6:1/2	242
J6:1/3	241
J6:2/1	200
J6:2/2	242
J6:2/3	241
Junction: J7: Unnamed Junction	
J7:1/1	222
J7:1/2	256
J7:1/3	255
J7:2/1	0
J7:2/2	0
J7:3/1	222
J7:3/2	256
J7:3/3	255
Junction: J8: Unnamed Junction	
J8:1/1	222
J8:1/2	256
J8:1/3	255
J8:2/1	221
J8:2/2	378
J8:2/3	378
J8:3/1	42
J8:4/1	286

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	17.3 %	1980	1980
				Arm J2:4 Ahead	Inf	82.7 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	81.1 %	1965	1965
				Arm J8:3 Left	Inf	18.9 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 7: '2031 DM AM (Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	381	381
	B	0	0	0	228	0	228
	C	0	0	0	0	8	8
	D	15	0	0	0	540	555
	E	0	79	0	955	0	1034
	Tot.	15	79	0	1183	929	2206

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM (Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	518
J1:1/2 (with short)	516(In) 258(Out)
J1:1/3 (short)	258
J1:1/4	0
J1:2/1	518
J1:2/2	258
J1:2/3	258
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	518
J2:1/2	258
J2:1/3	258
J2:2/1	79
J2:3/1	228
J2:4/1	449
J2:4/2	367
J2:4/3	367
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	8
J3:2/1	164
J3:2/2	200
J3:2/3	199
J3:3/1	160
J3:3/2	198
J3:3/3	197
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	164
J4:1/2	200
J4:1/3	199
J4:2/1	164
J4:2/2	200
J4:2/3	199
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	449
J5:1/2	367
J5:1/3	367
J5:2/1	449
J5:2/2	367

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J5:2/3	367
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	160
J6:1/2	198
J6:1/3	197
J6:2/1	160
J6:2/2	198
J6:2/3	197
Junction: J7: Unnamed Junction	
J7:1/1	164
J7:1/2	200
J7:1/3	199
J7:2/1	0
J7:2/2	0
J7:3/1	164
J7:3/2	200
J7:3/3	199
Junction: J8: Unnamed Junction	
J8:1/1	164
J8:1/2	200
J8:1/3	199
J8:2/1	205
J8:2/2	362
J8:2/3	362
J8:3/1	15
J8:4/1	381

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	15.3 %	1980	1980
				Arm J2:4 Ahead	Inf	84.7 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	90.9 %	1965	1965
				Arm J8:3 Left	Inf	9.1 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

Scenario 8: '2031 DM PM (Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	0	0	0	281	281
	B	0	0	0	336	0	336
	C	2	0	0	0	48	50
	D	40	0	0	0	654	694
	E	0	118	0	1265	0	1383
	Tot.	42	118	0	1601	983	2744

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM (Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	687
J1:1/2 (with short)	696(In) 348(Out)
J1:1/3 (short)	348
J1:1/4	0
J1:2/1	687
J1:2/2	348
J1:2/3	348
J1:3/1	0
J1:3/2	0
Junction: J2: Digbeth - Meriden Street	
J2:1/1	687
J2:1/2	348
J2:1/3	348
J2:2/1	118
J2:3/1	336
J2:4/1	587
J2:4/2	507
J2:4/3	507
Junction: J3: Digbeth Ped. Crossing and Mill Lane	
J3:1/1	50
J3:2/1	226
J3:2/2	259
J3:2/3	259
J3:3/1	204
J3:3/2	245
J3:3/3	245
Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	
J4:1/1	226
J4:1/2	259
J4:1/3	259
J4:2/1	226
J4:2/2	259
J4:2/3	259
Junction: J5: Digbeth Ped Crossing (NE)	
J5:1/1	587
J5:1/2	507
J5:1/3	507
J5:2/1	587
J5:2/2	507

Full Input Data And Results

J5:2/3	507
Junction: J6: Digbeth Ped Crossing (SE)	
J6:1/1	204
J6:1/2	245
J6:1/3	245
J6:2/1	204
J6:2/2	245
J6:2/3	245
Junction: J7: Unnamed Junction	
J7:1/1	226
J7:1/2	259
J7:1/3	259
J7:2/1	0
J7:2/2	0
J7:3/1	226
J7:3/2	259
J7:3/3	259
Junction: J8: Unnamed Junction	
J8:1/1	226
J8:1/2	259
J8:1/3	259
J8:2/1	228
J8:2/2	378
J8:2/3	377
J8:3/1	42
J8:4/1	281

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/4 (Digbeth Street)	4.00	0.00	Y	Arm J1:3 Right	10.00	0.0 %	2015	2015
J1:2/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Ahead	Inf	100.0 %	1980	1980
J1:2/2 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:2/3 (Digbeth Street)	3.65	0.00	N	Arm J2:1 Ahead	Inf	100.0 %	2120	2120
J1:3/1 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965
J1:3/2 (Digbeth)	3.50	0.00	Y	Arm J7:2 Ahead	Inf	0.0 %	1965	1965

Junction: J2: Digbeth - Meriden Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:2 Left	Inf	17.2 %	1980	1980
				Arm J2:4 Ahead	Inf	82.8 %		
J2:1/2 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:1/3 (Digbeth Street)	3.65	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2120	2120
J2:2/1 (Meriden Street)	4.15	0.00	Y				2030	2030
J2:3/1 (Meriden Street)	4.15	0.00	Y	Arm J2:4 Left	Inf	100.0 %	2030	2030
J2:4/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/2 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980
J2:4/3 (Digbeth Street)	3.65	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1980	1980

Full Input Data And Results

Junction: J3: Digbeth Ped. Crossing and Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Mill Lane)	4.50	0.00	Y	Arm J3:2 Left	Inf	100.0 %	2065	2065
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:2/3 (Digbeth Street)	3.50	0.00	N	Arm J4:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/2 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J3:3/3 (Digbeth)	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965

Junction: J4: Digbeth Ped Crossing / Moat Lane / Bradford Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J4:2 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:1/3 (Digbeth Street)	3.50	0.00	N	Arm J4:2 Ahead	Inf	100.0 %	2105	2105
J4:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965
J4:2/3 (Digbeth)	3.50	0.00	Y	Arm J7:3 Ahead	Inf	100.0 %	1965	1965

Junction: J5: Digbeth Ped Crossing (NE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J5:2 Ahead	Inf	100.0 %	1980	1980
J5:1/2 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:1/3 (Digbeth Street)	3.65	0.00	N	Arm J5:2 Ahead	Inf	100.0 %	2120	2120
J5:2/1 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/2 (Digbeth Street)	3.65	0.00	N				2120	2120
J5:2/3 (Digbeth Street)	3.65	0.00	N				2120	2120

Full Input Data And Results

Junction: J6: Digbeth Ped Crossing (SE)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1 (Digbeth Street)	3.50	0.00	Y	Arm J6:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:1/3 (Digbeth Street)	3.50	0.00	N	Arm J6:2 Ahead	Inf	100.0 %	2105	2105
J6:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1965	1965
J6:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105
J6:2/3 (Digbeth Street)	3.50	0.00	N	Arm J3:3 Ahead	Inf	100.0 %	2105	2105

Junction: J7: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:1/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J7:2/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Digbeth Lane 2)	Infinite Saturation Flow						Inf	Inf
J7:3/1 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/2 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J7:3/3 (Digbet)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

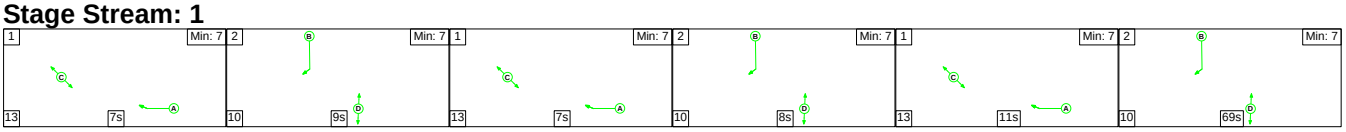
Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	81.4 %	1965	1965
				Arm J8:3 Left	Inf	18.6 %		
J8:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J8:2/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y				1965	1965
J8:4/1 (Bradford Street)	3.50	0.00	Y	Arm J8:2 Left	15.00	100.0 %	1786	1786

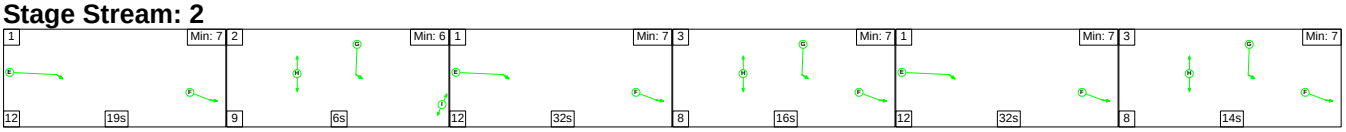
Scenario 1: '2026 DM AM (Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

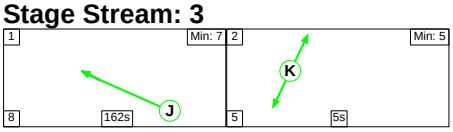
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2
Duration	7	9	7	8	11	69
Change Point	0	20	39	59	77	101

Stage Stream: 2

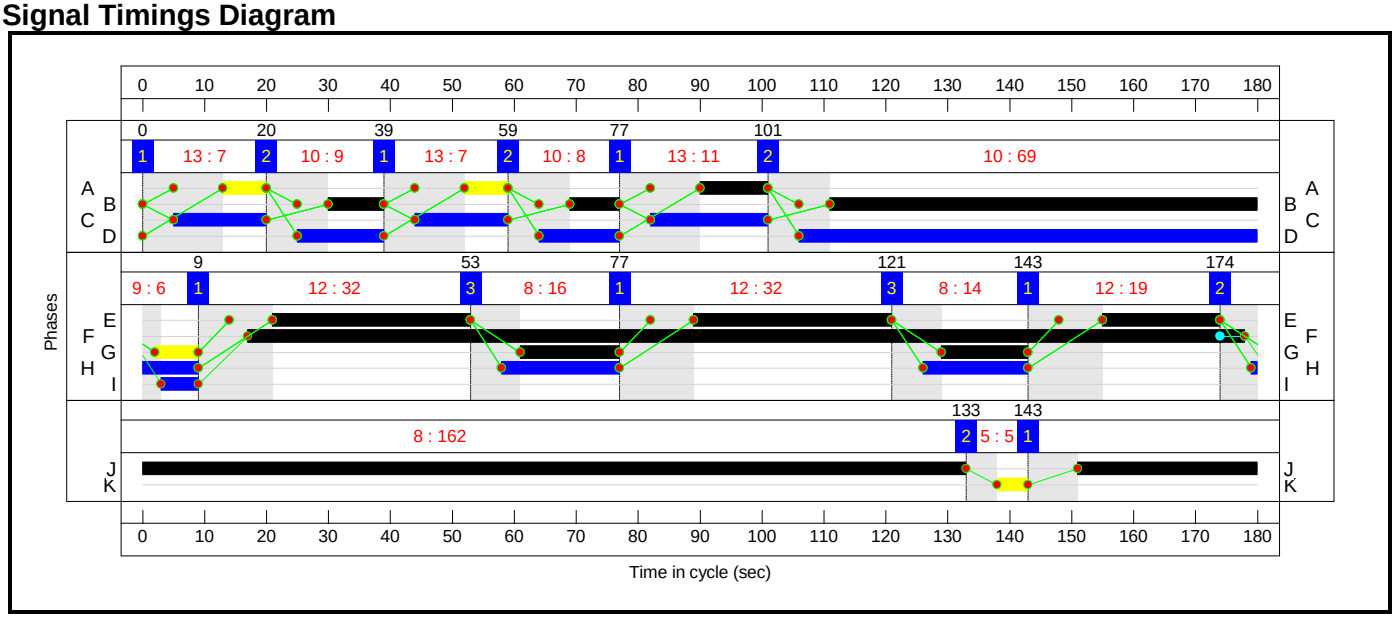
Stage	1	2	1	3	1	3
Duration	19	6	32	16	32	14
Change Point	143	174	9	53	77	121

Full Input Data And Results

Stage Stream: 3

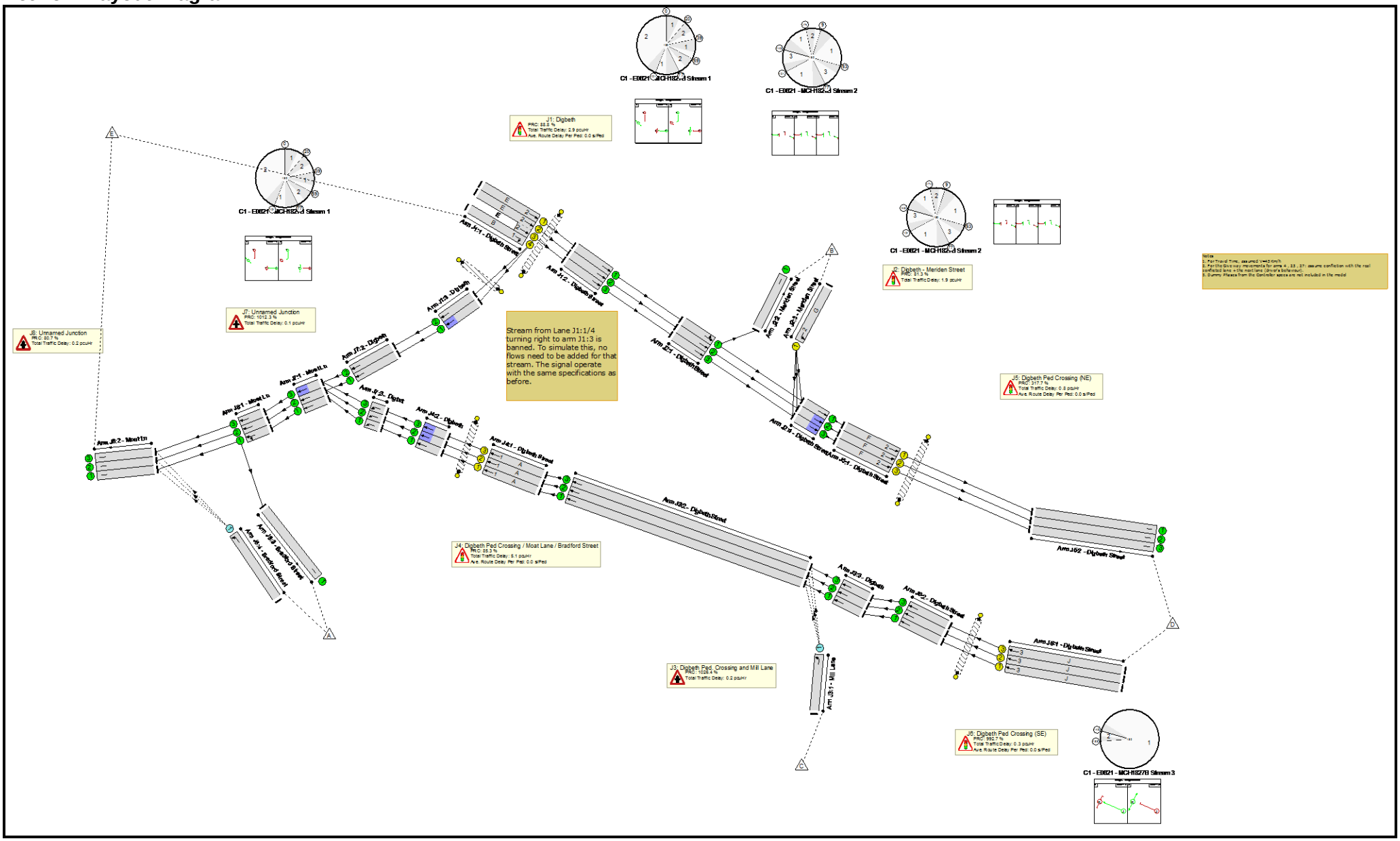
Stage	1	2
Duration	162	5
Change Point	143	133

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**49.8%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.7%**
1/1	Digbeth Street Ahead	U	2	N/A	E		3	83	-	451	1980	946	47.7%
1/2+1/3	Digbeth Street Ahead	U	2	N/A	E		3	83	-	406	2120:2120	599+599	33.9 : 33.9%
1/4	Digbeth Street Right	U	1	N/A	B		3	86	-	0	2015	996	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	451	1980	1980	22.8%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	203	2120	2120	9.6%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	203	2120	2120	9.6%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
Ped Link: P1	Unnamed Ped Link	-	2	-	H		3	46	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	C		3	49	-	0	-	0	0.0%
J2: Digbeth - Meriden Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**49.7%**
1/1	Digbeth Street Left Ahead	U	N/A	N/A	-		-	-	-	451	1980	1980	22.8%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	203	2120	2120	9.6%
1/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	203	2120	2120	9.6%
2/1	Meriden Street	U	N/A	N/A	-		-	-	-	79	2030	2030	3.9%

Full Input Data And Results

3/1	Meriden Street Left	U	2	N/A	G		3	37	-	224	2030	451	49.7%
4/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	384	1980	1980	19.4%
4/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	309	1980	1980	15.6%
4/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	309	1980	1980	15.6%
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**8.0%**
1/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	8	2065	545	1.5%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	130	1965	1965	6.6%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	158	2105	2105	7.5%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	159	2105	2105	7.6%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	126	1965	1965	6.4%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	156	1965	1965	7.9%
3/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	157	1965	1965	8.0%
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**48.6%**
1/1	Digbeth Street Ahead	U	1	N/A	A		3	25	-	130	1965	306	42.5%
1/2	Digbeth Street Ahead	U	1	N/A	A		3	25	-	158	2105	327	48.3%
1/3	Digbeth Street Ahead	U	1	N/A	A		3	25	-	159	2105	327	48.6%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	130	1965	1965	6.6%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	158	1965	1965	8.0%
2/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	159	1965	1965	8.1%

Full Input Data And Results

Ped Link: P1	Unnamed Ped Link	-	1	-	D		3	101	-	0	-	0	0.0%
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**21.5%**
1/1	Digbeth Street Ahead	U	2	N/A	F		1	161	-	384	1980	1782	21.5%
1/2	Digbeth Street Ahead	U	2	N/A	F		1	161	-	309	2120	1908	16.2%
1/3	Digbeth Street Ahead	U	2	N/A	F		1	161	-	309	2120	1908	16.2%
2/1	Digbeth Street	U	N/A	N/A	-		-	-	-	384	2120	2120	18.1%
2/2	Digbeth Street	U	N/A	N/A	-		-	-	-	309	2120	2120	14.6%
2/3	Digbeth Street	U	N/A	N/A	-		-	-	-	309	2120	2120	14.6%
Ped Link: P1	Unnamed Ped Link	-	2	-	I		1	6	-	0	-	0	0.0%
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**8.2%**
1/1	Digbeth Street Ahead	U	3	N/A	J		1	162	-	126	1965	1779	7.1%
1/2	Digbeth Street Ahead	U	3	N/A	J		1	162	-	156	2105	1906	8.2%
1/3	Digbeth Street Ahead	U	3	N/A	J		1	162	-	157	2105	1906	8.2%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	126	1965	1965	6.4%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	156	2105	2105	7.4%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	157	2105	2105	7.5%
Ped Link: P1	Unnamed Ped Link	-	3	-	K		1	5	-	0	-	0	0.0%
J7: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**8.1%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	130	1965	1965	6.6%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	158	2105	2105	7.5%

Full Input Data And Results

1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	159	2105	2105	7.6%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbet Ahead	U	N/A	N/A	-		-	-	-	130	1965	1965	6.6%
3/2	Digbet Ahead	U	N/A	N/A	-		-	-	-	158	1965	1965	8.0%
3/3	Digbet Ahead	U	N/A	N/A	-		-	-	-	159	1965	1965	8.1%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**49.8%**
1/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	130	1965	1965	6.6%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	158	1965	1965	8.0%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	159	1965	1965	8.1%
2/1	Moat Ln	U	N/A	N/A	-		-	-	-	154	1965	1965	7.8%
2/2	Moat Ln	U	N/A	N/A	-		-	-	-	299	2105	2105	14.2%
2/3	Moat Ln	U	N/A	N/A	-		-	-	-	300	2105	2105	14.3%
3/1	Bradford Street	U	N/A	N/A	-		-	-	-	14	1965	1965	0.7%
4/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	320	1786	642	49.8%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**328**	**0**	**0**	**7.7**	**3.9**	**0.0**	**11.6**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**2.4**	**0.5**	**0.0**	**2.9**	**-**	**-**	**-**	**-**
1/1	451	451	-	-	-	1.3	0.0	-	1.3	10.8	5.6	0.0	5.6
1/2+1/3	406	406	-	-	-	1.0	0.3	-	1.3	11.5	2.1	0.3	2.4
1/4	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	451	451	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
2/2	203	203	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
2/3	203	203	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Digbeth - Meriden Street	**-**	**-**	**0**	**0**	**0**	**1.3**	**0.6**	**0.0**	**1.9**	**-**	**-**	**-**	**-**
1/1	451	451	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
1/2	203	203	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
1/3	203	203	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
2/1	79	79	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	224	224	-	-	-	1.3	0.0	-	1.3	20.8	3.5	0.0	3.5
4/1	384	384	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	309	309	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/3	309	309	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**8**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	8	8	8	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

2/1	130	130	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	158	158	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
2/3	159	159	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	126	126	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	156	156	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/3	157	157	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**0**	**0**	**0**	**3.7**	**1.4**	**0.0**	**5.1**	**-**	**-**	**-**	**-**
1/1	130	130	-	-	-	1.1	0.4	-	1.4	39.6	3.5	0.4	3.9
1/2	158	158	-	-	-	1.3	0.5	-	1.8	40.2	4.3	0.5	4.8
1/3	159	159	-	-	-	1.3	0.5	-	1.8	40.3	4.3	0.5	4.8
2/1	130	130	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	158	158	-	-	-	0.0	0.0	-	0.1	1.2	0.3	0.0	0.3
2/3	159	159	-	-	-	0.0	0.0	-	0.1	1.2	0.3	0.0	0.3
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**0**	**0**	**0**	**0.2**	**0.6**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	384	384	-	-	-	0.0	0.1	-	0.2	1.6	0.4	0.1	0.6
1/2	309	309	-	-	-	0.1	0.1	-	0.2	2.1	1.5	0.1	1.6
1/3	309	309	-	-	-	0.1	0.1	-	0.2	2.1	1.5	0.1	1.6
2/1	384	384	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	309	309	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	309	309	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**0**	**0**	**0**	**0.1**	**0.2**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	126	126	-	-	-	0.0	0.0	-	0.1	2.0	0.6	0.0	0.7
1/2	156	156	-	-	-	0.0	0.0	-	0.1	1.9	0.8	0.0	0.8
1/3	157	157	-	-	-	0.0	0.0	-	0.1	1.9	0.8	0.0	0.8
2/1	126	126	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	156	156	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

Full Input Data And Results

2/3	157	157	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	130	130	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	158	158	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	159	159	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	130	130	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	158	158	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/3	159	159	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
J8: Unnamed Junction	**-**	**-**	**320**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	130	130	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/2	158	158	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/3	159	159	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/1	154	154	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	299	299	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	300	300	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	14	14	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	320	320	320	0	0	0.0	0.0	-	0.0	0.5	1.4	0.0	1.4

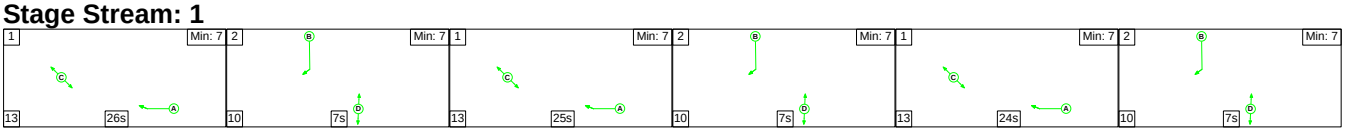
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	85.3	Total Delay for Signalled Lanes (pcuHr):	4.97	Cycle Time (s): 180
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	81.3	Total Delay for Signalled Lanes (pcuHr):	4.47	Cycle Time (s): 180
C1 - E0621 - MCH1827B	Stream: 3 PRC for Signalled Lanes (%):	992.7	Total Delay for Signalled Lanes (pcuHr):	0.23	Cycle Time (s): 180
	PRC Over All Lanes (%):	80.7	Total Delay Over All Lanes(pcuHr):	11.58	

Full Input Data And Results

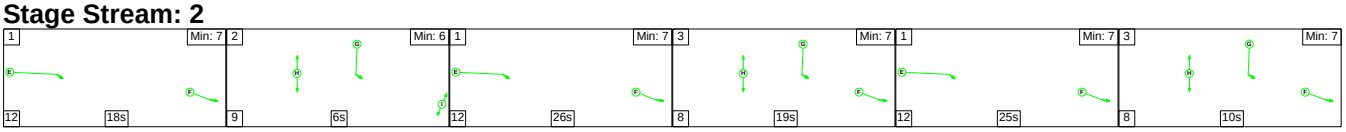
Scenario 2: '2026 DM PM (Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

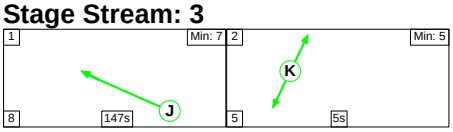
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2
Duration	26	7	25	7	24	7
Change Point	53	92	109	147	164	36

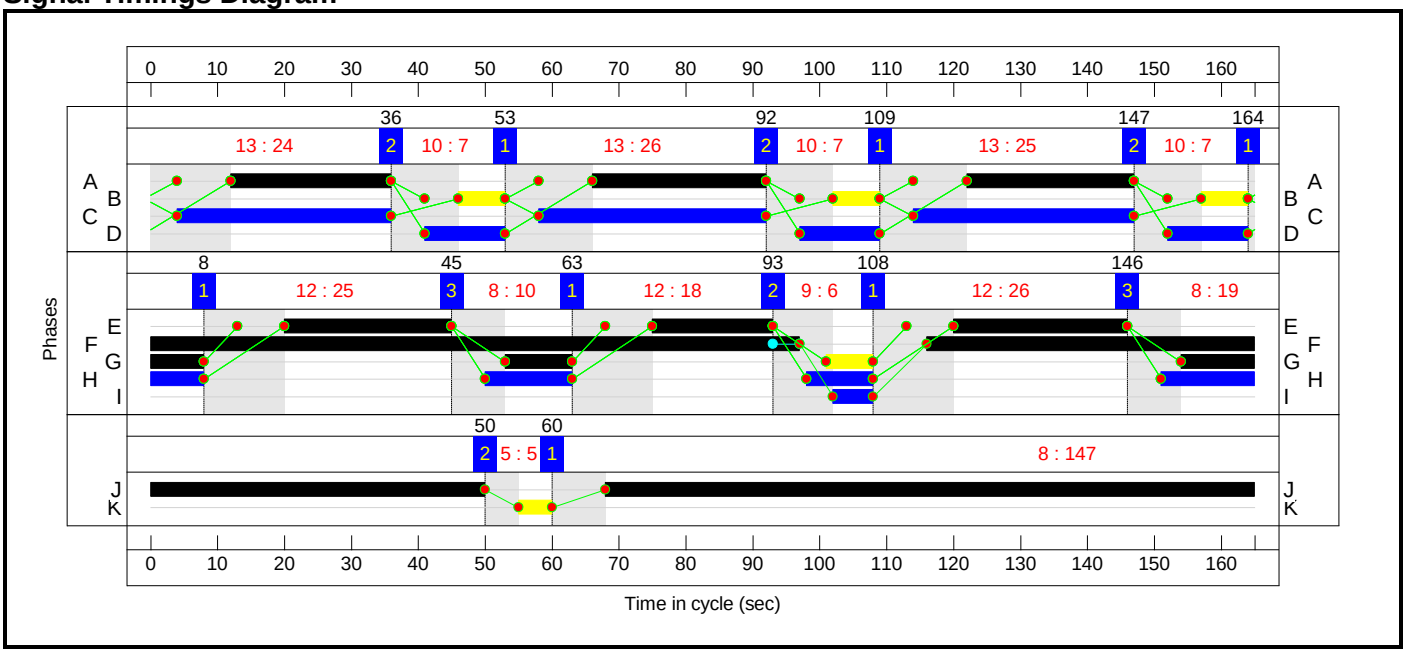
Stage Stream: 2

Stage	1	2	1	3	1	3
Duration	18	6	26	19	25	10
Change Point	63	93	108	146	8	45

Stage Stream: 3

Stage	1	2
Duration	147	5
Change Point	60	50

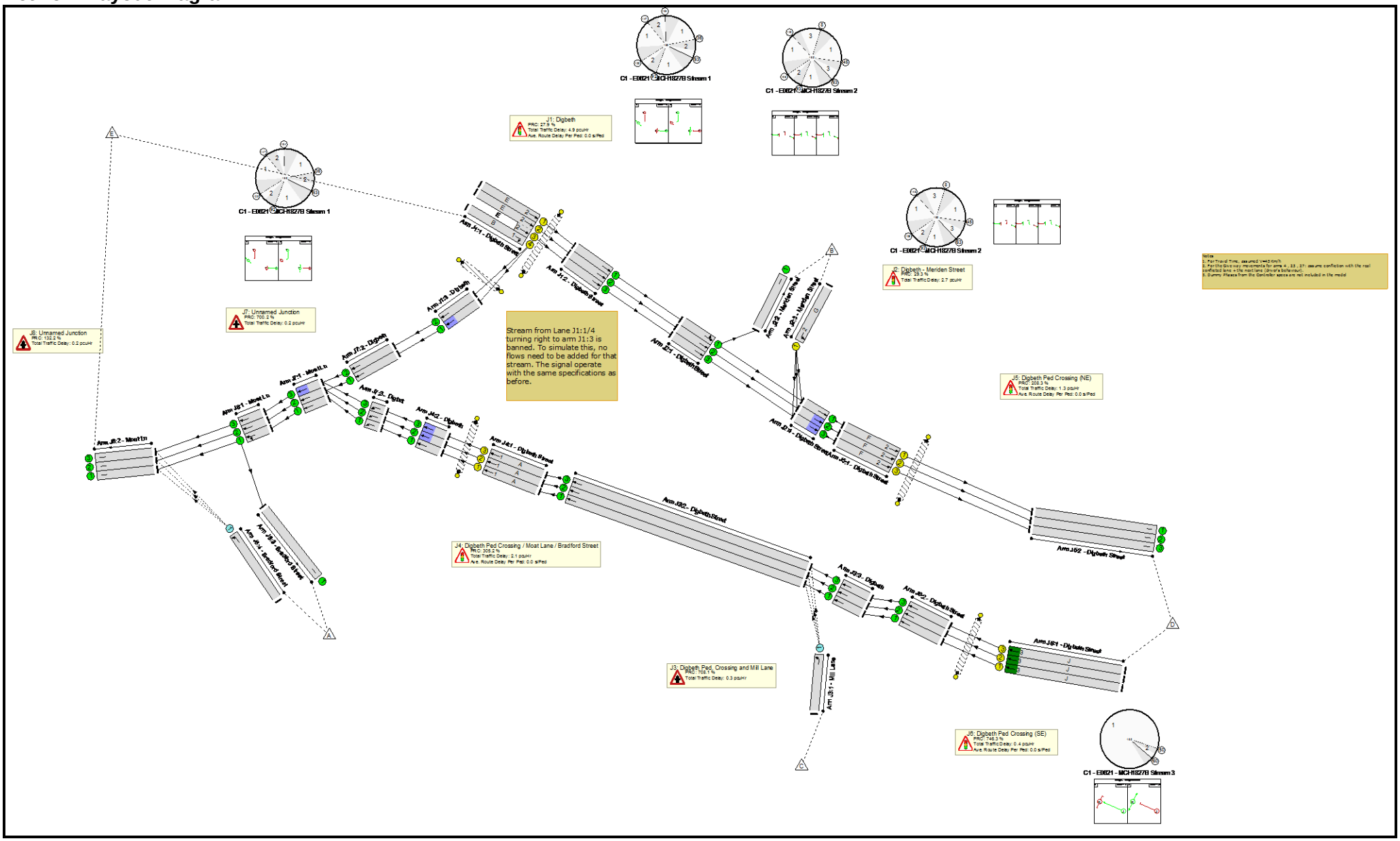
Signal Timings Diagram



Full Input Data And Results

Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.4%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.4%**
1/1	Digbeth Street Ahead	U	2	N/A	E		3	69	-	608	1980	864	70.4%
1/2+1/3	Digbeth Street Ahead	U	2	N/A	E		3	69	-	600	2120:2120	563+563	53.3 : 53.3%
1/4	Digbeth Street Right	U	1	N/A	B		3	21	-	0	2015	293	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	608	1980	1980	30.7%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	300	2120	2120	14.2%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	300	2120	2120	14.2%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
Ped Link: P1	Unnamed Ped Link	-	2	-	H		3	45	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	C		3	99	-	0	-	0	0.0%
J2: Digbeth - Meriden Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**69.6%**
1/1	Digbeth Street Left Ahead	U	N/A	N/A	-		-	-	-	608	1980	1980	30.7%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	300	2120	2120	14.2%
1/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	300	2120	2120	14.2%
2/1	Meriden Street	U	N/A	N/A	-		-	-	-	118	2030	2030	5.8%

Full Input Data And Results

3/1	Meriden Street Left	U	2	N/A	G		3	36	-	334	2030	480	69.6%
4/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	515	1980	1980	26.0%
4/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	455	1980	1980	23.0%
4/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	454	1980	1980	22.9%
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.1%**
1/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	50	2065	449	11.1%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	190	1965	1965	9.7%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	221	2105	2105	10.5%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	221	2105	2105	10.5%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	156	1965	1965	7.9%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	213	1965	1965	10.8%
3/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	213	1965	1965	10.8%
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.2%**
1/1	Digbeth Street Ahead	U	1	N/A	A		3	75	-	190	1965	929	20.5%
1/2	Digbeth Street Ahead	U	1	N/A	A		3	75	-	221	2105	995	22.2%
1/3	Digbeth Street Ahead	U	1	N/A	A		3	75	-	221	2105	995	22.2%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	190	1965	1965	9.7%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
2/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%

Full Input Data And Results

Ped Link: P1	Unnamed Ped Link	-	1	-	D		3	36	-	0	-	0	0.0%
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**29.2%**
1/1	Digbeth Street Ahead	U	2	N/A	F		1	146	-	515	1980	1764	29.2%
1/2	Digbeth Street Ahead	U	2	N/A	F		1	146	-	455	2120	1889	24.1%
1/3	Digbeth Street Ahead	U	2	N/A	F		1	146	-	454	2120	1889	24.0%
2/1	Digbeth Street	U	N/A	N/A	-		-	-	-	515	2120	2120	24.3%
2/2	Digbeth Street	U	N/A	N/A	-		-	-	-	455	2120	2120	21.5%
2/3	Digbeth Street	U	N/A	N/A	-		-	-	-	454	2120	2120	21.4%
Ped Link: P1	Unnamed Ped Link	-	2	-	I		1	6	-	0	-	0	0.0%
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**10.6%**
1/1	Digbeth Street Ahead	U	3	N/A	J		1	147	-	156	1965	1870	8.3%
1/2	Digbeth Street Ahead	U	3	N/A	J		1	147	-	213	2105	2003	10.6%
1/3	Digbeth Street Ahead	U	3	N/A	J		1	147	-	213	2105	2003	10.6%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	156	1965	1965	7.9%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	213	2105	2105	10.1%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	213	2105	2105	10.1%
Ped Link: P1	Unnamed Ped Link	-	3	-	K		1	5	-	0	-	0	0.0%
J7: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.2%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	190	1965	1965	9.7%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	221	2105	2105	10.5%

Full Input Data And Results

1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	221	2105	2105	10.5%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbet Ahead	U	N/A	N/A	-		-	-	-	190	1965	1965	9.7%
3/2	Digbet Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
3/3	Digbet Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**38.8%**
1/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	190	1965	1965	9.7%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	221	1965	1965	11.2%
2/1	Moat Ln	U	N/A	N/A	-		-	-	-	171	1965	1965	8.7%
2/2	Moat Ln	U	N/A	N/A	-		-	-	-	326	2105	2105	15.5%
2/3	Moat Ln	U	N/A	N/A	-		-	-	-	326	2105	2105	15.5%
3/1	Bradford Street	U	N/A	N/A	-		-	-	-	42	1965	1965	2.1%
4/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	233	1786	601	38.8%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**283**	**0**	**0**	**7.6**	**4.4**	**0.0**	**12.0**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**3.9**	**1.0**	**0.0**	**4.9**	**-**	**-**	**-**	**-**
1/1	608	608	-	-	-	2.2	0.0	-	2.2	13.0	9.1	0.0	9.1
1/2+1/3	600	600	-	-	-	1.7	0.6	-	2.3	13.9	4.9	0.6	5.5
1/4	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	608	608	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
2/2	300	300	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	300	300	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Digbeth - Meriden Street	**-**	**-**	**0**	**0**	**0**	**1.8**	**0.9**	**0.0**	**2.7**	**-**	**-**	**-**	**-**
1/1	608	608	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
1/2	300	300	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	300	300	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	118	118	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	334	334	-	-	-	1.8	0.0	-	1.8	19.3	4.9	0.0	4.9
4/1	515	515	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
4/2	455	455	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.2
4/3	454	454	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.2
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**50**	**0**	**0**	**0.0**	**0.3**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	50	50	50	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

2/1	190	190	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	156	156	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	213	213	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	213	213	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.6**	**0.0**	**2.1**	**-**	**-**	**-**	**-**
1/1	190	190	-	-	-	0.4	0.1	-	0.6	10.8	1.7	0.1	1.8
1/2	221	221	-	-	-	0.5	0.1	-	0.7	10.8	2.0	0.1	2.1
1/3	221	221	-	-	-	0.5	0.1	-	0.7	10.8	2.0	0.1	2.1
2/1	190	190	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	221	221	-	-	-	0.0	0.1	-	0.1	1.1	0.1	0.1	0.2
2/3	221	221	-	-	-	0.0	0.1	-	0.1	1.1	0.1	0.1	0.2
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**0**	**0**	**0**	**0.3**	**1.0**	**0.0**	**1.3**	**-**	**-**	**-**	**-**
1/1	515	515	-	-	-	0.1	0.2	-	0.3	1.8	0.7	0.2	0.9
1/2	455	455	-	-	-	0.1	0.2	-	0.3	2.3	2.2	0.2	2.3
1/3	454	454	-	-	-	0.1	0.2	-	0.3	2.3	2.2	0.2	2.3
2/1	515	515	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
2/2	455	455	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/3	454	454	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.3**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	156	156	-	-	-	0.0	0.0	-	0.1	1.3	0.3	0.0	0.4
1/2	213	213	-	-	-	0.0	0.1	-	0.1	1.2	0.5	0.1	0.5
1/3	213	213	-	-	-	0.0	0.1	-	0.1	1.2	0.5	0.1	0.5
2/1	156	156	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	213	213	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

Full Input Data And Results

2/3	213	213	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	190	190	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	221	221	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	221	221	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	190	190	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/2	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J8: Unnamed Junction	**-**	**-**	**233**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	190	190	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/2	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	221	221	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	171	171	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	42	42	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	233	233	233	0	0	0.0	0.0	-	0.0	0.3	0.5	0.0	0.5

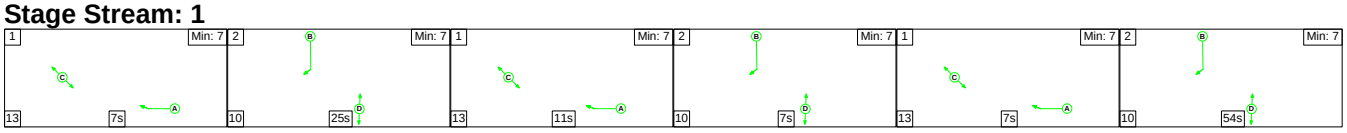
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	305.2	Total Delay for Signalled Lanes (pcuHr):	1.89	Cycle Time (s): 165
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	27.9	Total Delay for Signalled Lanes (pcuHr):	7.14	Cycle Time (s): 165
C1 - E0621 - MCH1827B	Stream: 3 PRC for Signalled Lanes (%):	746.3	Total Delay for Signalled Lanes (pcuHr):	0.20	Cycle Time (s): 165
	PRC Over All Lanes (%):	27.9	Total Delay Over All Lanes(pcuHr):	12.01	

Full Input Data And Results

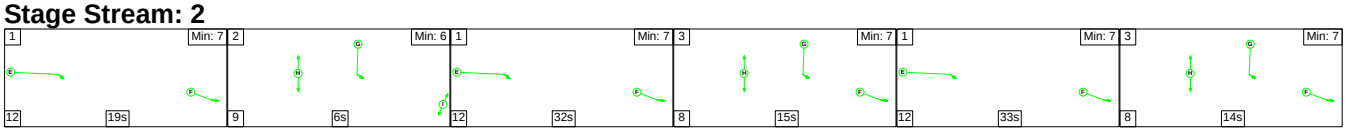
Scenario 3: '2031 DM AM (Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

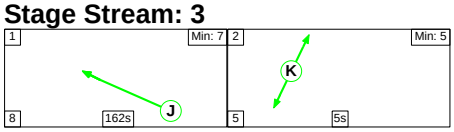
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2
Duration	7	25	11	7	7	54
Change Point	0	20	55	79	96	116

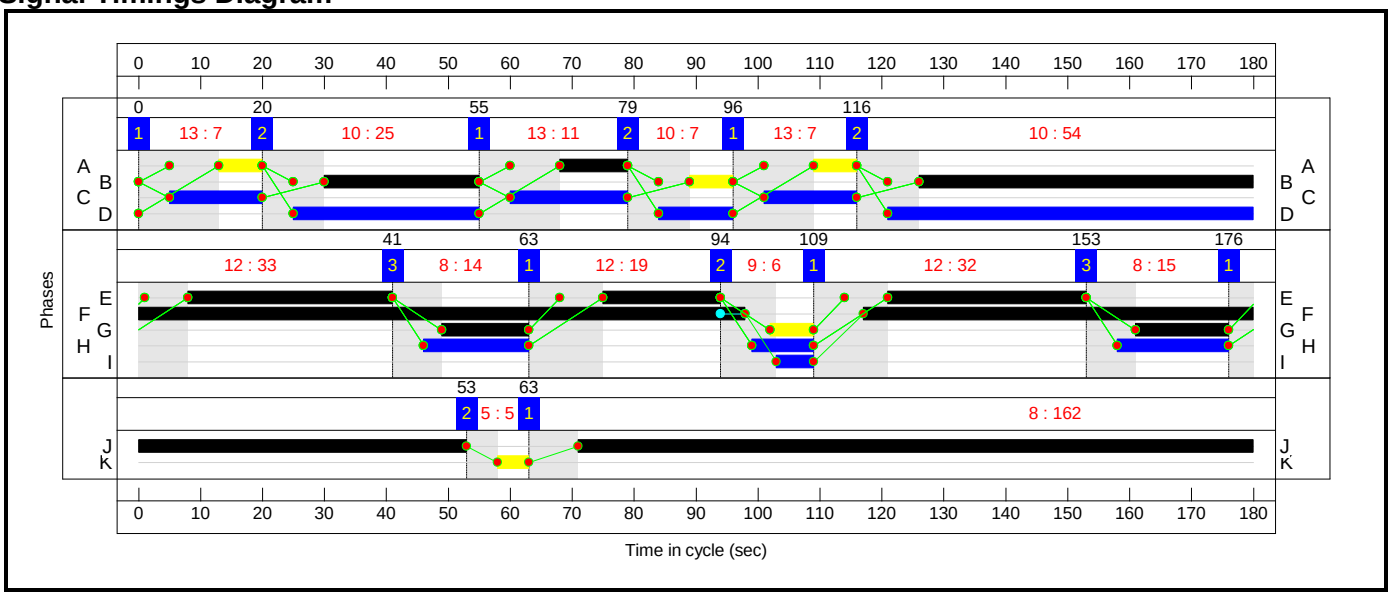
Stage Stream: 2

Stage	1	2	1	3	1	3
Duration	19	6	32	15	33	14
Change Point	63	94	109	153	176	41

Stage Stream: 3

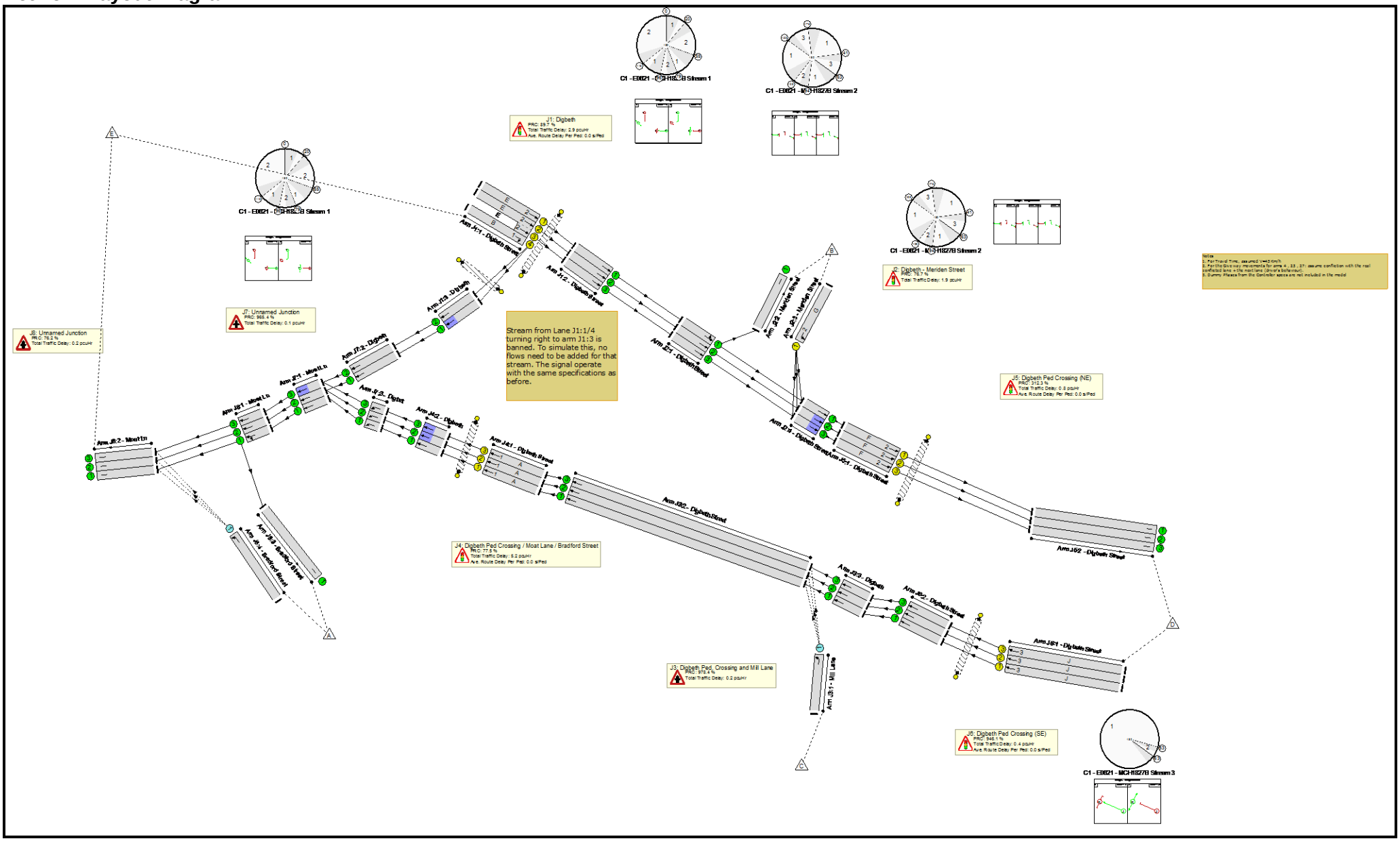
Stage	1	2
Duration	162	5
Change Point	63	53

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.1%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**47.4%**
1/1	Digbeth Street Ahead	U	2	N/A	E		3	84	-	454	1980	957	47.4%
1/2+1/3	Digbeth Street Ahead	U	2	N/A	E		3	84	-	414	2120:2120	605+605	34.2 : 34.2%
1/4	Digbeth Street Right	U	1	N/A	B		3	86	-	0	2015	996	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	454	1980	1980	22.9%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	207	2120	2120	9.8%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	207	2120	2120	9.8%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
Ped Link: P1	Unnamed Ped Link	-	2	-	H		3	45	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	C		3	49	-	0	-	0	0.0%
J2: Digbeth - Meriden Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.9%**
1/1	Digbeth Street Left Ahead	U	N/A	N/A	-		-	-	-	454	1980	1980	22.9%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	207	2120	2120	9.8%
1/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	207	2120	2120	9.8%
2/1	Meriden Street	U	N/A	N/A	-		-	-	-	78	2030	2030	3.8%

Full Input Data And Results

3/1	Meriden Street Left	U	2	N/A	G		3	36	-	224	2030	440	50.9%
4/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	389	1980	1980	19.6%
4/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	312	1980	1980	15.8%
4/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	313	1980	1980	15.8%
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**8.3%**
1/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	8	2065	538	1.5%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	129	1965	1965	6.6%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	166	2105	2105	7.9%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	166	2105	2105	7.9%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	125	1965	1965	6.4%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	164	1965	1965	8.3%
3/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	164	1965	1965	8.3%
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.7%**
1/1	Digbeth Street Ahead	U	1	N/A	A		3	25	-	129	1965	306	42.2%
1/2	Digbeth Street Ahead	U	1	N/A	A		3	25	-	166	2105	327	50.7%
1/3	Digbeth Street Ahead	U	1	N/A	A		3	25	-	166	2105	327	50.7%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	129	1965	1965	6.6%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	166	1965	1965	8.4%
2/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	166	1965	1965	8.4%

Full Input Data And Results

Ped Link: P1	Unnamed Ped Link	-	1	-	D		3	101	-	0	-	0	0.0%
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**21.8%**
1/1	Digbeth Street Ahead	U	2	N/A	F		1	161	-	389	1980	1782	21.8%
1/2	Digbeth Street Ahead	U	2	N/A	F		1	161	-	312	2120	1908	16.4%
1/3	Digbeth Street Ahead	U	2	N/A	F		1	161	-	313	2120	1908	16.4%
2/1	Digbeth Street	U	N/A	N/A	-		-	-	-	389	2120	2120	18.3%
2/2	Digbeth Street	U	N/A	N/A	-		-	-	-	312	2120	2120	14.7%
2/3	Digbeth Street	U	N/A	N/A	-		-	-	-	313	2120	2120	14.8%
Ped Link: P1	Unnamed Ped Link	-	2	-	I		1	6	-	0	-	0	0.0%
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**8.6%**
1/1	Digbeth Street Ahead	U	3	N/A	J		1	162	-	125	1965	1779	7.0%
1/2	Digbeth Street Ahead	U	3	N/A	J		1	162	-	164	2105	1906	8.6%
1/3	Digbeth Street Ahead	U	3	N/A	J		1	162	-	164	2105	1906	8.6%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	125	1965	1965	6.4%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	164	2105	2105	7.8%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	164	2105	2105	7.8%
Ped Link: P1	Unnamed Ped Link	-	3	-	K		1	5	-	0	-	0	0.0%
J7: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**8.4%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	129	1965	1965	6.6%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	166	2105	2105	7.9%

Full Input Data And Results

1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	166	2105	2105	7.9%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbet Ahead	U	N/A	N/A	-		-	-	-	129	1965	1965	6.6%
3/2	Digbet Ahead	U	N/A	N/A	-		-	-	-	166	1965	1965	8.4%
3/3	Digbet Ahead	U	N/A	N/A	-		-	-	-	166	1965	1965	8.4%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.1%**
1/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	129	1965	1965	6.6%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	166	1965	1965	8.4%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	166	1965	1965	8.4%
2/1	Moat Ln	U	N/A	N/A	-		-	-	-	159	1965	1965	8.1%
2/2	Moat Ln	U	N/A	N/A	-		-	-	-	307	2105	2105	14.6%
2/3	Moat Ln	U	N/A	N/A	-		-	-	-	308	2105	2105	14.6%
3/1	Bradford Street	U	N/A	N/A	-		-	-	-	15	1965	1965	0.8%
4/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	328	1786	642	51.1%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**336**	**0**	**0**	**7.7**	**4.0**	**0.0**	**11.7**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**2.4**	**0.5**	**0.0**	**2.9**	**-**	**-**	**-**	**-**
1/1	454	454	-	-	-	1.3	0.0	-	1.3	10.5	5.5	0.0	5.5
1/2+1/3	414	414	-	-	-	1.0	0.3	-	1.3	11.3	2.1	0.3	2.4
1/4	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	454	454	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
2/2	207	207	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
2/3	207	207	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Digbeth - Meriden Street	**-**	**-**	**0**	**0**	**0**	**1.3**	**0.6**	**0.0**	**1.9**	**-**	**-**	**-**	**-**
1/1	454	454	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
1/2	207	207	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
1/3	207	207	-	-	-	0.0	0.1	-	0.1	0.9	0.0	0.1	0.1
2/1	78	78	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	224	224	-	-	-	1.3	0.0	-	1.3	21.1	3.6	0.0	3.6
4/1	389	389	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/2	312	312	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/3	313	313	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**8**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	8	8	8	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

2/1	129	129	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	166	166	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
2/3	166	166	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	125	125	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	164	164	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/3	164	164	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**0**	**0**	**0**	**3.7**	**1.5**	**0.0**	**5.2**	**-**	**-**	**-**	**-**
1/1	129	129	-	-	-	1.0	0.4	-	1.4	38.4	2.9	0.4	3.3
1/2	166	166	-	-	-	1.3	0.5	-	1.8	39.7	3.8	0.5	4.3
1/3	166	166	-	-	-	1.3	0.5	-	1.8	39.7	3.8	0.5	4.3
2/1	129	129	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	166	166	-	-	-	0.0	0.0	-	0.1	1.2	0.2	0.0	0.3
2/3	166	166	-	-	-	0.0	0.0	-	0.1	1.2	0.2	0.0	0.3
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**0**	**0**	**0**	**0.2**	**0.6**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	389	389	-	-	-	0.0	0.1	-	0.2	1.6	0.5	0.1	0.6
1/2	312	312	-	-	-	0.1	0.1	-	0.2	2.1	1.5	0.1	1.6
1/3	313	313	-	-	-	0.1	0.1	-	0.2	2.1	1.5	0.1	1.6
2/1	389	389	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	312	312	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	313	313	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**0**	**0**	**0**	**0.1**	**0.3**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	125	125	-	-	-	0.0	0.0	-	0.1	2.0	0.6	0.0	0.7
1/2	164	164	-	-	-	0.0	0.0	-	0.1	1.9	0.8	0.0	0.9
1/3	164	164	-	-	-	0.0	0.0	-	0.1	1.9	0.8	0.0	0.9
2/1	125	125	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	164	164	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

Full Input Data And Results

2/3	164	164	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	129	129	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	166	166	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	166	166	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	129	129	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	166	166	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/3	166	166	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
J8: Unnamed Junction	**-**	**-**	**328**	**0**	**0**	**0.1**	**0.1**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	129	129	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/2	166	166	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/3	166	166	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/1	159	159	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	307	307	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	15	15	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	328	328	328	0	0	0.1	0.0	-	0.1	0.6	1.3	0.0	1.3

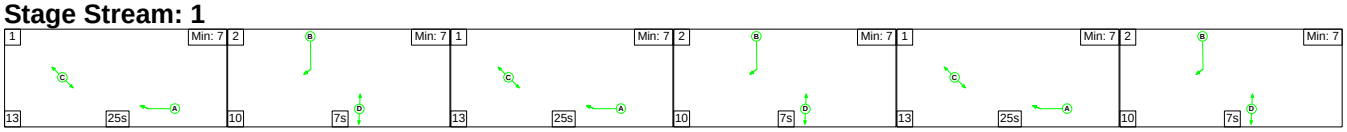
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	77.5	Total Delay for Signalled Lanes (pcuHr):	5.04	Cycle Time (s): 180
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	76.7	Total Delay for Signalled Lanes (pcuHr):	4.48	Cycle Time (s): 180
C1 - E0621 - MCH1827B	Stream: 3 PRC for Signalled Lanes (%):	946.1	Total Delay for Signalled Lanes (pcuHr):	0.24	Cycle Time (s): 180
	PRC Over All Lanes (%):	76.2	Total Delay Over All Lanes(pcuHr):	11.71	

Full Input Data And Results

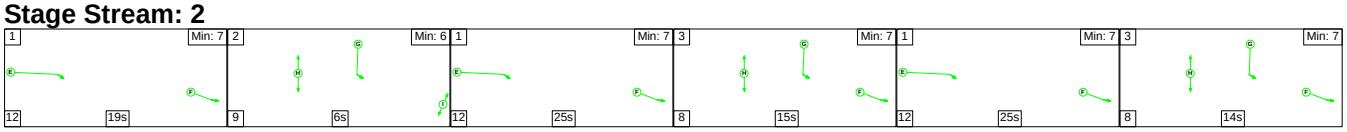
Scenario 4: '2031 DM PM (Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

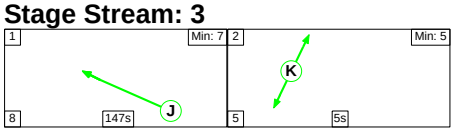
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2
Duration	25	7	25	7	25	7
Change Point	53	91	108	146	163	36

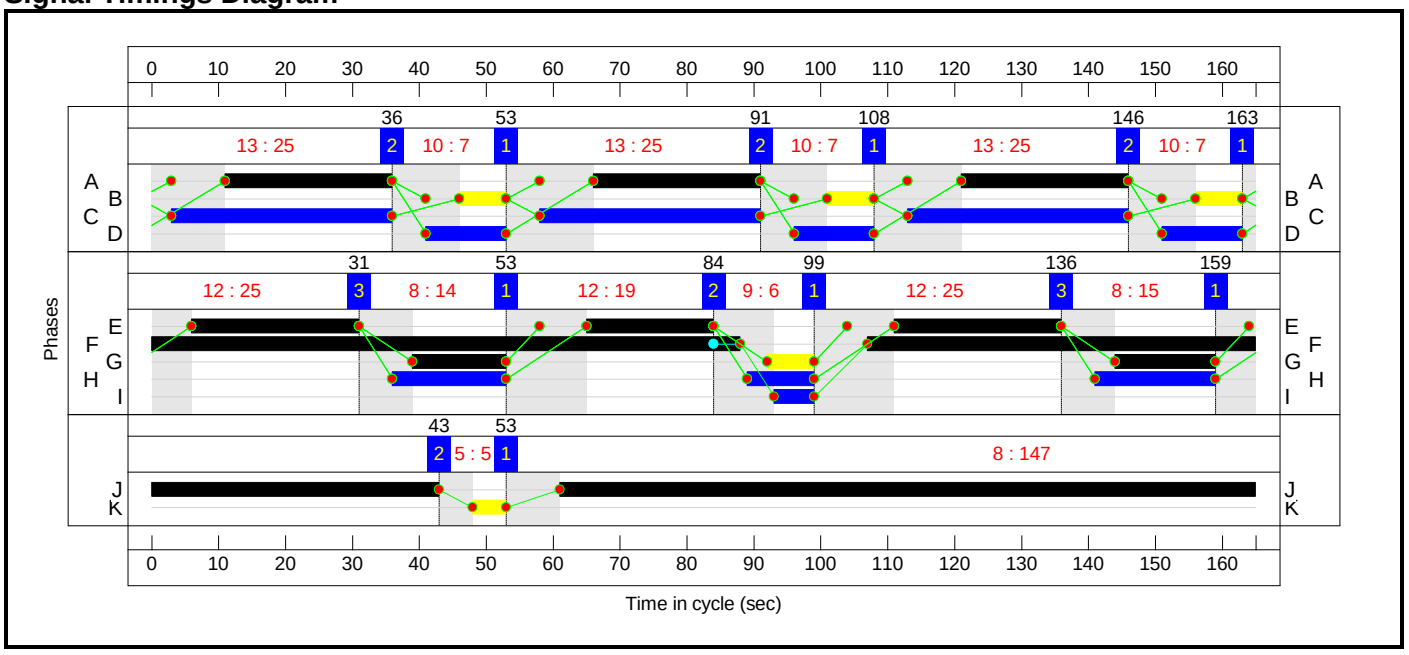
Stage Stream: 2

Stage	1	2	1	3	1	3
Duration	19	6	25	15	25	14
Change Point	53	84	99	136	159	31

Stage Stream: 3

Stage	1	2
Duration	147	5
Change Point	53	43

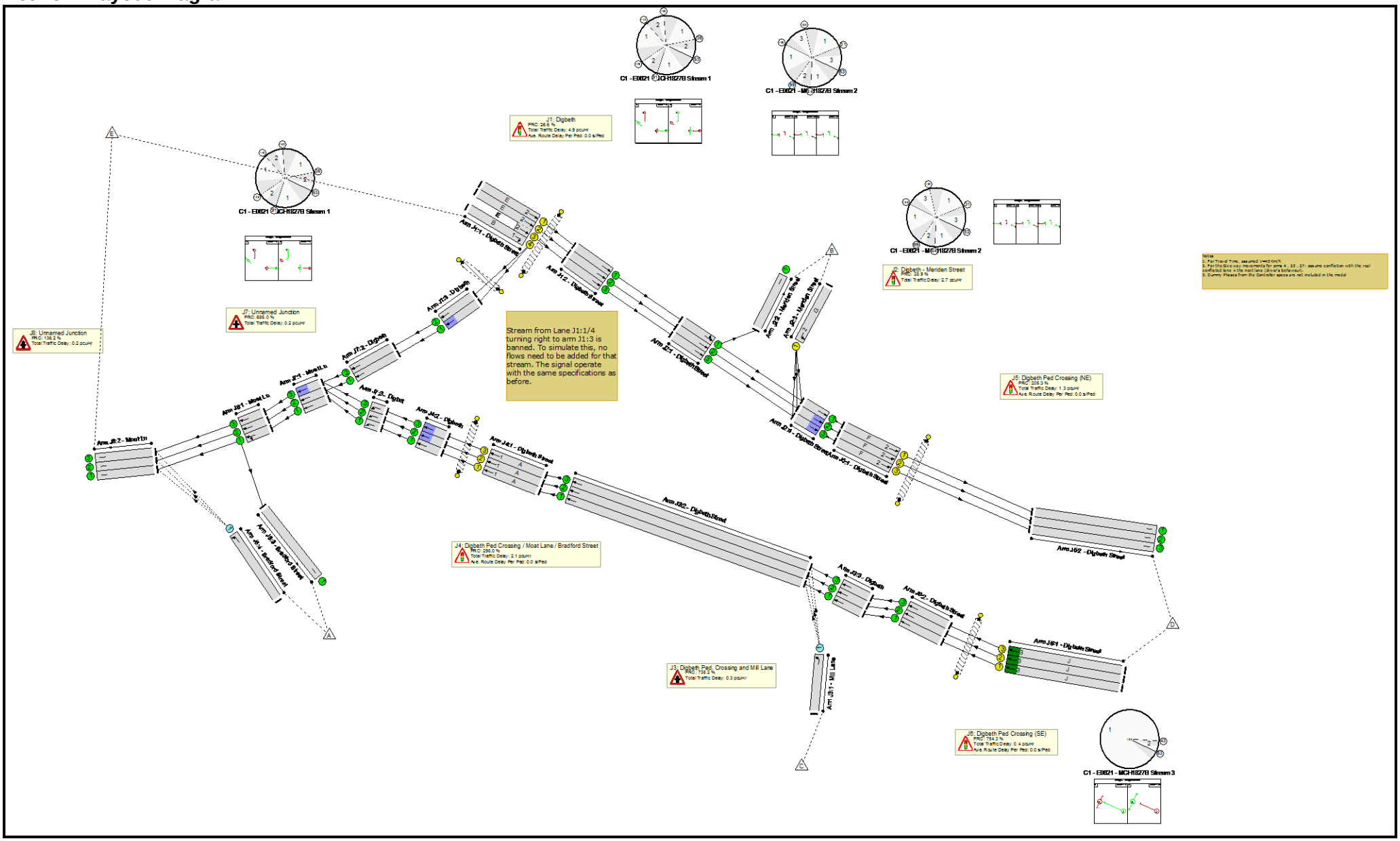
Signal Timings Diagram



Full Input Data And Results

Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.1%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.1%**
1/1	Digbeth Street Ahead	U	2	N/A	E		3	69	-	614	1980	864	71.1%
1/2+1/3	Digbeth Street Ahead	U	2	N/A	E		3	69	-	606	2120:2120	563+563	53.8 : 53.8%
1/4	Digbeth Street Right	U	1	N/A	B		3	21	-	0	2015	293	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	614	1980	1980	31.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	303	2120	2120	14.3%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	303	2120	2120	14.3%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
Ped Link: P1	Unnamed Ped Link	-	2	-	H		3	45	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1	-	C		3	99	-	0	-	0	0.0%
J2: Digbeth - Meriden Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**69.8%**
1/1	Digbeth Street Left Ahead	U	N/A	N/A	-		-	-	-	614	1980	1980	31.0%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	303	2120	2120	14.3%
1/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	303	2120	2120	14.3%
2/1	Meriden Street	U	N/A	N/A	-		-	-	-	118	2030	2030	5.8%

Full Input Data And Results

3/1	Meriden Street Left	U	2	N/A	G		3	36	-	335	2030	480	69.8%
4/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	520	1980	1980	26.3%
4/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	458	1980	1980	23.1%
4/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	459	1980	1980	23.2%
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**10.7%**
1/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	50	2065	486	10.3%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	194	1965	1965	9.9%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	225	2105	2105	10.7%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	225	2105	2105	10.7%
3/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	172	1965	1965	8.8%
3/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	211	1965	1965	10.7%
3/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	211	1965	1965	10.7%
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.6%**
1/1	Digbeth Street Ahead	U	1	N/A	A		3	75	-	194	1965	929	20.9%
1/2	Digbeth Street Ahead	U	1	N/A	A		3	75	-	225	2105	995	22.6%
1/3	Digbeth Street Ahead	U	1	N/A	A		3	75	-	225	2105	995	22.6%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	194	1965	1965	9.9%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	225	1965	1965	11.5%
2/3	Digbeth Ahead	U	N/A	N/A	-		-	-	-	225	1965	1965	11.5%

Full Input Data And Results

Ped Link: P1	Unnamed Ped Link	-	1	-	D		3	36	-	0	-	0	0.0%
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**29.5%**
1/1	Digbeth Street Ahead	U	2	N/A	F		1	146	-	520	1980	1764	29.5%
1/2	Digbeth Street Ahead	U	2	N/A	F		1	146	-	458	2120	1889	24.2%
1/3	Digbeth Street Ahead	U	2	N/A	F		1	146	-	459	2120	1889	24.3%
2/1	Digbeth Street	U	N/A	N/A	-		-	-	-	520	2120	2120	24.5%
2/2	Digbeth Street	U	N/A	N/A	-		-	-	-	458	2120	2120	21.6%
2/3	Digbeth Street	U	N/A	N/A	-		-	-	-	459	2120	2120	21.7%
Ped Link: P1	Unnamed Ped Link	-	2	-	I		1	6	-	0	-	0	0.0%
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**10.5%**
1/1	Digbeth Street Ahead	U	3	N/A	J		1	147	-	172	1965	1870	9.2%
1/2	Digbeth Street Ahead	U	3	N/A	J		1	147	-	211	2105	2003	10.5%
1/3	Digbeth Street Ahead	U	3	N/A	J		1	147	-	211	2105	2003	10.5%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	172	1965	1965	8.8%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	211	2105	2105	10.0%
2/3	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	211	2105	2105	10.0%
Ped Link: P1	Unnamed Ped Link	-	3	-	K		1	5	-	0	-	0	0.0%
J7: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.5%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	194	1965	1965	9.9%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	225	2105	2105	10.7%

Full Input Data And Results

1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	225	2105	2105	10.7%
2/1	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	1965	1965	0.0%
2/2	Digbeth Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbet Ahead	U	N/A	N/A	-		-	-	-	194	1965	1965	9.9%
3/2	Digbet Ahead	U	N/A	N/A	-		-	-	-	225	1965	1965	11.5%
3/3	Digbet Ahead	U	N/A	N/A	-		-	-	-	225	1965	1965	11.5%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**38.1%**
1/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	194	1965	1965	9.9%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	225	1965	1965	11.5%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	225	1965	1965	11.5%
2/1	Moat Ln	U	N/A	N/A	-		-	-	-	179	1965	1965	9.1%
2/2	Moat Ln	U	N/A	N/A	-		-	-	-	326	2105	2105	15.5%
2/3	Moat Ln	U	N/A	N/A	-		-	-	-	326	2105	2105	15.5%
3/1	Bradford Street	U	N/A	N/A	-		-	-	-	42	1965	1965	2.1%
4/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	229	1786	601	38.1%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**279**	**0**	**0**	**7.6**	**4.5**	**0.0**	**12.1**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**3.9**	**1.0**	**0.0**	**4.9**	**-**	**-**	**-**	**-**
1/1	614	614	-	-	-	2.2	0.0	-	2.2	12.8	8.4	0.0	8.4
1/2+1/3	606	606	-	-	-	1.7	0.6	-	2.3	13.8	4.1	0.6	4.7
1/4	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	614	614	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
2/2	303	303	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	303	303	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Digbeth - Meriden Street	**-**	**-**	**0**	**0**	**0**	**1.8**	**0.9**	**0.0**	**2.7**	**-**	**-**	**-**	**-**
1/1	614	614	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
1/2	303	303	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	303	303	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	118	118	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/1	335	335	-	-	-	1.8	0.0	-	1.8	19.3	4.8	0.0	4.8
4/1	520	520	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
4/2	458	458	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
4/3	459	459	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
J3: Digbeth Ped. Crossing and Mill Lane	**-**	**-**	**50**	**0**	**0**	**0.0**	**0.3**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	50	50	50	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

2/1	194	194	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/3	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	172	172	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	211	211	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	211	211	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J4: Digbeth Ped Crossing / Moat Lane / Bradford Street	**-**	**-**	**0**	**0**	**0**	**1.5**	**0.6**	**0.0**	**2.1**	**-**	**-**	**-**	**-**
1/1	194	194	-	-	-	0.4	0.1	-	0.6	10.8	1.7	0.1	1.9
1/2	225	225	-	-	-	0.5	0.1	-	0.7	10.7	2.0	0.1	2.1
1/3	225	225	-	-	-	0.5	0.1	-	0.7	10.7	2.0	0.1	2.1
2/1	194	194	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	225	225	-	-	-	0.0	0.1	-	0.1	1.1	0.1	0.1	0.2
2/3	225	225	-	-	-	0.0	0.1	-	0.1	1.1	0.1	0.1	0.2
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Digbeth Ped Crossing (NE)	**-**	**-**	**0**	**0**	**0**	**0.3**	**1.0**	**0.0**	**1.3**	**-**	**-**	**-**	**-**
1/1	520	520	-	-	-	0.1	0.2	-	0.3	1.8	0.7	0.2	0.9
1/2	458	458	-	-	-	0.1	0.2	-	0.3	2.3	2.2	0.2	2.4
1/3	459	459	-	-	-	0.1	0.2	-	0.3	2.3	2.2	0.2	2.4
2/1	520	520	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
2/2	458	458	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/3	459	459	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Digbeth Ped Crossing (SE)	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.3**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	172	172	-	-	-	0.0	0.1	-	0.1	1.3	0.4	0.1	0.4
1/2	211	211	-	-	-	0.0	0.1	-	0.1	1.2	0.5	0.1	0.5
1/3	211	211	-	-	-	0.0	0.1	-	0.1	1.2	0.5	0.1	0.5
2/1	172	172	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
2/2	211	211	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

Full Input Data And Results

2/3	211	211	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	194	194	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	225	225	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	225	225	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	194	194	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/2	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
J8: Unnamed Junction	**-**	**-**	**229**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	194	194	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/2	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	179	179	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	42	42	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
4/1	229	229	229	0	0	0.0	0.0	-	0.0	0.3	0.4	0.0	0.4

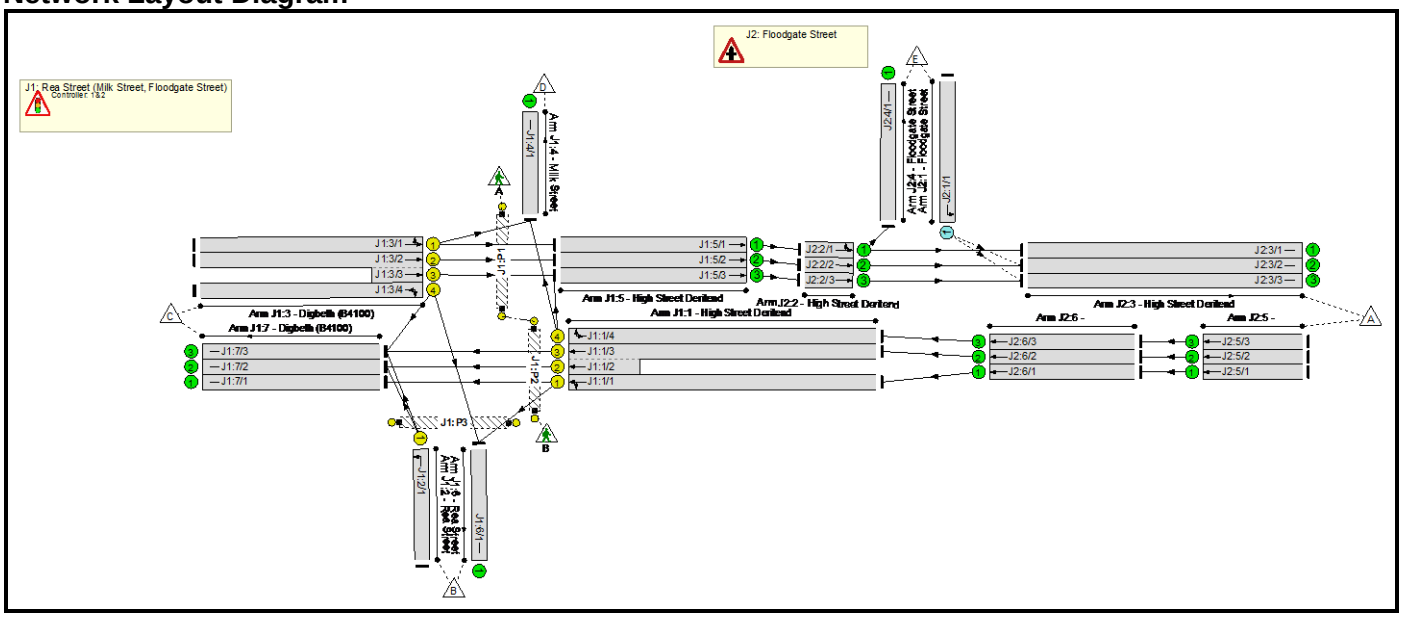
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	298.0	Total Delay for Signalled Lanes (pcuHr):	1.92	Cycle Time (s): 165
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	26.6	Total Delay for Signalled Lanes (pcuHr):	7.16	Cycle Time (s): 165
C1 - E0621 - MCH1827B	Stream: 3 PRC for Signalled Lanes (%):	754.3	Total Delay for Signalled Lanes (pcuHr):	0.20	Cycle Time (s): 165
	PRC Over All Lanes (%):	26.6	Total Delay Over All Lanes(pcuHr):	12.11	

Full Input Data And Results

User and Project Details

Project:	**BEE**
Title:	**High Street Deritend / Rea Street (including Milk Street and Floodgate Street)**
Location:	High Street Deritend
File name:	High Street Deritend - Rea Street TH check 15th Feb 2016.lsg3x
Author:	William Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham
Notes:	

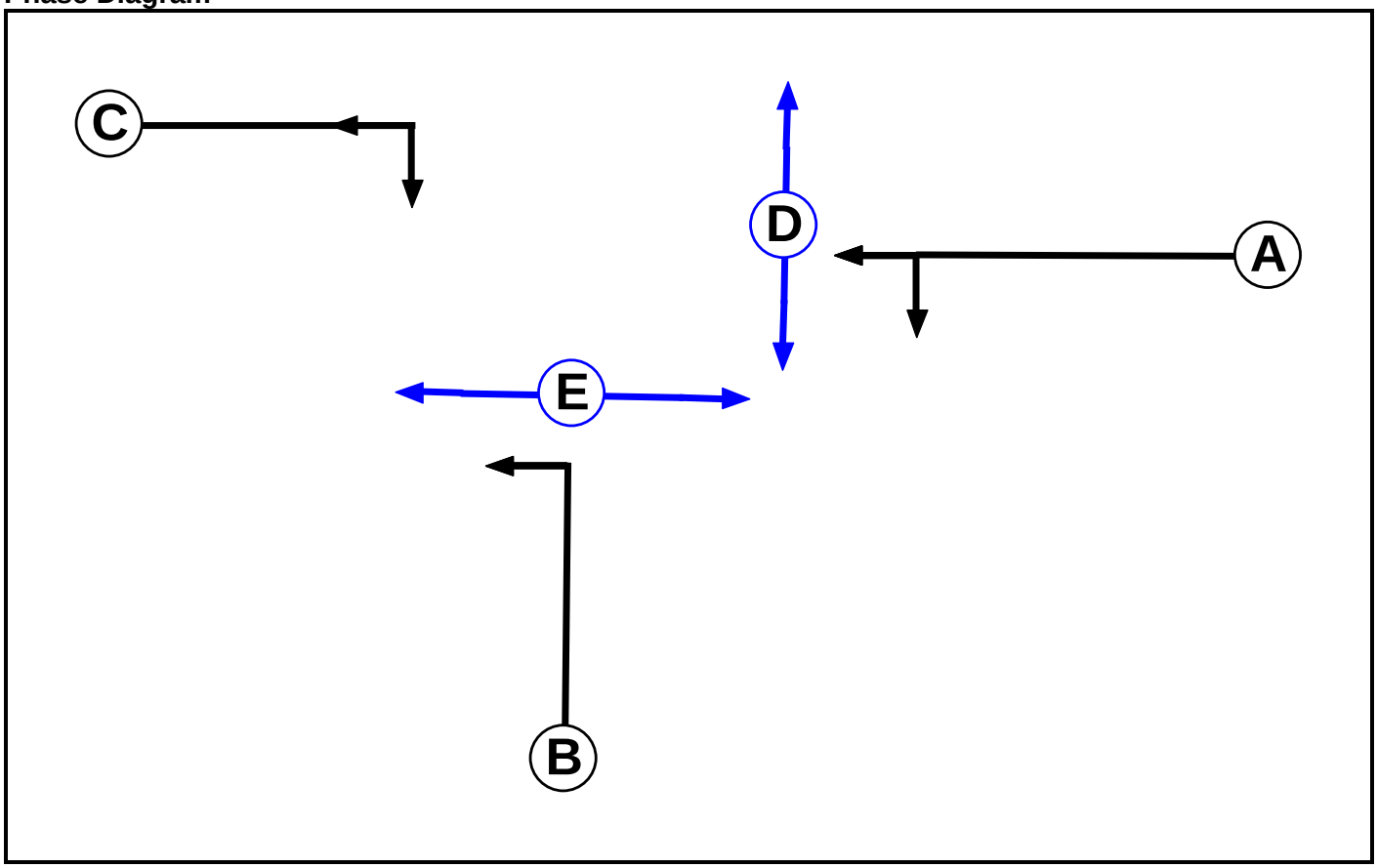
Network Layout Diagram



Full Input Data And Results

C1 - Steam 0

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		10	10
E	Pedestrian		10	10

Full Input Data And Results

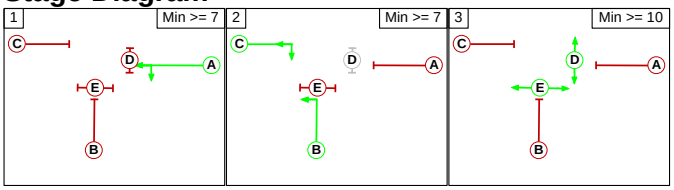
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		6	5	5	6
	B	5		-	-	5
	C	6	-		-	8
	D	10	-	-		-
	E	14	14	14	-	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B C
3	D E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

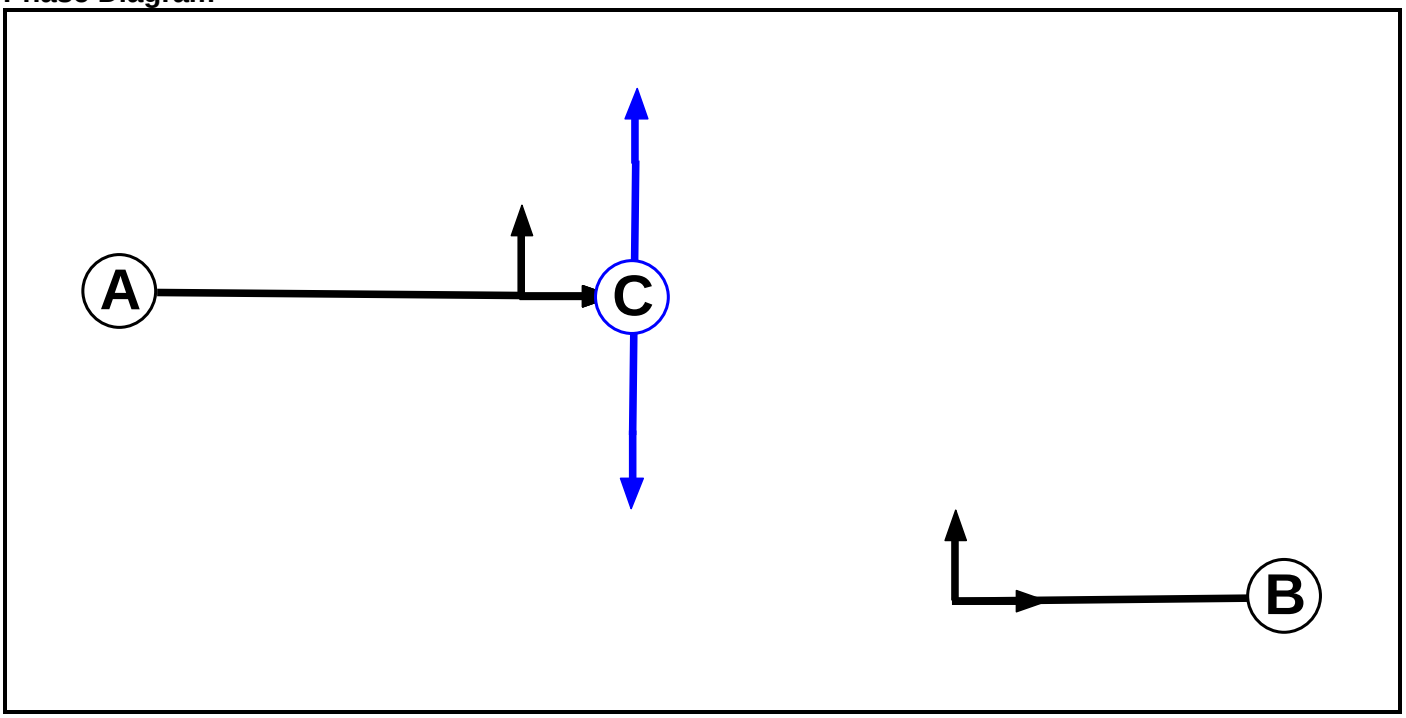
Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		6	6
	2	6		8
	3	14	14	

Full Input Data And Results

C2 - Stream 1

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	4
C	Pedestrian		8	8

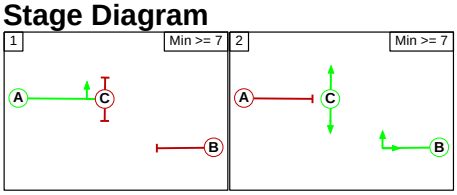
Phase Intergreens Matrix

	Starting Phase			
		A	B	C
Terminating Phase	A		6	5
	B	5		-
	C	8	-	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B C

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	1	B	Losing	3	3

Prohibited Stage Change

	To Stage	
	1	2
From Stage 1		6
2	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Rea Street (Milk Street, Floodgate Street)
There are no Opposed Lanes in this Junction

Junction: J2: Floodgate Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/1 (Floodgate Street)	J2:3/2 (Left)	715	0	J2:2/1	0.22	To J2:3/1 (Ahead)	-	-	-	-	-
				J2:2/2	0.22	All					
				J2:2/3	0.22	All					
	J2:3/3 (Left)	715	0	J2:2/1	0.22	To J2:3/1 (Ahead)					
				J2:2/2	0.22	All					
				J2:2/3	0.22	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Rea Street (Milk Street, Floodgate Street)												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (High Street Deritend)	U	A	2	3	13.6	Geom	-	2.93	0.00	Y	Arm J1:6 Left	12.00
											Arm J1:7 Ahead	Inf
J1:1/2 (High Street Deritend)	U	A	2	3	7.0	Geom	-	3.18	0.00	Y	Arm J1:7 Ahead	Inf
J1:1/3 (High Street Deritend)	U	A	2	3	13.6	Geom	-	3.15	0.00	N	Arm J1:7 Ahead	Inf
J1:1/4 (High Street Deritend)	U	B	2	3	7.0	Geom	-	3.35	0.00	Y	Arm J1:4 Right	15.00
											Arm J1:5 U-Turn	6.00
J1:2/1 (Rea Street)	U	B	2	3	60.0	Geom	-	3.97	0.00	Y	Arm J1:7 Left	14.00
J1:3/1 (Digbeth (B4100))	U	A	2	3	22.6	Geom	-	3.22	0.00	Y	Arm J1:4 Left	11.00
											Arm J1:5 Ahead	Inf
J1:3/2 (Digbeth (B4100))	U	A	2	3	22.6	Geom	-	2.83	0.00	Y	Arm J1:5 Ahead	Inf
J1:3/3 (Digbeth (B4100))	U	A	2	3	5.0	Geom	-	2.88	0.00	N	Arm J1:5 Ahead	Inf
J1:3/4 (Digbeth (B4100))	U	C	2	3	22.6	Geom	-	3.29	0.00	Y	Arm J1:6 Right	11.00
											Arm J1:7 U-Turn	6.00
J1:4/1 (Milk Street)	U		2	3	15.7	Geom	-	5.00	0.00	Y		
J1:5/1 (High Street Deritend)	U		2	3	4.3	Geom	-	3.01	0.00	Y	Arm J2:2 Ahead	Inf
J1:5/2 (High Street Deritend)	U		2	3	4.3	Geom	-	3.13	0.00	Y	Arm J2:2 Ahead	Inf
J1:5/3 (High Street Deritend)	U		2	3	4.3	Geom	-	2.96	0.00	N	Arm J2:2 Ahead	Inf
J1:6/1 (Rea Street)	U		2	3	60.0	Geom	-	3.70	0.00	Y		
J1:7/1 (Digbeth (B4100))	U		2	3	34.8	Geom	-	3.19	0.00	Y		
J1:7/2 (Digbeth (B4100))	U		2	3	34.8	Geom	-	2.57	0.00	N		

J1:7/3 (Digbeth (B4100))	U		2	3	34.8	Geom	-	2.82	0.00	N		

Junction: J2: Floodgate Street

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Floodgate Street)	O		2	3	78.3	Inf	-	-	-	-	-	-
J2:2/1 (High Street Deritend)	U		2	3	4.3	Geom	-	3.16	0.00	Y	Arm J2:3 Ahead	Inf
											Arm J2:4 Left	12.00
J2:2/2 (High Street Deritend)	U		2	3	4.3	Geom	-	3.14	0.00	Y	Arm J2:3 Ahead	Inf
J2:2/3 (High Street Deritend)	U		2	3	4.3	Geom	-	3.04	0.00	N	Arm J2:3 Ahead	Inf
J2:3/1 (High Street Deritend)	U		2	3	26.1	Geom	-	3.18	0.00	Y		
J2:3/2 (High Street Deritend)	U		2	3	26.1	Geom	-	3.15	0.00	N		
J2:3/3 (High Street Deritend)	U		2	3	26.1	Geom	-	2.99	0.00	N		
J2:4/1 (Floodgate Street)	U		2	3	78.3	Geom	-	3.98	0.00	Y		
J2:5/1	U		2	3	7.0	Inf	-	-	-	-	-	-
J2:5/2	U		2	3	7.0	Inf	-	-	-	-	-	-
J2:5/3	U		2	3	7.0	Inf	-	-	-	-	-	-
J2:6/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J2:6/2	U		2	3	0.2	Inf	-	-	-	-	-	-
J2:6/3	U		2	3	0.2	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	168	369	705	0	1242
	B	0	0	51	0	0	51
	C	381	495	0	64	64	1004
	D	0	0	0	0	0	0
	E	134	0	0	0	0	134
	Tot.	515	663	420	769	64	2431

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM(Standard PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	217
J1:1/2 (short)	155
J1:1/3 (with short)	320(In) 165(Out)
J1:1/4	705
J1:2/1	51
J1:3/1	181
J1:3/2 (with short)	328(In) 153(Out)
J1:3/3 (short)	175
J1:3/4	495
J1:4/1	769
J1:5/1	117
J1:5/2	153
J1:5/3	175
J1:6/1	663
J1:7/1	49
J1:7/2	163
J1:7/3	208
Junction: J2: Floodgate Street	
J2:1/1	134
J2:2/1	117
J2:2/2	153
J2:2/3	175
J2:3/1	53
J2:3/2	247
J2:3/3	215
J2:4/1	64
J2:5/1	217
J2:5/2	320
J2:5/3	705
J2:6/1	217
J2:6/2	320
J2:6/3	705

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	77.4 %	1740	1740
				Arm J1:7 Ahead	Inf	22.6 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	35.4 %	1848	1848
				Arm J1:5 Ahead	Inf	64.6 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	45.3 %	1807	1807
				Arm J2:4 Left	12.00	54.7 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	146	355	580	0	1081
	B	0	0	210	0	0	210
	C	779	561	0	66	66	1472
	D	0	0	0	0	0	0
	E	208	0	0	0	0	208
	Tot.	987	707	565	646	66	2971

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM(Standard PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	156
J1:1/2 (short)	166
J1:1/3 (with short)	345(In) 179(Out)
J1:1/4	580
J1:2/1	210
J1:3/1	151
J1:3/2 (with short)	760(In) 359(Out)
J1:3/3 (short)	401
J1:3/4	561
J1:4/1	646
J1:5/1	85
J1:5/2	359
J1:5/3	401
J1:6/1	707
J1:7/1	10
J1:7/2	269
J1:7/3	286
Junction: J2: Floodgate Street	
J2:1/1	208
J2:2/1	85
J2:2/2	359
J2:2/3	401
J2:3/1	19
J2:3/2	495
J2:3/3	473
J2:4/1	66
J2:5/1	156
J2:5/2	345
J2:5/3	580
J2:6/1	156
J2:6/2	345
J2:6/3	580

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	93.6 %	1708	1708
				Arm J1:7 Ahead	Inf	6.4 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	43.7 %	1828	1828
				Arm J1:5 Ahead	Inf	56.3 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	22.4 %	1760	1760
				Arm J2:4 Left	12.00	77.6 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	176	380	760	0	1316
	B	0	0	54	0	0	54
	C	387	497	0	64	64	1012
	D	0	0	0	0	0	0
	E	147	0	0	0	0	147
	Tot.	534	673	434	824	64	2529

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM(Standard PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	225
J1:1/2 (short)	160
J1:1/3 (with short)	331(In) 171(Out)
J1:1/4	760
J1:2/1	54
J1:3/1	181
J1:3/2 (with short)	334(In) 156(Out)
J1:3/3 (short)	178
J1:3/4	497
J1:4/1	824
J1:5/1	117
J1:5/2	156
J1:5/3	178
J1:6/1	673
J1:7/1	49
J1:7/2	169
J1:7/3	216
Junction: J2: Floodgate Street	
J2:1/1	147
J2:2/1	117
J2:2/2	156
J2:2/3	178
J2:3/1	53
J2:3/2	256
J2:3/3	225
J2:4/1	64
J2:5/1	225
J2:5/2	331
J2:5/3	760
J2:6/1	225
J2:6/2	331
J2:6/3	760

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	78.2 %	1738	1738
				Arm J1:7 Ahead	Inf	21.8 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	35.4 %	1848	1848
				Arm J1:5 Ahead	Inf	64.6 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	45.3 %	1807	1807
				Arm J2:4 Left	12.00	54.7 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	168	386	630	0	1184
	B	0	0	189	0	0	189
	C	861	564	0	65	65	1555
	D	0	0	0	0	0	0
	E	228	0	0	0	0	228
	Tot.	1089	732	575	695	65	3156

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM(Standard PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	178
J1:1/2 (short)	181
J1:1/3 (with short)	376(In) 195(Out)
J1:1/4	630
J1:2/1	189
J1:3/1	149
J1:3/2 (with short)	842(In) 397(Out)
J1:3/3 (short)	445
J1:3/4	564
J1:4/1	695
J1:5/1	84
J1:5/2	397
J1:5/3	445
J1:6/1	732
J1:7/1	10
J1:7/2	279
J1:7/3	286
Junction: J2: Floodgate Street	
J2:1/1	228
J2:2/1	84
J2:2/2	397
J2:2/3	445
J2:3/1	19
J2:3/2	546
J2:3/3	524
J2:4/1	65
J2:5/1	178
J2:5/2	376
J2:5/3	630
J2:6/1	178
J2:6/2	376
J2:6/3	630

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	94.4 %	1707	1707
				Arm J1:7 Ahead	Inf	5.6 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	43.6 %	1828	1828
				Arm J1:5 Ahead	Inf	56.4 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	22.6 %	1761	1761
				Arm J2:4 Left	12.00	77.4 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 DM AM(Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	170	461	716	0	1347
	B	0	0	52	0	0	52
	C	473	569	0	65	65	1172
	D	0	0	0	0	0	0
	E	136	0	0	0	0	136
	Tot.	609	739	513	781	65	2707

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM(Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	219
J1:1/2 (short)	189
J1:1/3 (with short)	412(In) 223(Out)
J1:1/4	716
J1:2/1	52
J1:3/1	183
J1:3/2 (with short)	420(In) 197(Out)
J1:3/3 (short)	223
J1:3/4	569
J1:4/1	781
J1:5/1	118
J1:5/2	197
J1:5/3	223
J1:6/1	739
J1:7/1	49
J1:7/2	231
J1:7/3	233
Junction: J2: Floodgate Street	
J2:1/1	136
J2:2/1	118
J2:2/2	197
J2:2/3	223
J2:3/1	53
J2:3/2	292
J2:3/3	264
J2:4/1	65
J2:5/1	219
J2:5/2	412
J2:5/3	716
J2:6/1	219
J2:6/2	412
J2:6/3	716

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	77.6 %	1739	1739
				Arm J1:7 Ahead	Inf	22.4 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	35.5 %	1848	1848
				Arm J1:5 Ahead	Inf	64.5 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	44.9 %	1807	1807
				Arm J2:4 Left	12.00	55.1 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 DM PM(Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	147	446	582	0	1175
	B	0	0	211	0	0	211
	C	871	632	0	67	67	1637
	D	0	0	0	0	0	0
	E	209	0	0	0	0	209
	Tot.	1080	779	657	649	67	3232

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM(Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	157
J1:1/2 (short)	210
J1:1/3 (with short)	436(In) 226(Out)
J1:1/4	582
J1:2/1	211
J1:3/1	153
J1:3/2 (with short)	852(In) 401(Out)
J1:3/3 (short)	451
J1:3/4	632
J1:4/1	649
J1:5/1	86
J1:5/2	401
J1:5/3	451
J1:6/1	779
J1:7/1	10
J1:7/2	329
J1:7/3	318
Junction: J2: Floodgate Street	
J2:1/1	209
J2:2/1	86
J2:2/2	401
J2:2/3	451
J2:3/1	19
J2:3/2	541
J2:3/3	520
J2:4/1	67
J2:5/1	157
J2:5/2	436
J2:5/3	582
J2:6/1	157
J2:6/2	436
J2:6/3	582

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	93.6 %	1708	1708
				Arm J1:7 Ahead	Inf	6.4 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	43.8 %	1828	1828
				Arm J1:5 Ahead	Inf	56.2 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	22.1 %	1760	1760
				Arm J2:4 Left	12.00	77.9 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 DM AM(Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	178	472	772	0	1422
	B	0	0	55	0	0	55
	C	479	572	0	65	65	1181
	D	0	0	0	0	0	0
	E	149	0	0	0	0	149
	Tot.	628	750	527	837	65	2807

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM(Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	227
J1:1/2 (short)	204
J1:1/3 (with short)	423(In) 219(Out)
J1:1/4	772
J1:2/1	55
J1:3/1	183
J1:3/2 (with short)	426(In) 200(Out)
J1:3/3 (short)	226
J1:3/4	572
J1:4/1	837
J1:5/1	118
J1:5/2	200
J1:5/3	226
J1:6/1	750
J1:7/1	49
J1:7/2	243
J1:7/3	235
Junction: J2: Floodgate Street	
J2:1/1	149
J2:2/1	118
J2:2/2	200
J2:2/3	226
J2:3/1	53
J2:3/2	301
J2:3/3	274
J2:4/1	65
J2:5/1	227
J2:5/2	423
J2:5/3	772
J2:6/1	227
J2:6/2	423
J2:6/3	772

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	78.4 %	1738	1738
				Arm J1:7 Ahead	Inf	21.6 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	35.5 %	1848	1848
				Arm J1:5 Ahead	Inf	64.5 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	44.9 %	1807	1807
				Arm J2:4 Left	12.00	55.1 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 DM PM(Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	171	471	634	0	1276
	B	0	0	189	0	0	189
	C	953	632	0	64	65	1714
	D	0	0	0	0	0	0
	E	229	0	0	0	0	229
	Tot.	1182	803	660	698	65	3408

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM(Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street, Floodgate Street)	
J1:1/1	181
J1:1/2 (short)	222
J1:1/3 (with short)	461(In) 239(Out)
J1:1/4	634
J1:2/1	189
J1:3/1	148
J1:3/2 (with short)	934(In) 439(Out)
J1:3/3 (short)	495
J1:3/4	632
J1:4/1	698
J1:5/1	84
J1:5/2	439
J1:5/3	495
J1:6/1	803
J1:7/1	10
J1:7/2	335
J1:7/3	315
Junction: J2: Floodgate Street	
J2:1/1	229
J2:2/1	84
J2:2/2	439
J2:2/3	495
J2:3/1	19
J2:3/2	593
J2:3/3	570
J2:4/1	65
J2:5/1	181
J2:5/2	461
J2:5/3	634
J2:6/1	181
J2:6/2	461
J2:6/3	634

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street, Floodgate Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	2.93	0.00	Y	Arm J1:6 Left	12.00	94.5 %	1706	1706
				Arm J1:7 Ahead	Inf	5.5 %		
J1:1/2 (High Street Deritend)	3.18	0.00	Y	Arm J1:7 Ahead	Inf	100.0 %	1933	1933
J1:1/3 (High Street Deritend)	3.15	0.00	N	Arm J1:7 Ahead	Inf	100.0 %	2070	2070
J1:1/4 (High Street Deritend)	3.35	0.00	Y	Arm J1:4 Right	15.00	100.0 %	1773	1773
				Arm J1:5 U-Turn	6.00	0.0 %		
J1:2/1 (Rea Street)	3.97	0.00	Y	Arm J1:7 Left	14.00	100.0 %	1817	1817
J1:3/1 (Digbeth (B4100))	3.22	0.00	Y	Arm J1:4 Left	11.00	43.2 %	1829	1829
				Arm J1:5 Ahead	Inf	56.8 %		
J1:3/2 (Digbeth (B4100))	2.83	0.00	Y	Arm J1:5 Ahead	Inf	100.0 %	1898	1898
J1:3/3 (Digbeth (B4100))	2.88	0.00	N	Arm J1:5 Ahead	Inf	100.0 %	2043	2043
J1:3/4 (Digbeth (B4100))	3.29	0.00	Y	Arm J1:6 Right	11.00	100.0 %	1711	1711
				Arm J1:7 U-Turn	6.00	0.0 %		
J1:4/1 (Milk Street)	5.00	0.00	Y				2115	2115
J1:5/1 (High Street Deritend)	3.01	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1916	1916
J1:5/2 (High Street Deritend)	3.13	0.00	Y	Arm J2:2 Ahead	Inf	100.0 %	1928	1928
J1:5/3 (High Street Deritend)	2.96	0.00	N	Arm J2:2 Ahead	Inf	100.0 %	2051	2051
J1:6/1 (Rea Street)	3.70	0.00	Y				1985	1985
J1:7/1 (Digbeth (B4100))	3.19	0.00	Y				1934	1934
J1:7/2 (Digbeth (B4100))	2.57	0.00	N				2012	2012
J1:7/3 (Digbeth (B4100))	2.82	0.00	N				2037	2037

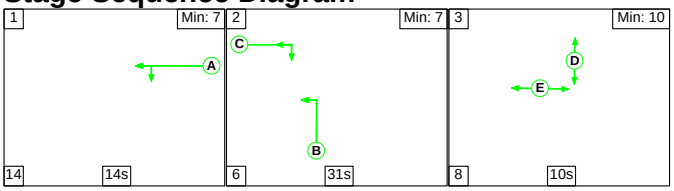
Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Deritend)	3.16	0.00	Y	Arm J2:3 Ahead	Inf	22.6 %	1761	1761
				Arm J2:4 Left	12.00	77.4 %		
J2:2/2 (High Street Deritend)	3.14	0.00	Y	Arm J2:3 Ahead	Inf	100.0 %	1929	1929
J2:2/3 (High Street Deritend)	3.04	0.00	N	Arm J2:3 Ahead	Inf	100.0 %	2059	2059
J2:3/1 (High Street Deritend)	3.18	0.00	Y				1933	1933
J2:3/2 (High Street Deritend)	3.15	0.00	N				2070	2070
J2:3/3 (High Street Deritend)	2.99	0.00	N				2054	2054
J2:4/1 (Floodgate Street)	3.98	0.00	Y				2013	2013
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:5/2	Infinite Saturation Flow						Inf	Inf
J2:5/3	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:6/2	Infinite Saturation Flow						Inf	Inf
J2:6/3	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Steam 0

Stage Sequence Diagram

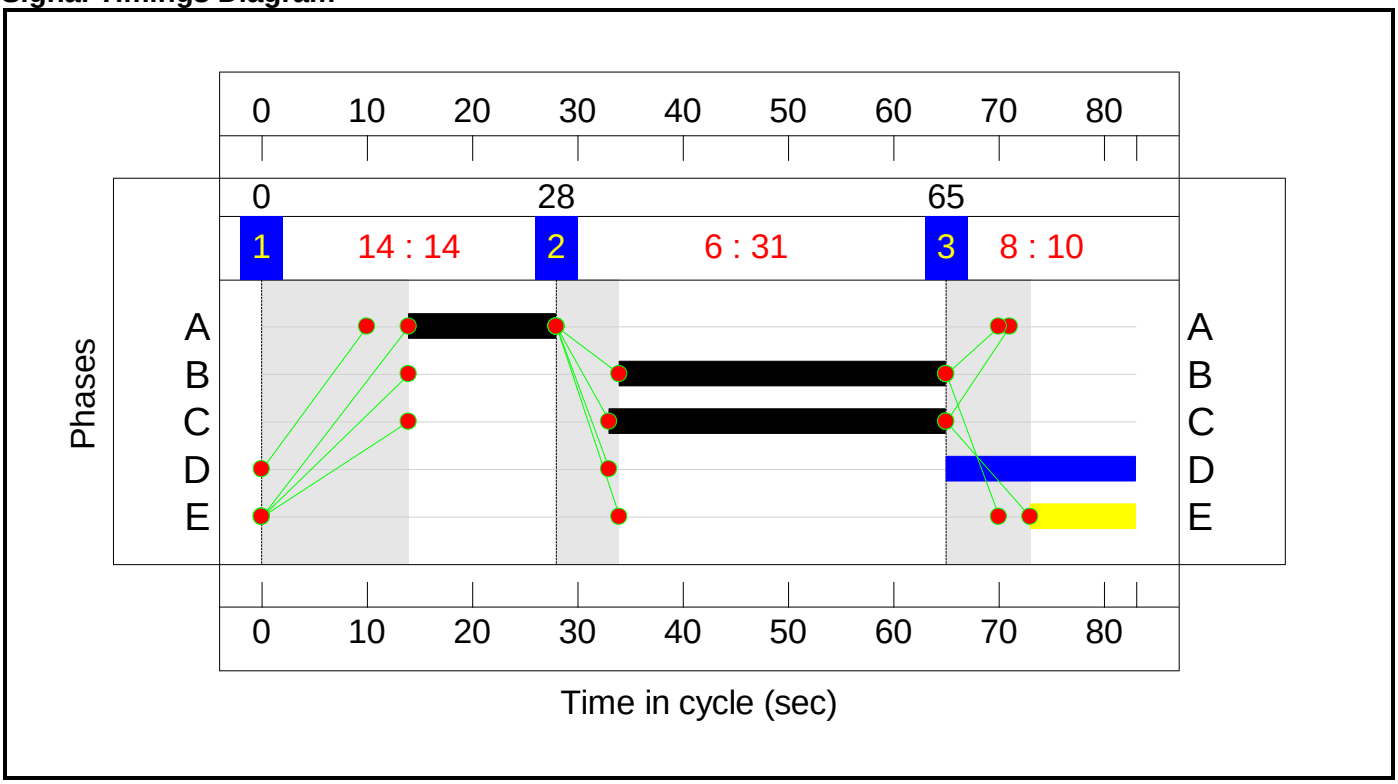


Stage Timings

Stage	1	2	3
Duration	14	31	10
Change Point	0	28	65

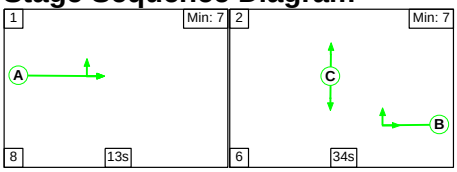
Full Input Data And Results

Signal Timings Diagram



C2 - Stream 1

Stage Sequence Diagram

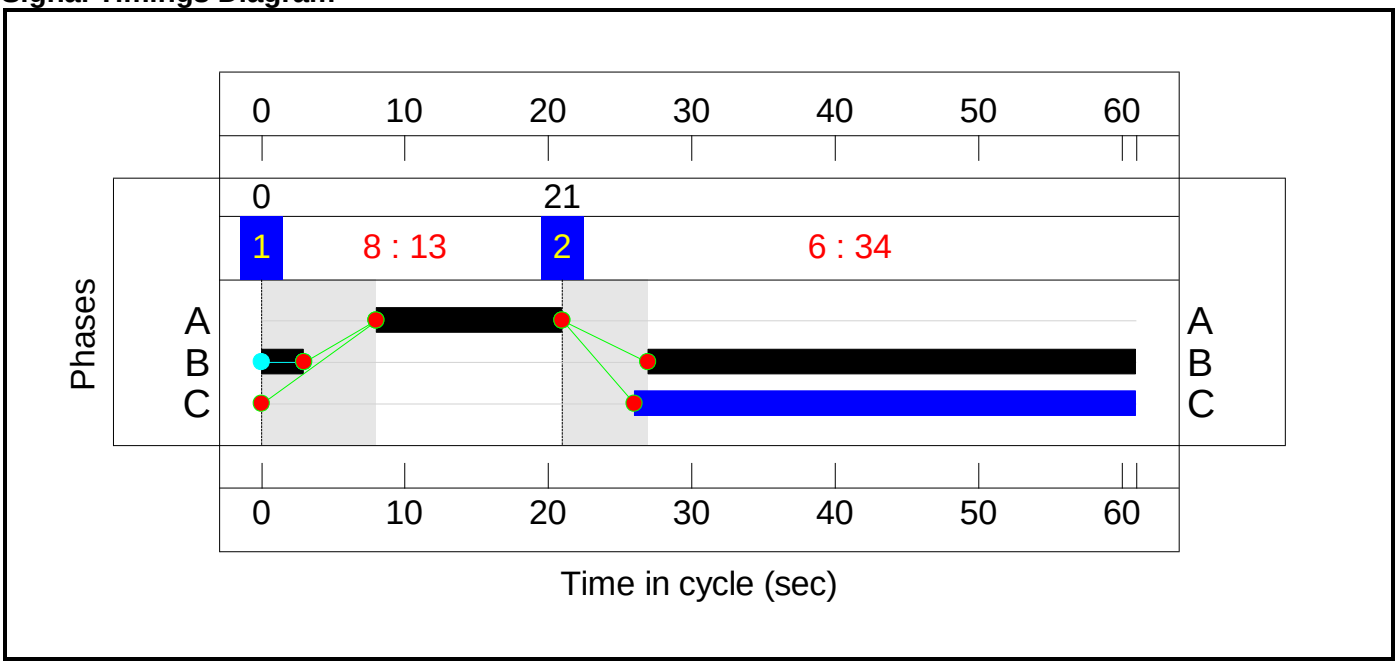


Stage Timings

Stage	1	2
Duration	13	34
Change Point	0	21

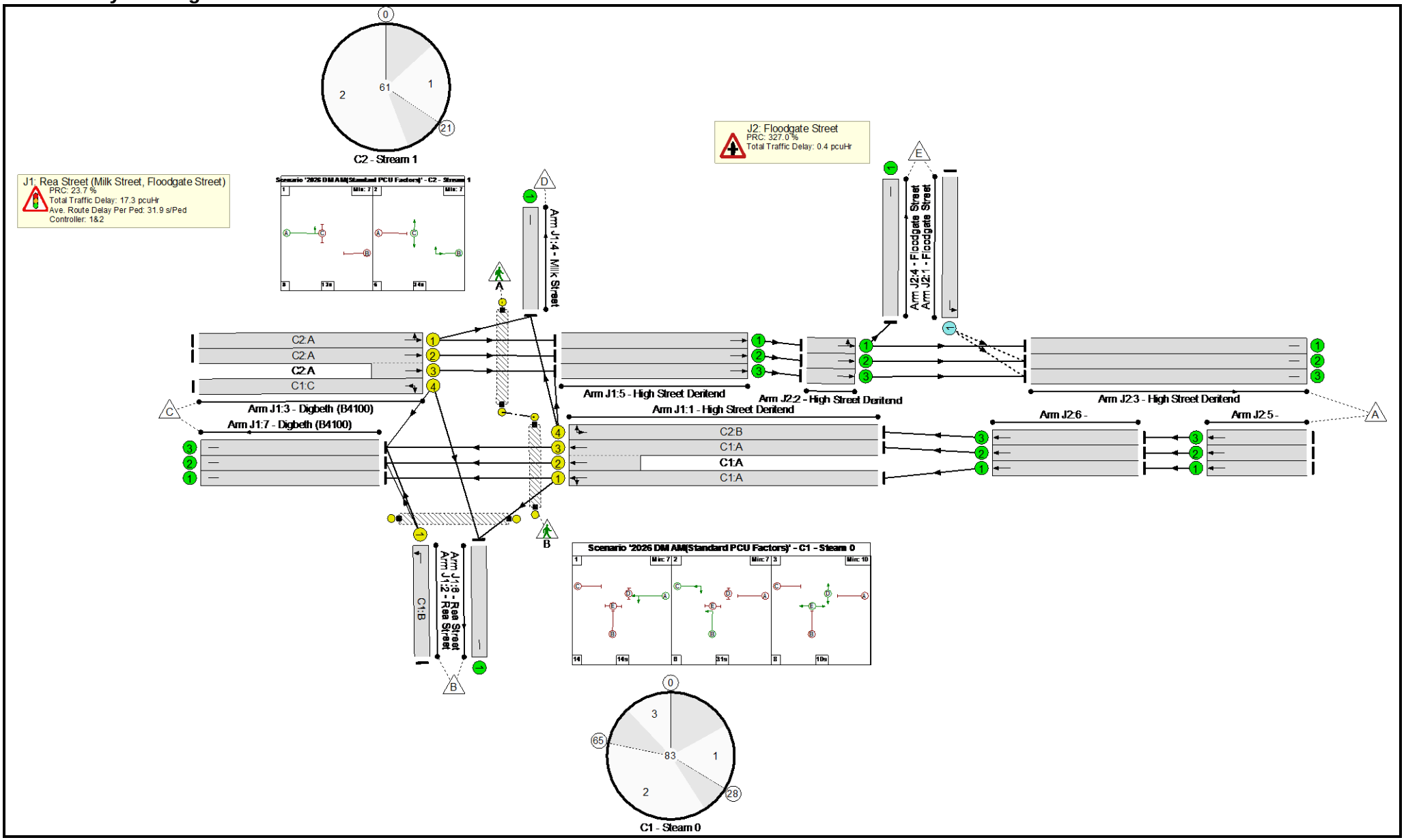
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.8%**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.8%**
1/1	High Street Deritend Left Ahead	U	N/A	N/A	C1:A		1	14	-	217	1740	314	69.0%
1/3+1/2	High Street Deritend Ahead	U	N/A	N/A	C1:A		1	14	-	320	2070:1933	341+320	48.4 : 48.4%
1/4	High Street Deritend Right U-Turn	U	N/A	N/A	C2:B		1	37	-	705	1773	1104	63.8%
2/1	Rea Street Left	U	N/A	N/A	C1:B		1	31	-	51	1817	701	7.3%
3/1	Digbeth (B4100) Left Ahead	U	N/A	N/A	C2:A		1	13	-	181	1848	424	42.7%
3/2+3/3	Digbeth (B4100) Ahead	U	N/A	N/A	C2:A		1	13	-	328	1898:2043	333+381	45.9 : 45.9%
3/4	Digbeth (B4100) Right U-Turn	U	N/A	N/A	C1:C		1	32	-	495	1711	680	72.8%
4/1	Milk Street	U	N/A	N/A	-		-	-	-	769	2115	2115	36.4%
5/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	117	1916	1916	6.1%
5/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	153	1928	1928	7.9%
5/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	175	2051	2051	8.5%
6/1	Rea Street	U	N/A	N/A	-		-	-	-	663	1985	1985	33.4%
7/1	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	49	1934	1934	2.5%
7/2	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	163	2012	2012	8.1%

Full Input Data And Results

7/3	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	208	2037	2037	10.2%
Ped Link: P1	H	-	N/A	-	C2:C		1	35	-	112	-	41311	0.3%
Ped Link: P2	D	-	N/A	-	C1:D		1	18	-	112	-	15614	0.7%
Ped Link: P3	E	-	N/A	-	C1:E		1	10	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**21.1%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	134	Inf	636	21.1%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	117	1807	1807	6.5%
2/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	153	1929	1929	7.9%
2/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	175	2059	2059	8.5%
3/1	High Street Deritend	U	N/A	N/A	-		-	-	-	53	1933	1933	2.7%
3/2	High Street Deritend	U	N/A	N/A	-		-	-	-	247	2070	2070	11.9%
3/3	High Street Deritend	U	N/A	N/A	-		-	-	-	215	2054	2054	10.5%
4/1	Floodgate Street	U	N/A	N/A	-		-	-	-	64	2013	2013	3.2%
5/1	Ahead	U	N/A	N/A	-		-	-	-	217	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	320	Inf	Inf	0.0%
5/3	Ahead	U	N/A	N/A	-		-	-	-	705	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	217	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	320	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	705	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**134**	**0**	**0**	**12.0**	**5.8**	**0.0**	**17.8**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**0**	**0**	**0**	**12.0**	**5.4**	**0.0**	**17.3**	**-**	**-**	**-**	**-**
1/1	217	217	-	-	-	1.9	1.1	-	3.0	49.9	4.6	1.1	5.7
1/3+1/2	320	320	-	-	-	2.7	0.5	-	3.2	35.5	3.3	0.5	3.8
1/4	705	705	-	-	-	1.4	0.9	-	2.3	11.7	7.4	0.9	8.3
2/1	51	51	-	-	-	0.2	0.0	-	0.3	18.9	0.7	0.0	0.8
3/1	181	181	-	-	-	1.0	0.4	-	1.4	27.5	2.6	0.4	3.0
3/2+3/3	328	328	-	-	-	1.8	0.4	-	2.2	24.4	2.5	0.4	2.9
3/4	495	495	-	-	-	2.9	1.3	-	4.2	30.8	9.6	1.3	10.9
4/1	769	769	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3
5/1	117	117	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/2	153	153	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/3	175	175	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	663	663	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
7/1	49	49	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/2	163	163	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/3	208	208	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	112	112	-	-	-	-	-	-	0.2	5.8	-	-	0.8
Ped Link: P2	112	112	-	-	-	-	-	-	0.8	26.1	-	-	2.0
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**134**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	134	134	134	0	0	0.0	0.1	-	0.1	3.8	0.2	0.1	0.4
2/1	117	117	-	-	-	0.0	0.0	-	0.0	1.1	0.0	0.0	0.0
2/2	153	153	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

Full Input Data And Results

2/3	175	175	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/1	53	53	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	247	247	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	215	215	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
4/1	64	64	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
5/1	217	217	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	320	320	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	705	705	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	217	217	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	320	320	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	705	705	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

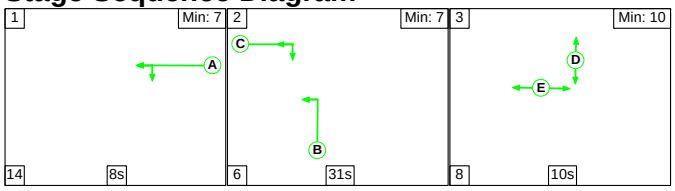
C1 - Steam 0	PRC for Signalled Lanes (%):	23.7	Total Delay for Signalled Lanes (pcuHr):	10.67	Cycle Time (s): 83
C2 - Stream 1	PRC for Signalled Lanes (%):	41.0	Total Delay for Signalled Lanes (pcuHr):	5.89	Cycle Time (s): 61
	PRC Over All Lanes (%):	23.7	Total Delay Over All Lanes(pcuHr):	17.75	

Full Input Data And Results

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Steam 0

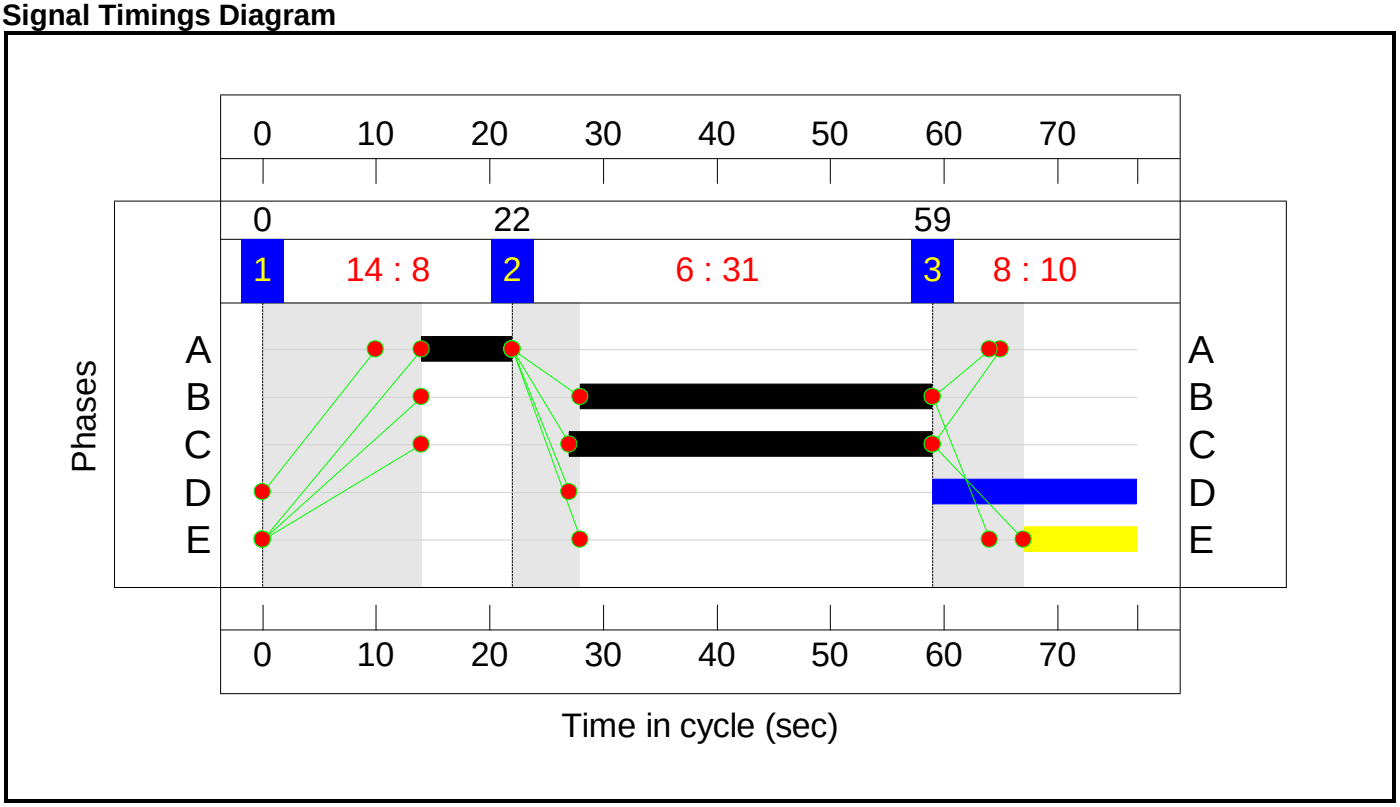
Stage Sequence Diagram



Stage Timings

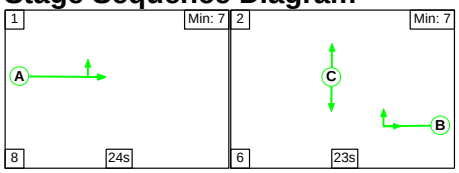
Stage	1	2	3
Duration	8	31	10
Change Point	0	22	59

Signal Timings Diagram



C2 - Stream 1

Stage Sequence Diagram

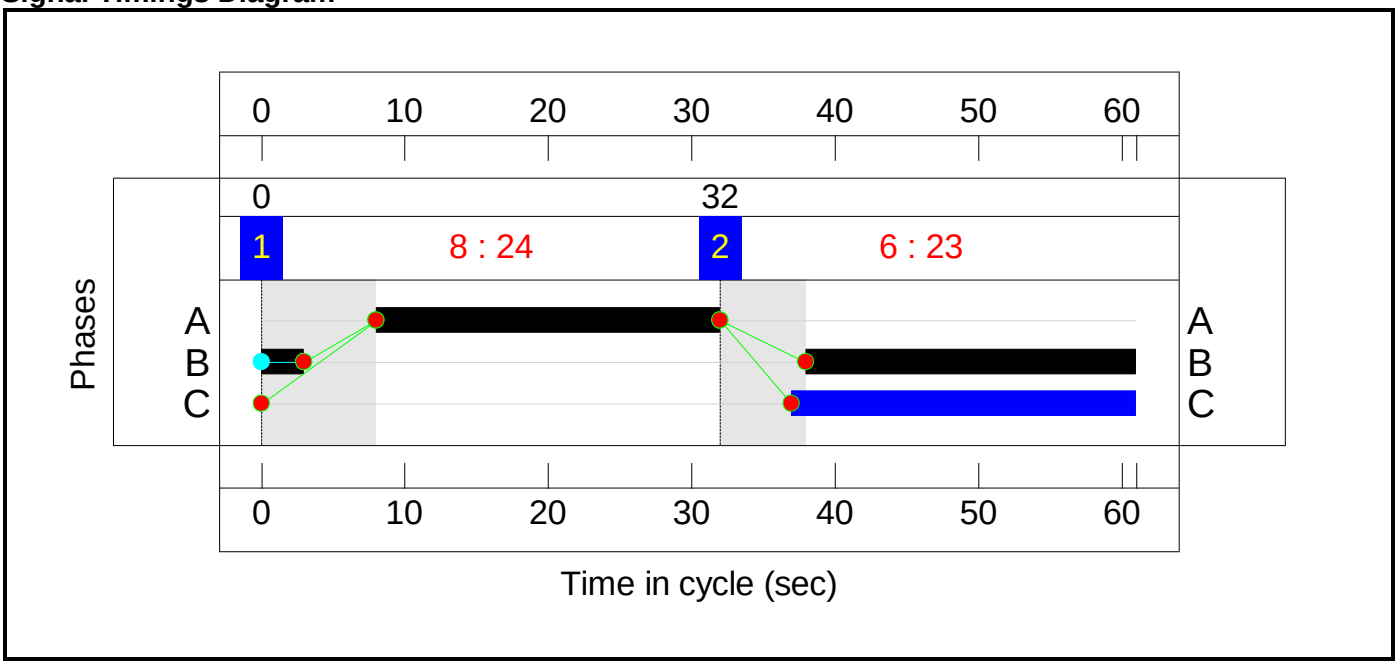


Stage Timings

Stage	1	2
Duration	24	23
Change Point	0	32

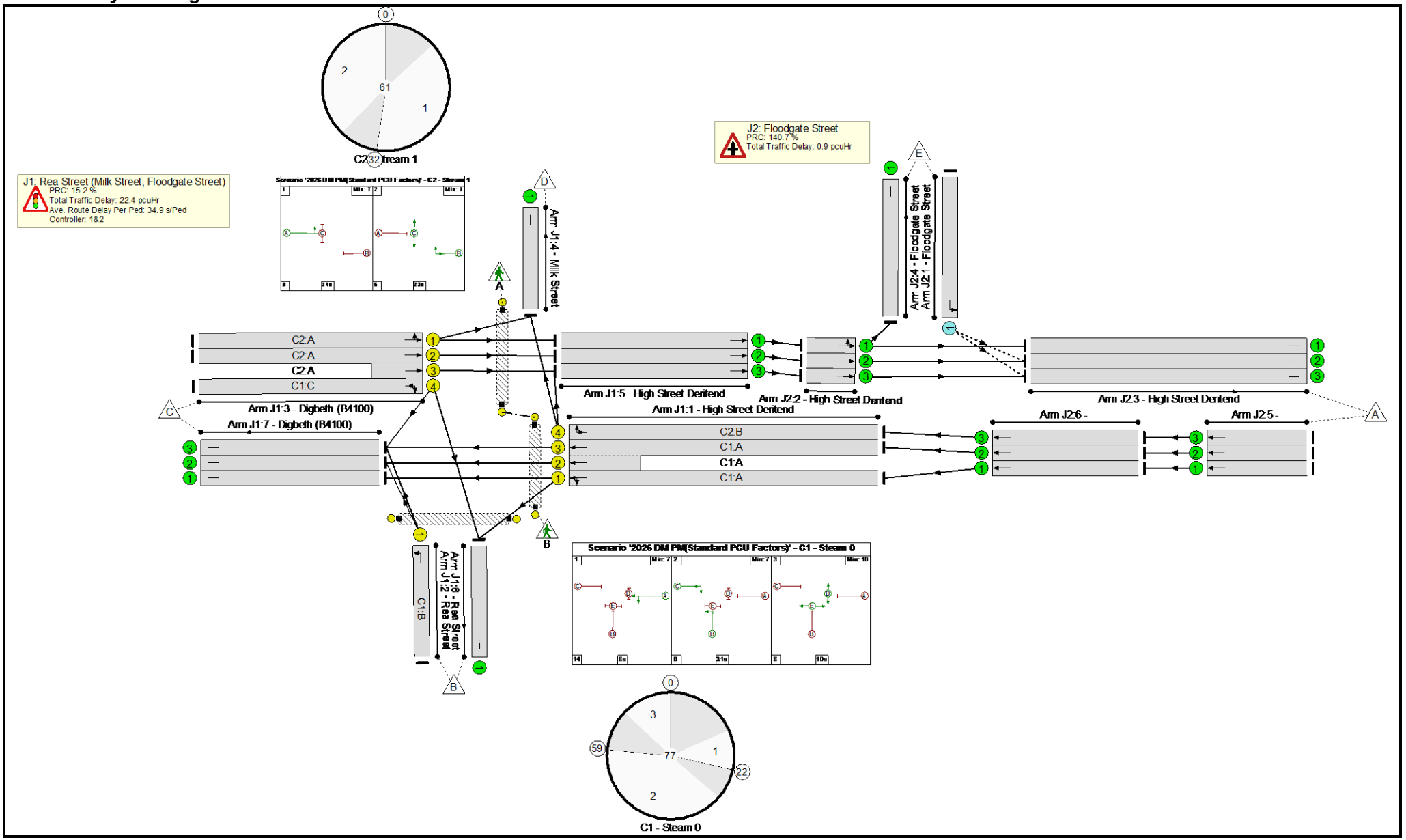
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.1%**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.1%**
1/1	High Street Deritend Left Ahead	U	N/A	N/A	C1:A		1	8	-	156	1708	200	78.1%
1/3+1/2	High Street Deritend Ahead	U	N/A	N/A	C1:A		1	8	-	345	2070:1933	242+226	74.0 : 73.5%
1/4	High Street Deritend Right U-Turn	U	N/A	N/A	C2:B		1	26	-	580	1773	785	73.9%
2/1	Rea Street Left	U	N/A	N/A	C1:B		1	31	-	210	1817	755	27.8%
3/1	Digbeth (B4100) Left Ahead	U	N/A	N/A	C2:A		1	24	-	151	1828	749	20.2%
3/2+3/3	Digbeth (B4100) Ahead	U	N/A	N/A	C2:A		1	24	-	760	1898:2043	508+568	70.6 : 70.6%
3/4	Digbeth (B4100) Right U-Turn	U	N/A	N/A	C1:C		1	32	-	561	1711	733	76.5%
4/1	Milk Street	U	N/A	N/A	-		-	-	-	646	2115	2115	30.5%
5/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	85	1916	1916	4.4%
5/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	359	1928	1928	18.6%
5/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	401	2051	2051	19.6%
6/1	Rea Street	U	N/A	N/A	-		-	-	-	707	1985	1985	35.6%
7/1	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	10	1934	1934	0.5%
7/2	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	269	2012	2012	13.4%

Full Input Data And Results

7/3	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	286	2037	2037	14.0%
Ped Link: P1	H	-	N/A	-	C2:C		1	24	-	130	-	28328	0.5%
Ped Link: P2	D	-	N/A	-	C1:D		1	18	-	130	-	16831	0.8%
Ped Link: P3	E	-	N/A	-	C1:E		1	10	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**37.4%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	208	Inf	556	37.4%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	85	1760	1760	4.8%
2/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	359	1929	1929	18.6%
2/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	401	2059	2059	19.5%
3/1	High Street Deritend	U	N/A	N/A	-		-	-	-	19	1933	1933	1.0%
3/2	High Street Deritend	U	N/A	N/A	-		-	-	-	495	2070	2070	23.9%
3/3	High Street Deritend	U	N/A	N/A	-		-	-	-	473	2054	2054	23.0%
4/1	Floodgate Street	U	N/A	N/A	-		-	-	-	66	2013	2013	3.3%
5/1	Ahead	U	N/A	N/A	-		-	-	-	156	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
5/3	Ahead	U	N/A	N/A	-		-	-	-	580	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	156	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	580	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**208**	**0**	**0**	**14.0**	**9.3**	**0.0**	**23.3**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**0**	**0**	**0**	**13.9**	**8.5**	**0.0**	**22.4**	**-**	**-**	**-**	**-**
1/1	156	156	-	-	-	1.4	1.7	-	3.1	71.4	3.2	1.7	4.9
1/3+1/2	345	345	-	-	-	3.2	1.4	-	4.5	47.2	3.7	1.4	5.1
1/4	580	580	-	-	-	2.3	1.4	-	3.7	22.8	8.1	1.4	9.5
2/1	210	210	-	-	-	0.9	0.2	-	1.1	18.2	2.9	0.2	3.1
3/1	151	151	-	-	-	0.5	0.1	-	0.6	14.6	1.6	0.1	1.8
3/2+3/3	760	760	-	-	-	2.8	1.2	-	4.0	18.8	4.9	1.2	6.1
3/4	561	561	-	-	-	2.9	1.6	-	4.5	29.0	10.1	1.6	11.7
4/1	646	646	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/1	85	85	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/2	359	359	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
5/3	401	401	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/1	707	707	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
7/1	10	10	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/2	269	269	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
7/3	286	286	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	130	130	-	-	-	-	-	-	0.4	11.7	-	-	1.3
Ped Link: P2	130	130	-	-	-	-	-	-	0.8	23.2	-	-	2.1
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**208**	**0**	**0**	**0.1**	**0.9**	**0.0**	**0.9**	**-**	**-**	**-**	**-**
1/1	208	208	208	0	0	0.1	0.3	-	0.4	6.1	0.8	0.3	1.1
2/1	85	85	-	-	-	0.0	0.0	-	0.0	1.1	0.0	0.0	0.0
2/2	359	359	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1

Full Input Data And Results

2/3	401	401	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1	19	19	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/2	495	495	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
3/3	473	473	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
4/1	66	66	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
5/1	156	156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	580	580	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	156	156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	580	580	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

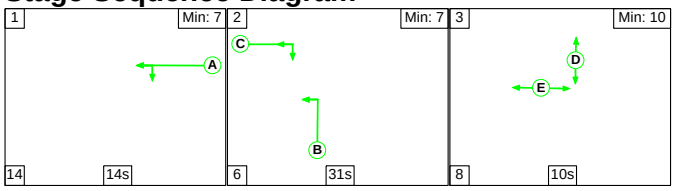
C1 - Steam 0	PRC for Signalled Lanes (%):	15.2	Total Delay for Signalled Lanes (pcuHr):	13.19	Cycle Time (s):	77
C2 - Stream 1	PRC for Signalled Lanes (%):	21.8	Total Delay for Signalled Lanes (pcuHr):	8.25	Cycle Time (s):	61
	PRC Over All Lanes (%):	15.2	Total Delay Over All Lanes(pcuHr):	23.30		

Full Input Data And Results

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Steam 0

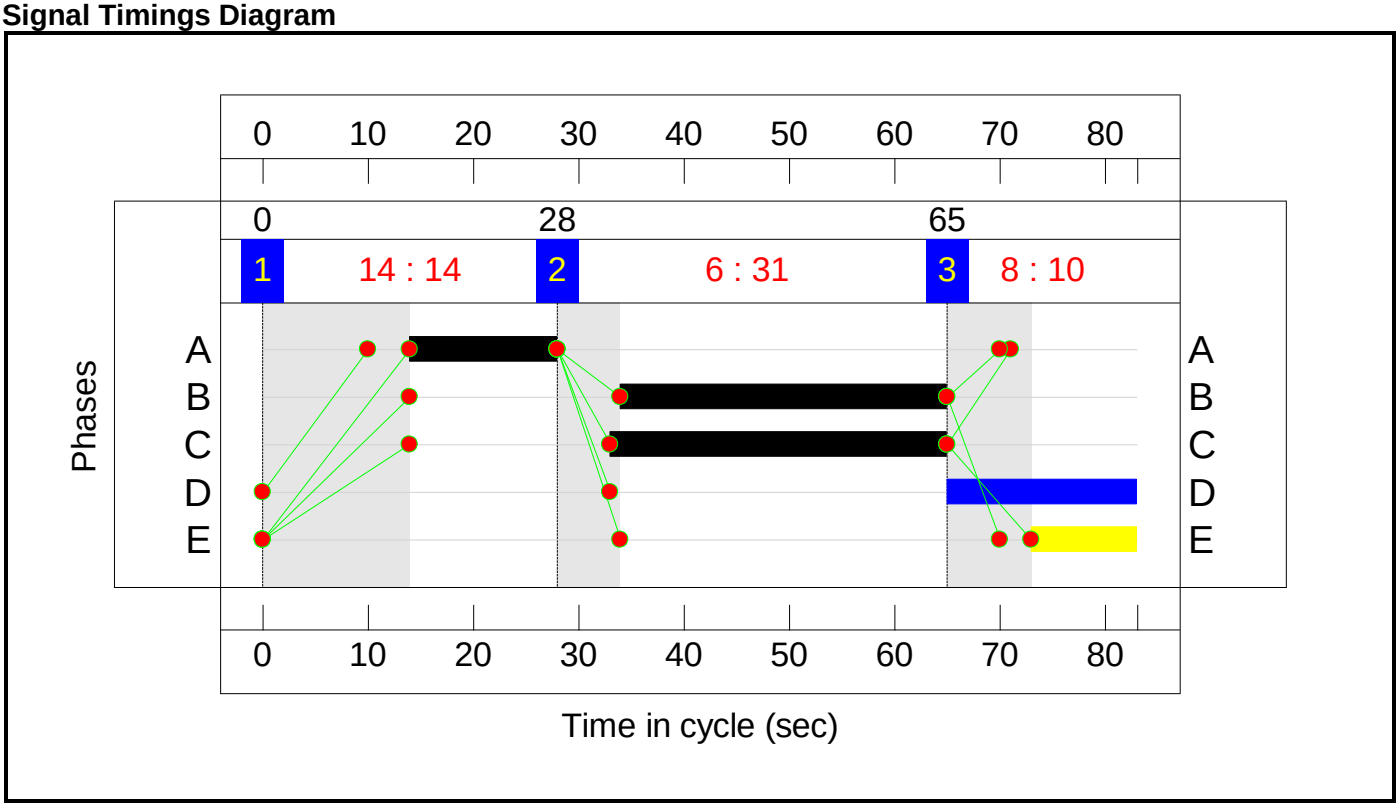
Stage Sequence Diagram



Stage Timings

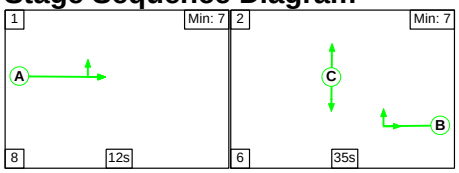
Stage	1	2	3
Duration	14	31	10
Change Point	0	28	65

Signal Timings Diagram



C2 - Stream 1

Stage Sequence Diagram

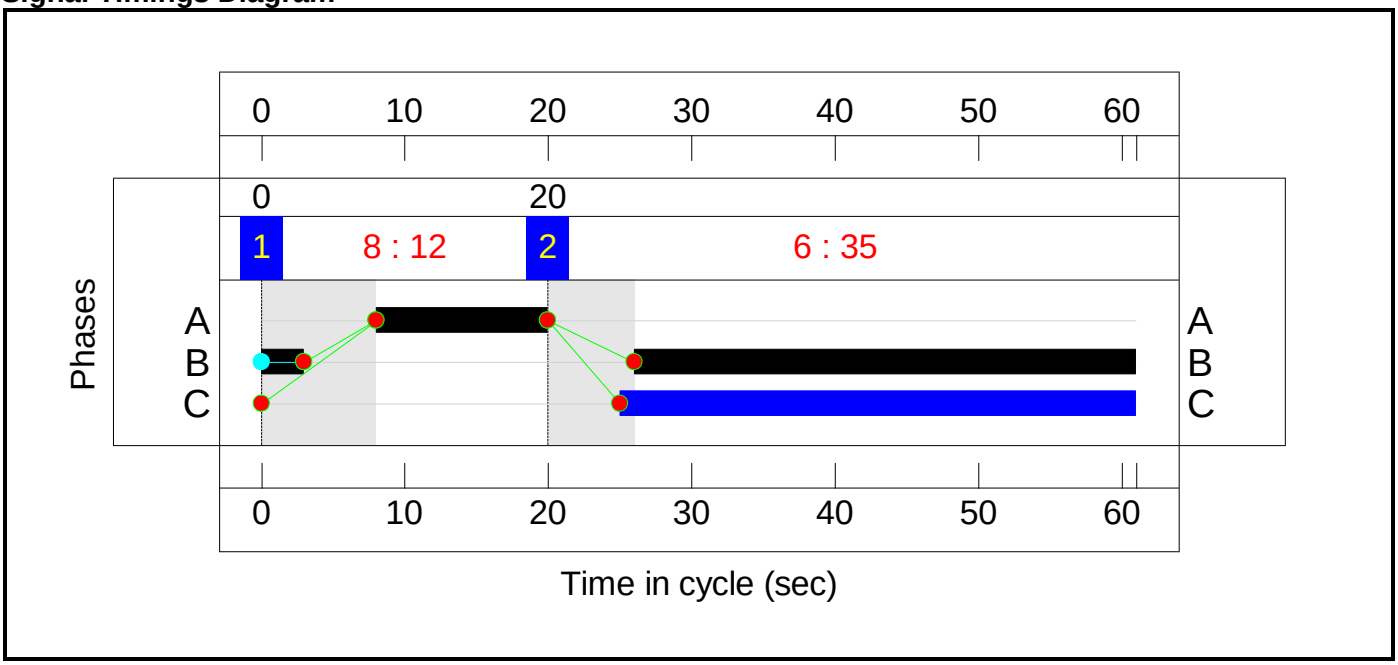


Stage Timings

Stage	1	2
Duration	12	35
Change Point	0	20

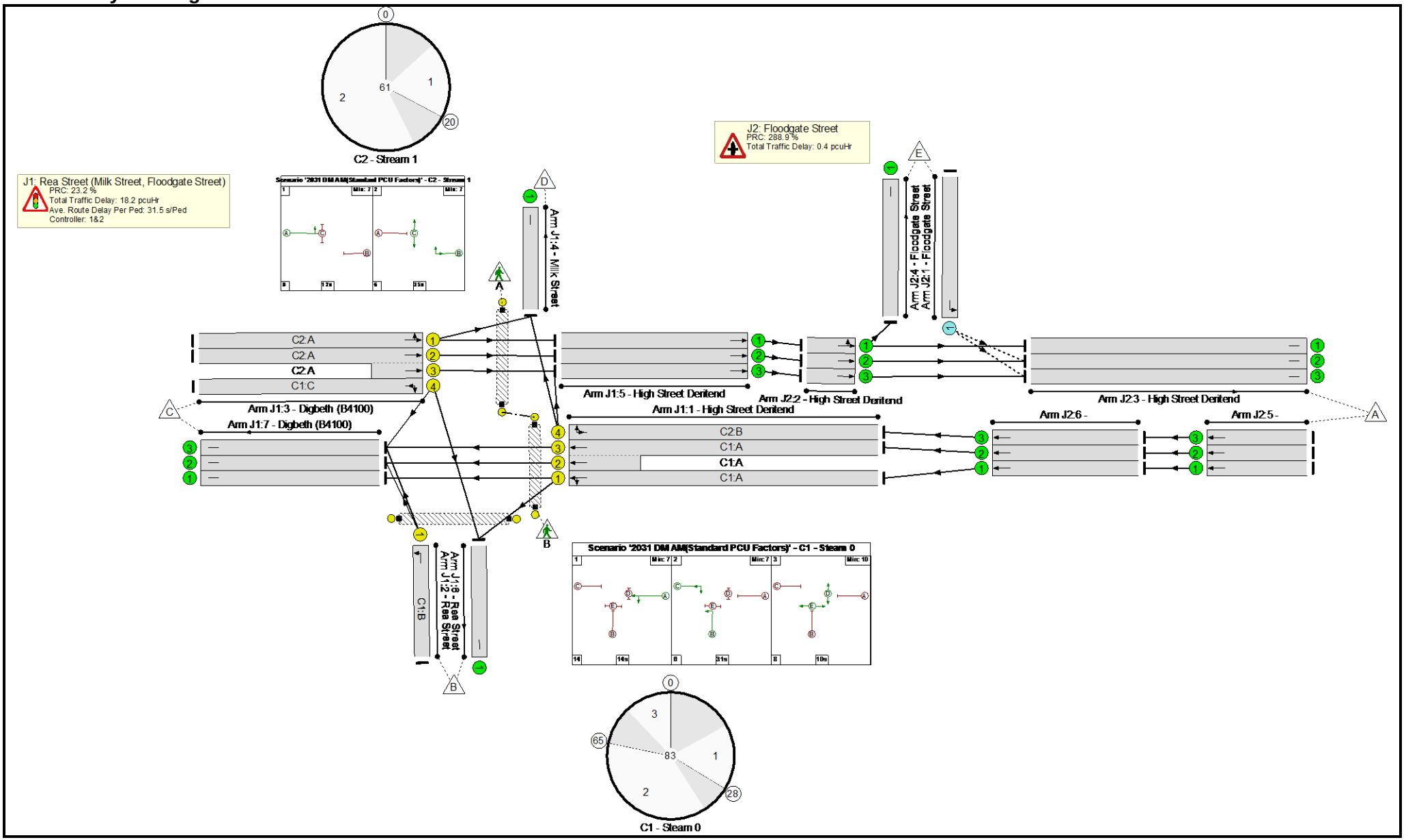
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.1%**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.1%**
1/1	High Street Deritend Left Ahead	U	N/A	N/A	C1:A		1	14	-	225	1738	314	71.6%
1/3+1/2	High Street Deritend Ahead	U	N/A	N/A	C1:A		1	14	-	331	2070:1933	341+319	50.1 : 50.1%
1/4	High Street Deritend Right U-Turn	U	N/A	N/A	C2:B		1	38	-	760	1773	1134	67.0%
2/1	Rea Street Left	U	N/A	N/A	C1:B		1	31	-	54	1817	701	7.7%
3/1	Digbeth (B4100) Left Ahead	U	N/A	N/A	C2:A		1	12	-	181	1848	394	46.0%
3/2+3/3	Digbeth (B4100) Ahead	U	N/A	N/A	C2:A		1	12	-	334	1898:2043	319+364	48.9 : 48.9%
3/4	Digbeth (B4100) Right U-Turn	U	N/A	N/A	C1:C		1	32	-	497	1711	680	73.1%
4/1	Milk Street	U	N/A	N/A	-		-	-	-	824	2115	2115	39.0%
5/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	117	1916	1916	6.1%
5/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	156	1928	1928	8.1%
5/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	178	2051	2051	8.7%
6/1	Rea Street	U	N/A	N/A	-		-	-	-	673	1985	1985	33.9%
7/1	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	49	1934	1934	2.5%
7/2	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	169	2012	2012	8.4%

Full Input Data And Results

7/3	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	216	2037	2037	10.6%
Ped Link: P1	H	-	N/A	-	C2:C		1	36	-	112	-	42492	0.3%
Ped Link: P2	D	-	N/A	-	C1:D		1	18	-	112	-	15614	0.7%
Ped Link: P3	E	-	N/A	-	C1:E		1	10	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**23.1%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	147	Inf	635	23.1%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	117	1807	1807	6.5%
2/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	156	1929	1929	8.1%
2/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	178	2059	2059	8.6%
3/1	High Street Deritend	U	N/A	N/A	-		-	-	-	53	1933	1933	2.7%
3/2	High Street Deritend	U	N/A	N/A	-		-	-	-	256	2070	2070	12.4%
3/3	High Street Deritend	U	N/A	N/A	-		-	-	-	225	2054	2054	11.0%
4/1	Floodgate Street	U	N/A	N/A	-		-	-	-	64	2013	2013	3.2%
5/1	Ahead	U	N/A	N/A	-		-	-	-	225	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	331	Inf	Inf	0.0%
5/3	Ahead	U	N/A	N/A	-		-	-	-	760	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	225	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	331	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	760	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**147**	**0**	**0**	**12.4**	**6.3**	**0.0**	**18.7**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**0**	**0**	**0**	**12.4**	**5.8**	**0.0**	**18.2**	**-**	**-**	**-**	**-**
1/1	225	225	-	-	-	2.0	1.2	-	3.2	51.7	4.9	1.2	6.1
1/3+1/2	331	331	-	-	-	2.8	0.5	-	3.3	35.8	3.5	0.5	4.0
1/4	760	760	-	-	-	1.5	1.0	-	2.5	11.7	8.0	1.0	9.0
2/1	54	54	-	-	-	0.2	0.0	-	0.3	19.0	0.8	0.0	0.8
3/1	181	181	-	-	-	1.1	0.4	-	1.5	29.4	2.7	0.4	3.1
3/2+3/3	334	334	-	-	-	1.9	0.5	-	2.4	25.8	2.6	0.5	3.0
3/4	497	497	-	-	-	2.9	1.3	-	4.3	30.9	9.7	1.3	11.0
4/1	824	824	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
5/1	117	117	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/2	156	156	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/3	178	178	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
6/1	673	673	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
7/1	49	49	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/2	169	169	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
7/3	216	216	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	112	112	-	-	-	-	-	-	0.2	5.4	-	-	0.8
Ped Link: P2	112	112	-	-	-	-	-	-	0.8	26.1	-	-	2.0
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**147**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	147	147	147	0	0	0.0	0.2	-	0.2	3.9	0.2	0.2	0.4
2/1	117	117	-	-	-	0.0	0.0	-	0.0	1.1	0.0	0.0	0.0
2/2	156	156	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

Full Input Data And Results

2/3	178	178	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/1	53	53	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
3/2	256	256	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/3	225	225	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
4/1	64	64	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
5/1	225	225	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	331	331	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	225	225	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	331	331	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	760	760	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

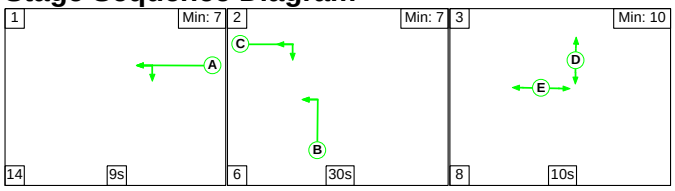
C1 - Steam 0	PRC for Signalled Lanes (%):	23.2	Total Delay for Signalled Lanes (pcuHr):	11.08	Cycle Time (s): 83
C2 - Stream 1	PRC for Signalled Lanes (%):	34.2	Total Delay for Signalled Lanes (pcuHr):	6.35	Cycle Time (s): 61
	PRC Over All Lanes (%):	23.2	Total Delay Over All Lanes(pcuHr):	18.69	

Full Input Data And Results

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Steam 0

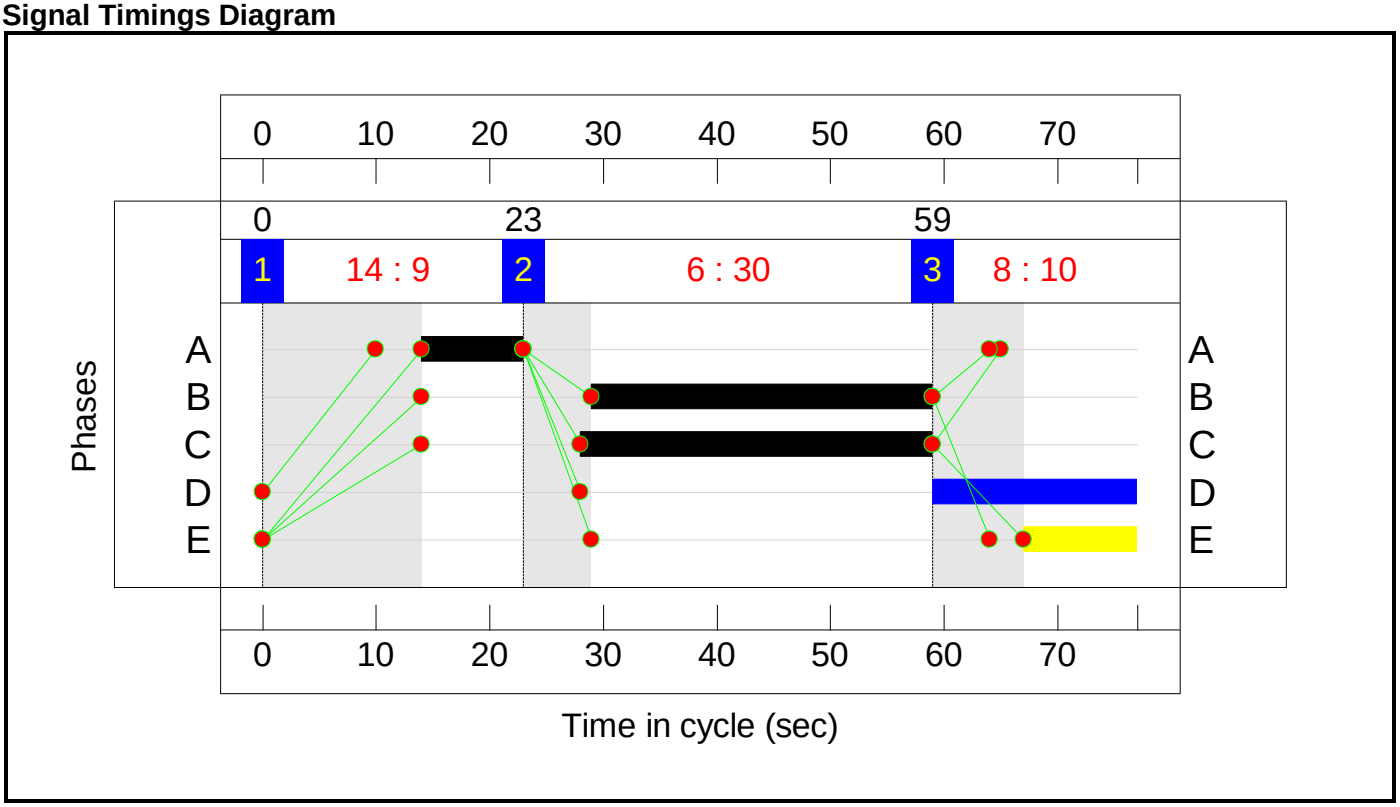
Stage Sequence Diagram



Stage Timings

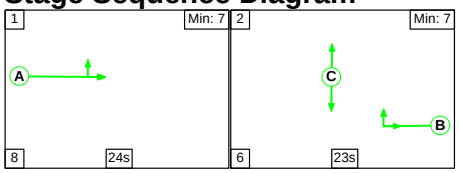
Stage	1	2	3
Duration	9	30	10
Change Point	0	23	59

Signal Timings Diagram



C2 - Stream 1

Stage Sequence Diagram

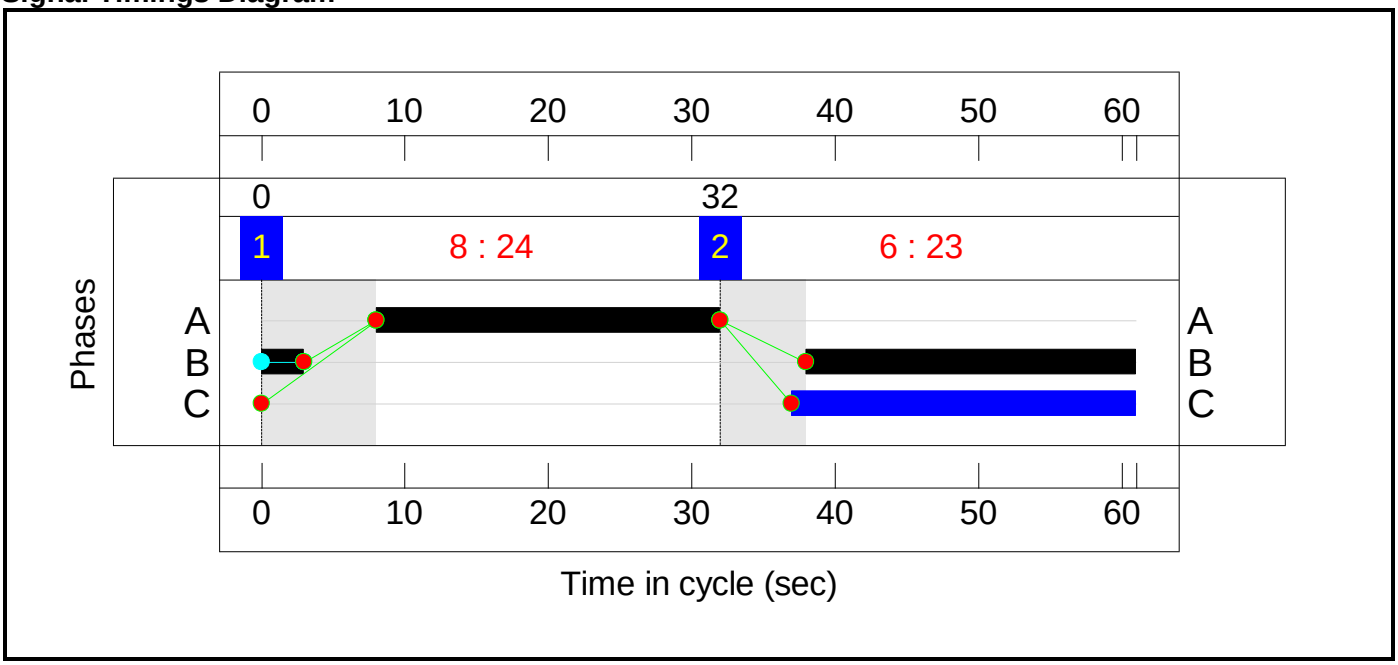


Stage Timings

Stage	1	2
Duration	24	23
Change Point	0	32

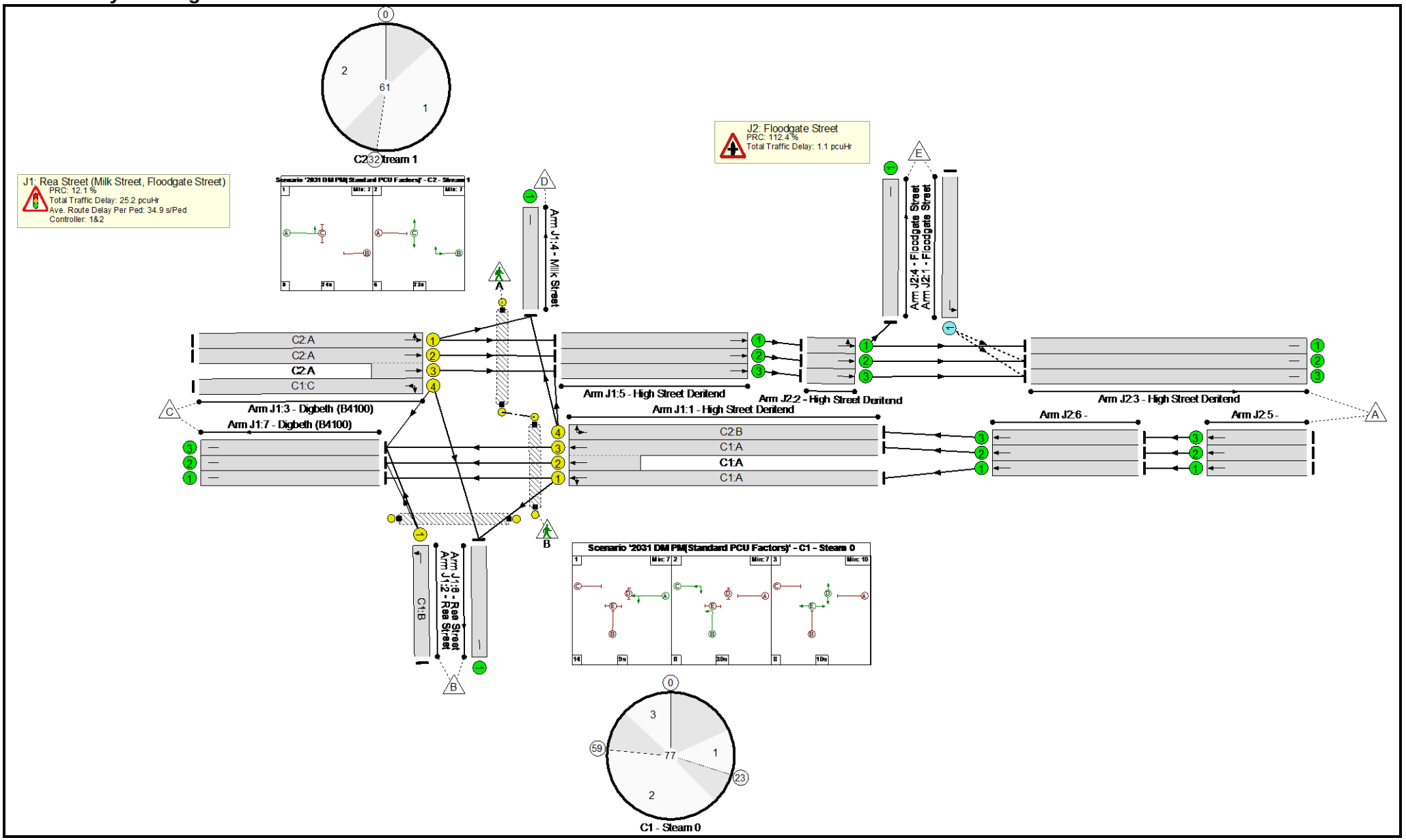
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.3%**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.3%**
1/1	High Street Deritend Left Ahead	U	N/A	N/A	C1:A		1	9	-	178	1707	222	80.3%
1/3+1/2	High Street Deritend Ahead	U	N/A	N/A	C1:A		1	9	-	376	2070:1933	269+251	72.5 : 72.1%
1/4	High Street Deritend Right U-Turn	U	N/A	N/A	C2:B		1	26	-	630	1773	785	80.3%
2/1	Rea Street Left	U	N/A	N/A	C1:B		1	30	-	189	1817	732	25.8%
3/1	Digbeth (B4100) Left Ahead	U	N/A	N/A	C2:A		1	24	-	149	1828	749	19.9%
3/2+3/3	Digbeth (B4100) Ahead	U	N/A	N/A	C2:A		1	24	-	842	1898:2043	507+568	78.3 : 78.3%
3/4	Digbeth (B4100) Right U-Turn	U	N/A	N/A	C1:C		1	31	-	564	1711	711	79.3%
4/1	Milk Street	U	N/A	N/A	-		-	-	-	695	2115	2115	32.9%
5/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	84	1916	1916	4.4%
5/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	397	1928	1928	20.6%
5/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	445	2051	2051	21.7%
6/1	Rea Street	U	N/A	N/A	-		-	-	-	732	1985	1985	36.9%
7/1	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	10	1934	1934	0.5%
7/2	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	279	2012	2012	13.9%

Full Input Data And Results

7/3	Digbeth (B4100)	U	N/A	N/A	-		-	-	-	286	2037	2037	14.0%
Ped Link: P1	H	-	N/A	-	C2:C		1	24	-	130	-	28328	0.5%
Ped Link: P2	D	-	N/A	-	C1:D		1	18	-	130	-	16831	0.8%
Ped Link: P3	E	-	N/A	-	C1:E		1	10	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**42.4%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	228	Inf	538	42.4%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	84	1761	1761	4.8%
2/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	397	1929	1929	20.6%
2/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	445	2059	2059	21.6%
3/1	High Street Deritend	U	N/A	N/A	-		-	-	-	19	1933	1933	1.0%
3/2	High Street Deritend	U	N/A	N/A	-		-	-	-	546	2070	2070	26.4%
3/3	High Street Deritend	U	N/A	N/A	-		-	-	-	524	2054	2054	25.5%
4/1	Floodgate Street	U	N/A	N/A	-		-	-	-	65	2013	2013	3.2%
5/1	Ahead	U	N/A	N/A	-		-	-	-	178	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	376	Inf	Inf	0.0%
5/3	Ahead	U	N/A	N/A	-		-	-	-	630	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	178	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	376	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	630	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**228**	**0**	**0**	**15.2**	**11.1**	**0.0**	**26.3**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street, Floodgate Street)	**-**	**-**	**0**	**0**	**0**	**15.1**	**10.1**	**0.0**	**25.2**	**-**	**-**	**-**	**-**
1/1	178	178	-	-	-	1.6	1.9	-	3.5	70.5	3.7	1.9	5.5
1/3+1/2	376	376	-	-	-	3.4	1.3	-	4.6	44.5	4.0	1.3	5.2
1/4	630	630	-	-	-	2.6	2.0	-	4.6	26.0	9.1	2.0	11.1
2/1	189	189	-	-	-	0.8	0.2	-	1.0	18.7	2.7	0.2	2.9
3/1	149	149	-	-	-	0.5	0.1	-	0.6	14.6	1.6	0.1	1.7
3/2+3/3	842	842	-	-	-	3.2	1.8	-	5.0	21.2	6.9	1.8	8.6
3/4	564	564	-	-	-	3.1	1.9	-	4.9	31.6	10.5	1.9	12.4
4/1	695	695	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
5/1	84	84	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
5/2	397	397	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
5/3	445	445	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/1	732	732	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
7/1	10	10	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
7/2	279	279	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
7/3	286	286	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
Ped Link: P1	130	130	-	-	-	-	-	-	0.4	11.7	-	-	1.3
Ped Link: P2	130	130	-	-	-	-	-	-	0.8	23.2	-	-	2.1
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**228**	**0**	**0**	**0.1**	**1.0**	**0.0**	**1.1**	**-**	**-**	**-**	**-**
1/1	228	228	228	0	0	0.1	0.4	-	0.5	7.3	1.2	0.4	1.6
2/1	84	84	-	-	-	0.0	0.0	-	0.0	1.1	0.0	0.0	0.0
2/2	397	397	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1

Full Input Data And Results

2/3	445	445	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1	19	19	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
3/2	546	546	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
3/3	524	524	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
4/1	65	65	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
5/1	178	178	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	376	376	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	630	630	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	178	178	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	376	376	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	630	630	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

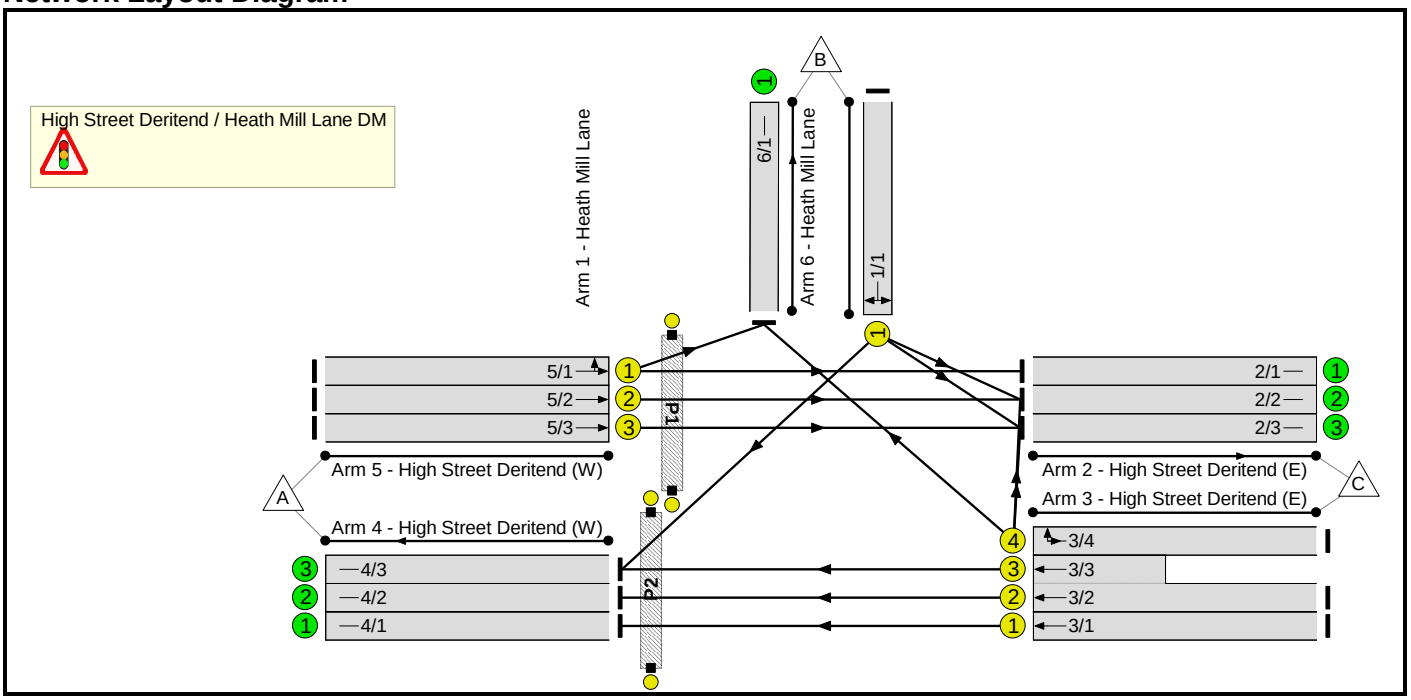
C1 - Steam 0	PRC for Signalled Lanes (%):	12.1	Total Delay for Signalled Lanes (pcuHr):	14.05	Cycle Time (s): 77
C2 - Stream 1	PRC for Signalled Lanes (%):	12.1	Total Delay for Signalled Lanes (pcuHr):	10.12	Cycle Time (s): 61
	PRC Over All Lanes (%):	12.1	Total Delay Over All Lanes(pcuHr):	26.29	

Full Input Data And Results

User and Project Details

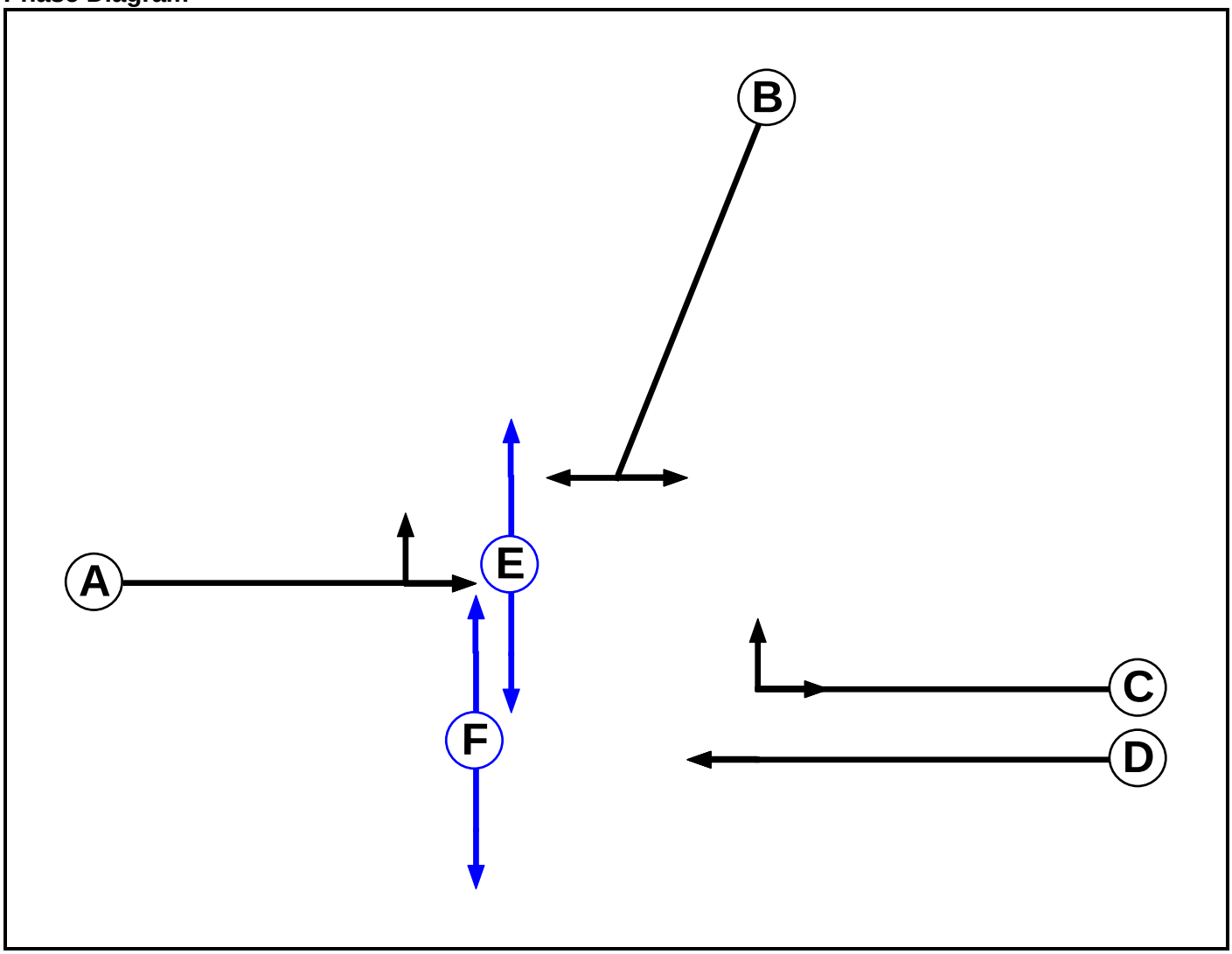
Project:	**BEE**
Title:	**High Street Deritend / Heath Mill Lane**
Location:	High Street Deritend, Digbeth, Birmingham
File name:	High Street Deritend - Heath Mill Lane DM.lsg3x
Author:	William Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	Do Minimum

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		10	10
F	Pedestrian		10	10

Full Input Data And Results

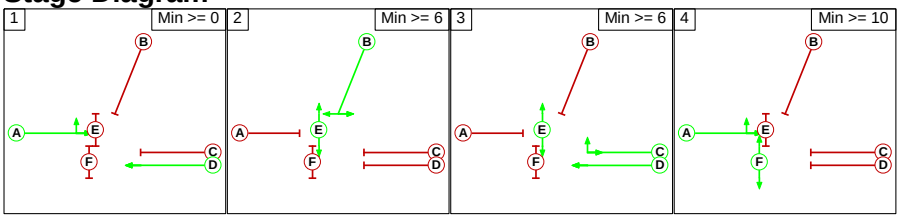
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F
A		6	6	-	7	-
B	7		7	7	-	7
C	6	6		-	-	7
D	-	6	-		-	7
E	7	-	-	-		-
F	-	7	7	7	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D
2	B E
3	C D E
4	A F

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		7	7	7
2	7		7	7
3	7	6		7
4	7	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: High Street Deritend / Heath Mill Lane DM
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: High Street Deritend / Heath Mill Lane DM												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Heath Mill Lane)	U	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 2 Left	9.62
											Arm 4 Right	12.04
2/1 (High Street Deritend (E))	U		2	3	10.4	Inf	-	-	-	-	-	-
2/2 (High Street Deritend (E))	U		2	3	10.4	Inf	-	-	-	-	-	-
2/3 (High Street Deritend (E))	U		2	3	10.4	Inf	-	-	-	-	-	-
3/1 (High Street Deritend (E))	U	D	2	3	12.2	Geom	-	2.94	0.00	Y	Arm 4 Ahead	Inf
3/2 (High Street Deritend (E))	U	D	2	3	12.2	Geom	-	3.13	0.00	N	Arm 4 Ahead	Inf
3/3 (High Street Deritend (E))	U	D	2	3	7.0	Geom	-	3.03	0.00	N	Arm 4 Ahead	Inf
3/4 (High Street Deritend (E))	U	C	2	3	13.6	Geom	-	3.32	0.00	N	Arm 2 U-Turn	Inf
											Arm 6 Right	22.87
4/1 (High Street Deritend (W))	U		2	3	24.3	Inf	-	-	-	-	-	-
4/2 (High Street Deritend (W))	U		2	3	24.3	Inf	-	-	-	-	-	-
4/3 (High Street Deritend (W))	U		2	3	24.3	Inf	-	-	-	-	-	-
5/1 (High Street Deritend (W))	U	A	2	3	17.4	Geom	-	3.02	0.00	Y	Arm 2 Ahead	Inf
											Arm 6 Left	7.10
5/2 (High Street Deritend (W))	U	A	2	3	17.4	Geom	-	3.06	0.00	N	Arm 2 Ahead	Inf
5/3 (High Street Deritend (W))	U	A	2	3	17.4	Geom	-	3.07	0.00	N	Arm 2 Ahead	Inf
6/1 (Heath Mill Lane)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	111	403	514
	B	166	0	92	258
	C	1090	308	0	1398
	Tot.	1256	419	495	2170

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM(Standard PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	258
2/1	55
2/2	220
2/3	220
3/1	314
3/2 (with short)	776(In) 389(Out)
3/3 (short)	387
3/4	308
4/1	314
4/2	389
4/3	553
5/1	166
5/2	174
5/3	174
6/1	419

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	35.7 %	1708	1708
				Arm 4 Right	12.04	64.3 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	33.1 %	1680	1680
				Arm 6 Left	7.10	66.9 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	164	823	987
	B	205	0	119	324
	C	846	318	0	1164
	Tot.	1051	482	942	2475

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM(Standard PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	324
2/1	66
2/2	437
2/3	439
3/1	224
3/2 (with short)	622(In) 312(Out)
3/3 (short)	310
3/4	318
4/1	224
4/2	312
4/3	515
5/1	230
5/2	378
5/3	379
6/1	482

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	36.7 %	1708	1708
				Arm 4 Right	12.04	63.3 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	28.7 %	1666	1666
				Arm 6 Left	7.10	71.3 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	112	422	534
	B	169	0	92	261
	C	1153	317	0	1470
	Tot.	1322	429	514	2265

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM(Standard PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	261
2/1	55
2/2	229
2/3	230
3/1	338
3/2 (with short)	815(In) 409(Out)
3/3 (short)	406
3/4	317
4/1	338
4/2	409
4/3	575
5/1	167
5/2	183
5/3	184
6/1	429

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	35.2 %	1708	1708
				Arm 4 Right	12.04	64.8 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	32.9 %	1679	1679
				Arm 6 Left	7.10	67.1 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	184	905	1089
	B	214	0	119	333
	C	903	319	0	1222
	Tot.	1117	503	1024	2644

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM(Standard PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	333
2/1	66
2/2	478
2/3	480
3/1	246
3/2 (with short)	657(In) 329(Out)
3/3 (short)	328
3/4	319
4/1	246
4/2	329
4/3	542
5/1	250
5/2	419
5/3	420
6/1	503

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	35.7 %	1708	1708
				Arm 4 Right	12.04	64.3 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	26.4 %	1659	1659
				Arm 6 Left	7.10	73.6 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 DM AM(Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	130	478	608
	B	186	0	93	279
	C	1176	312	0	1488
	Tot.	1362	442	571	2375

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM(Saturn PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	279
2/1	55
2/2	257
2/3	259
3/1	348
3/2 (with short)	828(In) 415(Out)
3/3 (short)	413
3/4	312
4/1	348
4/2	415
4/3	599
5/1	185
5/2	211
5/3	212
6/1	442

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	33.3 %	1709	1709
				Arm 4 Right	12.04	66.7 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	29.7 %	1669	1669
				Arm 6 Left	7.10	70.3 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 DM PM(Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	183	897	1080
	B	225	0	120	345
	C	920	319	0	1239
	Tot.	1145	502	1017	2664

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM(Saturn PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	345
2/1	66
2/2	475
2/3	476
3/1	252
3/2 (with short)	668(In) 335(Out)
3/3 (short)	333
3/4	319
4/1	252
4/2	335
4/3	558
5/1	249
5/2	415
5/3	416
6/1	502

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	34.8 %	1709	1709
				Arm 4 Right	12.04	65.2 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	26.5 %	1659	1659
				Arm 6 Left	7.10	73.5 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 DM AM(Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	131	497	628
	B	189	0	93	282
	C	1240	322	0	1562
	Tot.	1429	453	590	2472

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM(Saturn PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	282
2/1	55
2/2	267
2/3	268
3/1	373
3/2 (with short)	867(In) 435(Out)
3/3 (short)	432
3/4	322
4/1	373
4/2	435
4/3	621
5/1	186
5/2	221
5/3	221
6/1	453

Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	33.0 %	1709	1709
				Arm 4 Right	12.04	67.0 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	29.6 %	1669	1669
				Arm 6 Left	7.10	70.4 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 DM PM(Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	203	979	1182
	B	234	0	120	354
	C	977	320	0	1297
	Tot.	1211	523	1099	2833

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM(Saturn PCU Factors)
Junction: High Street Deritend / Heath Mill Lane DM	
1/1	354
2/1	66
2/2	516
2/3	517
3/1	274
3/2 (with short)	703(In) 352(Out)
3/3 (short)	351
3/4	320
4/1	274
4/2	352
4/3	585
5/1	269
5/2	456
5/3	457
6/1	523

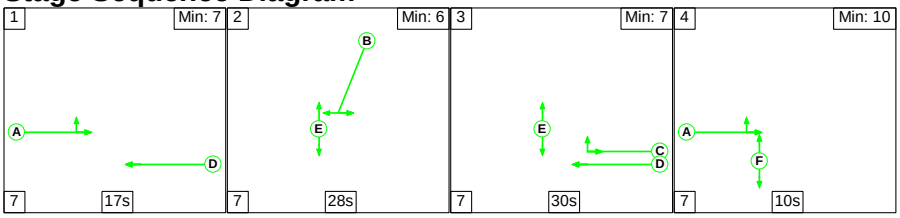
Full Input Data And Results

Lane Saturation Flows

Junction: High Street Deritend / Heath Mill Lane DM								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm 2 Left	9.62	33.9 %	1709	1709
				Arm 4 Right	12.04	66.1 %		
2/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf
2/3 (High Street Deritend (E) Lane 3)	Infinite Saturation Flow						Inf	Inf
3/1 (High Street Deritend (E))	2.94	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1909	1909
3/2 (High Street Deritend (E))	3.13	0.00	N	Arm 4 Ahead	Inf	100.0 %	2068	2068
3/3 (High Street Deritend (E))	3.03	0.00	N	Arm 4 Ahead	Inf	100.0 %	2058	2058
3/4 (High Street Deritend (E))	3.32	0.00	N	Arm 2 U-Turn	Inf	0.0 %	1959	1959
				Arm 6 Right	22.87	100.0 %		
4/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
4/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
4/3 (High Street Deritend (W) Lane 3)	Infinite Saturation Flow						Inf	Inf
5/1 (High Street Deritend (W))	3.02	0.00	Y	Arm 2 Ahead	Inf	24.5 %	1653	1653
				Arm 6 Left	7.10	75.5 %		
5/2 (High Street Deritend (W))	3.06	0.00	N	Arm 2 Ahead	Inf	100.0 %	2061	2061
5/3 (High Street Deritend (W))	3.07	0.00	N	Arm 2 Ahead	Inf	100.0 %	2062	2062
6/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

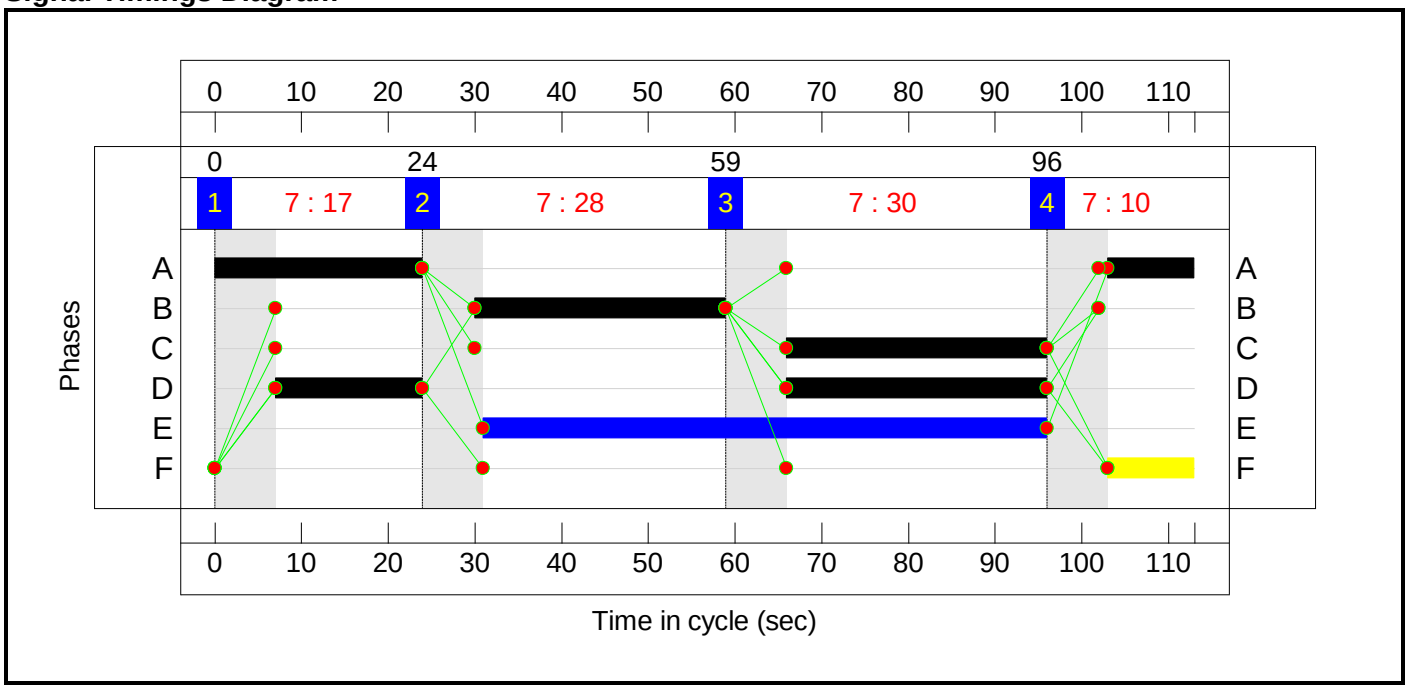


Full Input Data And Results

Stage Timings

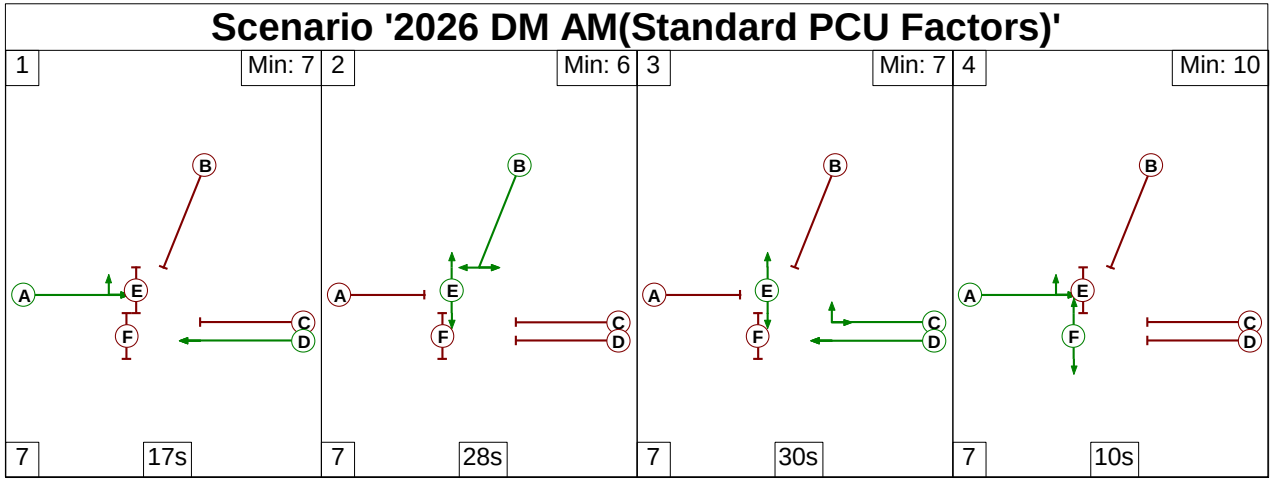
Stage	1	2	3	4
Duration	17	28	30	10
Change Point	0	24	59	96

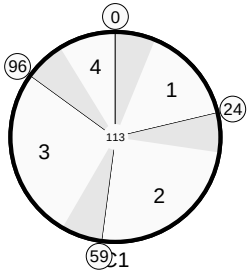
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



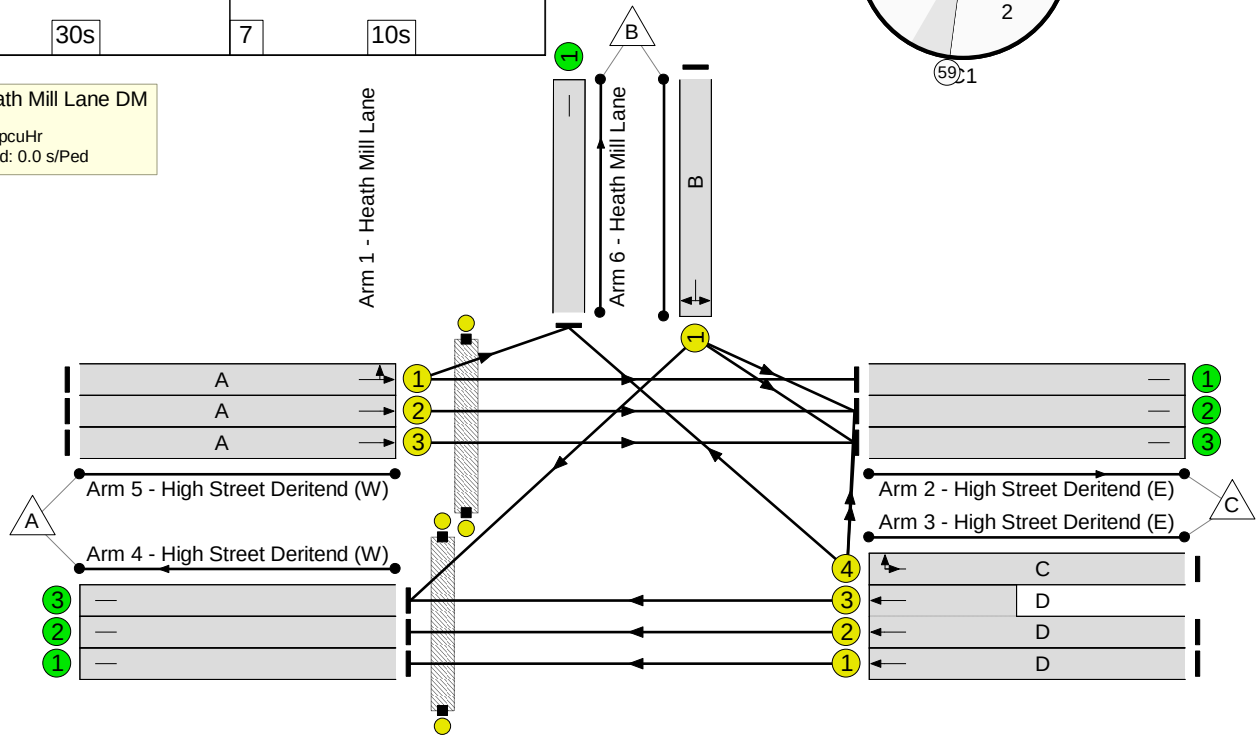


High Street Deritend / Heath Mill Lane DM

PRC: 56.1 %

Total Traffic Delay: 16.3 pcuHr

Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.6%**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**57.6%**
1/1	Heath Mill Lane Left Right	U	N/A	N/A	B		1	29	-	258	1708	453	56.9%
2/1	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	55	Inf	Inf	0.0%
2/2	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	220	Inf	Inf	0.0%
2/3	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	220	Inf	Inf	0.0%
3/1	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	47	-	314	1909	828	37.9%
3/2+3/3	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	47	-	776	2068:2058	675+671	57.6 : 57.6%
3/4	High Street Deritend (E) U-Turn Right	U	N/A	N/A	C		1	30	-	308	1959	537	57.3%
4/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
4/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	389	Inf	Inf	0.0%
4/3	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	553	Inf	Inf	0.0%
5/1	High Street Deritend (W) Ahead Left	U	N/A	N/A	A		1	34	-	166	1680	520	31.9%
5/2	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	34	-	174	2061	638	27.3%

Full Input Data And Results

5/3	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	34	-	174	2062	639	27.2%
6/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	419	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	65	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	10	-	0	-	0	0.0%

Full Input Data And Results

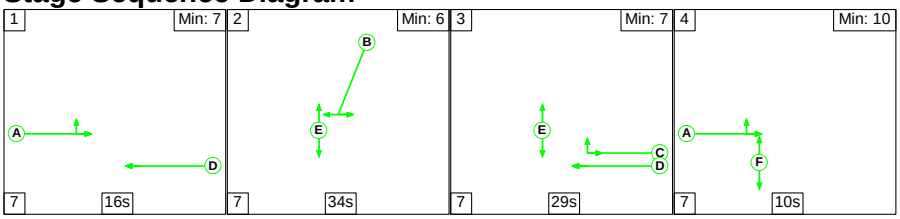
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**13.4**	**2.9**	**0.0**	**16.3**	**-**	**-**	**-**	**-**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**0**	**0**	**0**	**13.4**	**2.9**	**0.0**	**16.3**	**-**	**-**	**-**	**-**
1/1	258	258	-	-	-	2.6	0.7	-	3.2	45.1	7.0	0.7	7.6
2/1	55	55	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	220	220	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	220	220	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	314	314	-	-	-	1.0	0.3	-	1.3	15.2	4.3	0.3	4.6
3/2+3/3	776	776	-	-	-	2.6	0.7	-	3.3	15.2	5.4	0.7	6.1
3/4	308	308	-	-	-	3.0	0.7	-	3.7	43.1	8.3	0.7	9.0
4/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	389	389	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	553	553	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	166	166	-	-	-	1.4	0.2	-	1.6	35.0	4.0	0.2	4.2
5/2	174	174	-	-	-	1.4	0.2	-	1.6	33.3	4.1	0.2	4.3
5/3	174	174	-	-	-	1.4	0.2	-	1.6	33.3	4.1	0.2	4.3
6/1	419	419	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 56.1 Total Delay for Signalled Lanes (pcuHr): 16.35 Cycle Time (s): 113
PRC Over All Lanes (%): 56.1 Total Delay Over All Lanes(pcuHr): 16.35

Full Input Data And Results

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

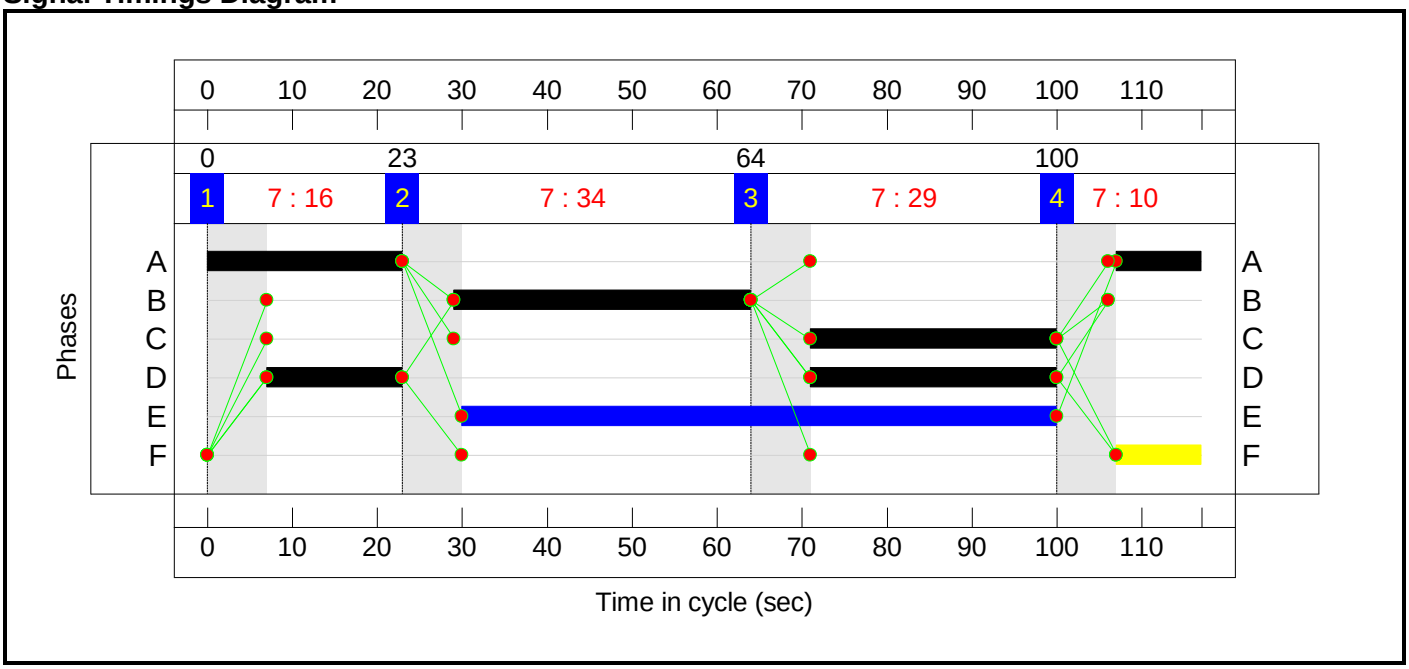
Stage Sequence Diagram



Stage Timings

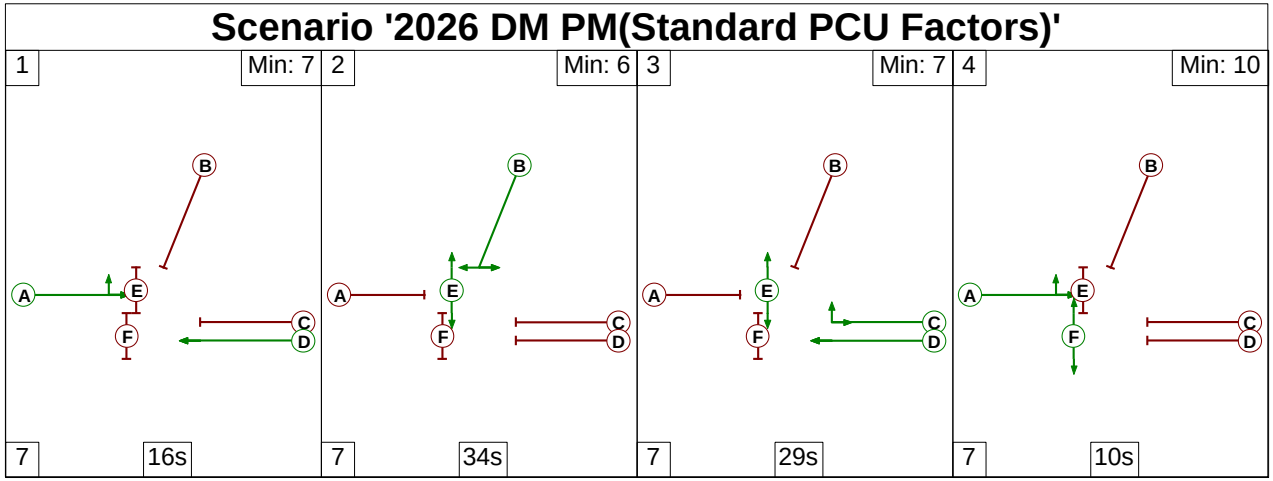
Stage	1	2	3	4
Duration	16	34	29	10
Change Point	0	23	64	100

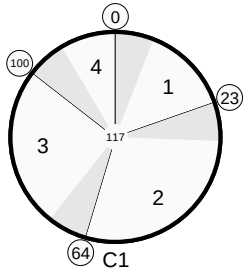
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



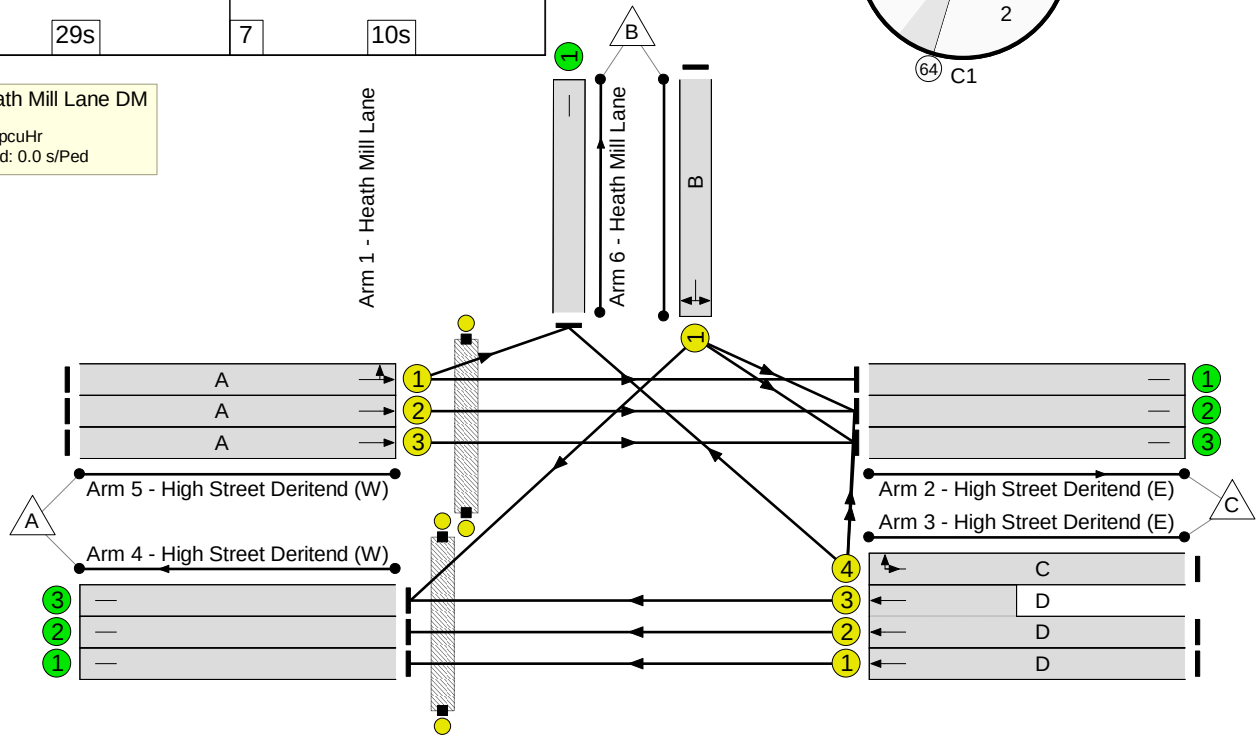


High Street Deritend / Heath Mill Lane DM

PRC: 42.2 %

Total Traffic Delay: 24.0 pcuHr

Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**63.3%**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**63.3%**
1/1	Heath Mill Lane Left Right	U	N/A	N/A	B		1	35	-	324	1708	526	61.7%
2/1	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	66	Inf	Inf	0.0%
2/2	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	437	Inf	Inf	0.0%
2/3	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	439	Inf	Inf	0.0%
3/1	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	45	-	224	1909	767	29.2%
3/2+3/3	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	45	-	622	2068:2058	634+630	49.2 : 49.2%
3/4	High Street Deritend (E) U-Turn Right	U	N/A	N/A	C		1	29	-	318	1959	502	63.3%
4/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
4/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	312	Inf	Inf	0.0%
4/3	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
5/1	High Street Deritend (W) Ahead Left	U	N/A	N/A	A		1	33	-	230	1666	484	47.5%
5/2	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	33	-	378	2061	599	63.1%

Full Input Data And Results

5/3	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	33	-	379	2062	599	63.2%
6/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	70	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	10	-	0	-	0	0.0%

Full Input Data And Results

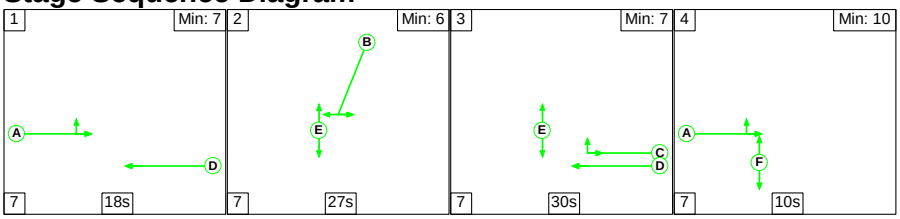
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**19.5**	**4.5**	**0.0**	**24.0**	**-**	**-**	**-**	**-**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**0**	**0**	**0**	**19.5**	**4.5**	**0.0**	**24.0**	**-**	**-**	**-**	**-**
1/1	324	324	-	-	-	3.1	0.8	-	3.9	43.5	8.9	0.8	9.7
2/1	66	66	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	437	437	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	439	439	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	224	224	-	-	-	0.8	0.2	-	1.0	16.6	3.3	0.2	3.5
3/2+3/3	622	622	-	-	-	2.4	0.5	-	2.9	16.6	4.8	0.5	5.3
3/4	318	318	-	-	-	3.4	0.9	-	4.3	48.3	9.1	0.9	10.0
4/1	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	312	312	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	515	515	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	230	230	-	-	-	2.2	0.5	-	2.6	41.2	6.1	0.5	6.6
5/2	378	378	-	-	-	3.8	0.8	-	4.6	44.1	10.6	0.8	11.5
5/3	379	379	-	-	-	3.8	0.9	-	4.7	44.2	10.6	0.9	11.5
6/1	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 42.2 Total Delay for Signalled Lanes (pcuHr): 23.99 Cycle Time (s): 117
PRC Over All Lanes (%): 42.2 Total Delay Over All Lanes(pcuHr): 23.99

Full Input Data And Results

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

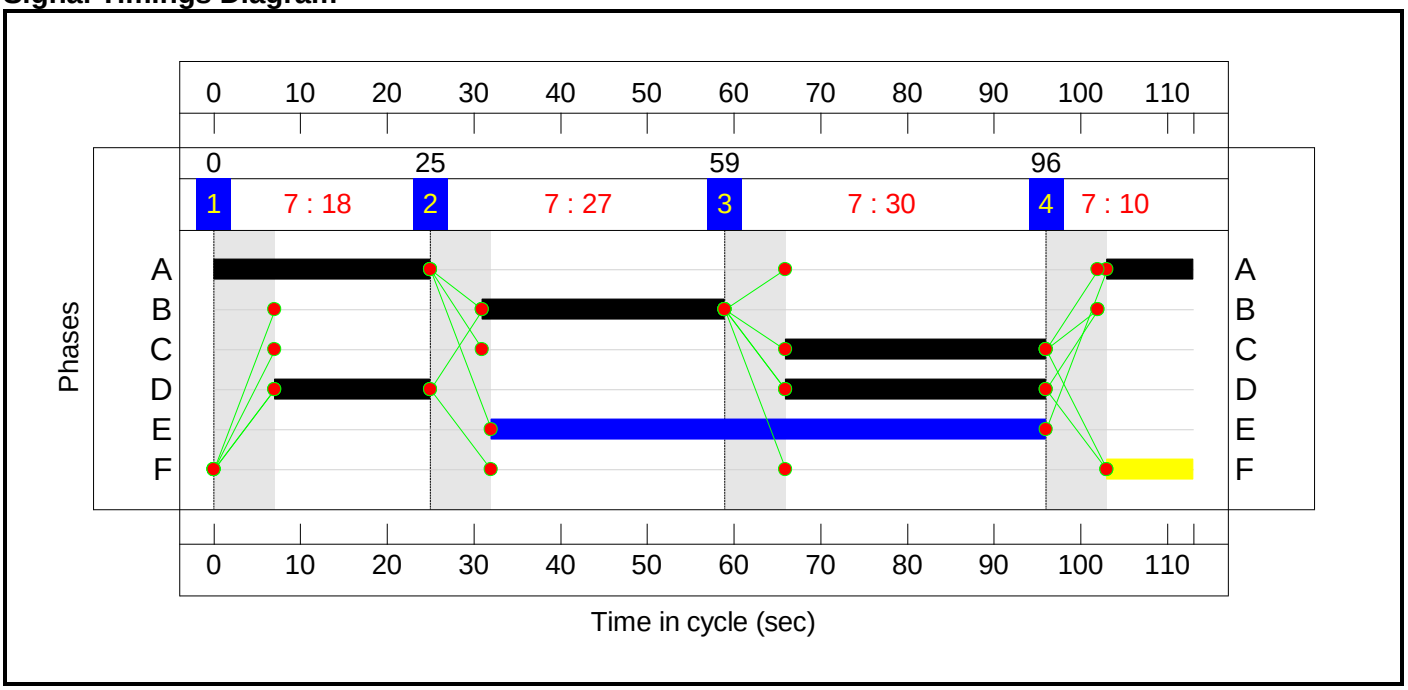
Stage Sequence Diagram



Stage Timings

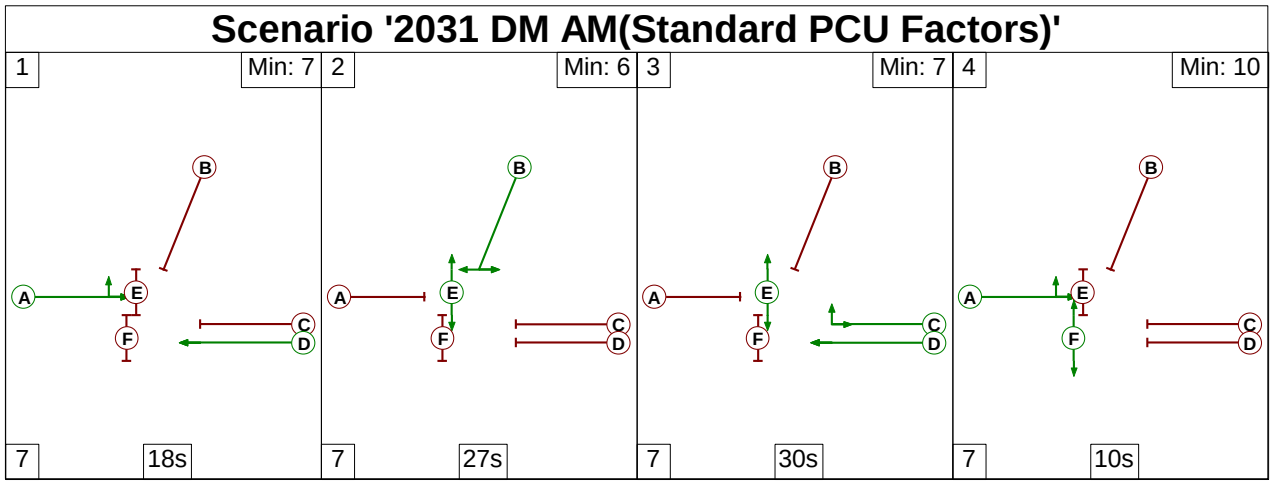
Stage	1	2	3	4
Duration	18	27	30	10
Change Point	0	25	59	96

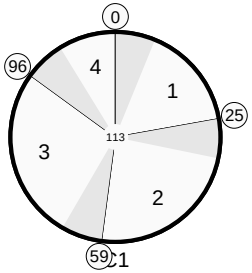
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



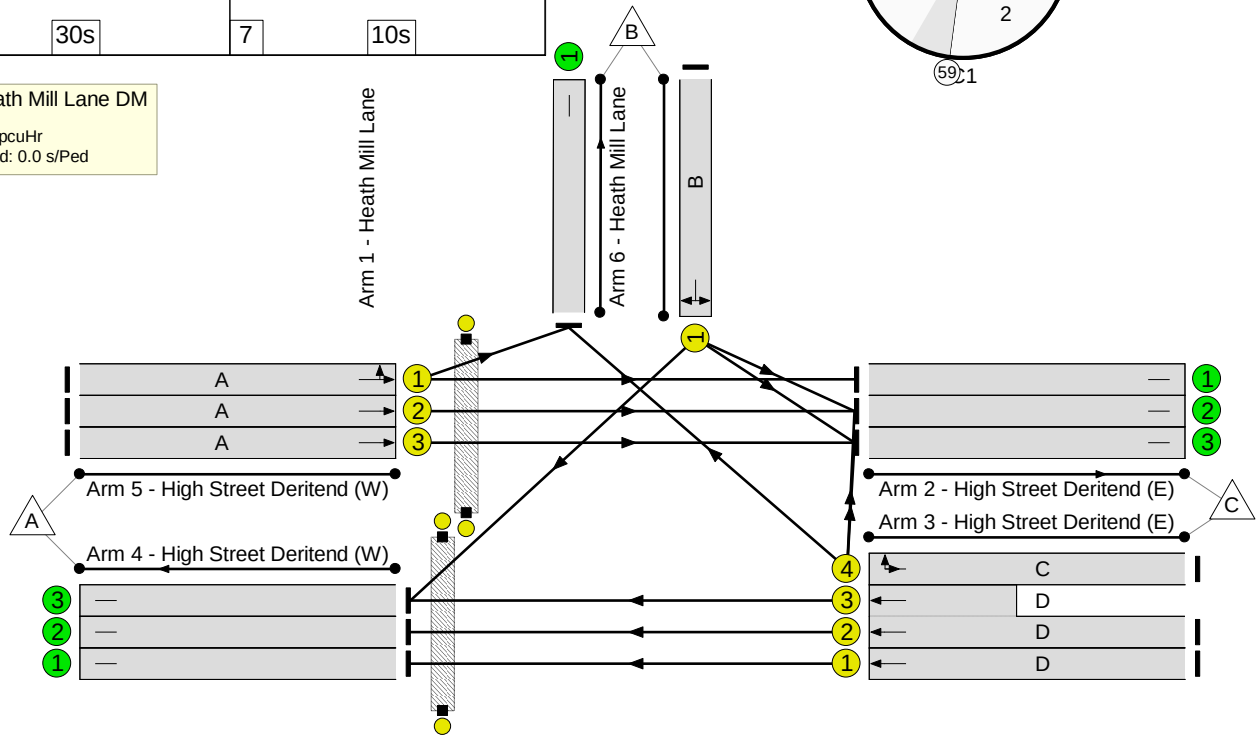


High Street Deritend / Heath Mill Lane DM

PRC: 50.6 %

Total Traffic Delay: 17.0 pcuHr

Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.8%**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.8%**
1/1	Heath Mill Lane Left Right	U	N/A	N/A	B		1	28	-	261	1708	438	59.5%
2/1	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	55	Inf	Inf	0.0%
2/2	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	229	Inf	Inf	0.0%
2/3	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	230	Inf	Inf	0.0%
3/1	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	48	-	338	1909	845	40.0%
3/2+3/3	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	48	-	815	2068:2058	684+679	59.8 : 59.8%
3/4	High Street Deritend (E) U-Turn Right	U	N/A	N/A	C		1	30	-	317	1959	537	59.0%
4/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	338	Inf	Inf	0.0%
4/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	409	Inf	Inf	0.0%
4/3	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	575	Inf	Inf	0.0%
5/1	High Street Deritend (W) Ahead Left	U	N/A	N/A	A		1	35	-	167	1679	535	31.2%
5/2	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	35	-	183	2061	657	27.9%

Full Input Data And Results

5/3	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	35	-	184	2062	657	28.0%
6/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	429	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	64	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	10	-	0	-	0	0.0%

Full Input Data And Results

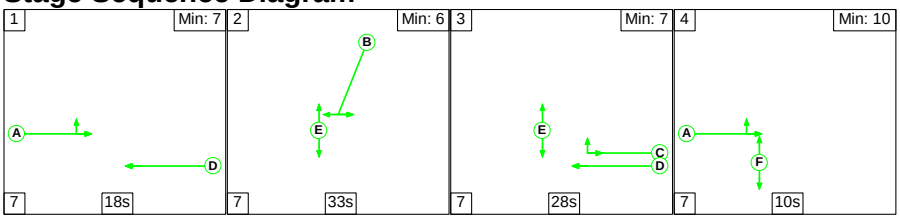
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**13.8**	**3.1**	**0.0**	**17.0**	**-**	**-**	**-**	**-**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**0**	**0**	**0**	**13.8**	**3.1**	**0.0**	**17.0**	**-**	**-**	**-**	**-**
1/1	261	261	-	-	-	2.7	0.7	-	3.4	46.9	7.2	0.7	7.9
2/1	55	55	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	229	229	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	230	230	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	338	338	-	-	-	1.1	0.3	-	1.4	15.0	4.5	0.3	4.8
3/2+3/3	815	815	-	-	-	2.7	0.7	-	3.4	15.0	5.6	0.7	6.3
3/4	317	317	-	-	-	3.1	0.7	-	3.8	43.6	8.5	0.7	9.3
4/1	338	338	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	409	409	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	575	575	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	167	167	-	-	-	1.4	0.2	-	1.6	34.0	3.9	0.2	4.2
5/2	183	183	-	-	-	1.5	0.2	-	1.7	32.6	4.3	0.2	4.5
5/3	184	184	-	-	-	1.5	0.2	-	1.7	32.6	4.3	0.2	4.5
6/1	429	429	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 50.6 Total Delay for Signalled Lanes (pcuHr): 16.95 Cycle Time (s): 113
PRC Over All Lanes (%): 50.6 Total Delay Over All Lanes(pcuHr): 16.95

Full Input Data And Results

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

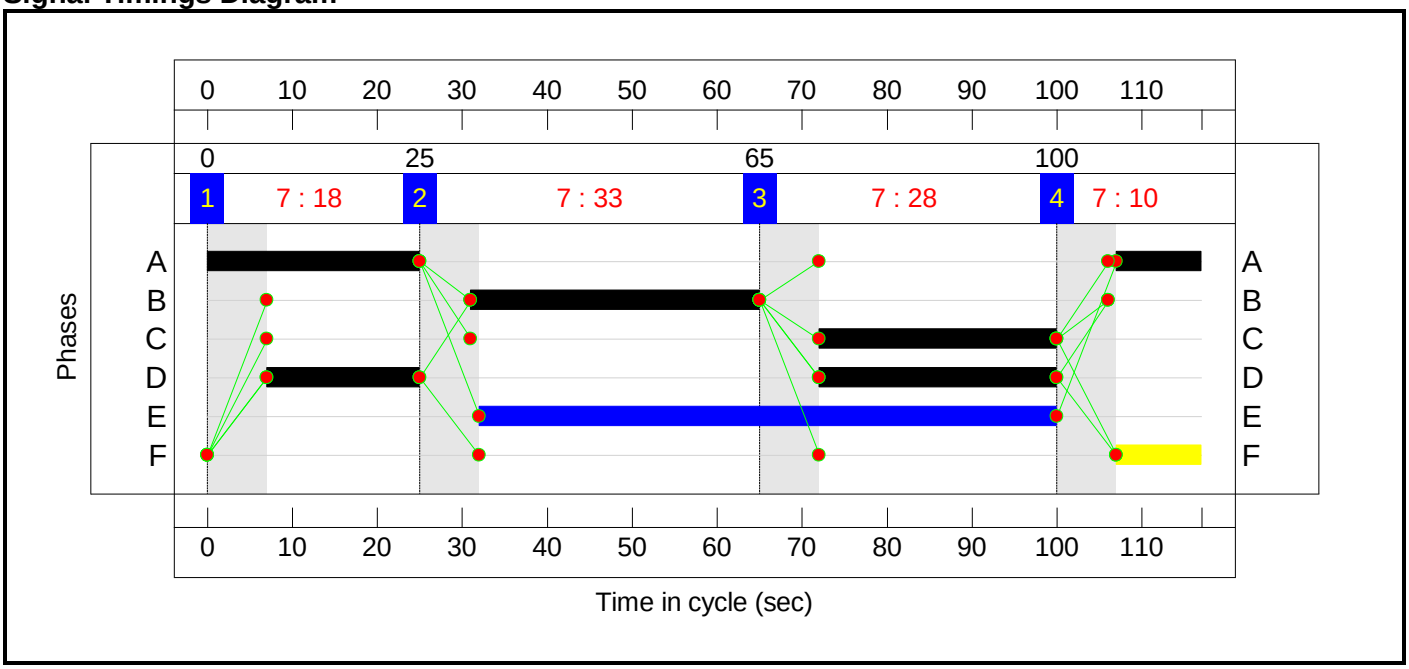
Stage Sequence Diagram



Stage Timings

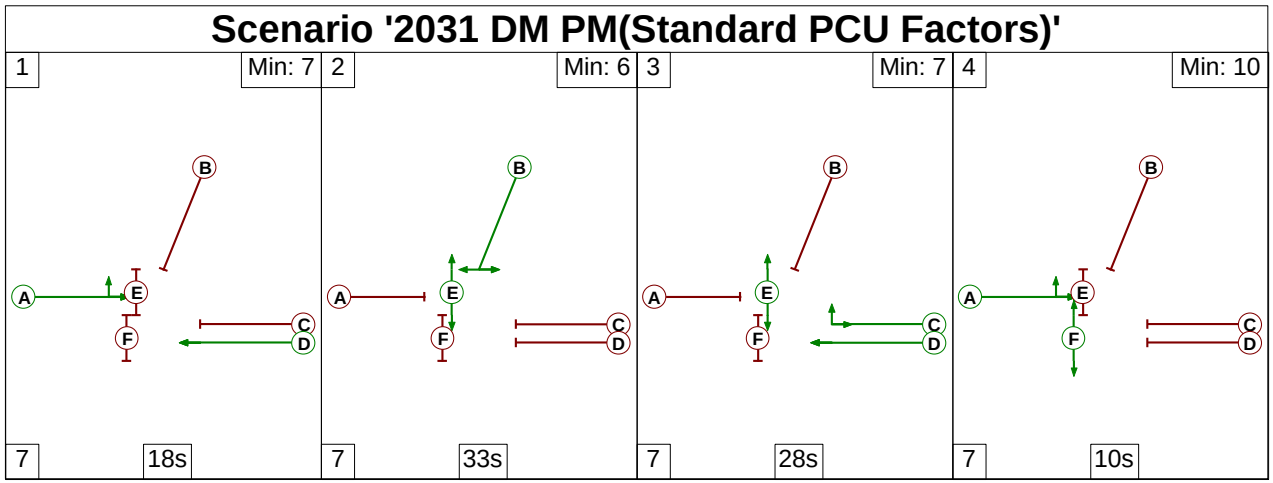
Stage	1	2	3	4
Duration	18	33	28	10
Change Point	0	25	65	100

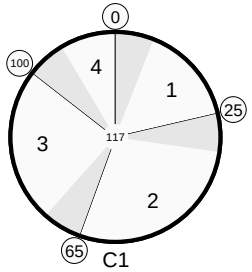
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



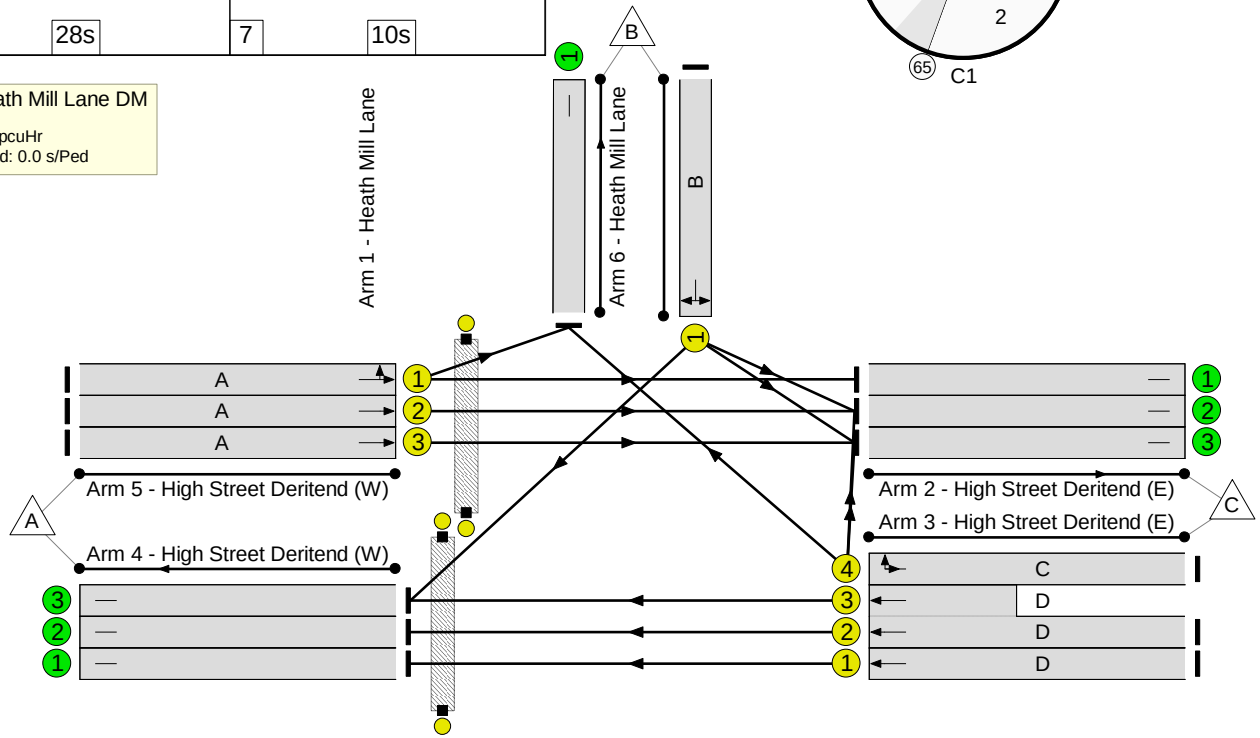


High Street Deritend / Heath Mill Lane DM

PRC: 36.0 %

Total Traffic Delay: 25.7 pcuHr

Ave. Route Delay Per Ped: 0.0 s/Ped



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.2%**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.2%**
1/1	Heath Mill Lane Left Right	U	N/A	N/A	B		1	34	-	333	1708	511	65.2%
2/1	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	66	Inf	Inf	0.0%
2/2	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	478	Inf	Inf	0.0%
2/3	High Street Deritend (E)	U	N/A	N/A	-		-	-	-	480	Inf	Inf	0.0%
3/1	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	46	-	246	1909	783	31.4%
3/2+3/3	High Street Deritend (E) Ahead	U	N/A	N/A	D		2	46	-	657	2068:2058	643+641	51.2 : 51.2%
3/4	High Street Deritend (E) U-Turn Right	U	N/A	N/A	C		1	28	-	319	1959	486	65.7%
4/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	246	Inf	Inf	0.0%
4/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
4/3	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	542	Inf	Inf	0.0%
5/1	High Street Deritend (W) Ahead Left	U	N/A	N/A	A		1	35	-	250	1659	510	49.0%
5/2	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	35	-	419	2061	634	66.1%

Full Input Data And Results

5/3	High Street Deritend (W) Ahead	U	N/A	N/A	A		1	35	-	420	2062	634	66.2%
6/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	503	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	68	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	10	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**20.6**	**5.0**	**0.0**	**25.7**	**-**	**-**	**-**	**-**
High Street Deritend / Heath Mill Lane DM	**-**	**-**	**0**	**0**	**0**	**20.6**	**5.0**	**0.0**	**25.7**	**-**	**-**	**-**	**-**
1/1	333	333	-	-	-	3.3	0.9	-	4.2	45.7	9.3	0.9	10.3
2/1	66	66	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	478	478	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	480	480	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	246	246	-	-	-	0.9	0.2	-	1.1	16.3	3.6	0.2	3.8
3/2+3/3	657	657	-	-	-	2.5	0.5	-	3.0	16.3	4.9	0.5	5.5
3/4	319	319	-	-	-	3.5	0.9	-	4.4	50.2	9.3	0.9	10.3
4/1	246	246	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	542	542	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	250	250	-	-	-	2.3	0.5	-	2.8	39.9	6.6	0.5	7.1
5/2	419	419	-	-	-	4.1	1.0	-	5.1	43.5	11.8	1.0	12.7
5/3	420	420	-	-	-	4.1	1.0	-	5.1	43.5	11.8	1.0	12.8
6/1	503	503	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

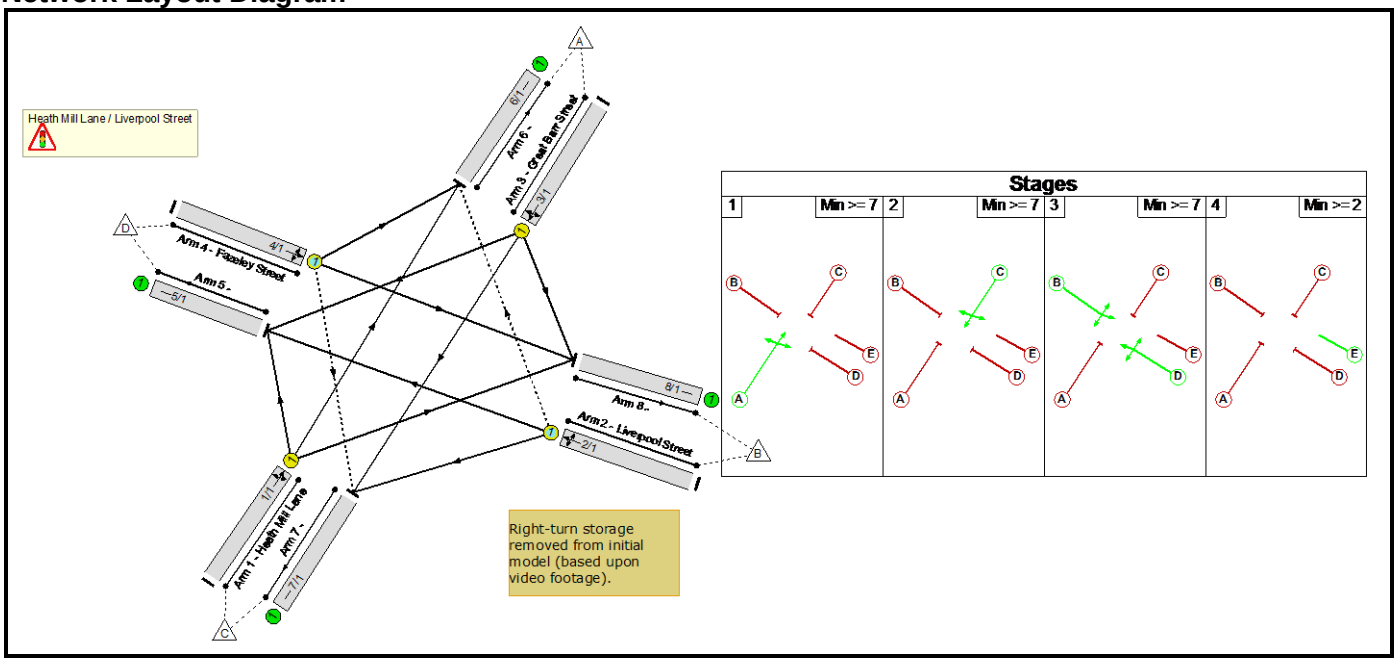
C1 PRC for Signalled Lanes (%): 36.0 Total Delay for Signalled Lanes (pcuHr): 25.68 Cycle Time (s): 117
PRC Over All Lanes (%): 36.0 Total Delay Over All Lanes(pcuHr): 25.68

Full Input Data And Results

User and Project Details

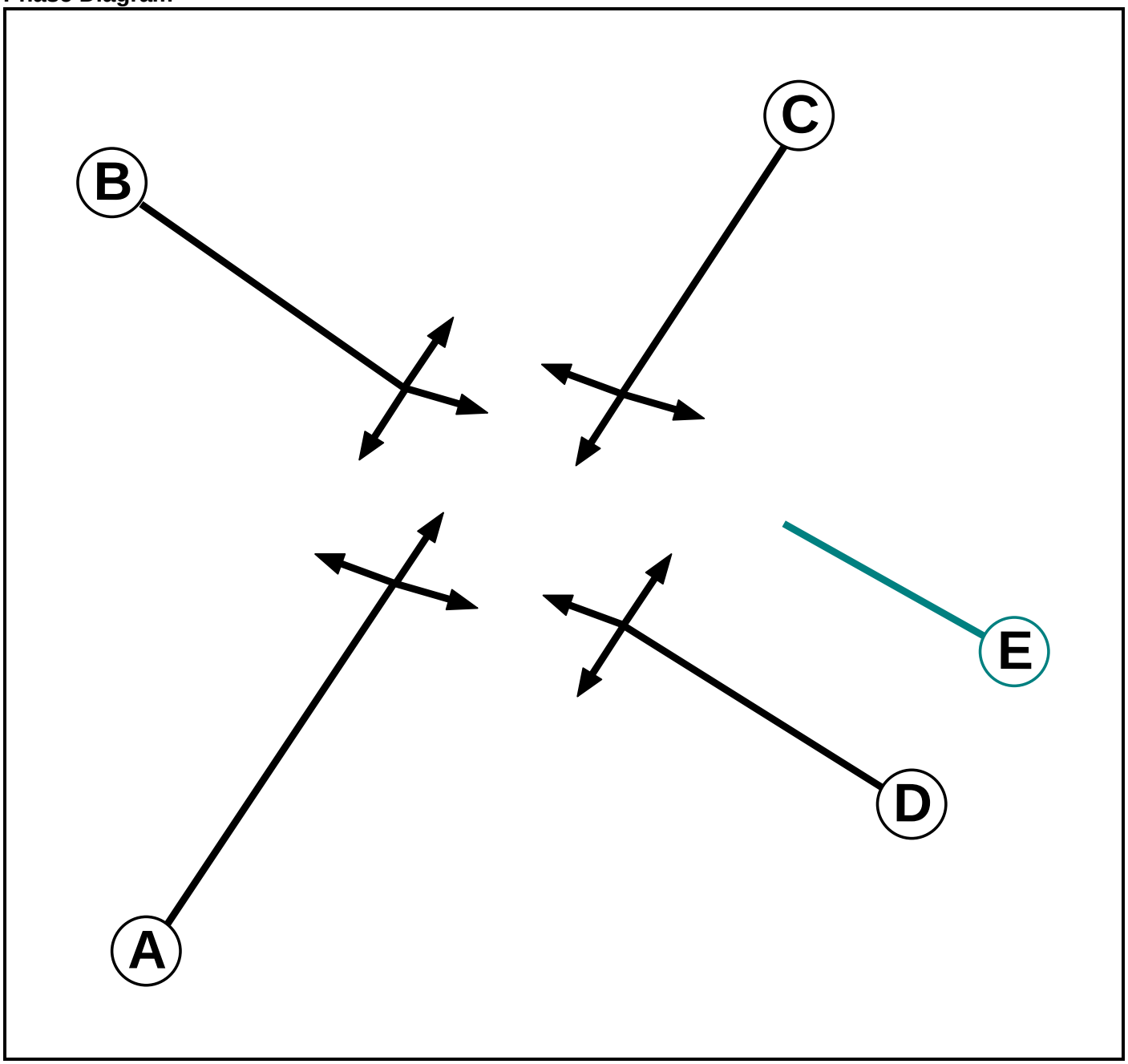
Project:	**Birmingham Eastside Extension**
Title:	**Heath Mill Lane/Liverpool Street Junction**
Location:	Heath Mill Lane/Liverpool Street, Digbeth
File name:	Heath Mill Lane - Liverpool Street.lsg3x
Author:	Ben Cooke
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Dummy		2	2

Full Input Data And Results

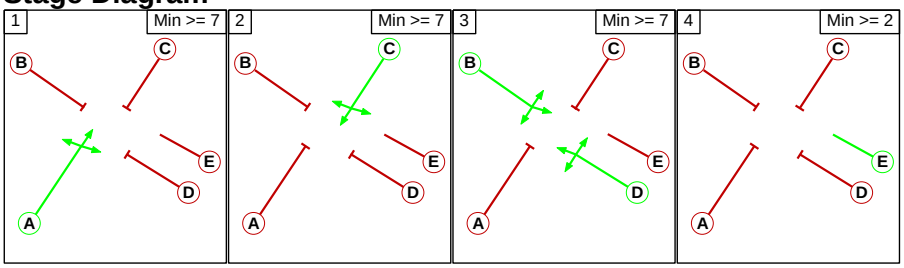
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	5	5	3
	B	5		5	-	3
	C	5	5		5	3
	D	5	-	5		3
	E	2	2	2	2	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	C
3	B D
4	E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
4	1	A	Gaining absolute	3	3
4	2	C	Gaining absolute	3	3
4	3	B	Gaining absolute	3	3
4	3	D	Gaining absolute	3	3

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		5	5	3
	2	5		5	3
	3	5	5		3
	4	3	3	3	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Heath Mill Lane / Liverpool Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/1 (Liverpool Street)	6/1 (Right)	1439	0	4/1	1.09	To 6/1 (Left) To 8/1 (Ahead)	-	-	-	-	-
4/1 (Fazeley Street)	7/1 (Right)	1439	0	2/1	1.09	To 5/1 (Ahead) To 7/1 (Left)	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: Heath Mill Lane / Liverpool Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Heath Mill Lane)	U	A	2	3	60.0	Geom	-	3.95	0.00	Y	Arm 5 Left	5.00
											Arm 6 Ahead	Inf
											Arm 8 Right	14.00
2/1 (Liverpool Street)	O	D	2	3	60.0	Geom	-	3.05	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	9.00
											Arm 7 Left	7.00
3/1 (Great Barr Street)	U	C	2	3	60.0	Geom	-	4.20	0.00	Y	Arm 5 Right	12.00
											Arm 7 Ahead	Inf
											Arm 8 Left	6.00
4/1 (Fazeley Street)	O	B	2	3	60.0	Geom	-	4.40	0.00	Y	Arm 6 Left	5.00
											Arm 7 Right	10.00
											Arm 8 Ahead	Inf
5/1	U		2	3	60.0	Geom	-	4.65	0.00	Y		
6/1	U		2	3	60.0	Geom	-	3.90	0.00	Y		
7/1	U		2	3	60.0	Geom	-	4.25	0.00	Y		
8/1	U		2	3	60.0	Geom	-	3.15	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM (Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	181	349	530
	B	12	0	103	88	203
	C	161	0	0	122	283
	D	284	19	1	0	304
	Tot.	457	19	285	559	1320

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	283
2/1	203
3/1	530
4/1	304
5/1	559
6/1	457
7/1	285
8/1	19

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	43.1 %	1780	1780
				Arm 6 Ahead	Inf	56.9 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	43.3 %	1716	1716
				Arm 6 Right	9.00	5.9 %		
				Arm 7 Left	7.00	50.7 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	65.8 %	1880	1880
				Arm 7 Ahead	Inf	34.2 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	93.4 %	1605	1605
				Arm 7 Right	10.00	0.3 %		
				Arm 8 Ahead	Inf	6.3 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 2: '2026 DM PM (Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	152	344	496
	B	24	0	69	61	154
	C	321	0	0	82	403
	D	541	108	1	0	650
	Tot.	886	108	222	487	1703

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	403
2/1	154
3/1	496
4/1	650
5/1	487
6/1	886
7/1	222
8/1	108

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.3 %	1894	1894
				Arm 6 Ahead	Inf	79.7 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	39.6 %	1711	1711
				Arm 6 Right	9.00	15.6 %		
				Arm 7 Left	7.00	44.8 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	69.4 %	1873	1873
				Arm 7 Ahead	Inf	30.6 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	83.2 %	1644	1644
				Arm 7 Right	10.00	0.2 %		
				Arm 8 Ahead	Inf	16.6 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 3: '2031 DM AM (Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	186	348	534
	B	12	0	119	91	222
	C	166	0	0	124	290
	D	296	23	1	0	320
	Tot.	474	23	306	563	1366

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	290
2/1	222
3/1	534
4/1	320
5/1	563
6/1	474
7/1	306
8/1	23

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	42.8 %	1781	1781
				Arm 6 Ahead	Inf	57.2 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	41.0 %	1708	1708
				Arm 6 Right	9.00	5.4 %		
				Arm 7 Left	7.00	53.6 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	65.2 %	1882	1882
				Arm 7 Ahead	Inf	34.8 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	92.5 %	1608	1608
				Arm 7 Right	10.00	0.3 %		
				Arm 8 Ahead	Inf	7.2 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 4: '2031 DM PM (Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	153	344	497
	B	24	0	81	77	182
	C	331	0	0	83	414
	D	552	108	0	0	660
	Tot.	907	108	234	504	1753

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	414
2/1	182
3/1	497
4/1	660
5/1	504
6/1	907
7/1	234
8/1	108

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.0 %	1896	1896
				Arm 6 Ahead	Inf	80.0 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	42.3 %	1718	1718
				Arm 6 Right	9.00	13.2 %		
				Arm 7 Left	7.00	44.5 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	69.2 %	1873	1873
				Arm 7 Ahead	Inf	30.8 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	83.6 %	1643	1643
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	16.4 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 5: '2026 DM AM (Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	181	367	548
	B	12	0	103	88	203
	C	161	0	0	122	283
	D	302	19	1	0	322
	Tot.	475	19	285	577	1356

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	283
2/1	203
3/1	548
4/1	322
5/1	577
6/1	475
7/1	285
8/1	19

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	43.1 %	1780	1780
				Arm 6 Ahead	Inf	56.9 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	43.3 %	1716	1716
				Arm 6 Right	9.00	5.9 %		
				Arm 7 Left	7.00	50.7 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	67.0 %	1878	1878
				Arm 7 Ahead	Inf	33.0 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	93.8 %	1603	1603
				Arm 7 Right	10.00	0.3 %		
				Arm 8 Ahead	Inf	5.9 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 6: '2026 DM PM (Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	153	364	517
	B	24	0	69	61	154
	C	323	0	0	82	405
	D	562	109	1	0	672
	Tot.	909	109	223	507	1748

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	405
2/1	154
3/1	517
4/1	672
5/1	507
6/1	909
7/1	223
8/1	109

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.2 %	1895	1895
				Arm 6 Ahead	Inf	79.8 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	39.6 %	1711	1711
				Arm 6 Right	9.00	15.6 %		
				Arm 7 Left	7.00	44.8 %		
				Arm 5 Right	12.00	70.4 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 7 Ahead	Inf	29.6 %	1870	1870
				Arm 8 Left	6.00	0.0 %		
				Arm 6 Left	5.00	83.6 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 7 Right	10.00	0.1 %	1643	1643
				Arm 8 Ahead	Inf	16.2 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 7: '2031 DM AM (Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	192	376	568
	B	13	0	125	95	233
	C	171	0	0	128	299
	D	322	24	1	0	347
	Tot.	506	24	318	599	1447

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	299
2/1	233
3/1	568
4/1	347
5/1	599
6/1	506
7/1	318
8/1	24

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	42.8 %	1781	1781
				Arm 6 Ahead	Inf	57.2 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	40.8 %	1708	1708
				Arm 6 Right	9.00	5.6 %		
				Arm 7 Left	7.00	53.6 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	66.2 %	1879	1879
				Arm 7 Ahead	Inf	33.8 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	92.8 %	1607	1607
				Arm 7 Right	10.00	0.3 %		
				Arm 8 Ahead	Inf	6.9 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 8: '2031 DM PM (Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	154	364	518
	B	24	0	82	77	183
	C	332	0	0	84	416
	D	573	109	0	0	682
	Tot.	929	109	236	525	1799

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	416
2/1	183
3/1	518
4/1	682
5/1	525
6/1	929
7/1	236
8/1	109

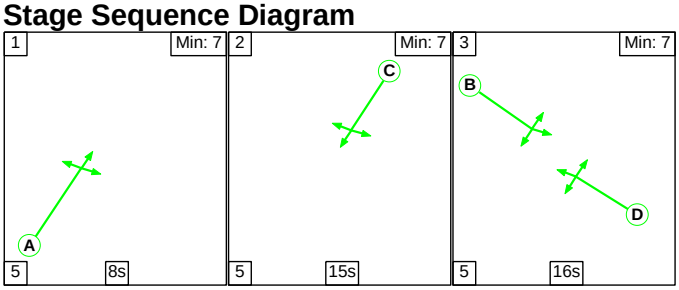
Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.2 %	1895	1895
				Arm 6 Ahead	Inf	79.8 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	42.1 %	1718	1718
				Arm 6 Right	9.00	13.1 %		
				Arm 7 Left	7.00	44.8 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	70.3 %	1871	1871
				Arm 7 Ahead	Inf	29.7 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	84.0 %	1641	1641
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	16.0 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 1: '2026 DM AM (Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

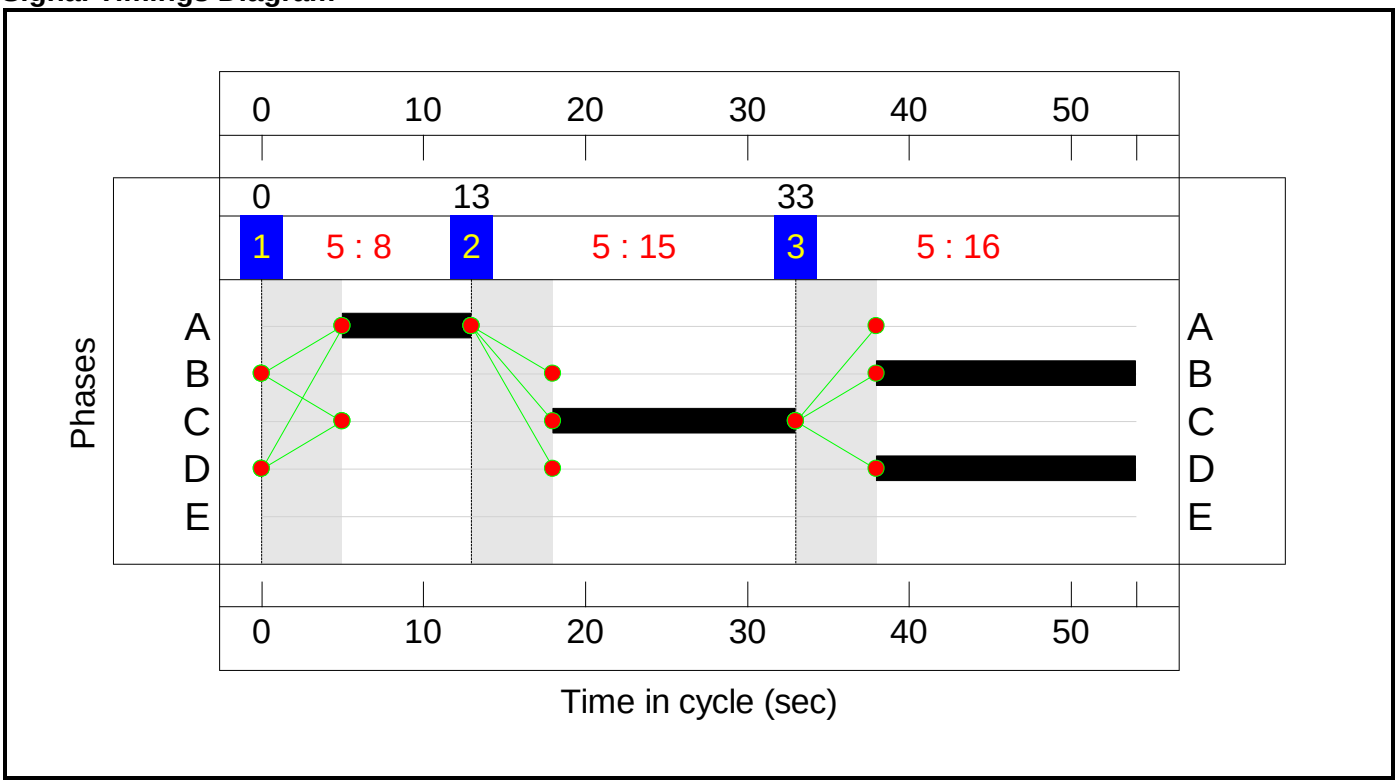


Full Input Data And Results

Stage Timings

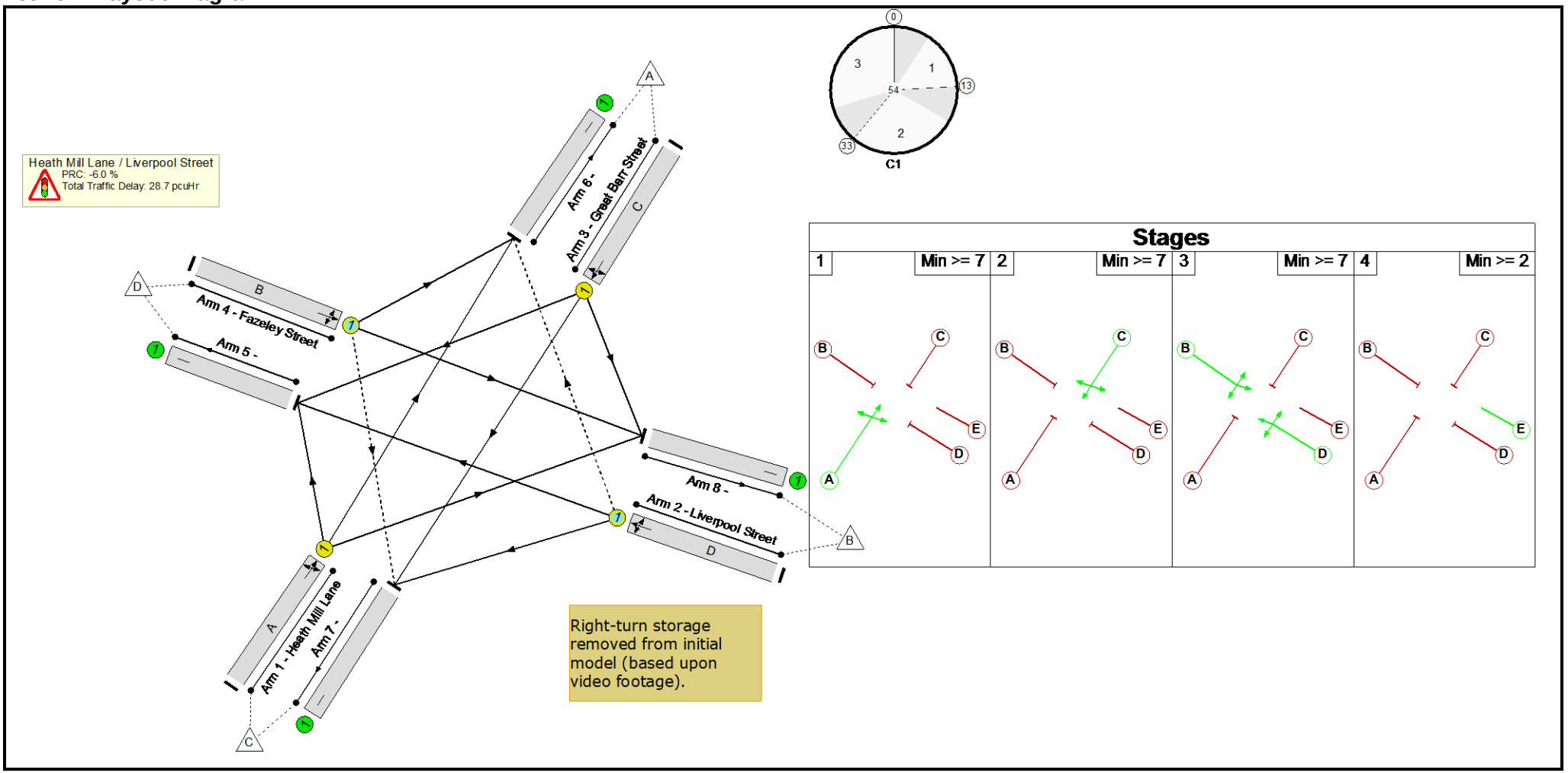
Stage	1	2	3
Duration	8	15	16
Change Point	0	13	33

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**95.4%**
Heath Mill Lane / Liverpool Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**95.4%**
1/1	Heath Mill Lane Left Ahead Right	U	N/A	N/A	A		1	8	-	283	1780	297	95.4%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	16	-	203	1716	221	92.0%
3/1	Great Barr Street Right Ahead Left	U	N/A	N/A	C		1	15	-	530	1880	557	95.1%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	16	-	304	1605	327	93.0%
5/1		U	N/A	N/A	-		-	-	-	559	2080	2080	26.9%
6/1		U	N/A	N/A	-		-	-	-	457	2005	2005	22.8%
7/1		U	N/A	N/A	-		-	-	-	285	2040	2040	14.0%
8/1		U	N/A	N/A	-		-	-	-	19	1930	1930	1.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**9**	**4**	**0**	**7.4**	**21.4**	**0.0**	**28.7**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**9**	**4**	**0**	**7.4**	**21.4**	**0.0**	**28.7**	**-**	**-**	**-**	**-**
1/1	283	283	-	-	-	1.8	5.7	-	7.4	94.3	4.2	5.7	9.8
2/1	203	203	8	4	0	1.3	4.0	-	5.2	92.9	3.0	4.0	7.0
3/1	530	530	-	-	-	2.7	6.6	-	9.3	63.4	7.7	6.6	14.2
4/1	304	304	1	0	0	1.6	4.7	-	6.3	75.1	4.5	4.7	9.2
5/1	559	559	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
6/1	457	457	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
7/1	285	285	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	19	19	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

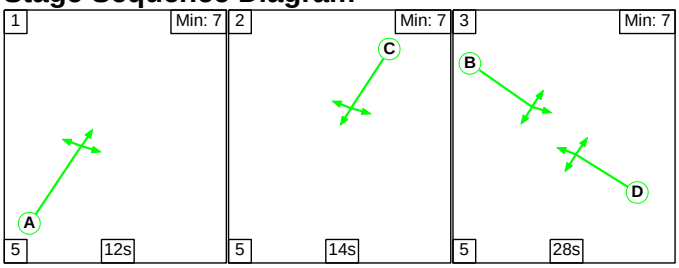
C1 PRC for Signalled Lanes (%): -6.0 Total Delay for Signalled Lanes (pcuHr): 28.33 Cycle Time (s): 54

PRC Over All Lanes (%): -6.0 Total Delay Over All Lanes(pcuHr): 28.75

Full Input Data And Results

Scenario 2: '2026 DM PM (Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

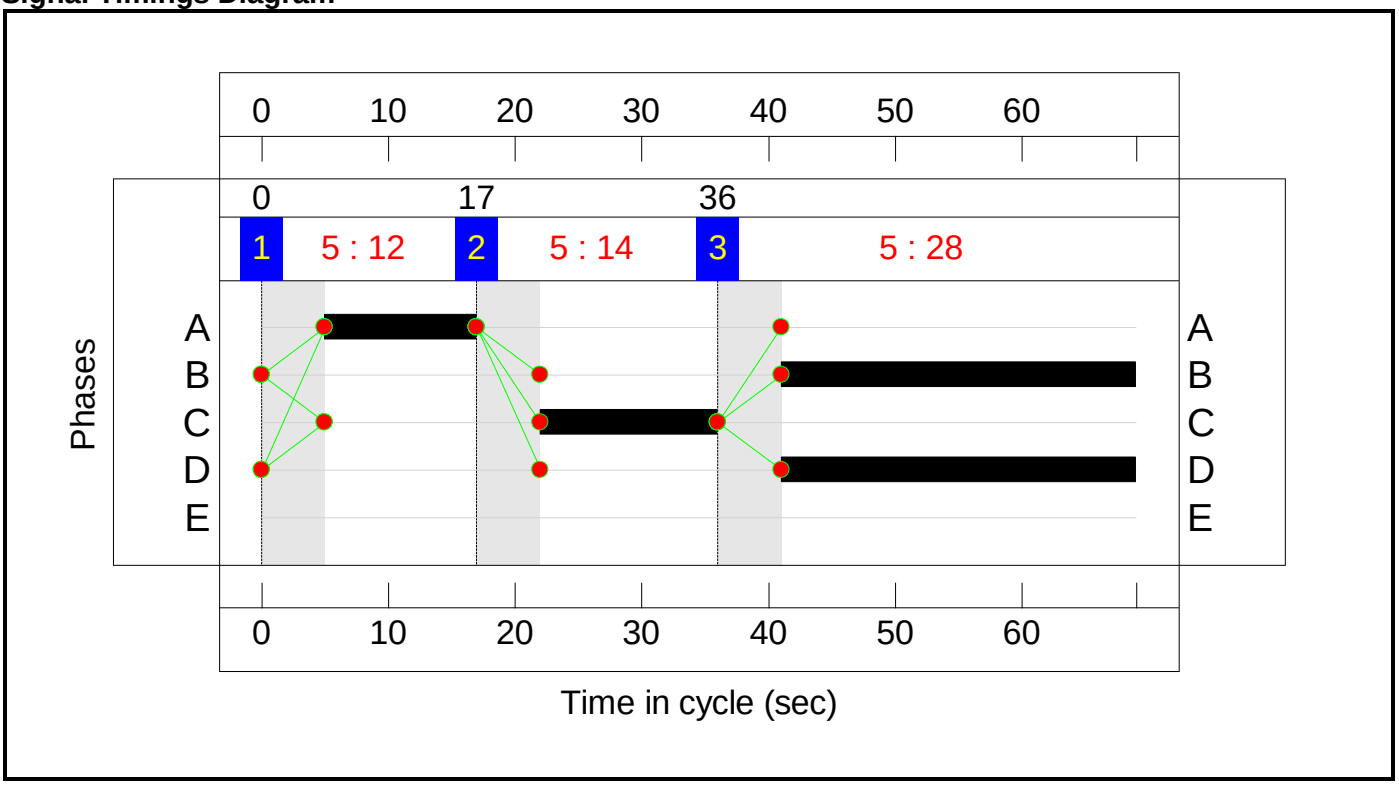
Stage Sequence Diagram



Stage Timings

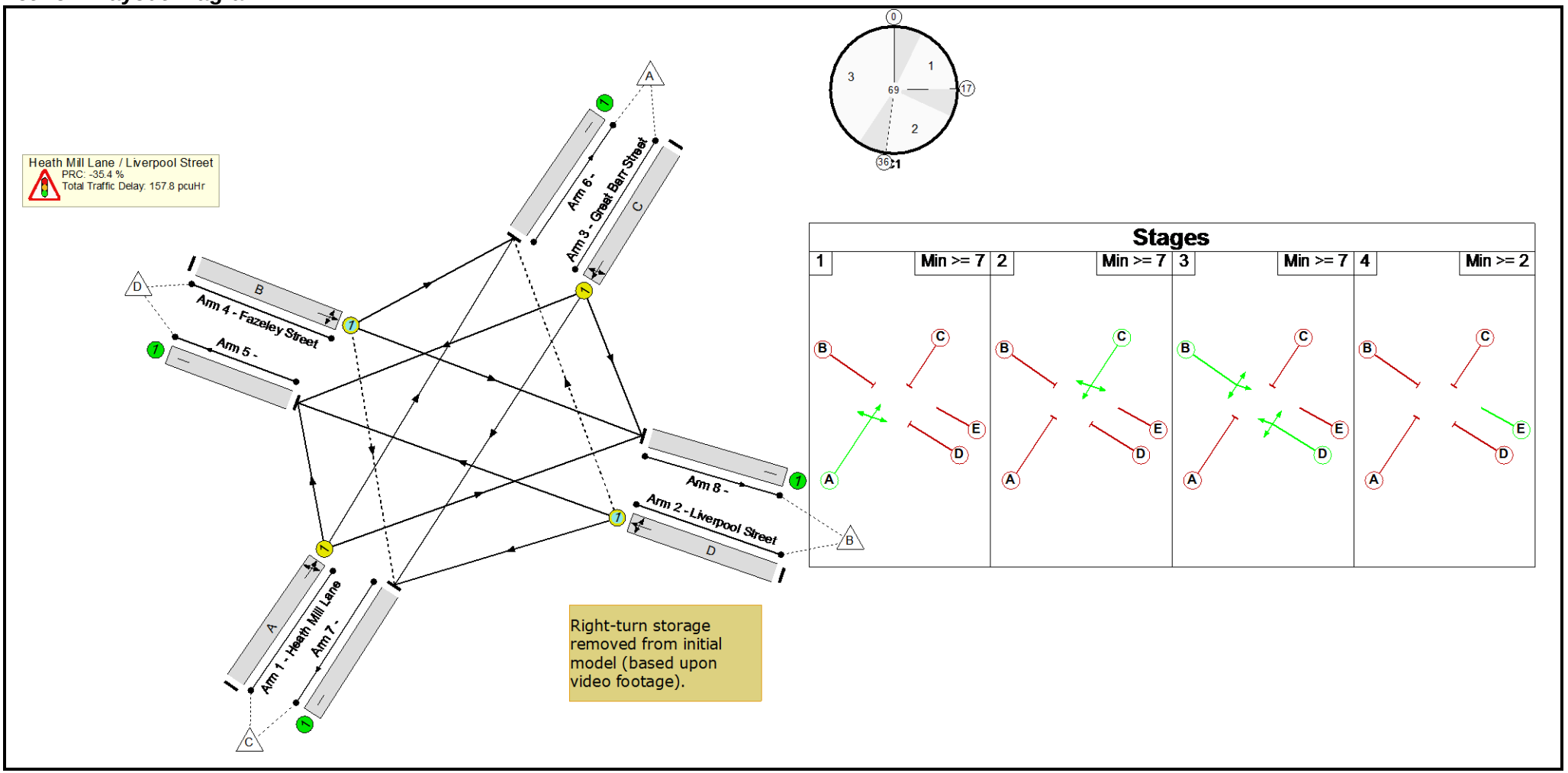
Stage	1	2	3
Duration	12	14	28
Change Point	0	17	36

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**121.8%**
Heath Mill Lane / Liverpool Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**121.8%**
1/1	Heath Mill Lane Left Ahead Right	U	N/A	N/A	A		1	12	-	403	1894	357	112.9%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	28	-	154	1711	146	105.5%
3/1	Great Barr Street Right Ahead Left	U	N/A	N/A	C		1	14	-	496	1873	407	121.8%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	28	-	650	1644	548	118.6%
5/1		U	N/A	N/A	-		-	-	-	487	2080	2080	19.8%
6/1		U	N/A	N/A	-		-	-	-	886	2005	2005	38.1%
7/1		U	N/A	N/A	-		-	-	-	222	2040	2040	9.4%
8/1		U	N/A	N/A	-		-	-	-	108	1930	1930	4.7%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**16**	**8**	**0**	**20.8**	**137.0**	**0.0**	**157.8**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**16**	**8**	**0**	**20.8**	**137.0**	**0.0**	**157.8**	**-**	**-**	**-**	**-**
1/1	403	357	-	-	-	4.7	26.8	-	31.6	282.0	8.6	26.8	35.4
2/1	154	146	15	8	0	1.5	8.5	-	10.1	235.2	3.9	8.5	12.4
3/1	496	407	-	-	-	6.4	47.0	-	53.4	387.6	11.2	47.0	58.3
4/1	650	548	1	0	0	8.2	54.1	-	62.3	344.8	15.8	54.1	69.9
5/1	413	413	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/1	763	763	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
7/1	191	191	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	91	91	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -35.4
PRC Over All Lanes (%): -35.4

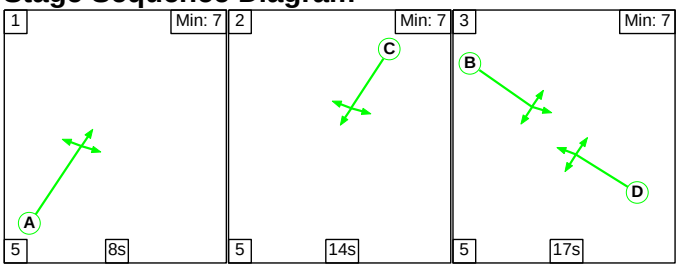
Total Delay for Signalled Lanes (pcuHr): 157.29
Total Delay Over All Lanes(pcuHr): 157.80

Cycle Time (s): 69

Full Input Data And Results

Scenario 3: '2031 DM AM (Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

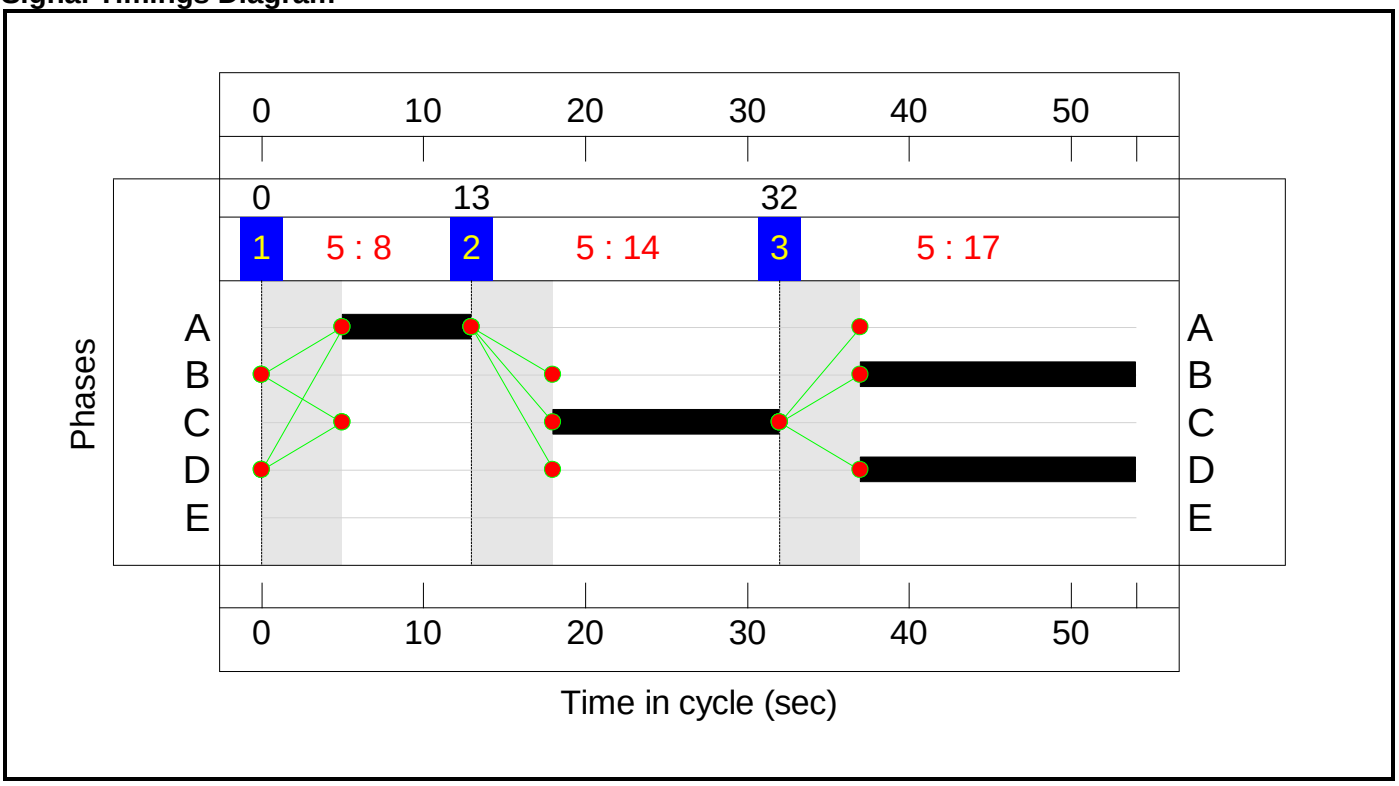
Stage Sequence Diagram



Stage Timings

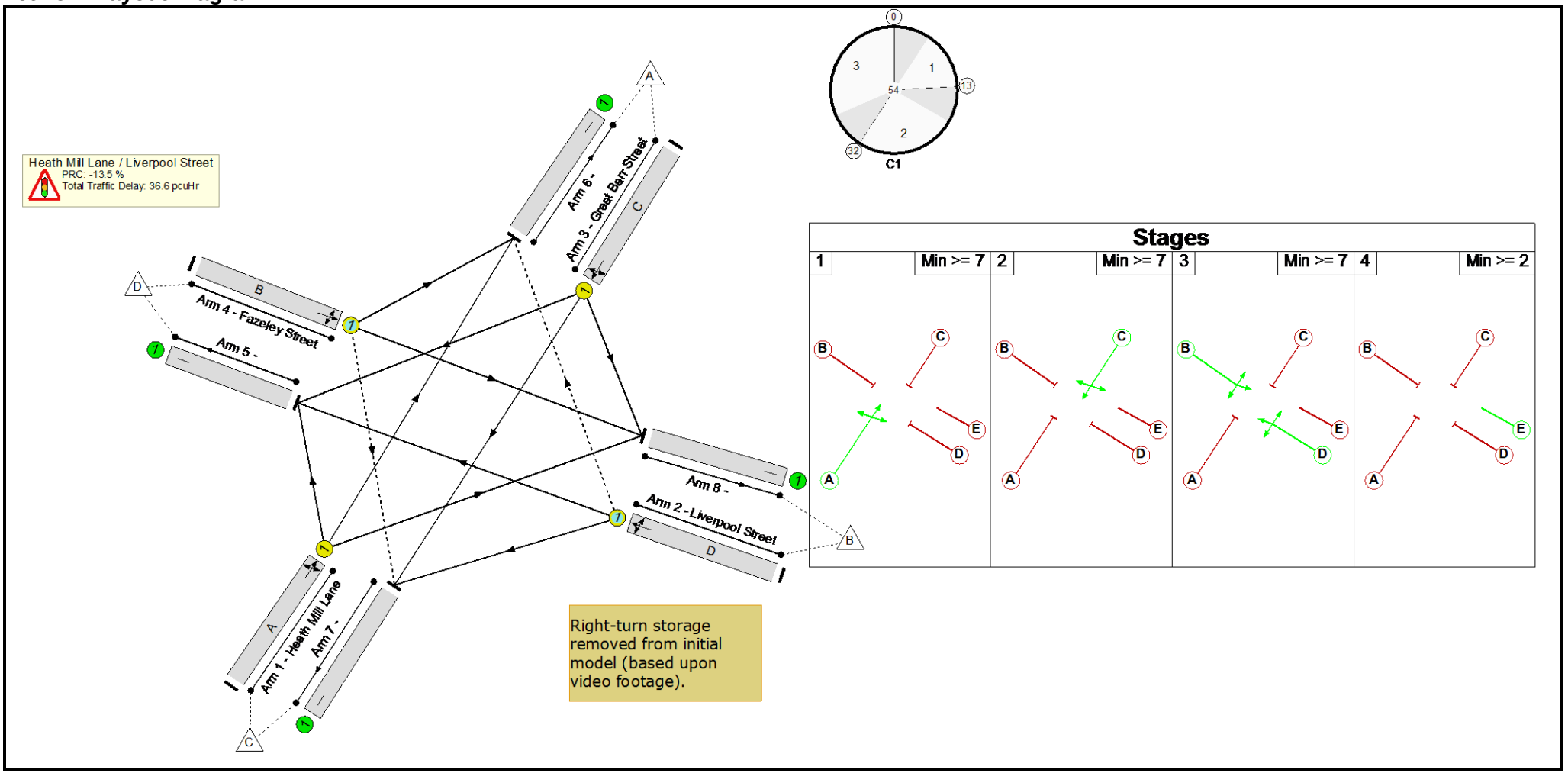
Stage	1	2	3
Duration	8	14	17
Change Point	0	13	32

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**102.1%**
Heath Mill Lane / Liverpool Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**102.1%**
1/1	Heath Mill Lane Left Ahead Right	U	N/A	N/A	A		1	8	-	290	1781	297	97.7%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	17	-	222	1708	250	88.9%
3/1	Great Barr Street Right Ahead Left	U	N/A	N/A	C		1	14	-	534	1882	523	102.1%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	17	-	320	1608	357	89.6%
5/1		U	N/A	N/A	-		-	-	-	563	2080	2080	26.7%
6/1		U	N/A	N/A	-		-	-	-	474	2005	2005	23.6%
7/1		U	N/A	N/A	-		-	-	-	306	2040	2040	14.8%
8/1		U	N/A	N/A	-		-	-	-	23	1930	1930	1.2%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**9**	**4**	**0**	**7.6**	**29.0**	**0.0**	**36.6**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**9**	**4**	**0**	**7.6**	**29.0**	**0.0**	**36.6**	**-**	**-**	**-**	**-**
1/1	290	290	-	-	-	1.8	7.0	-	8.8	109.0	4.3	7.0	11.2
2/1	222	222	9	3	0	1.0	3.2	-	4.3	69.6	2.8	3.2	6.0
3/1	534	523	-	-	-	3.1	14.7	-	17.8	120.3	8.2	14.7	22.9
4/1	320	320	1	0	0	1.6	3.6	-	5.3	59.1	4.6	3.6	8.2
5/1	556	556	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
6/1	474	474	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
7/1	302	302	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	23	23	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): -13.5
PRC Over All Lanes (%): -13.5

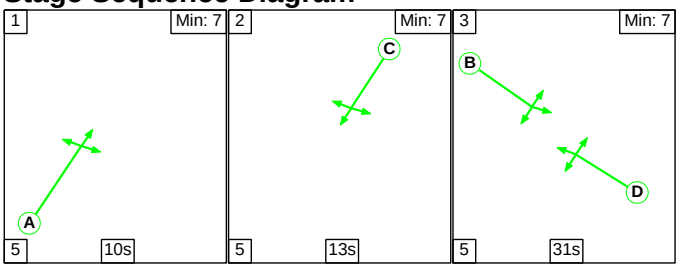
Total Delay for Signalled Lanes (pcuHr): 36.16
Total Delay Over All Lanes(pcuHr): 36.59

Cycle Time (s): 54

Full Input Data And Results

Scenario 4: '2031 DM PM (Standard PCU Factors)' (FG4: '2031 DM PM(Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

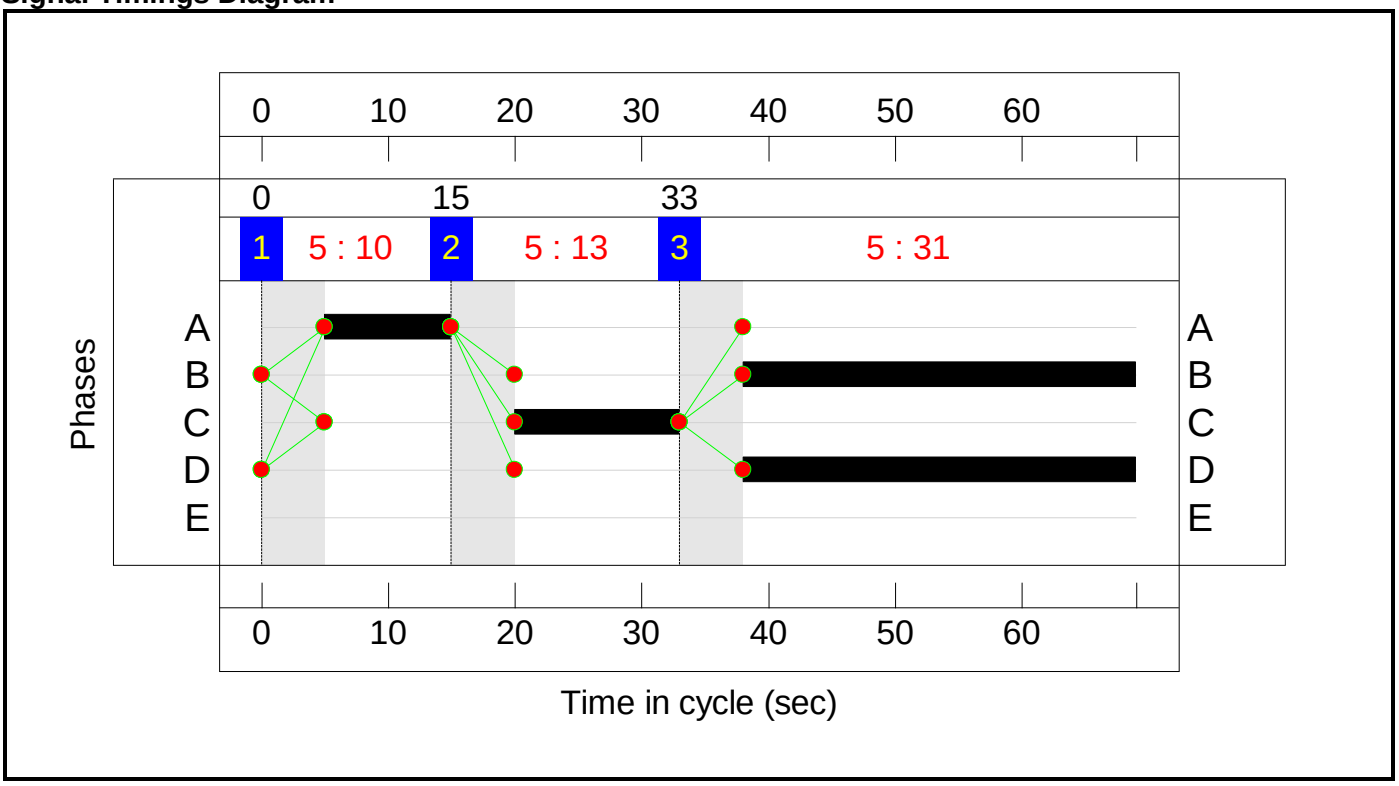
Stage Sequence Diagram



Stage Timings

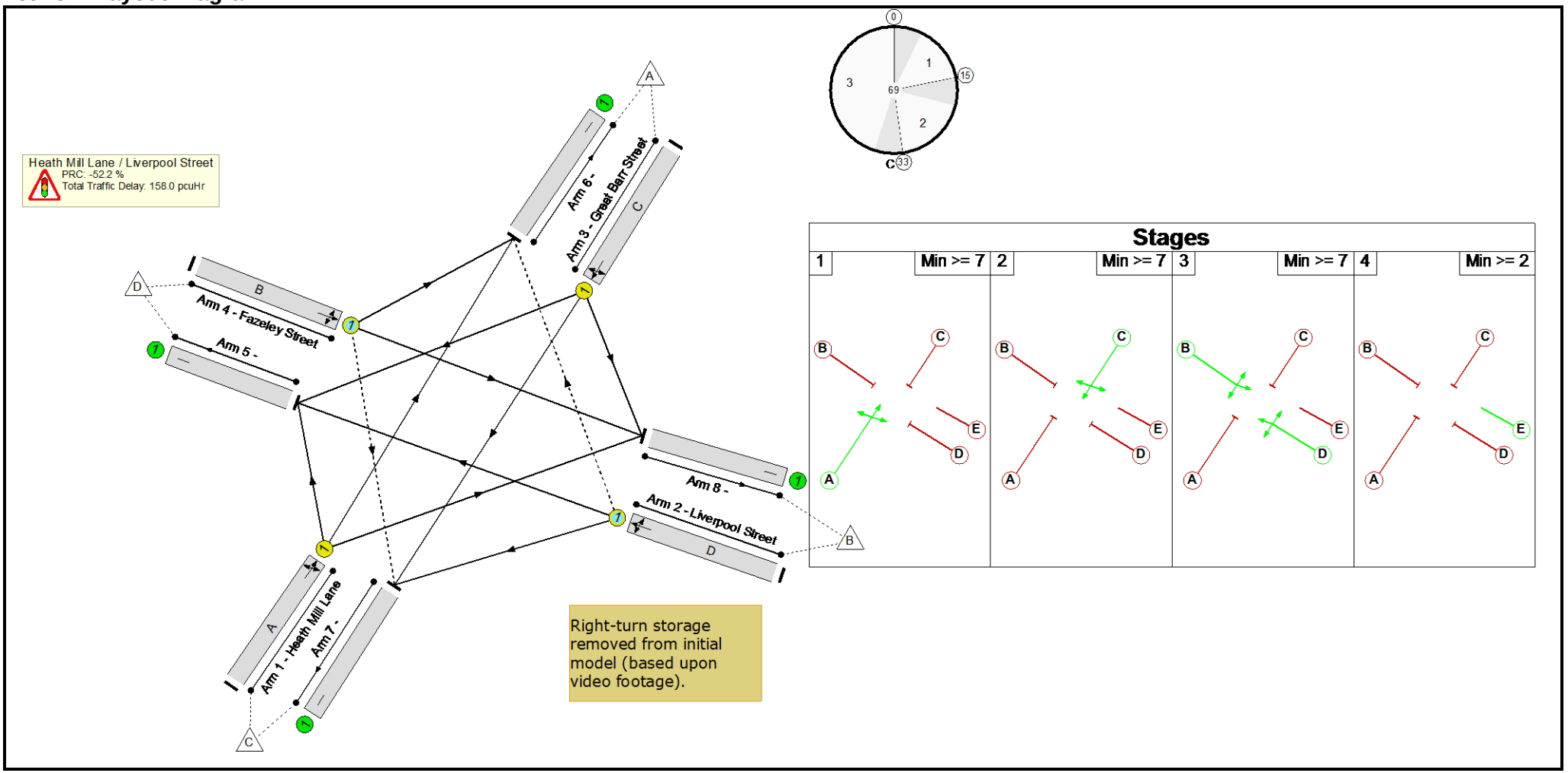
Stage	1	2	3
Duration	10	13	31
Change Point	0	15	33

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**137.0%**
Heath Mill Lane / Liverpool Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**137.0%**
1/1	Heath Mill Lane Left Ahead Right	U	N/A	N/A	A		1	10	-	414	1896	302	137.0%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	31	-	182	1718	155	117.4%
3/1	Great Barr Street Right Ahead Left	U	N/A	N/A	C		1	13	-	497	1873	380	130.8%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	31	-	660	1643	762	86.6%
5/1		U	N/A	N/A	-		-	-	-	504	2080	2080	18.7%
6/1		U	N/A	N/A	-		-	-	-	907	2005	2005	40.6%
7/1		U	N/A	N/A	-		-	-	-	234	2040	2040	9.1%
8/1		U	N/A	N/A	-		-	-	-	108	1930	1930	5.6%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**14**	**7**	**0**	**19.9**	**138.1**	**0.0**	**158.0**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**14**	**7**	**0**	**19.9**	**138.1**	**0.0**	**158.0**	**-**	**-**	**-**	**-**
1/1	414	302	-	-	-	7.2	57.7	-	64.9	564.4	10.1	57.7	67.8
2/1	182	155	14	7	0	2.3	16.3	-	18.5	366.6	4.4	16.3	20.6
3/1	497	380	-	-	-	7.4	60.5	-	67.9	491.8	11.8	60.5	72.3
4/1	660	660	0	0	0	3.0	3.1	-	6.1	33.2	11.2	3.1	14.2
5/1	389	389	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
6/1	814	814	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
7/1	186	186	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	108	108	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

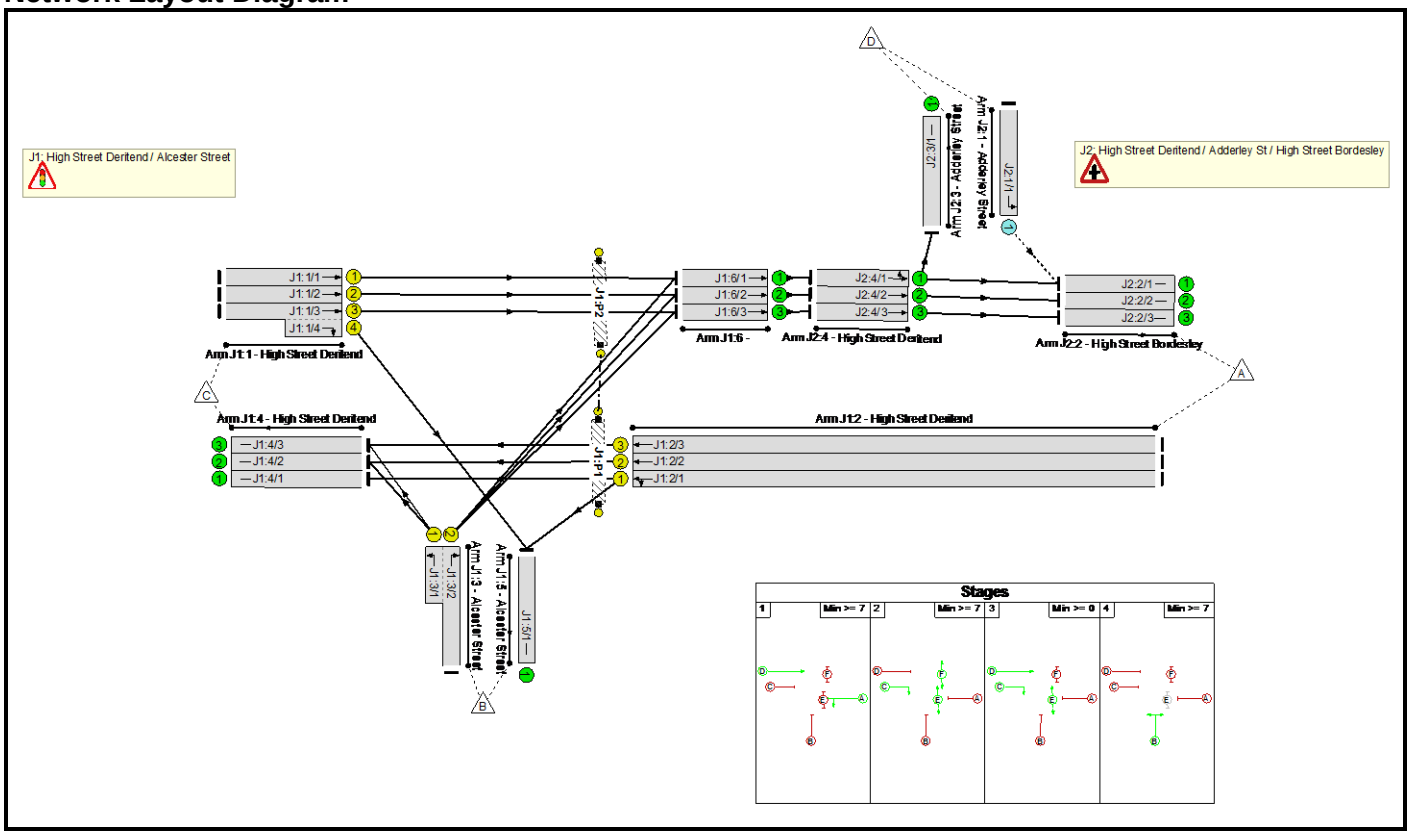
C1 PRC for Signalled Lanes (%): -52.2 Total Delay for Signalled Lanes (pcuHr): 157.43 Cycle Time (s): 69
PRC Over All Lanes (%): -52.2 Total Delay Over All Lanes(pcuHr): 157.97

Full Input Data And Results

User and Project Details

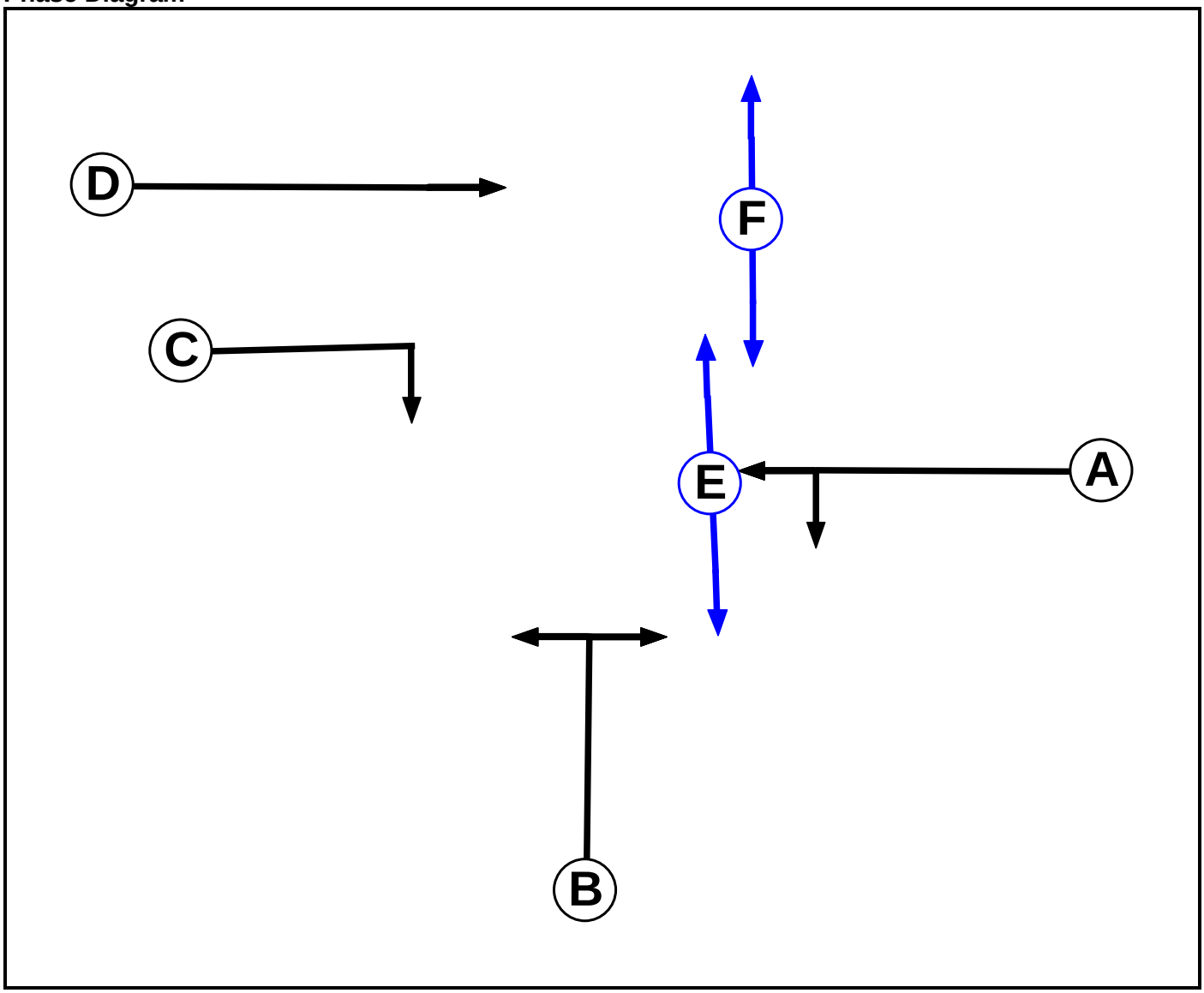
Project:	**Eastside Extension**
Title:	**High Street Deritend - Alcester Street**
Location:	High Street Deritend - Alcester Street
File name:	HIGH STREET DERITEND - ALCESTER STREET.lsg3x
Author:	Ben Cooke
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7

Full Input Data And Results

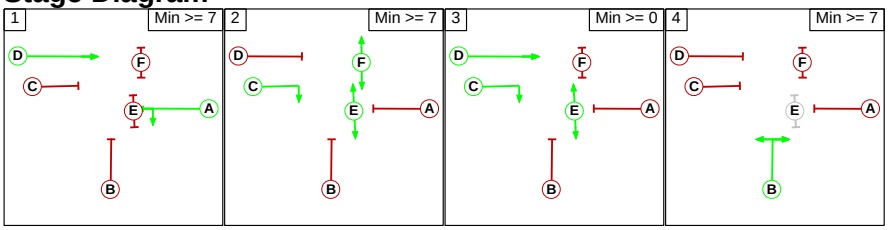
Phase Intergreens Matrix

Terminating Phase	Starting Phase A	B	C	D	E	F
A		6	6	-	5	-
B	6		6	6	-	8
C	6	6		-	-	-
D	-	6	-		-	8
E	15	-	-	-		-
F	-	14	-	14	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D
2	C E F
3	C D E
4	B

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	A	Losing	2	2
2	1	C	Losing	9	9
2	4	C	Losing	8	8
3	1	C	Losing	9	9

Prohibited Stage Change

From Stage	To Stage 1	2	3	4
1		8	6	6
2	15		14	14
3	15	8		6
4	6	8	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: High Street Deritend / Alcester Street
There are no Opposed Lanes in this Junction

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/1 (Adderley Street)	J2:2/1 (Left)	715	0	J2:4/1	0.22	To J2:2/1 (Ahead)	-	-	-	-	-
				J2:4/2	0.22	To J2:2/2 (Ahead)					
				J2:4/3	0.22	To J2:2/3 (Ahead)					

Full Input Data And Results

Lane Input Data

Junction: J1: High Street Deritend / Alcester Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (High Street Deritend)	U	D	2	3	60.0	Geom	-	3.04	0.00	Y	Arm J1:6 Ahead	Inf
J1:1/2 (High Street Deritend)	U	D	2	3	60.0	Geom	-	3.14	0.00	Y	Arm J1:6 Ahead	Inf
J1:1/3 (High Street Deritend)	U	D	2	3	60.0	Geom	-	3.01	0.00	N	Arm J1:6 Ahead	Inf
J1:1/4 (High Street Deritend)	U	C	2	3	5.0	Geom	-	3.32	0.00	Y	Arm J1:5 Right	14.00
J1:2/1 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.15	0.00	Y	Arm J1:4 Ahead	Inf
											Arm J1:5 Left	14.00
J1:2/2 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.16	0.00	Y	Arm J1:4 Ahead	Inf
J1:2/3 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.12	0.00	N	Arm J1:4 Ahead	Inf
J1:3/1 (Alcester Street)	U	B	2	3	5.0	Geom	-	2.69	0.00	Y	Arm J1:4 Left	14.00
J1:3/2 (Alcester Street)	U	B	2	3	60.0	Geom	-	3.08	0.00	Y	Arm J1:6 Right	Inf
J1:4/1 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:4/2 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:4/3 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Alcester Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:6/2	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:6/3	U		2	3	0.2	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J2:1/1 (Adderley Street)	O		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/1 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/2 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/3 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:3/1 (Adderley Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:4/1 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-
J2:4/2 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-
J2:4/3 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 DM AM(Standard PCU Factors)'	08:45	09:45	01:00	
4: '• 2031 DM PM(Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 DM AM(Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 DM PM(Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	105	1122	0	1227
	B	258	0	276	57	591
	C	389	7	0	100	496
	D	119	0	0	0	119
	Tot.	766	112	1398	157	2433

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 DM AM(Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	155
J1:1/2	157
J1:1/3 (with short)	184(In) 177(Out)
J1:1/4 (short)	7
J1:2/1	170
J1:2/2	506
J1:2/3	551
J1:3/1 (short)	276
J1:3/2 (with short)	591(In) 315(Out)
J1:4/1	65
J1:4/2	644
J1:4/3	689
J1:5/1	112
J1:6/1	298
J1:6/2	243
J1:6/3	263
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	119
J2:2/1	260
J2:2/2	243
J2:2/3	263
J2:3/1	157
J2:4/1	298
J2:4/2	243
J2:4/3	263

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	38.2 %	1810	1810
				Arm J1:5 Left	14.00	61.8 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	155	939	0	1094
	B	387	0	225	46	658
	C	684	153	0	105	942
	D	175	0	0	0	175
	Tot.	1246	308	1164	151	2869

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DM PM(Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	261
J1:1/2	263
J1:1/3 (with short)	418(In) 265(Out)
J1:1/4 (short)	153
J1:2/1	264
J1:2/2	398
J1:2/3	432
J1:3/1 (short)	225
J1:3/2 (with short)	658(In) 433(Out)
J1:4/1	109
J1:4/2	511
J1:4/3	544
J1:5/1	308
J1:6/1	436
J1:6/2	392
J1:6/3	394
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	175
J2:2/1	460
J2:2/2	392
J2:2/3	394
J2:3/1	151
J2:4/1	436
J2:4/2	392
J2:4/3	394

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	41.3 %	1816	1816
				Arm J1:5 Left	14.00	58.7 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	94	1167	0	1261
	B	281	0	304	63	648
	C	403	7	0	103	513
	D	127	0	0	0	127
	Tot.	811	101	1471	166	2549

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 DM AM(Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	161
J1:1/2	162
J1:1/3 (with short)	190(In) 183(Out)
J1:1/4 (short)	7
J1:2/1	159
J1:2/2	529
J1:2/3	573
J1:3/1 (short)	304
J1:3/2 (with short)	648(In) 344(Out)
J1:4/1	65
J1:4/2	681
J1:4/3	725
J1:5/1	101
J1:6/1	317
J1:6/2	256
J1:6/3	277
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	127
J2:2/1	278
J2:2/2	256
J2:2/3	277
J2:3/1	166
J2:4/1	317
J2:4/2	256
J2:4/3	277

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	40.9 %	1815	1815
				Arm J1:5 Left	14.00	59.1 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '• 2031 DM PM(Standard PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	148	930	0	1078
	B	393	0	292	46	731
	C	742	166	0	117	1025
	D	180	0	0	0	180
	Tot.	1315	314	1222	163	3014

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DM PM(Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	288
J1:1/2	291
J1:1/3 (with short)	446(In) 280(Out)
J1:1/4 (short)	166
J1:2/1	257
J1:2/2	394
J1:2/3	427
J1:3/1 (short)	292
J1:3/2 (with short)	731(In) 439(Out)
J1:4/1	109
J1:4/2	540
J1:4/3	573
J1:5/1	314
J1:6/1	465
J1:6/2	422
J1:6/3	411
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	180
J2:2/1	482
J2:2/2	422
J2:2/3	411
J2:3/1	163
J2:4/1	465
J2:4/2	422
J2:4/3	411

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	42.4 %	1818	1818
				Arm J1:5 Left	14.00	57.6 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 DM AM(Saturn PCU Factors)' (FG5: '2026 DM AM(Saturn PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	107	1208	0	1315
	B	268	0	280	52	600
	C	457	7	0	107	571
	D	121	0	0	0	121
	Tot.	846	114	1488	159	2607

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 DM AM(Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	180
J1:1/2	182
J1:1/3 (with short)	209(In) 202(Out)
J1:1/4 (short)	7
J1:2/1	172
J1:2/2	548
J1:2/3	595
J1:3/1 (short)	280
J1:3/2 (with short)	600(In) 320(Out)
J1:4/1	65
J1:4/2	688
J1:4/3	735
J1:5/1	114
J1:6/1	322
J1:6/2	271
J1:6/3	291
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	121
J2:2/1	284
J2:2/2	271
J2:2/3	291
J2:3/1	159
J2:4/1	322
J2:4/2	271
J2:4/3	291

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	37.8 %	1809	1809
				Arm J1:5 Left	14.00	62.2 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 DM PM(Saturn PCU Factors)' (FG6: '2026 DM PM(Saturn PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	155	1013	0	1168
	B	392	0	226	42	660
	C	754	154	0	109	1017
	D	176	0	0	0	176
	Tot.	1322	309	1239	151	3021

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DM PM(Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	287
J1:1/2	289
J1:1/3 (with short)	441(In) 287(Out)
J1:1/4 (short)	154
J1:2/1	264
J1:2/2	433
J1:2/3	471
J1:3/1 (short)	226
J1:3/2 (with short)	660(In) 434(Out)
J1:4/1	109
J1:4/2	546
J1:4/3	584
J1:5/1	309
J1:6/1	459
J1:6/2	420
J1:6/3	418
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	176
J2:2/1	484
J2:2/2	420
J2:2/3	418
J2:3/1	151
J2:4/1	459
J2:4/2	420
J2:4/3	418

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	41.3 %	1816	1816
				Arm J1:5 Left	14.00	58.7 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 DM AM(Saturn PCU Factors)' (FG7: '2031 DM AM(Saturn PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	95	1254	0	1349
	B	292	0	309	57	658
	C	472	7	0	111	590
	D	129	0	0	0	129
	Tot.	893	102	1563	168	2726

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 DM AM(Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	186
J1:1/2	188
J1:1/3 (with short)	216(In) 209(Out)
J1:1/4 (short)	7
J1:2/1	160
J1:2/2	571
J1:2/3	618
J1:3/1 (short)	309
J1:3/2 (with short)	658(In) 349(Out)
J1:4/1	65
J1:4/2	726
J1:4/3	772
J1:5/1	102
J1:6/1	341
J1:6/2	285
J1:6/3	306
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	129
J2:2/1	302
J2:2/2	285
J2:2/3	306
J2:3/1	168
J2:4/1	341
J2:4/2	285
J2:4/3	306

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	40.6 %	1815	1815
				Arm J1:5 Left	14.00	59.4 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 DM PM(Saturn PCU Factors)' (FG8: '2031 DM PM(Saturn PCU Factors)', Plan 1: 'F Called')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	149	1004	0	1153
	B	399	0	293	43	735
	C	811	166	0	121	1098
	D	181	0	0	0	181
	Tot.	1391	315	1297	164	3167

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DM PM(Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	316
J1:1/2	319
J1:1/3 (with short)	463(In) 297(Out)
J1:1/4 (short)	166
J1:2/1	258
J1:2/2	430
J1:2/3	465
J1:3/1 (short)	293
J1:3/2 (with short)	735(In) 442(Out)
J1:4/1	109
J1:4/2	577
J1:4/3	611
J1:5/1	315
J1:6/1	492
J1:6/2	452
J1:6/3	430
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	181
J2:2/1	509
J2:2/2	452
J2:2/3	430
J2:3/1	164
J2:4/1	492
J2:4/2	452
J2:4/3	430

Full Input Data And Results

Lane Saturation Flows

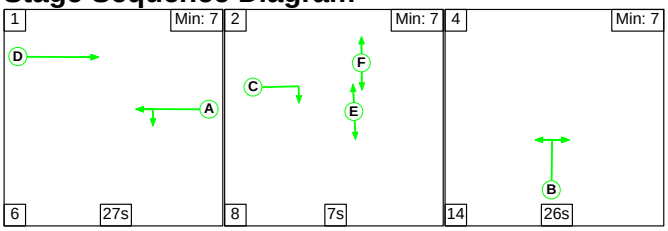
Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.04	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1919	1919
J1:1/2 (High Street Deritend)	3.14	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1929	1929
J1:1/3 (High Street Deritend)	3.01	0.00	N	Arm J1:6 Ahead	Inf	100.0 %	2056	2056
J1:1/4 (High Street Deritend)	3.32	0.00	Y	Arm J1:5 Right	14.00	100.0 %	1759	1759
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:4 Ahead	Inf	42.2 %	1818	1818
				Arm J1:5 Left	14.00	57.8 %		
J1:2/2 (High Street Deritend)	3.16	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1931	1931
J1:2/3 (High Street Deritend)	3.12	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2067	2067
J1:3/1 (Alcester Street)	2.69	0.00	Y	Arm J1:4 Left	14.00	100.0 %	1702	1702
J1:3/2 (Alcester Street)	3.08	0.00	Y	Arm J1:6 Right	Inf	100.0 %	1923	1923
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:6/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:2/3 (High Street Bordesley Lane 3)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:4/3 (High Street Deritend Lane 3)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 DM AM(Standard PCU Factors)' (FG1: '2026 DM AM(Standard PCU Factors)', Plan 1: 'F Called')

Stage Sequence Diagram

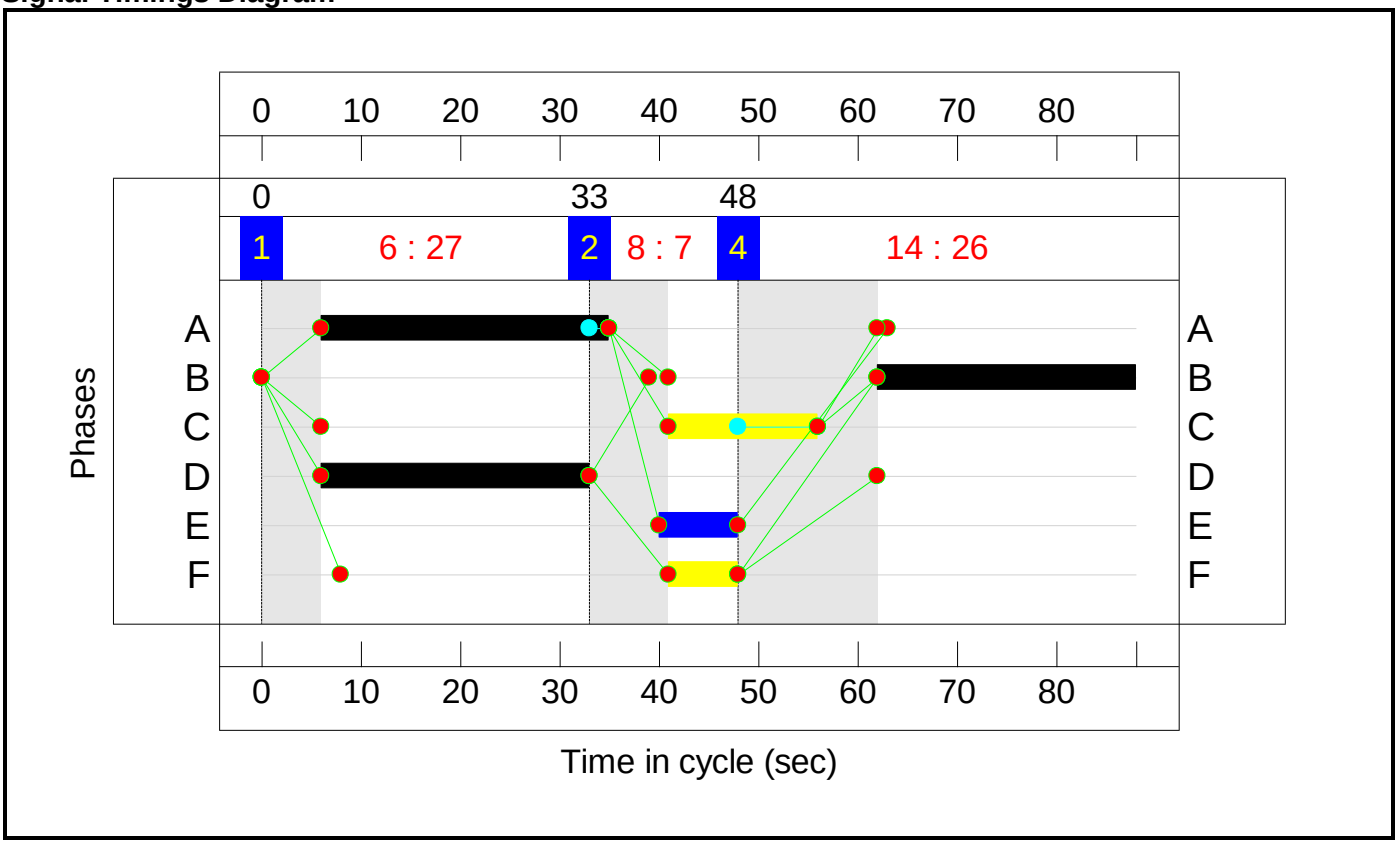


Stage Timings

Stage	1	2	4
Duration	27	7	26
Change Point	0	33	48

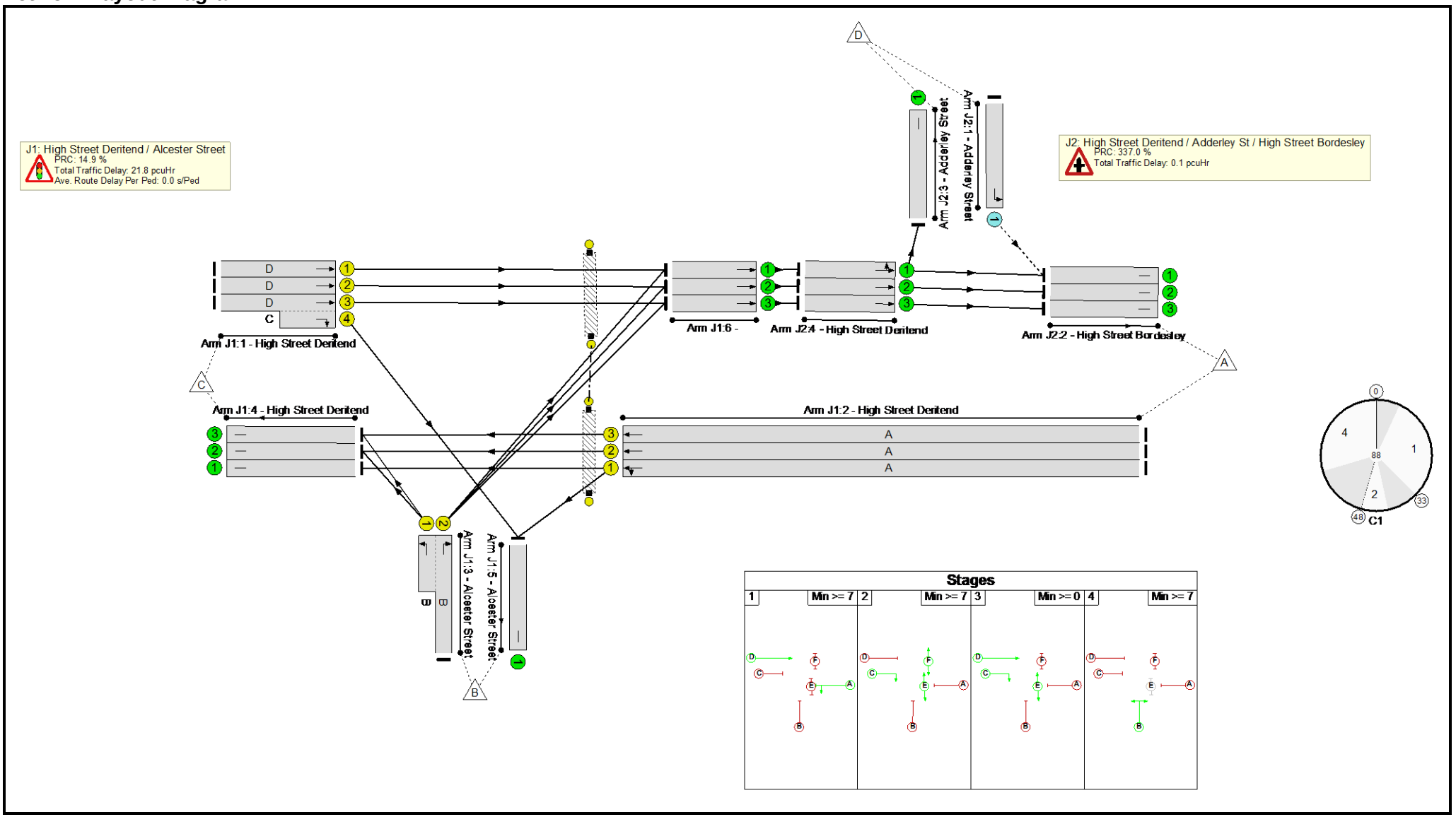
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.3%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.3%**
1/1	High Street Deritend Ahead	U	N/A	N/A	D		1	27	-	155	1919	611	25.4%
1/2	High Street Deritend Ahead	U	N/A	N/A	D		1	27	-	157	1929	614	25.6%
1/3+1/4	High Street Deritend Right Ahead	U	N/A	N/A	D C		1	27:15	-	184	2056:1759	629+25	28.1 : 28.1%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	A		1	29	-	170	1810	617	27.6%
2/2	High Street Deritend Ahead	U	N/A	N/A	A		1	29	-	506	1931	658	76.9%
2/3	High Street Deritend Ahead	U	N/A	N/A	A		1	29	-	551	2067	705	78.2%
3/2+3/1	Alcester Street Left Right	U	N/A	N/A	B		1	26	-	591	1923:1702	402+352	78.3 : 78.3%
4/1	High Street Deritend	U	N/A	N/A	-		-	-	-	65	Inf	Inf	0.0%
4/2	High Street Deritend	U	N/A	N/A	-		-	-	-	644	Inf	Inf	0.0%
4/3	High Street Deritend	U	N/A	N/A	-		-	-	-	689	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	112	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	298	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	243	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	263	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	8	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**20.6%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	119	Inf	578	20.6%
2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	260	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	243	Inf	Inf	0.0%
2/3	High Street Bordesley	U	N/A	N/A	-		-	-	-	263	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	157	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	298	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	243	Inf	Inf	0.0%
4/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	263	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**119**	**0**	**0**	**15.9**	**6.0**	**0.0**	**21.9**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**15.9**	**5.9**	**0.0**	**21.8**	**-**	**-**	**-**	**-**
1/1	155	155	-	-	-	1.0	0.2	-	1.1	26.2	2.8	0.2	3.0
1/2	157	157	-	-	-	1.0	0.2	-	1.1	26.2	2.8	0.2	3.0
1/3+1/4	184	184	-	-	-	1.2	0.2	-	1.4	26.5	3.2	0.2	3.4
2/1	170	170	-	-	-	1.0	0.2	-	1.2	25.1	3.0	0.2	3.2
2/2	506	506	-	-	-	3.6	1.6	-	5.3	37.5	11.0	1.6	12.6
2/3	551	551	-	-	-	4.0	1.8	-	5.7	37.5	12.1	1.8	13.8
3/2+3/1	591	591	-	-	-	4.2	1.8	-	6.0	36.4	8.1	1.8	9.9
4/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	644	644	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	689	689	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	112	112	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	298	298	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	243	243	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	263	263	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**119**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	119	119	119	0	0	0.0	0.1	-	0.1	4.1	0.2	0.1	0.4
2/1	260	260	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	243	243	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	263	263	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

3/1	157	157	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	298	298	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	243	243	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	263	263	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 14.9
PRC Over All Lanes (%): 14.9

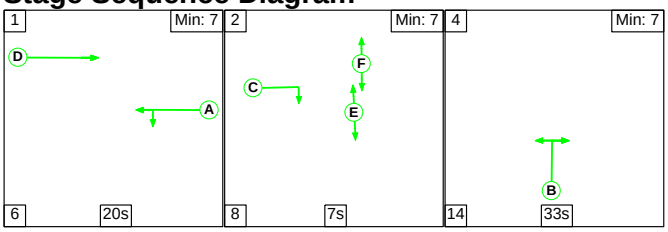
Total Delay for Signalled Lanes (pcuHr): 21.80
Total Delay Over All Lanes(pcuHr): 21.93

Cycle Time (s): 88

Full Input Data And Results

Scenario 2: '2026 DM PM(Standard PCU Factors)' (FG2: '2026 DM PM(Standard PCU Factors)', Plan 1: 'F Called')

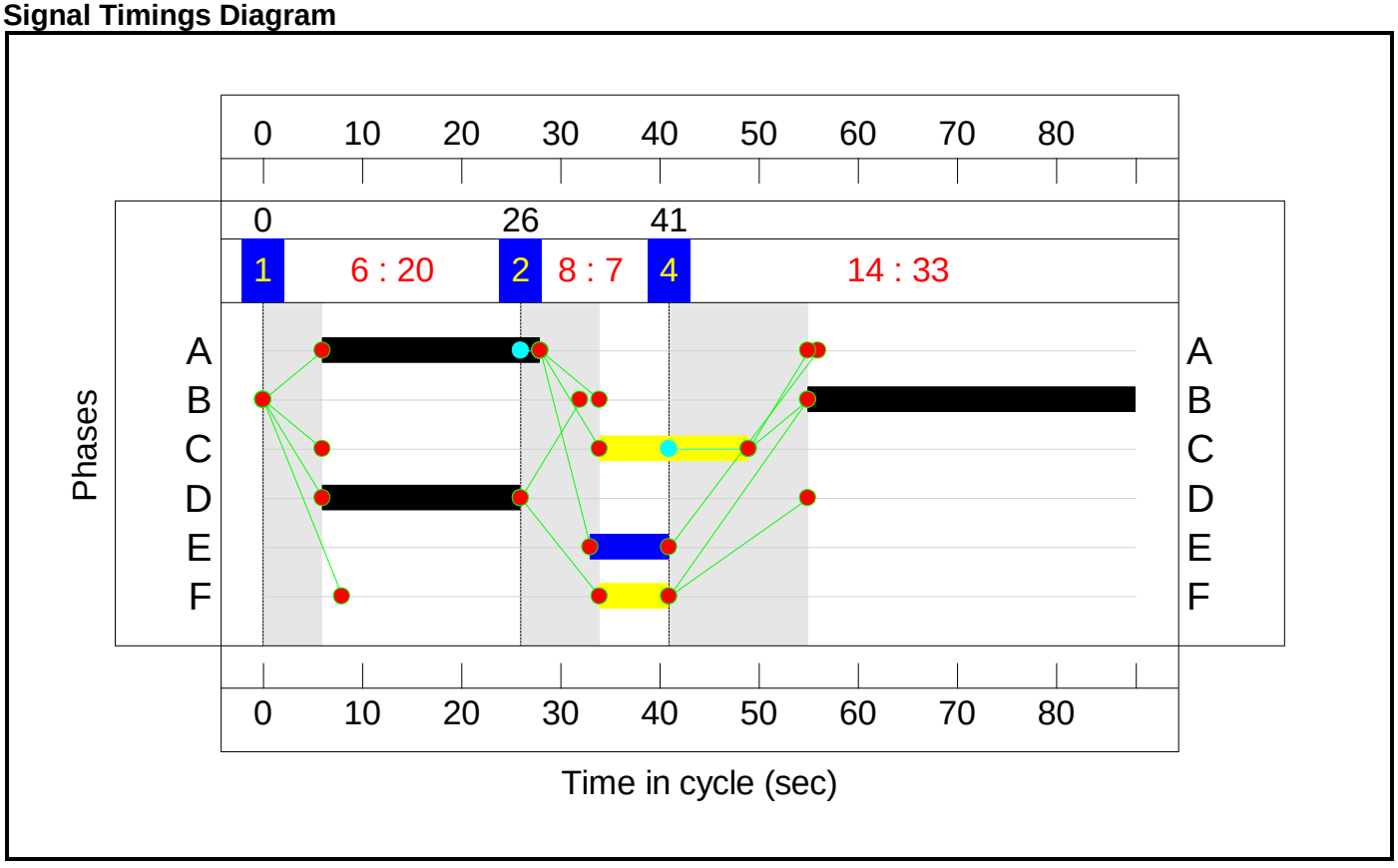
Stage Sequence Diagram



Stage Timings

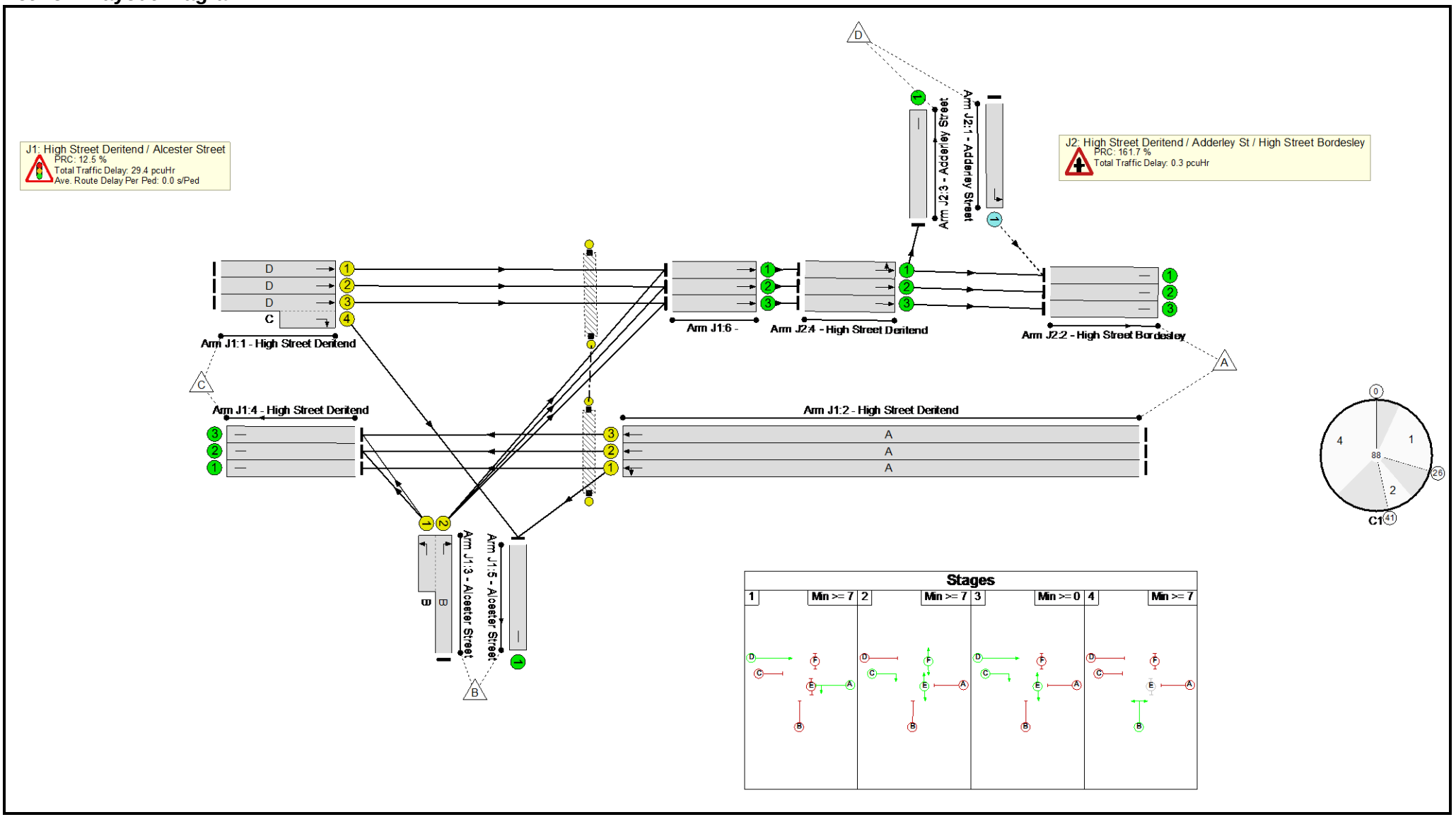
Stage	1	2	4
Duration	20	7	33
Change Point	0	26	41

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.0%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.0%**
1/1	High Street Deritend Ahead	U	N/A	N/A	D		1	20	-	261	1919	458	57.0%
1/2	High Street Deritend Ahead	U	N/A	N/A	D		1	20	-	263	1929	460	57.1%
1/3+1/4	High Street Deritend Right Ahead	U	N/A	N/A	D C		1	20:15	-	418	2056:1759	372+241	71.2 : 63.4%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	A		1	22	-	264	1816	475	55.6%
2/2	High Street Deritend Ahead	U	N/A	N/A	A		1	22	-	398	1931	505	78.9%
2/3	High Street Deritend Ahead	U	N/A	N/A	A		1	22	-	432	2067	540	80.0%
3/2+3/1	Alcester Street Left Right	U	N/A	N/A	B		1	33	-	658	1923:1702	549+285	78.9 : 78.9%
4/1	High Street Deritend	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
4/2	High Street Deritend	U	N/A	N/A	-		-	-	-	511	Inf	Inf	0.0%
4/3	High Street Deritend	U	N/A	N/A	-		-	-	-	544	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	308	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	436	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	392	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	394	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	8	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**34.4%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	175	Inf	509	34.4%
2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	460	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	392	Inf	Inf	0.0%
2/3	High Street Bordesley	U	N/A	N/A	-		-	-	-	394	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	151	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	436	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	392	Inf	Inf	0.0%
4/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	394	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**175**	**0**	**0**	**20.9**	**8.8**	**0.0**	**29.7**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**20.9**	**8.6**	**0.0**	**29.4**	**-**	**-**	**-**	**-**
1/1	261	261	-	-	-	2.1	0.7	-	2.8	38.6	5.6	0.7	6.2
1/2	263	263	-	-	-	2.2	0.7	-	2.8	38.6	5.6	0.7	6.3
1/3+1/4	418	418	-	-	-	3.5	1.1	-	4.6	39.6	6.2	1.1	7.2
2/1	264	264	-	-	-	2.1	0.6	-	2.7	36.6	5.6	0.6	6.2
2/2	398	398	-	-	-	3.3	1.8	-	5.1	46.6	9.0	1.8	10.8
2/3	432	432	-	-	-	3.6	1.9	-	5.6	46.4	9.8	1.9	11.8
3/2+3/1	658	658	-	-	-	4.0	1.8	-	5.8	31.8	10.9	1.8	12.8
4/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	511	511	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	544	544	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	436	436	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	392	392	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**175**	**0**	**0**	**0.1**	**0.3**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	175	175	175	0	0	0.1	0.3	-	0.3	6.5	0.8	0.3	1.1
2/1	460	460	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	392	392	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

3/1	151	151	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	436	436	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	392	392	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 12.5

PRC Over All Lanes (%): 12.5

Total Delay for Signalled Lanes (pcuHr): 29.43

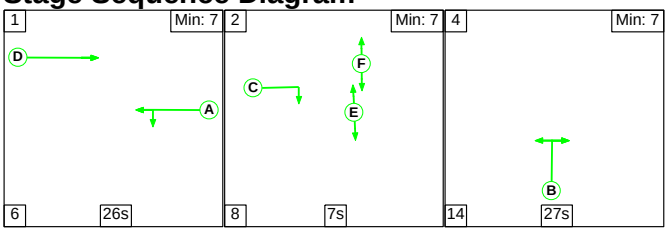
Total Delay Over All Lanes(pcuHr): 29.74

Cycle Time (s): 88

Full Input Data And Results

Scenario 3: '2031 DM AM(Standard PCU Factors)' (FG3: '2031 DM AM(Standard PCU Factors)', Plan 1: 'F Called')

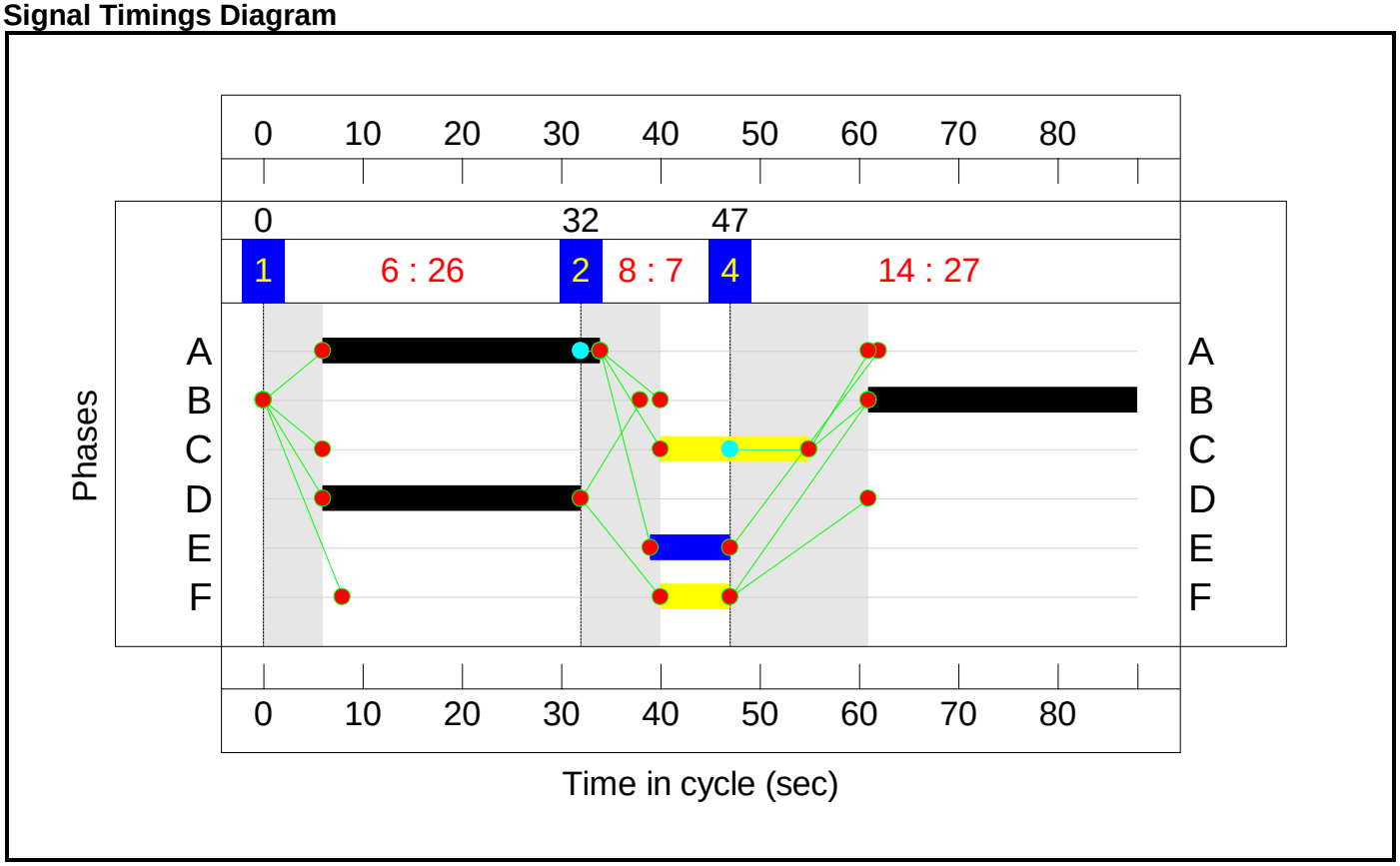
Stage Sequence Diagram



Stage Timings

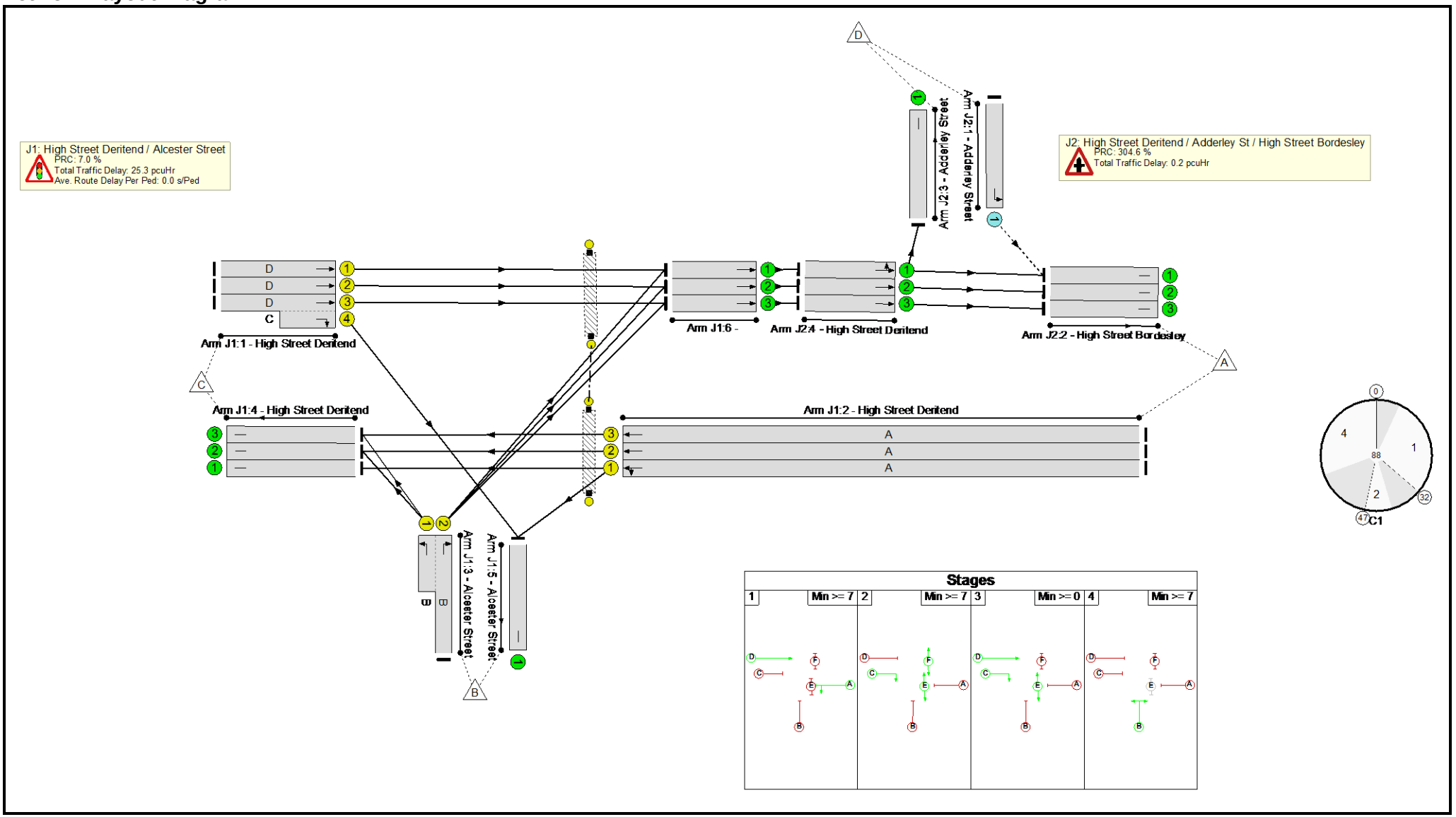
Stage	1	2	4
Duration	26	7	27
Change Point	0	32	47

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.1%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.1%**
1/1	High Street Deritend Ahead	U	N/A	N/A	D		1	26	-	161	1919	589	27.3%
1/2	High Street Deritend Ahead	U	N/A	N/A	D		1	26	-	162	1929	592	27.4%
1/3+1/4	High Street Deritend Right Ahead	U	N/A	N/A	D C		1	26:15	-	190	2056:1759	607+23	30.1 : 30.1%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	A		1	28	-	159	1815	598	26.6%
2/2	High Street Deritend Ahead	U	N/A	N/A	A		1	28	-	529	1931	636	83.1%
2/3	High Street Deritend Ahead	U	N/A	N/A	A		1	28	-	573	2067	681	84.1%
3/2+3/1	Alcester Street Left Right	U	N/A	N/A	B		1	27	-	648	1923:1702	412+364	83.4 : 83.4%
4/1	High Street Deritend	U	N/A	N/A	-		-	-	-	65	Inf	Inf	0.0%
4/2	High Street Deritend	U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%
4/3	High Street Deritend	U	N/A	N/A	-		-	-	-	725	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	101	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	317	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	256	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	8	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**22.2%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	127	Inf	571	22.2%
2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	278	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	256	Inf	Inf	0.0%
2/3	High Street Bordesley	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	166	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	317	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	256	Inf	Inf	0.0%
4/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**127**	**0**	**0**	**17.2**	**8.2**	**0.0**	**25.5**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**17.2**	**8.1**	**0.0**	**25.3**	**-**	**-**	**-**	**-**
1/1	161	161	-	-	-	1.0	0.2	-	1.2	27.3	3.0	0.2	3.1
1/2	162	162	-	-	-	1.0	0.2	-	1.2	27.3	3.0	0.2	3.2
1/3+1/4	190	190	-	-	-	1.2	0.2	-	1.5	27.5	3.4	0.2	3.6
2/1	159	159	-	-	-	1.0	0.2	-	1.1	25.8	2.8	0.2	3.0
2/2	529	529	-	-	-	4.0	2.4	-	6.4	43.3	11.9	2.4	14.3
2/3	573	573	-	-	-	4.4	2.5	-	6.9	43.3	12.9	2.5	15.4
3/2+3/1	648	648	-	-	-	4.6	2.4	-	7.0	39.0	9.6	2.4	12.0
4/1	65	65	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	725	725	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	101	101	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	317	317	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	256	256	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**127**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	127	127	127	0	0	0.0	0.1	-	0.2	4.3	0.3	0.1	0.4
2/1	278	278	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	256	256	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

3/1	166	166	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	317	317	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	256	256	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 7.0

PRC Over All Lanes (%): 7.0

Total Delay for Signalled Lanes (pcuHr): 25.31

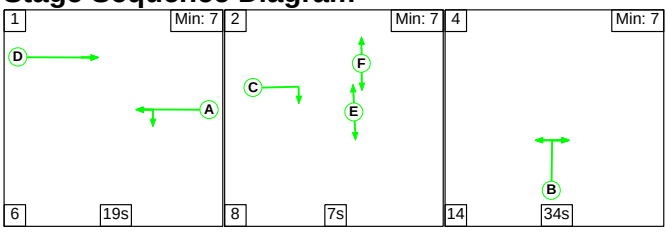
Total Delay Over All Lanes(pcuHr): 25.46

Cycle Time (s): 88

Full Input Data And Results

Scenario 4: '2031 DM PM(Standard PCU Factors)' (FG4: '• 2031 DM PM(Standard PCU Factors)', Plan 1: 'F Called')

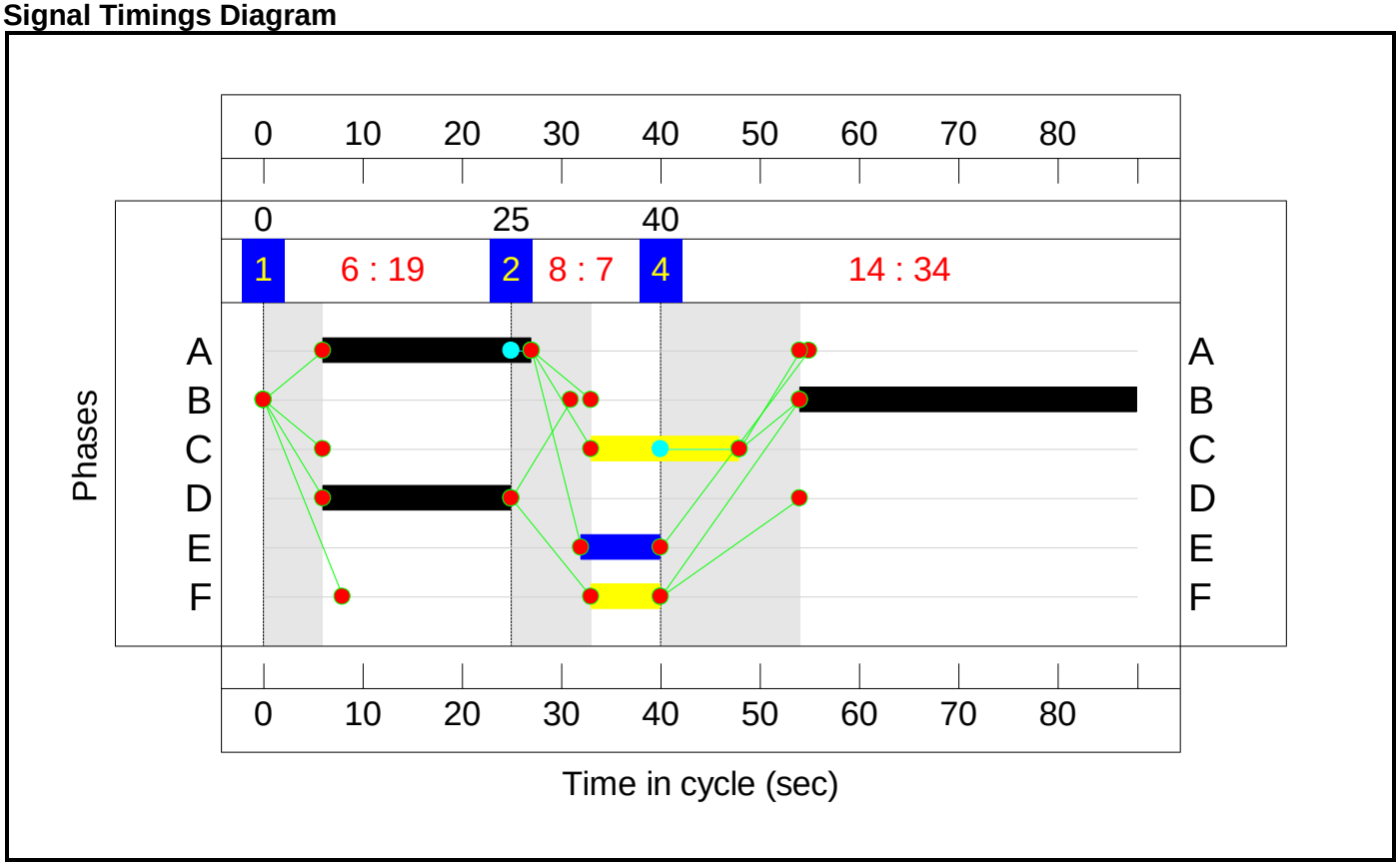
Stage Sequence Diagram



Stage Timings

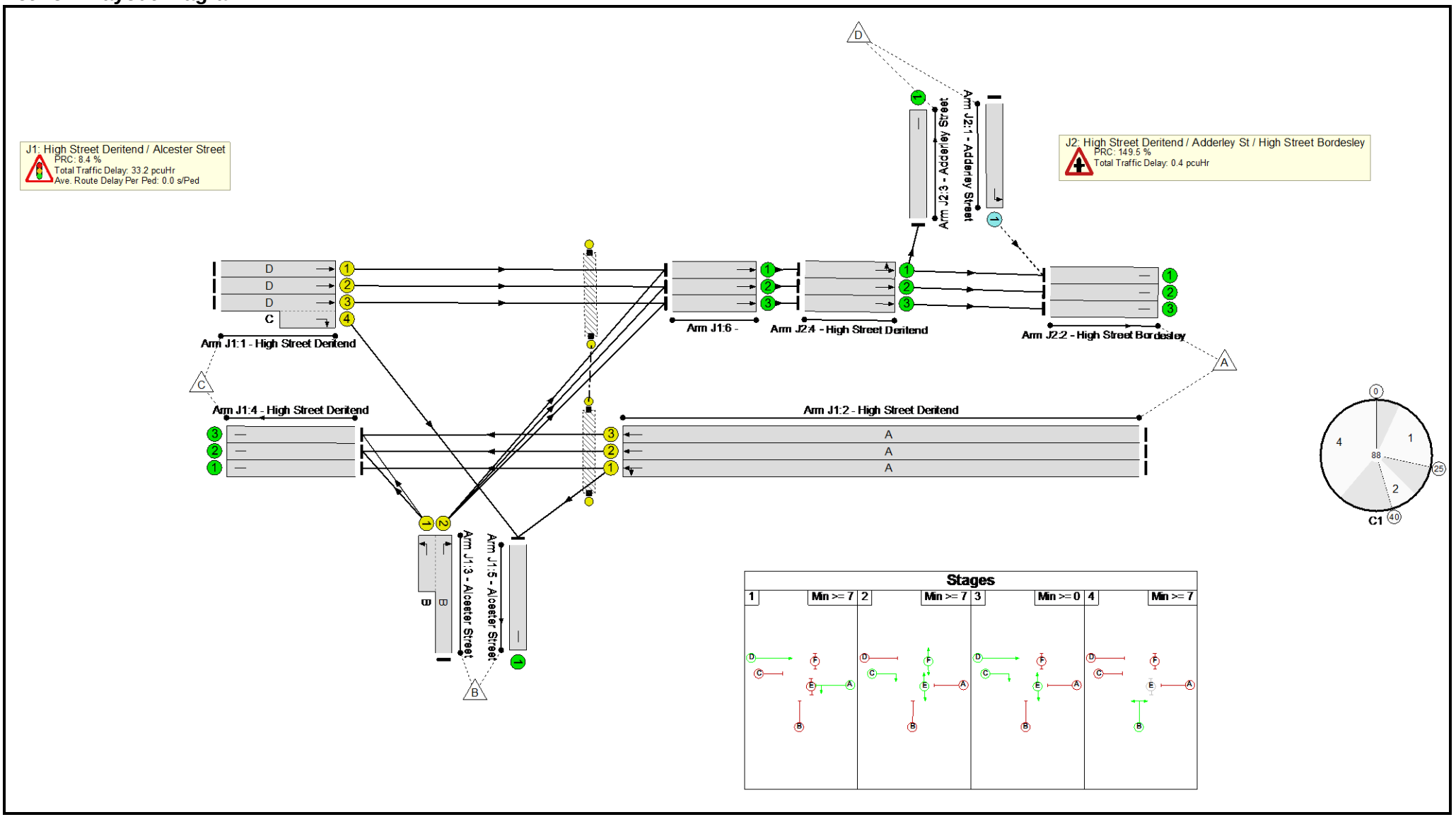
Stage	1	2	4
Duration	19	7	34
Change Point	0	25	40

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
1/1	High Street Deritend Ahead	U	N/A	N/A	D		1	19	-	288	1919	436	66.0%
1/2	High Street Deritend Ahead	U	N/A	N/A	D		1	19	-	291	1929	438	66.4%
1/3+1/4	High Street Deritend Right Ahead	U	N/A	N/A	D C		1	19:15	-	446	2056:1759	356+232	78.6 : 71.5%
2/1	High Street Deritend Ahead Left	U	N/A	N/A	A		1	21	-	257	1818	455	56.5%
2/2	High Street Deritend Ahead	U	N/A	N/A	A		1	21	-	394	1931	483	81.6%
2/3	High Street Deritend Ahead	U	N/A	N/A	A		1	21	-	427	2067	517	82.6%
3/2+3/1	Alcester Street Left Right	U	N/A	N/A	B		1	34	-	731	1923:1702	529+352	83.0 : 83.0%
4/1	High Street Deritend	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
4/2	High Street Deritend	U	N/A	N/A	-		-	-	-	540	Inf	Inf	0.0%
4/3	High Street Deritend	U	N/A	N/A	-		-	-	-	573	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	465	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
6/3	Ahead	U	N/A	N/A	-		-	-	-	411	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	8	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.1%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	180	Inf	499	36.1%
2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
2/3	High Street Bordesley	U	N/A	N/A	-		-	-	-	411	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	163	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	465	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
4/3	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	411	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**180**	**0**	**0**	**22.4**	**11.1**	**0.0**	**33.6**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**22.4**	**10.9**	**0.0**	**33.2**	**-**	**-**	**-**	**-**
1/1	288	288	-	-	-	2.5	1.0	-	3.4	42.9	6.4	1.0	7.4
1/2	291	291	-	-	-	2.5	1.0	-	3.5	43.0	6.5	1.0	7.4
1/3+1/4	446	446	-	-	-	3.9	1.5	-	5.4	43.7	6.9	1.5	8.5
2/1	257	257	-	-	-	2.1	0.6	-	2.7	37.9	5.4	0.6	6.1
2/2	394	394	-	-	-	3.4	2.1	-	5.5	50.5	9.0	2.1	11.1
2/3	427	427	-	-	-	3.7	2.3	-	6.0	50.3	9.8	2.3	12.1
3/2+3/1	731	731	-	-	-	4.4	2.4	-	6.7	33.1	11.9	2.4	14.3
4/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	540	540	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	573	573	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**180**	**0**	**0**	**0.1**	**0.3**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	180	180	180	0	0	0.1	0.3	-	0.4	7.1	1.0	0.3	1.3
2/1	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

3/1	163	163	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 8.4

PRC Over All Lanes (%): 8.4

Total Delay for Signalled Lanes (pcuHr): 33.23

Total Delay Over All Lanes(pcuHr): 33.59

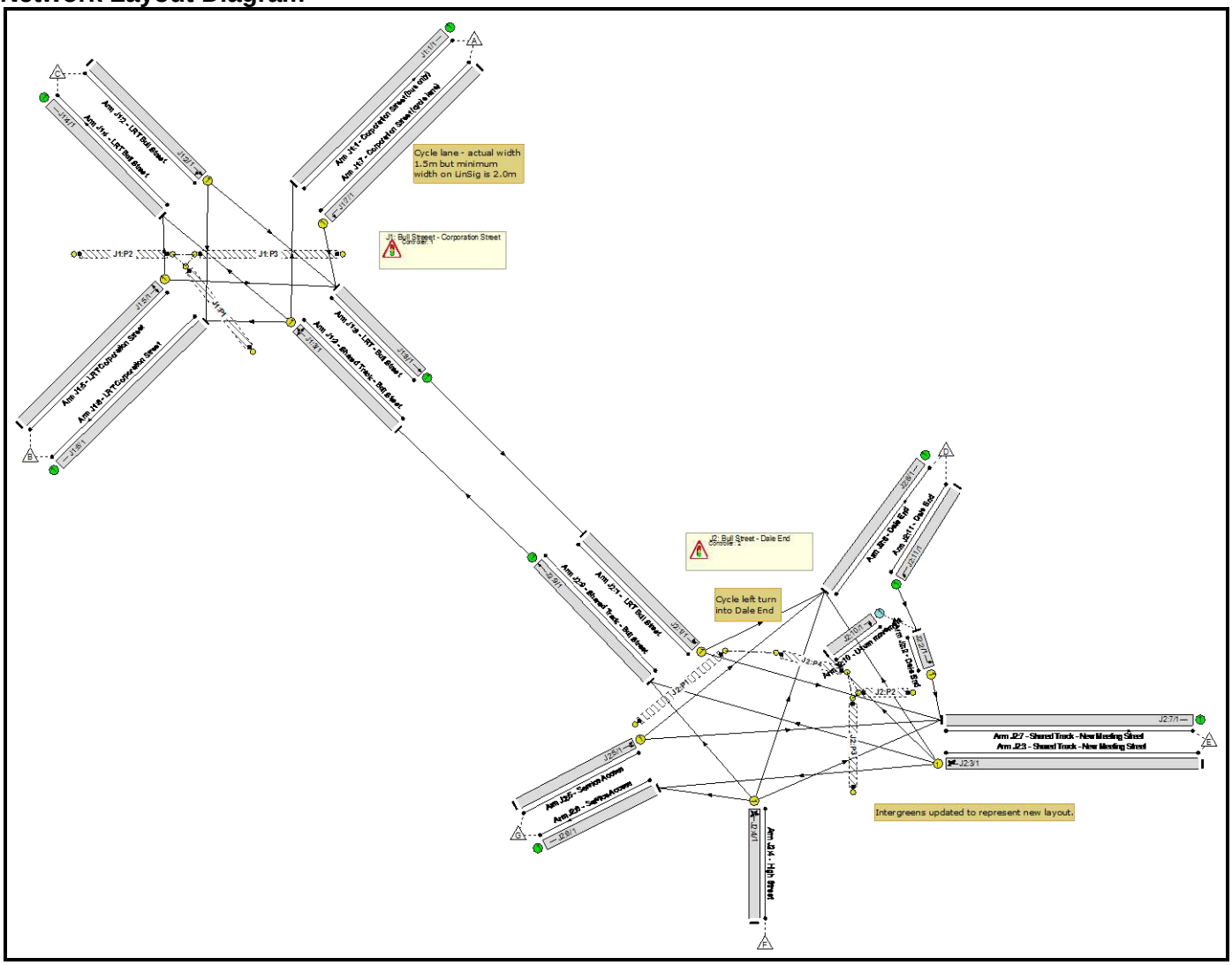
Cycle Time (s): 88

Full Input Data And Results

User and Project Details

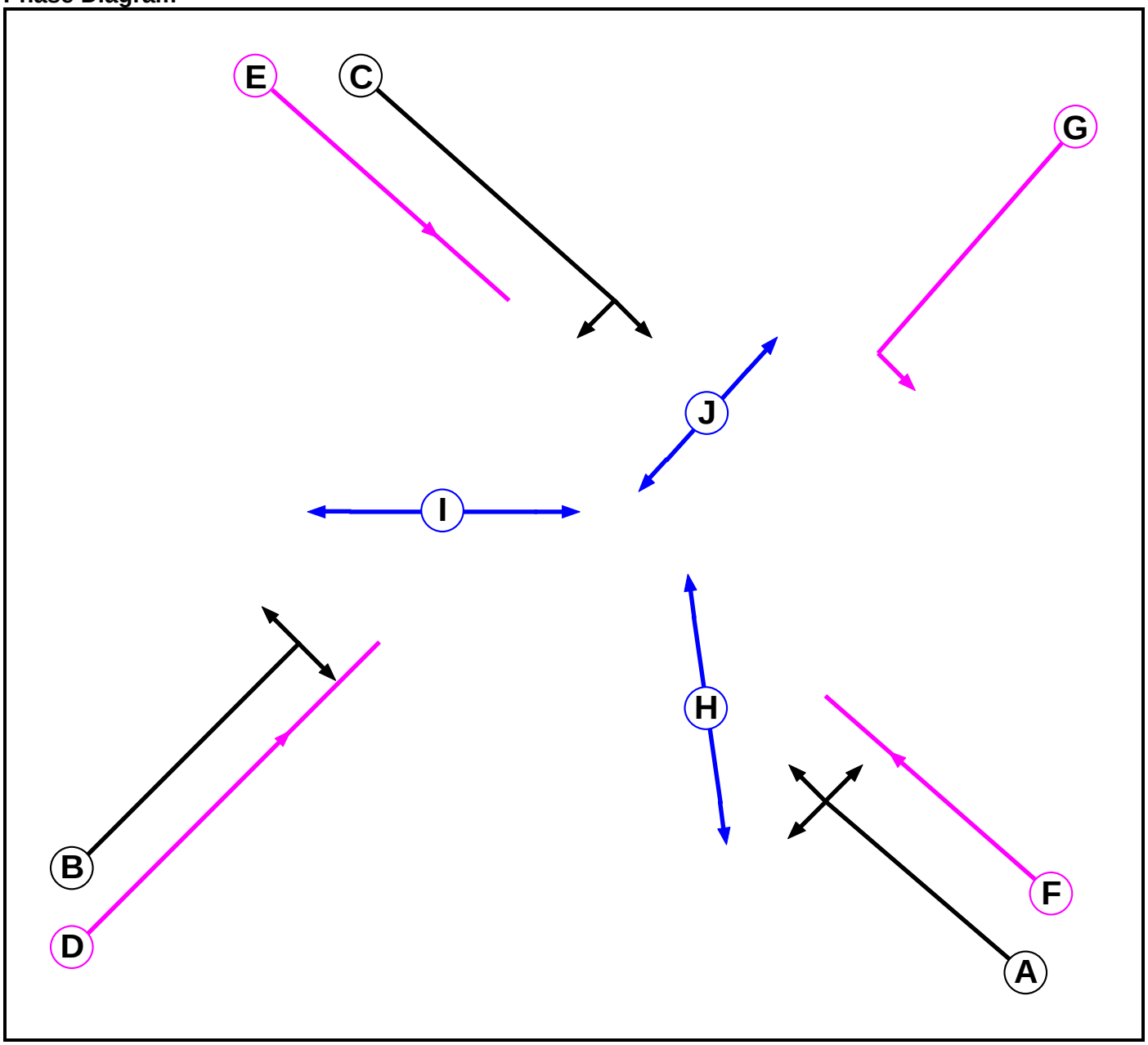
Project:	**359345 - Birmingham Eastside Extention**
Title:	**Bull Streeet/Corporation Street**
Location:	Birmingham
File name:	Bull Street - Corporation Street.lsg3x
Author:	W.Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3 PU, UK
Notes:	Do Something

Network Layout Diagram



C1 - Bull Street - Corporation Street

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	LRT		10	10
E	LRT		10	10
F	LRT		10	10
G	Cycle		7	7
H	Pedestrian		10	10
I	Pedestrian		10	10
J	Pedestrian		10	10

Full Input Data And Results

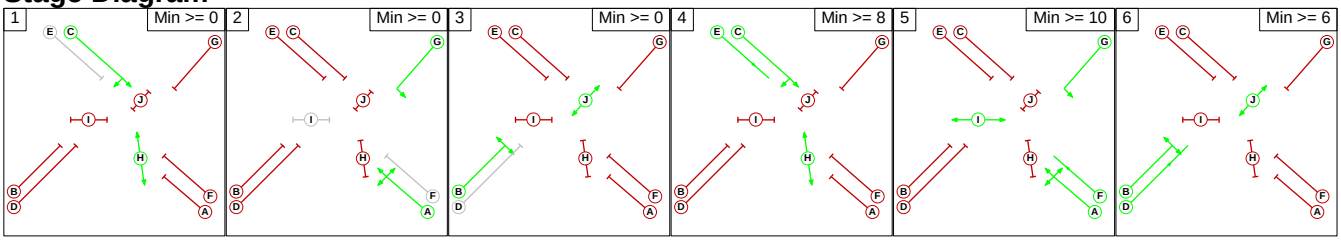
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J
A		5	8	5	8	-	-	8	-	9
B	9		5	-	5	9	7	10	10	-
C	7	8		8	-	7	8	-	10	10
D	11	-	6		6	11	9	12	12	-
E	9	10	-	10		9	10	-	12	12
F	-	6	10	6	10		-	10	-	11
G	-	5	5	5	5	-		-	-	7
H	10	10	-	10	-	10	-		-	-
I	-	10	10	10	10	-	-	-		-
J	10	-	10	-	10	10	10	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	C H
2	A G
3	B J
4	C E H
5	A F G I
6	B D J

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

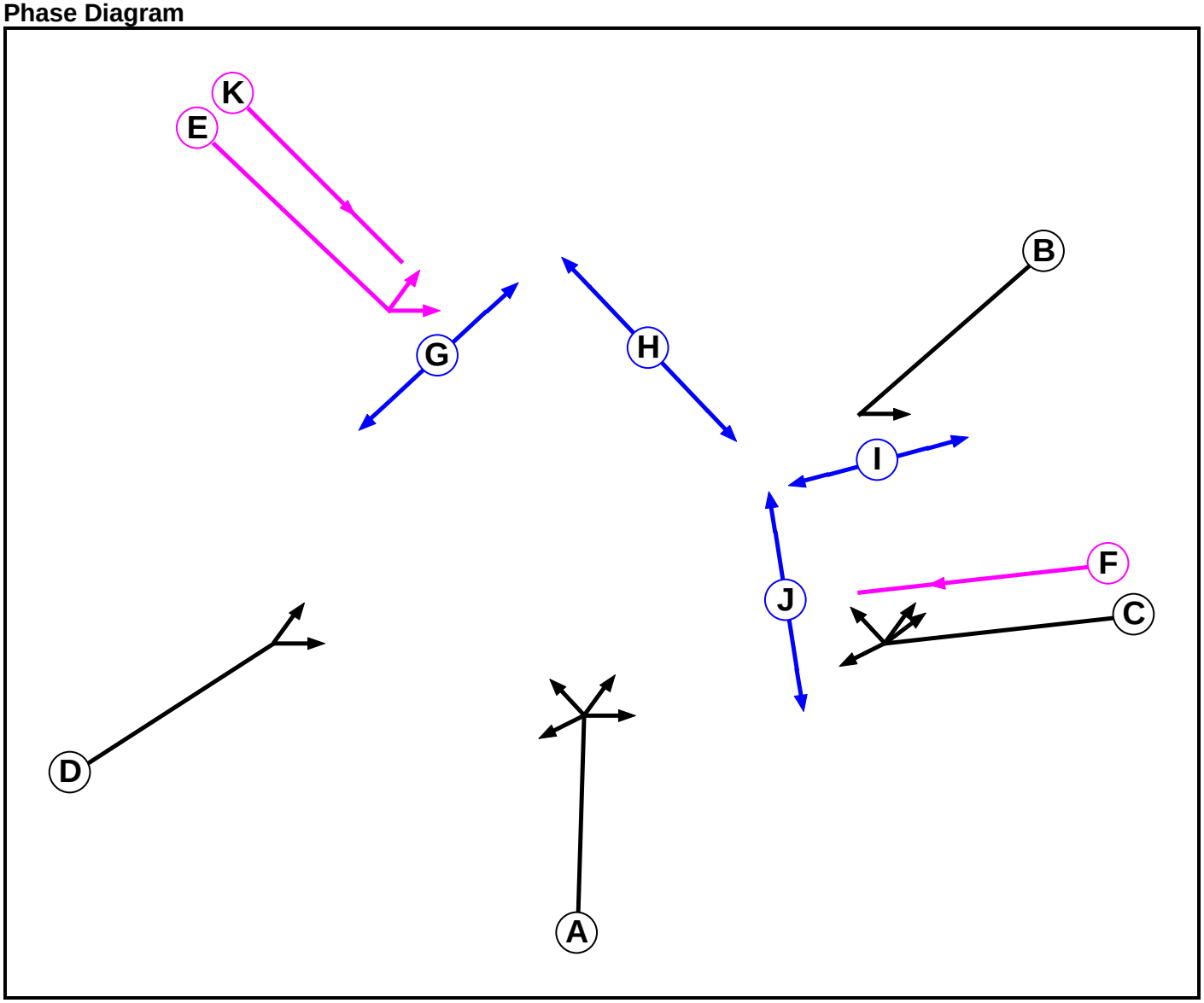
Full Input Data And Results

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4	5	6
1		10	10	2	10	10
2	8		9	8	2	9
3	10	10		10	10	2
4	0	10	12		12	12
5	10	0	11	10		11
6	12	11	0	12	12	

C2 - Bull Street - High Street

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	LRT		10	10
F	LRT		10	10
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Pedestrian		7	7
J	Pedestrian		7	7
K	Cycle		7	7

Phase Intergreens Matrix

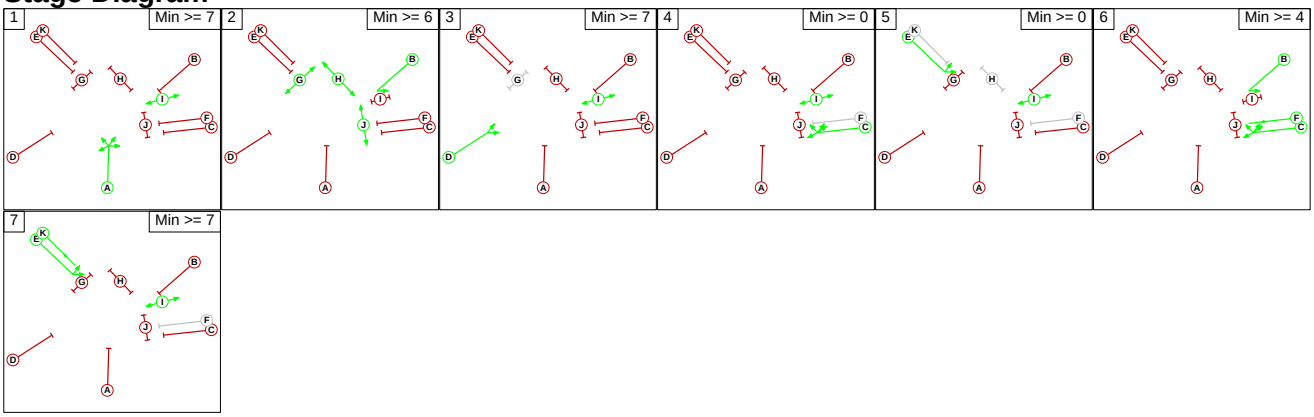
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K
A		10	7	5	5	5	7	9	-	9	6
B	5		-	5	5	-	-	-	5	-	5
C	6	-		5	5	-	9	8	-	5	5
D	5	10	7		5	5	-	9	-	9	6
E	7	12	9	7		-	7	-	-	11	-
F	8	-	-	8	-		11	-	-	7	-
G	16	-	16	-	16	16		-	-	-	16
H	13	-	13	13	-	-	-		-	-	13
I	-	7	-	-	-	-	-	-		-	-
J	11	-	11	11	11	11	-	-	-		11
K	5	10	6	5	-	-	5	7	-	9	

Phases in Stage

Stage No.	Phases in Stage
1	A I
2	B G H J
3	D I
4	C I
5	E I
6	B C F
7	E I K

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage						
		1	2	3	4	5	6	7
From Stage	1		10	5	7	5	10	6
	2	16		13	16	16	16	16
	3	5	10		7	5	10	6
	4	6	9	5		5	7	5
	5	7	12	7	9		12	2
	6	8	11	8	5	5		5
	7	7	12	7	9	0	12	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Bull Streeet - Corporation Street
There are no Opposed Lanes in this Junction

Junction: J2: Bull Street - Dale End											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:10/1 (U-turn movement)	J2:2/1 (Right)	715	0	J2:11/1	0.22	All	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: J1: Bull Streeet - Corporation Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Corporation Street (bus only))	U		2	3	13.9	Inf	-	-	-	-	-	-
J1:2/1 (LRT Bull Street)	U	C	2	3	60.0	Geom	-	3.80	0.00	Y	Arm J1:6 Right Arm J1:8 Ahead	45.00 Inf
J1:3/1 (Shared Track - Bull Street)	U	A	2	3	15.7	Geom	-	3.35	0.00	Y	Arm J1:1 Right Arm J1:4 Ahead Arm J1:6 Left	26.00 Inf 27.00
J1:4/1 (LRT Bull Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (LRT Corporation Street)	U	B	2	3	60.0	Geom	-	4.00	0.00	Y	Arm J1:4 Left Arm J1:8 Right	44.00 30.00
J1:6/1 (LRT Corporation Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:7/1 (Corporation Street (cycle lane))	U	G	2	3	13.9	Geom	-	2.00	0.00	Y	Arm J1:8 Left	5.00
J1:8/1 (LRT - Bull Street)	U		2	3	0.2	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: Bull Street - Dale End

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (LRT Bull Street)	U	E	2	3	15.7	Geom	-	4.00	0.00	Y	Arm J2:6 Left	Inf
											Arm J2:7 Left	40.00
J2:2/1 (Dale End)	U	B	2	3	2.6	Geom	-	5.00	0.00	Y	Arm J2:7 Left	20.00
J2:3/1 (Shared Track - New Meeting Street)	U	C	2	3	20.9	Geom	-	4.40	0.00	Y	Arm J2:6 Right	19.00
											Arm J2:8 Ahead	24.00
											Arm J2:9 Right	Inf
											Arm J2:10 U-Turn	5.00
J2:4/1 (High Street)	U	A	2	3	7.8	Geom	-	5.00	0.00	Y	Arm J2:6 Ahead	47.00
											Arm J2:7 Right	20.00
											Arm J2:8 Left	6.00
											Arm J2:9 Ahead	Inf
J2:5/1 (Service Access)	U	D	2	3	3.5	Geom	-	4.00	0.00	Y	Arm J2:6 Ahead	59.00
											Arm J2:7 Ahead	121.00
J2:6/1 (Dale End)	U		2	3	9.2	Inf	-	-	-	-	-	-
J2:7/1 (Shared Track - New Meeting Street)	U		2	3	20.9	Inf	-	-	-	-	-	-
J2:8/1 (Service Access)	U		2	3	3.5	Inf	-	-	-	-	-	-
J2:9/1 (Shared Track - Bull Street)	U		2	3	0.2	Inf	-	-	-	-	-	-

J2:10/1 (U-turn movement)	O		2	3	1.7	Geom	-	4.00	0.00	Y	Arm J2:2 Right	Inf
J2:11/1 (Dale End)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	62	8	8	0	0	0	0	78
	F	122	21	21	0	144	0	0	308
	G	0	0	0	0	0	0	0	0
	Tot.	184	29	29	0	202	0	0	444

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 AM DS (Standard PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	184
J1:2/1	58
J1:3/1	242
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	78
J2:4/1	308
J2:5/1	0
J2:6/1	0
J2:7/1	202
J2:8/1	0
J2:9/1	242
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	76.0 %	1856	1856
				Arm J1:4 Ahead	Inf	12.0 %		
				Arm J1:6 Left	27.00	12.0 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2043	2043
				Arm J2:7 Right	20.00	46.8 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	53.2 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	61	9	9	0	0	0	0	79
	F	111	20	20	0	186	0	0	337
	G	0	0	0	0	0	0	0	0
	Tot.	172	29	29	0	244	0	0	474

Traffic Lane Flows

Lane	Scenario 2: 2026 PM DS (Standard PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	172
J1:2/1	58
J1:3/1	230
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	79
J2:4/1	337
J2:5/1	0
J2:6/1	0
J2:7/1	244
J2:8/1	0
J2:9/1	230
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	74.8 %	1857	1857
				Arm J1:4 Ahead	Inf	12.6 %		
				Arm J1:6 Left	27.00	12.6 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2031	2031
				Arm J2:7 Right	20.00	55.2 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	44.8 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	62	8	8	0	0	0	0	78
	F	122	21	21	0	144	0	0	308
	G	0	0	0	0	0	0	0	0
	Tot.	184	29	29	0	202	0	0	444

Traffic Lane Flows

Lane	Scenario 3: 2031 AM DS (Standard PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	184
J1:2/1	58
J1:3/1	242
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	78
J2:4/1	308
J2:5/1	0
J2:6/1	0
J2:7/1	202
J2:8/1	0
J2:9/1	242
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	76.0 %	1856	1856
				Arm J1:4 Ahead	Inf	12.0 %		
				Arm J1:6 Left	27.00	12.0 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2043	2043
				Arm J2:7 Right	20.00	46.8 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	53.2 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	61	9	9	0	0	0	0	79
	F	111	20	20	0	186	0	0	337
	G	0	0	0	0	0	0	0	0
	Tot.	172	29	29	0	244	0	0	474

Traffic Lane Flows

Lane	Scenario 4: 2031 PM DS (Standard PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	172
J1:2/1	58
J1:3/1	230
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	79
J2:4/1	337
J2:5/1	0
J2:6/1	0
J2:7/1	244
J2:8/1	0
J2:9/1	230
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	74.8 %	1857	1857
				Arm J1:4 Ahead	Inf	12.6 %		
				Arm J1:6 Left	27.00	12.6 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2031	2031
				Arm J2:7 Right	20.00	55.2 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	44.8 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2026 AM DS (Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	77	5	5	0	0	0	0	87
	F	199	24	24	0	216	0	0	463
	G	0	0	0	0	0	0	0	0
	Tot.	276	29	29	0	274	0	0	608

Traffic Lane Flows

Lane	Scenario 5: 2026 AM DS (Saturn PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	276
J1:2/1	58
J1:3/1	334
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	87
J2:4/1	463
J2:5/1	0
J2:6/1	0
J2:7/1	274
J2:8/1	0
J2:9/1	334
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	82.6 %	1853	1853
				Arm J1:4 Ahead	Inf	8.7 %		
				Arm J1:6 Left	27.00	8.7 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2043	2043
				Arm J2:7 Right	20.00	46.7 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	53.3 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 6: '2026 PM DS (Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	76	6	6	0	0	0	0	88
	F	182	23	23	0	279	0	0	507
	G	0	0	0	0	0	0	0	0
	Tot.	258	29	29	0	337	0	0	653

Traffic Lane Flows

Lane	Scenario 6: 2026 PM DS (Saturn PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	258
J1:2/1	58
J1:3/1	316
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	88
J2:4/1	507
J2:5/1	0
J2:6/1	0
J2:7/1	337
J2:8/1	0
J2:9/1	316
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	81.6 %	1853	1853
				Arm J1:4 Ahead	Inf	9.2 %		
				Arm J1:6 Left	27.00	9.2 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2031	2031
				Arm J2:7 Right	20.00	55.0 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	45.0 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2031 AM DS (Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	77	5	5	0	0	0	0	87
	F	199	24	24	0	216	0	0	463
	G	0	0	0	0	0	0	0	0
	Tot.	276	29	29	0	274	0	0	608

Traffic Lane Flows

Lane	Scenario 7: 2031 AM DS (Saturn PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	276
J1:2/1	58
J1:3/1	334
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	87
J2:4/1	463
J2:5/1	0
J2:6/1	0
J2:7/1	274
J2:8/1	0
J2:9/1	334
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	82.6 %	1853	1853
				Arm J1:4 Ahead	Inf	8.7 %		
				Arm J1:6 Left	27.00	8.7 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Bull Street - Dale End

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2043	2043
				Arm J2:7 Right	20.00	46.7 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	53.3 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 8: '2031 PM DS (Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	0	0	0	0	0	0	0
	B	0	0	0	0	0	0	0	0
	C	0	0	0	0	58	0	0	58
	D	0	0	0	0	0	0	0	0
	E	76	6	6	0	0	0	0	88
	F	182	23	23	0	279	0	0	507
	G	0	0	0	0	0	0	0	0
	Tot.	258	29	29	0	337	0	0	653

Traffic Lane Flows

Lane	Scenario 8: 2031 PM DS (Saturn PCU Factors)
Junction: J1: Bull Streeet - Corporation Street	
J1:1/1	258
J1:2/1	58
J1:3/1	316
J1:4/1	29
J1:5/1	0
J1:6/1	29
J1:7/1	0
J1:8/1	58
Junction: J2: Bull Street - Dale End	
J2:1/1	58
J2:2/1	0
J2:3/1	88
J2:4/1	507
J2:5/1	0
J2:6/1	0
J2:7/1	337
J2:8/1	0
J2:9/1	316
J2:10/1	0
J2:11/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Bull Streeet - Corporation Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Corporation Street (bus only) Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/1 (LRT Bull Street)	3.80	0.00	Y	Arm J1:6 Right	45.00	0.0 %	1995	1995
				Arm J1:8 Ahead	Inf	100.0 %		
J1:3/1 (Shared Track - Bull Street)	3.35	0.00	Y	Arm J1:1 Right	26.00	81.6 %	1853	1853
				Arm J1:4 Ahead	Inf	9.2 %		
				Arm J1:6 Left	27.00	9.2 %		
J1:4/1 (LRT Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (LRT Corporation Street)	4.00	0.00	Y	Arm J1:4 Left	44.00	0.0 %	2015	2015
				Arm J1:8 Right	30.00	0.0 %		
J1:6/1 (LRT Corporation Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Corporation Street (cycle lane))	2.00	0.00	Y	Arm J1:8 Left	5.00	0.0 %	1815	1815
J1:8/1 (LRT - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf

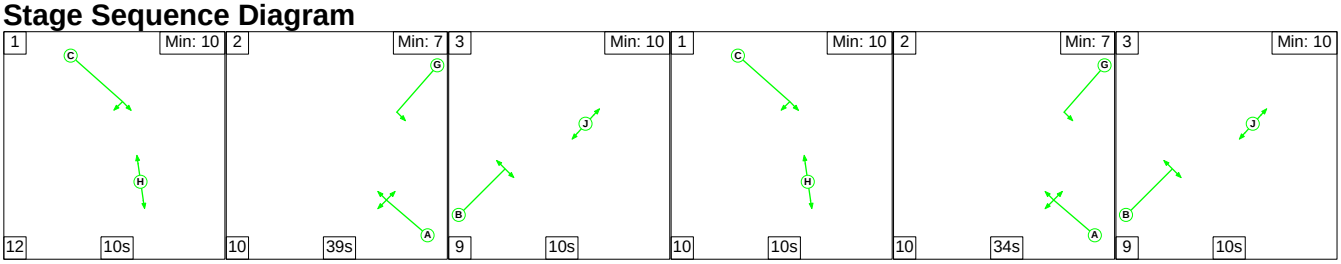
Full Input Data And Results

Junction: J2: Bull Street - Dale End								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (LRT Bull Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	1942	1942
				Arm J2:7 Left	40.00	100.0 %		
J2:2/1 (Dale End)	5.00	0.00	Y	Arm J2:7 Left	20.00	0.0 %	2115	2115
J2:3/1 (Shared Track - New Meeting Street)	4.40	0.00	Y	Arm J2:6 Right	19.00	0.0 %	2055	2055
				Arm J2:8 Ahead	24.00	0.0 %		
				Arm J2:9 Right	Inf	100.0 %		
				Arm J2:10 U-Turn	5.00	0.0 %		
J2:4/1 (High Street)	5.00	0.00	Y	Arm J2:6 Ahead	47.00	0.0 %	2031	2031
				Arm J2:7 Right	20.00	55.0 %		
				Arm J2:8 Left	6.00	0.0 %		
				Arm J2:9 Ahead	Inf	45.0 %		
J2:5/1 (Service Access)	4.00	0.00	Y	Arm J2:6 Ahead	59.00	0.0 %	2015	2015
				Arm J2:7 Ahead	121.00	0.0 %		
J2:6/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Shared Track - New Meeting Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:8/1 (Service Access Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:9/1 (Shared Track - Bull Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:10/1 (U-turn movement)	4.00	0.00	Y	Arm J2:2 Right	Inf	0.0 %	2015	2015
J2:11/1 (Dale End Lane 1)	Infinite Saturation Flow						Inf	Inf

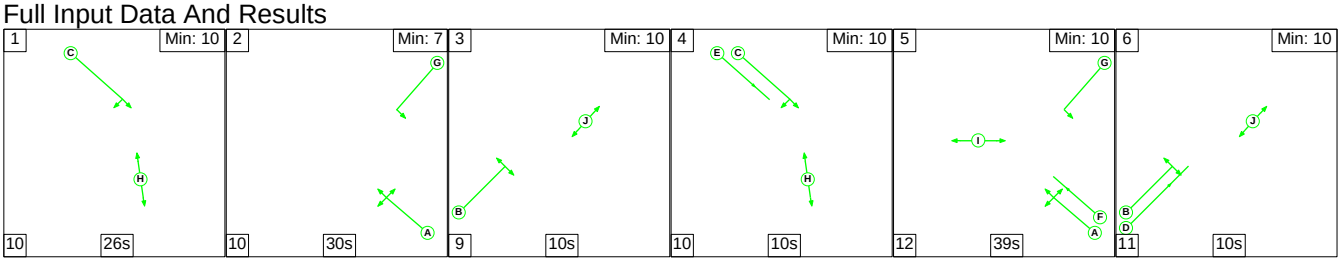
Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

C1 - Bull Street - Corporation Street

Stage Sequence Diagram



Full Input Data And Results

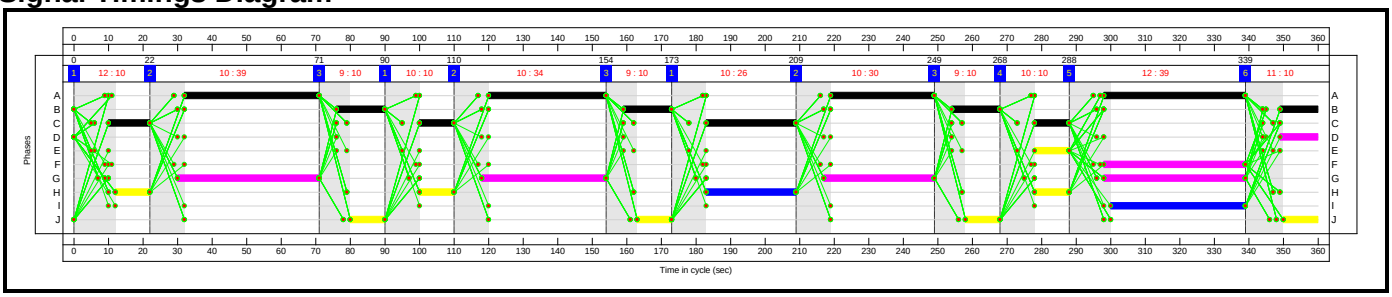


Stage Timings

Stage	1	2	3	1	2	3	1	2	3	4
Duration	10	39	10	10	34	10	26	30	10	10
Change Point	0	22	71	90	110	154	173	209	249	268

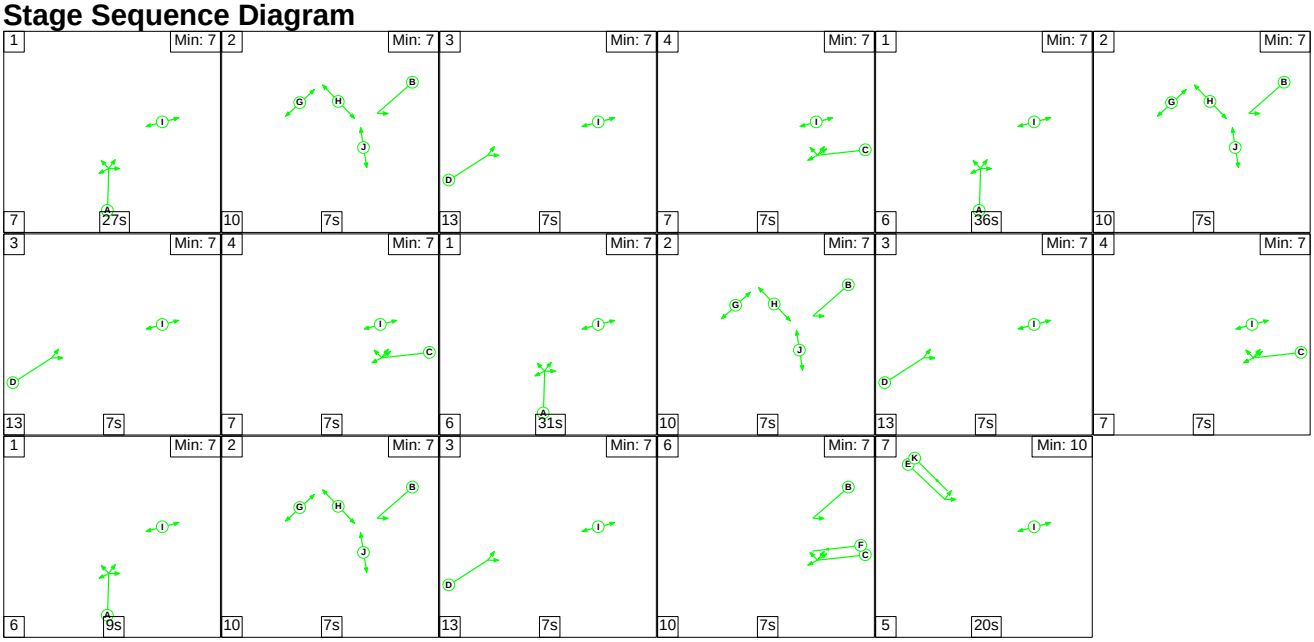
Stage	5	6								
Duration	39	10								
Change Point	288	339								

Signal Timings Diagram



C2 - Bull Street - High Street

Stage Sequence Diagram



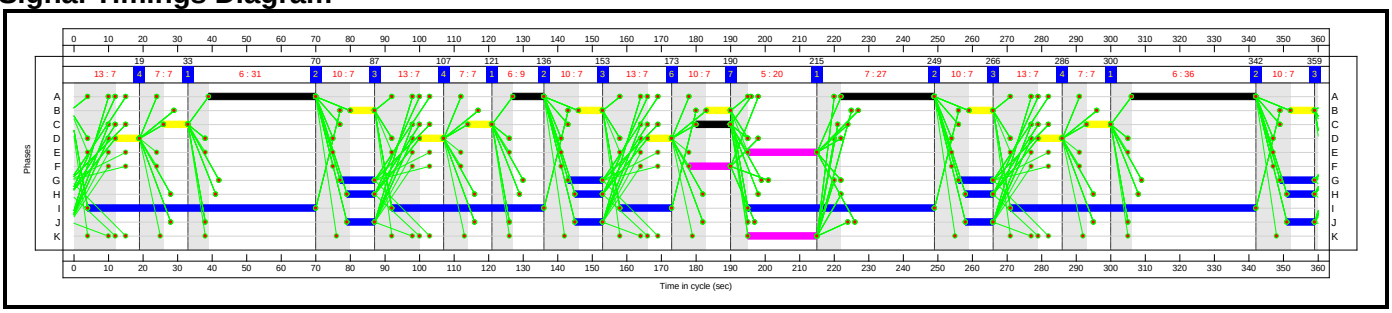
Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	27	7	7	7	36	7	7	7	31	7
Change Point	215	249	266	286	300	342	359	19	33	70

Full Input Data And Results

Stage	3	4	1	2	3	6	7			
Duration	7	7	9	7	7	7	20			
Change Point	87	107	121	136	153	173	190			

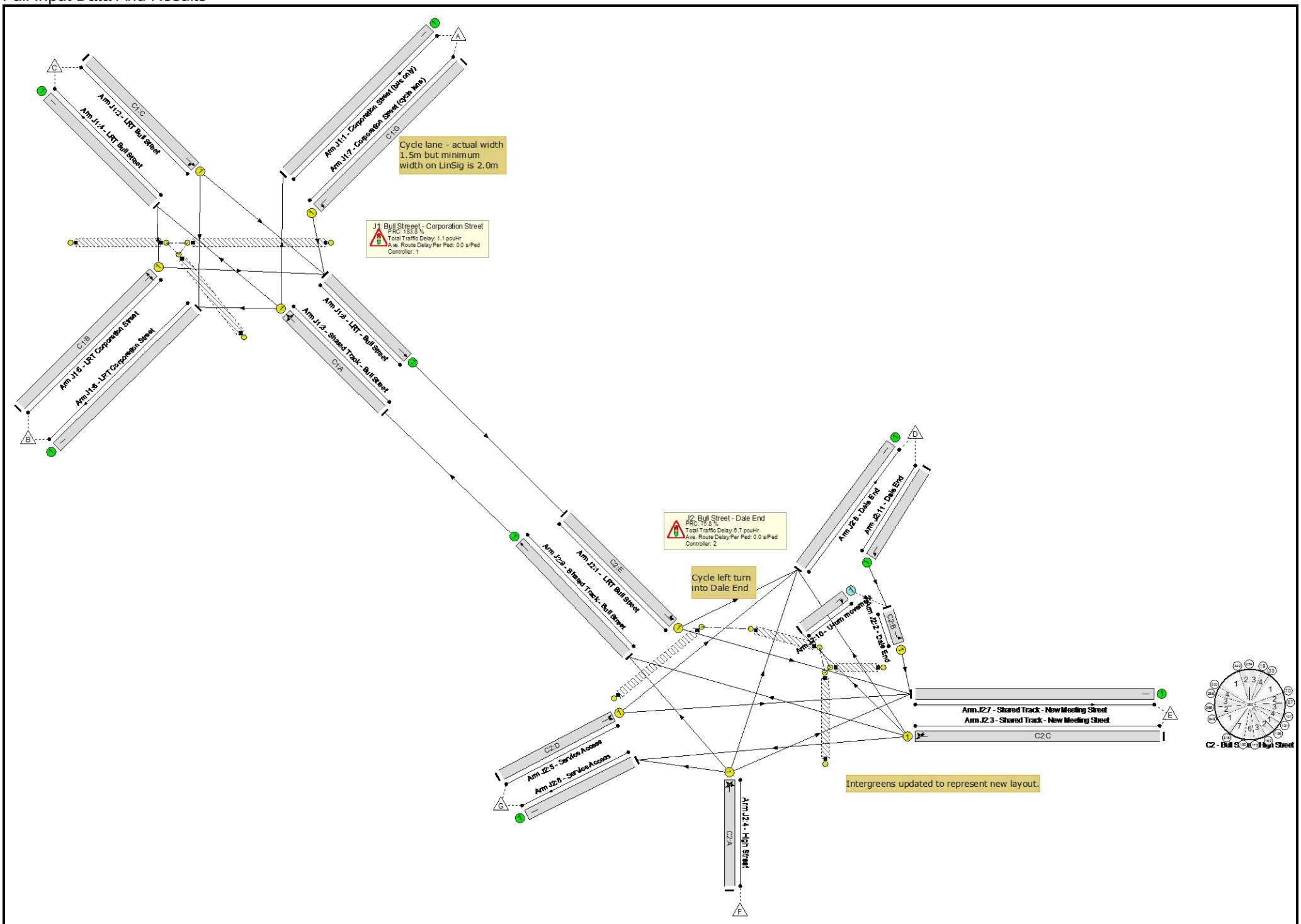
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Streeet/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**
J1: Bull Streeet - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.7%**
1/1	Corporation Street (bus only)	U	N/A	N/A	-		-	-	-	184	Inf	Inf	0.0%
2/1	LRT Bull Street Right Ahead	U	N/A	N/A	C1:C		4	58	-	58	1995	344	16.9%
3/1	Shared Track - Bull Street Right Ahead Left	U	N/A	N/A	C1:A		4	144	-	242	1856	763	31.7%
4/1	LRT Bull Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
5/1	LRT Corporation Street Left Right	U	N/A	N/A	C1:B		4	53	-	0	2015	319	0.0%
6/1	LRT Corporation Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
7/1	Corporation Street (cycle lane) Left	U	N/A	N/A	C1:G		4	150	-	0	1815	776	0.0%
8/1	LRT - Bull Street Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:H		4	56	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:I		1	39	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:J		4	40	-	0	-	0	0.0%
J2: Bull Street - Dale End	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**
1/1	LRT Bull Street Left Left2	U	N/A	N/A	C2:E		1	20	-	58	1942	113	51.2%
2/1	Dale End Left	U	N/A	N/A	C2:B		5	35	-	0	2115	235	0.0%
3/1	Shared Track - New Meeting Street Right Ahead Right2 U-Turn	U	N/A	N/A	C2:C		4	31	-	78	2055	200	39.0%

Full Input Data And Results

4/1	High Street Ahead Right Left Ahead2	U	N/A	N/A	C2:A		4	103	-	308	2043	607	50.7%
5/1	Service Access Ahead Ahead2	U	N/A	N/A	C2:D		4	28	-	0	2015	179	0.0%
6/1	Dale End	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Shared Track - New Meeting Street	U	N/A	N/A	-		-	-	-	202	Inf	Inf	0.0%
8/1	Service Access	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Shared Track - Bull Street Ahead	U	N/A	N/A	-		-	-	-	242	Inf	Inf	0.0%
10/1	U-turn movement Right	O	N/A	N/A	-		-	-	-	0	2015	715	0.0%
11/1	Dale End Left	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:G		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:I		5	250	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:J		4	32	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:H		4	32	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Streeet/Corporation Street	**-**	**-**	**0**	**0**	**0**	**6.1**	**1.7**	**0.0**	**7.8**	**-**	**-**	**-**	**-**
J1: Bull Streeet - Corporation Street	**-**	**-**	**0**	**0**	**0**	**0.8**	**0.3**	**0.0**	**1.1**	**-**	**-**	**-**	**-**
1/1	184	184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	58	58	-	-	-	0.5	0.1	-	0.6	38.2	1.3	0.1	1.4
3/1	242	242	-	-	-	0.3	0.2	-	0.5	7.7	1.5	0.2	1.7
4/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Bull Street - Dale End	**-**	**-**	**0**	**0**	**0**	**5.3**	**1.3**	**0.0**	**6.7**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	2.1	0.5	-	2.7	164.6	5.6	0.5	6.1
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	78	78	-	-	-	0.9	0.3	-	1.2	54.3	2.3	0.3	2.6
4/1	308	308	-	-	-	2.3	0.5	-	2.8	33.2	8.6	0.5	9.1
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	202	202	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	242	242	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

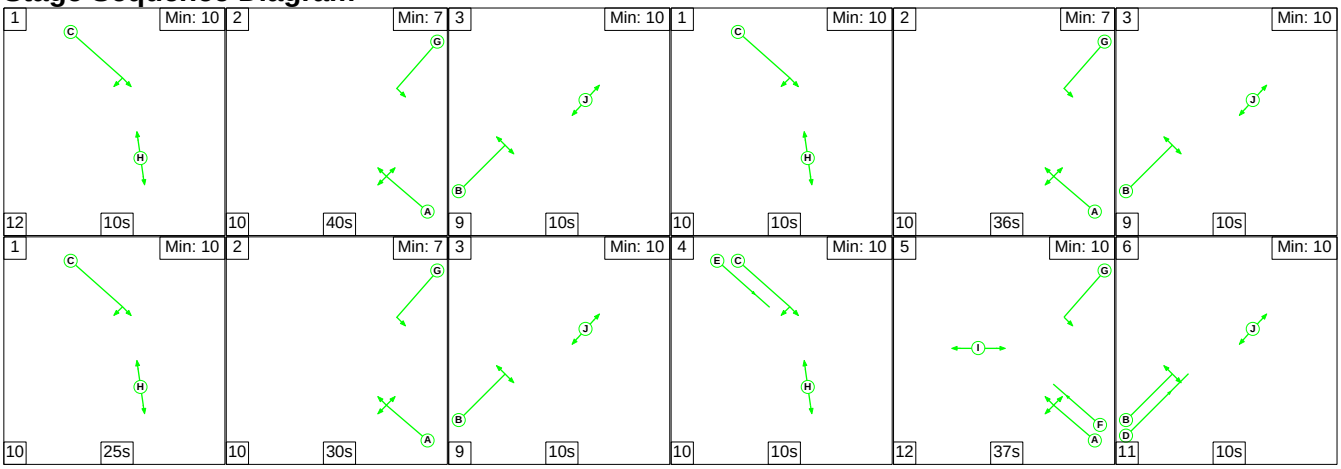
C1 - Bull Street - Corporation Street	PRC for Signalled Lanes (%):	183.8	Total Delay for Signalled Lanes (pcuHr):	1.13	Cycle Time (s): 360
C2 - Bull Street - High Street	PRC for Signalled Lanes (%):	75.8	Total Delay for Signalled Lanes (pcuHr):	6.67	Cycle Time (s): 360
	PRC Over All Lanes (%):	75.8	Total Delay Over All Lanes(pcuHr):	7.80	

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

C1 - Bull Street - Corporation Street

Stage Sequence Diagram

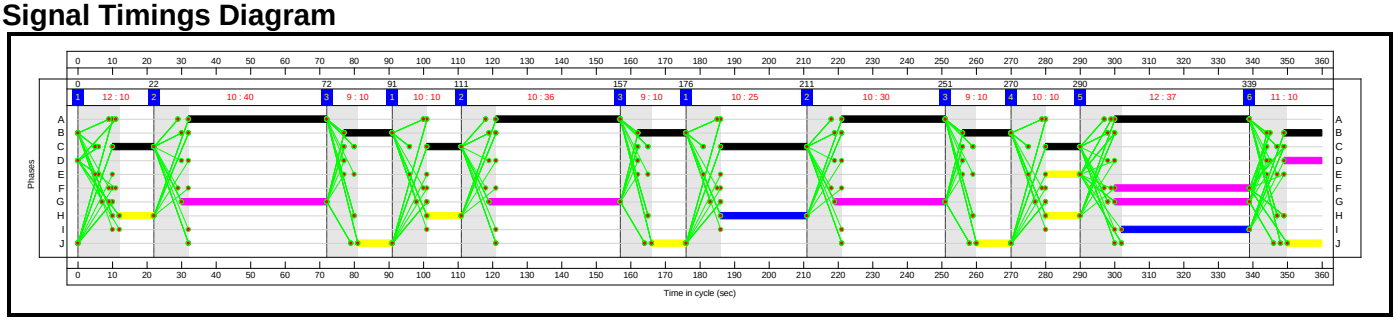


Stage Timings

Stage	1	2	3	1	2	3	1	2	3	4
Duration	10	40	10	10	36	10	25	30	10	10
Change Point	0	22	72	91	111	157	176	211	251	270

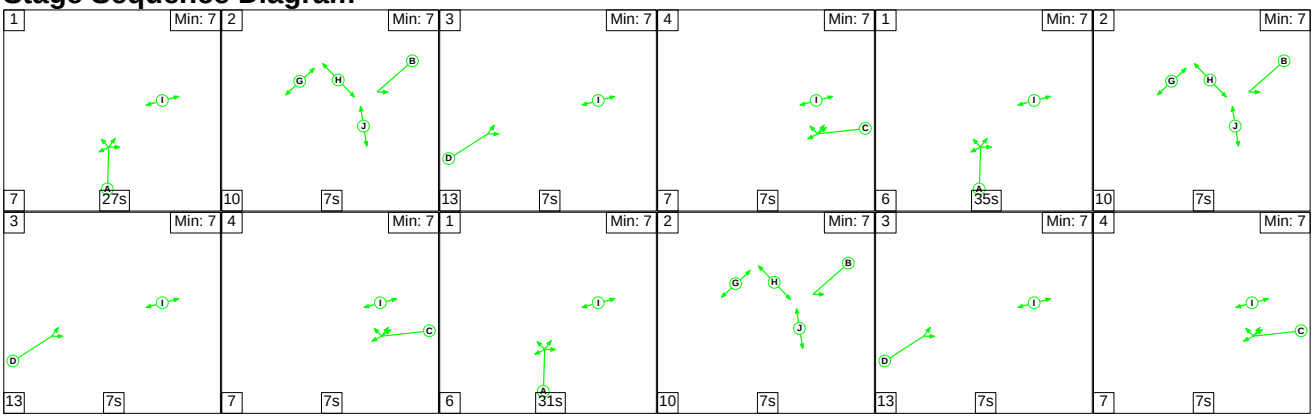
Stage	5	6								
Duration	37	10								
Change Point	290	339								

Signal Timings Diagram

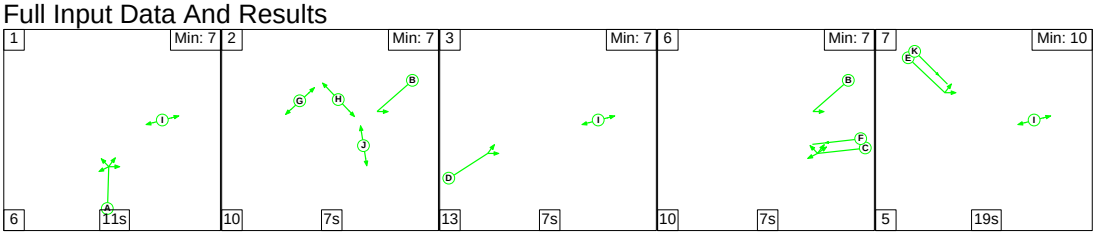


C2 - Bull Street - High Street

Stage Sequence Diagram



Full Input Data And Results

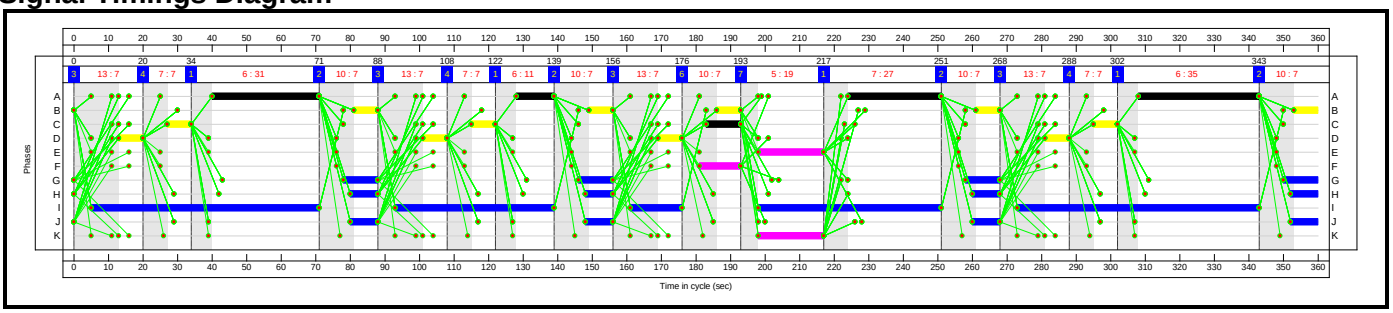


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	27	7	7	7	35	7	7	7	31	7
Change Point	217	251	268	288	302	343	0	20	34	71

Stage	3	4	1	2	3	6	7			
Duration	7	7	11	7	7	7	19			
Change Point	88	108	122	139	156	176	193			

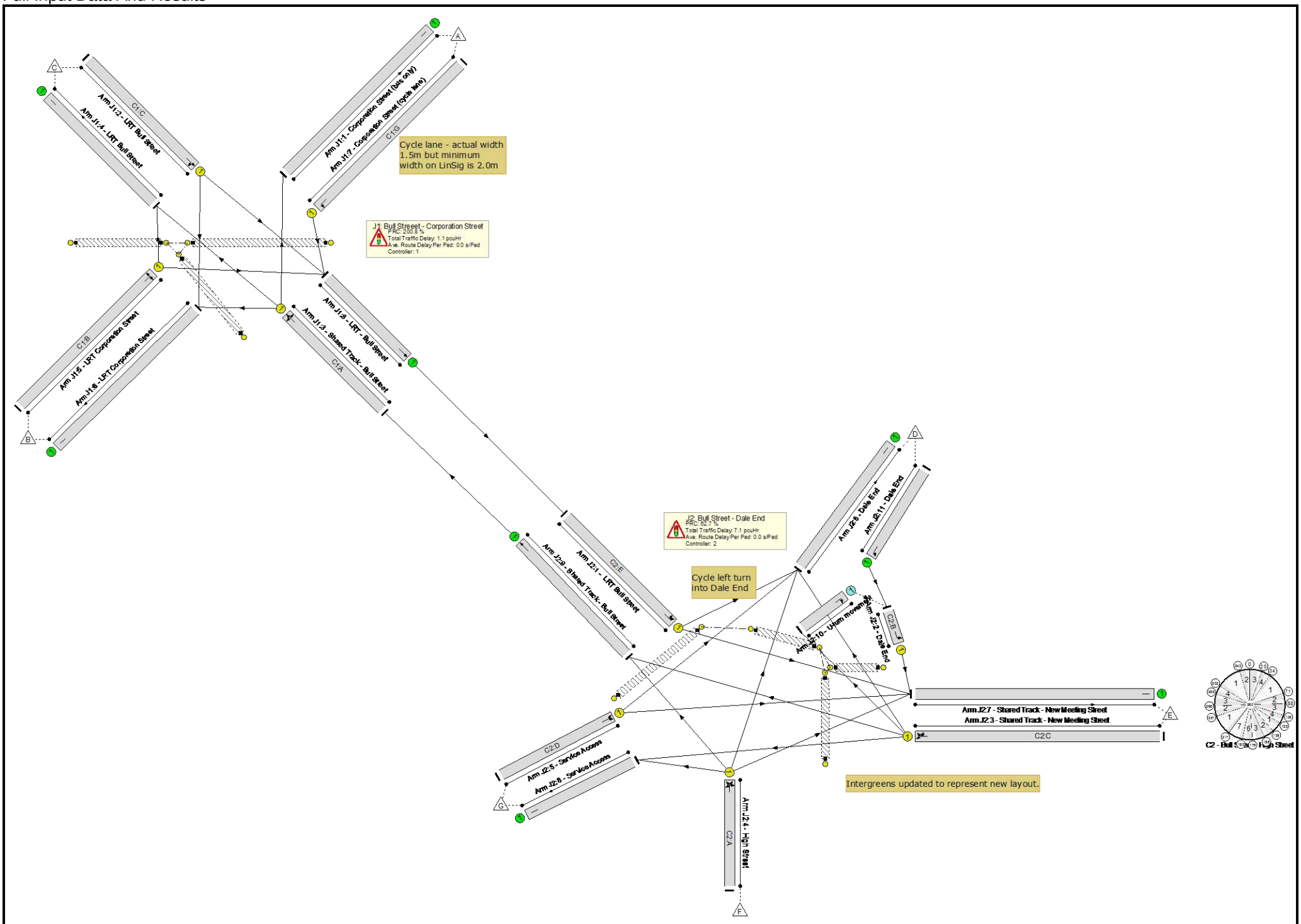
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Streeet/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**55.3%**
J1: Bull Streeet - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**29.9%**
1/1	Corporation Street (bus only)	U	N/A	N/A	-		-	-	-	172	Inf	Inf	0.0%
2/1	LRT Bull Street Right Ahead	U	N/A	N/A	C1:C		4	57	-	58	1995	338	17.2%
3/1	Shared Track - Bull Street Right Ahead Left	U	N/A	N/A	C1:A		4	145	-	230	1857	769	29.9%
4/1	LRT Bull Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
5/1	LRT Corporation Street Left Right	U	N/A	N/A	C1:B		4	53	-	0	2015	319	0.0%
6/1	LRT Corporation Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
7/1	Corporation Street (cycle lane) Left	U	N/A	N/A	C1:G		4	151	-	0	1815	781	0.0%
8/1	LRT - Bull Street Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:H		4	55	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:I		1	37	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:J		4	40	-	0	-	0	0.0%
J2: Bull Street - Dale End	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**55.3%**
1/1	LRT Bull Street Left Left2	U	N/A	N/A	C2:E		1	19	-	58	1942	108	53.8%
2/1	Dale End Left	U	N/A	N/A	C2:B		5	35	-	0	2115	235	0.0%
3/1	Shared Track - New Meeting Street Right Ahead Right2 U-Turn	U	N/A	N/A	C2:C		4	31	-	79	2055	200	39.5%

Full Input Data And Results

4/1	High Street Ahead Right Left Ahead2	U	N/A	N/A	C2:A		4	104	-	337	2031	609	55.3%
5/1	Service Access Ahead Ahead2	U	N/A	N/A	C2:D		4	28	-	0	2015	179	0.0%
6/1	Dale End	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Shared Track - New Meeting Street	U	N/A	N/A	-		-	-	-	244	Inf	Inf	0.0%
8/1	Service Access	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Shared Track - Bull Street Ahead	U	N/A	N/A	-		-	-	-	230	Inf	Inf	0.0%
10/1	U-turn movement Right	O	N/A	N/A	-		-	-	-	0	2015	715	0.0%
11/1	Dale End Left	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:G		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:I		5	250	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:J		4	32	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:H		4	32	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Streeet/Corporation Street	**-**	**-**	**0**	**0**	**0**	**6.4**	**1.8**	**0.0**	**8.2**	**-**	**-**	**-**	**-**
J1: Bull Streeet - Corporation Street	**-**	**-**	**0**	**0**	**0**	**0.8**	**0.3**	**0.0**	**1.1**	**-**	**-**	**-**	**-**
1/1	172	172	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	58	58	-	-	-	0.5	0.1	-	0.6	38.5	1.3	0.1	1.4
3/1	230	230	-	-	-	0.3	0.2	-	0.5	7.7	1.6	0.2	1.8
4/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Bull Street - Dale End	**-**	**-**	**0**	**0**	**0**	**5.6**	**1.5**	**0.0**	**7.1**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	2.1	0.6	-	2.7	168.7	5.6	0.6	6.2
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	79	79	-	-	-	0.9	0.3	-	1.2	54.2	2.3	0.3	2.6
4/1	337	337	-	-	-	2.6	0.6	-	3.2	34.0	9.4	0.6	10.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	244	244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	230	230	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

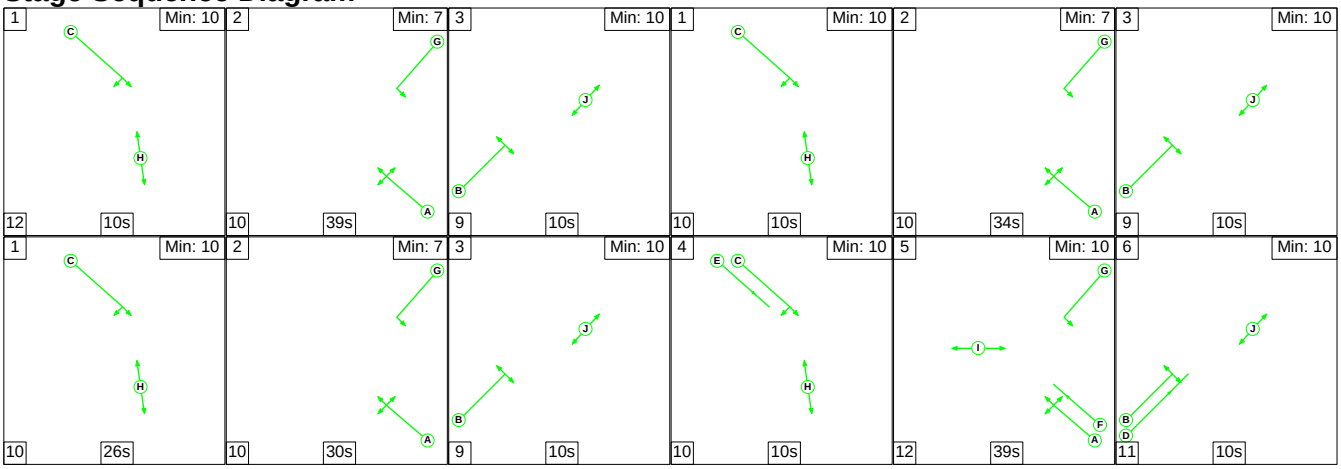
C1 - Bull Street - Corporation Street	PRC for Signalled Lanes (%):	200.8	Total Delay for Signalled Lanes (pcuHr):	1.11	Cycle Time (s): 360
C2 - Bull Street - High Street	PRC for Signalled Lanes (%):	62.7	Total Delay for Signalled Lanes (pcuHr):	7.09	Cycle Time (s): 360
	PRC Over All Lanes (%):	62.7	Total Delay Over All Lanes(pcuHr):	8.20	

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

C1 - Bull Street - Corporation Street

Stage Sequence Diagram

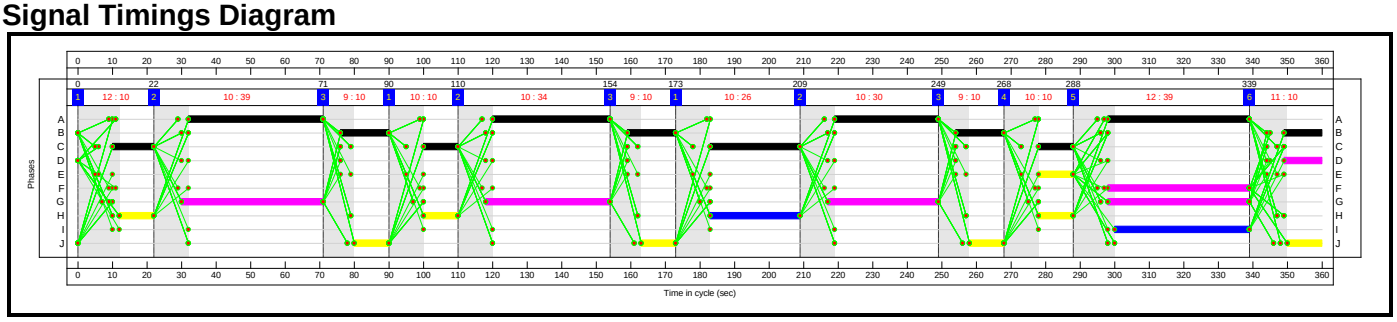


Stage Timings

Stage	1	2	3	1	2	3	1	2	3	4
Duration	10	39	10	10	34	10	26	30	10	10
Change Point	0	22	71	90	110	154	173	209	249	268

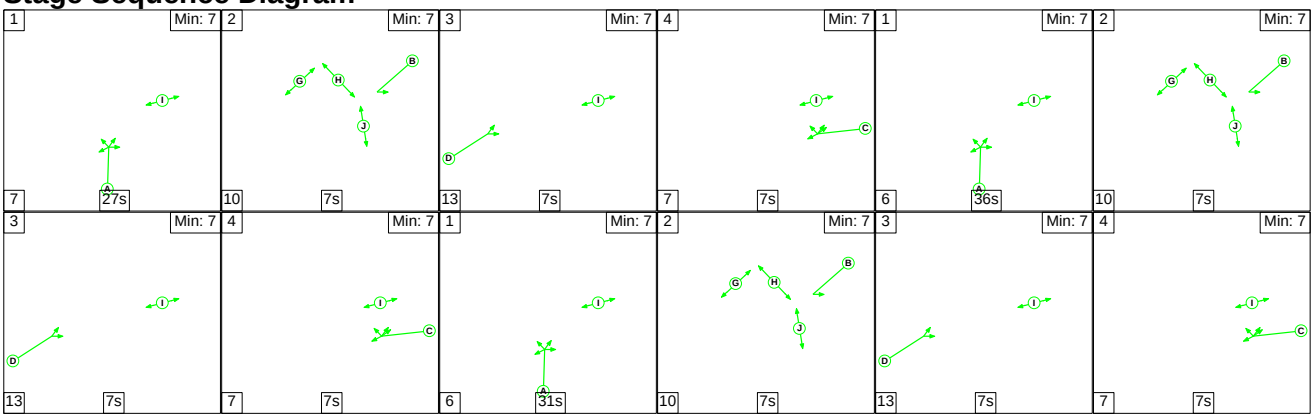
Stage	5	6								
Duration	39	10								
Change Point	288	339								

Signal Timings Diagram

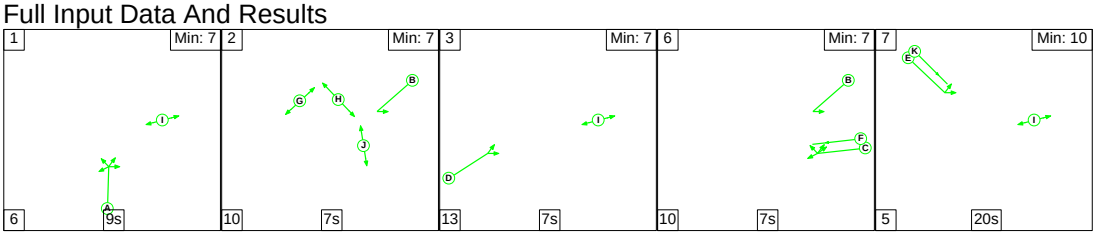


C2 - Bull Street - High Street

Stage Sequence Diagram



Full Input Data And Results

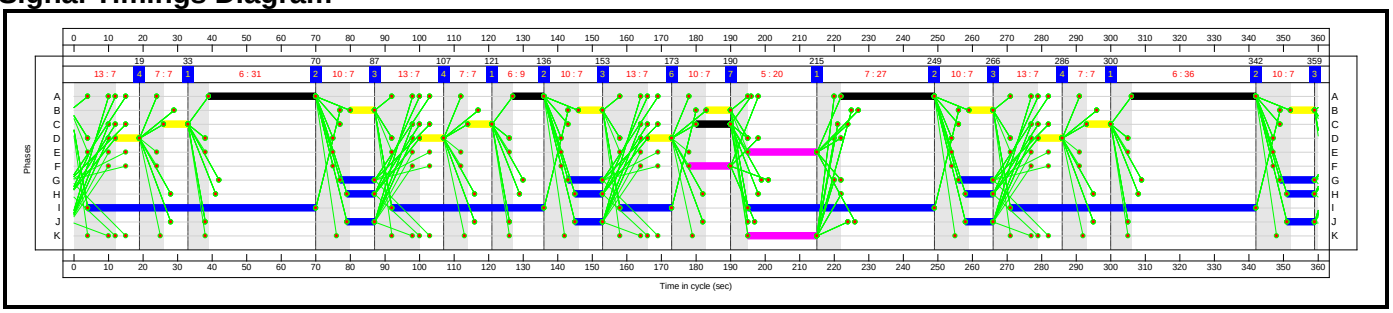


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	27	7	7	7	36	7	7	7	31	7
Change Point	215	249	266	286	300	342	359	19	33	70

Stage	3	4	1	2	3	6	7			
Duration	7	7	9	7	7	7	20			
Change Point	87	107	121	136	153	173	190			

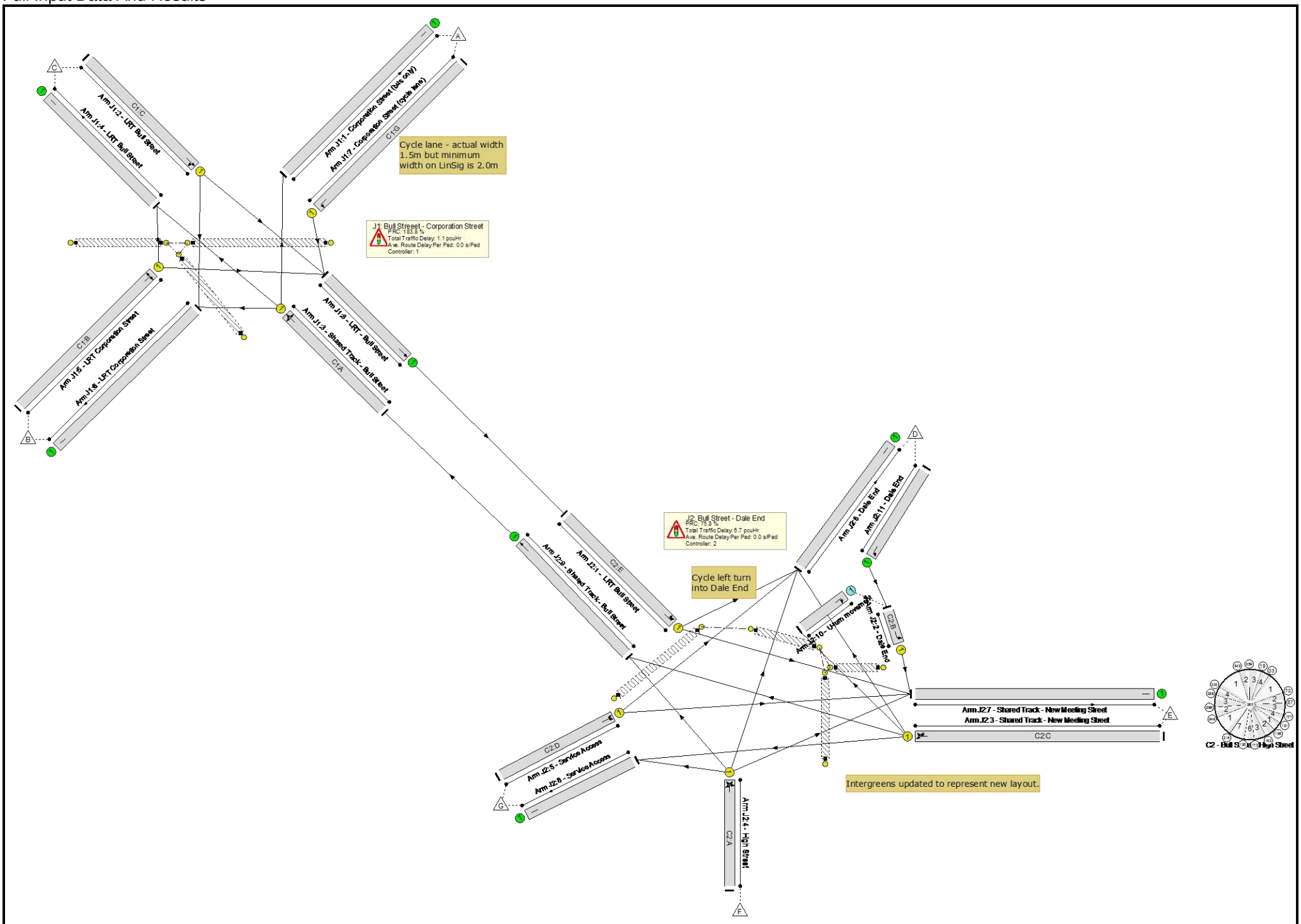
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Streeet/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**
J1: Bull Streeet - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.7%**
1/1	Corporation Street (bus only)	U	N/A	N/A	-		-	-	-	184	Inf	Inf	0.0%
2/1	LRT Bull Street Right Ahead	U	N/A	N/A	C1:C		4	58	-	58	1995	344	16.9%
3/1	Shared Track - Bull Street Right Ahead Left	U	N/A	N/A	C1:A		4	144	-	242	1856	763	31.7%
4/1	LRT Bull Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
5/1	LRT Corporation Street Left Right	U	N/A	N/A	C1:B		4	53	-	0	2015	319	0.0%
6/1	LRT Corporation Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
7/1	Corporation Street (cycle lane) Left	U	N/A	N/A	C1:G		4	150	-	0	1815	776	0.0%
8/1	LRT - Bull Street Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:H		4	56	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:I		1	39	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:J		4	40	-	0	-	0	0.0%
J2: Bull Street - Dale End	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**
1/1	LRT Bull Street Left Left2	U	N/A	N/A	C2:E		1	20	-	58	1942	113	51.2%
2/1	Dale End Left	U	N/A	N/A	C2:B		5	35	-	0	2115	235	0.0%
3/1	Shared Track - New Meeting Street Right Ahead Right2 U-Turn	U	N/A	N/A	C2:C		4	31	-	78	2055	200	39.0%

Full Input Data And Results

4/1	High Street Ahead Right Left Ahead2	U	N/A	N/A	C2:A		4	103	-	308	2043	607	50.7%
5/1	Service Access Ahead Ahead2	U	N/A	N/A	C2:D		4	28	-	0	2015	179	0.0%
6/1	Dale End	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Shared Track - New Meeting Street	U	N/A	N/A	-		-	-	-	202	Inf	Inf	0.0%
8/1	Service Access	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Shared Track - Bull Street Ahead	U	N/A	N/A	-		-	-	-	242	Inf	Inf	0.0%
10/1	U-turn movement Right	O	N/A	N/A	-		-	-	-	0	2015	715	0.0%
11/1	Dale End Left	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:G		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:I		5	250	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:J		4	32	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:H		4	32	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Streeet/Corporation Street	**-**	**-**	**0**	**0**	**0**	**6.1**	**1.7**	**0.0**	**7.8**	**-**	**-**	**-**	**-**
J1: Bull Streeet - Corporation Street	**-**	**-**	**0**	**0**	**0**	**0.8**	**0.3**	**0.0**	**1.1**	**-**	**-**	**-**	**-**
1/1	184	184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	58	58	-	-	-	0.5	0.1	-	0.6	38.2	1.3	0.1	1.4
3/1	242	242	-	-	-	0.3	0.2	-	0.5	7.7	1.5	0.2	1.7
4/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Bull Street - Dale End	**-**	**-**	**0**	**0**	**0**	**5.3**	**1.3**	**0.0**	**6.7**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	2.1	0.5	-	2.7	164.6	5.6	0.5	6.1
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	78	78	-	-	-	0.9	0.3	-	1.2	54.3	2.3	0.3	2.6
4/1	308	308	-	-	-	2.3	0.5	-	2.8	33.2	8.6	0.5	9.1
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	202	202	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	242	242	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

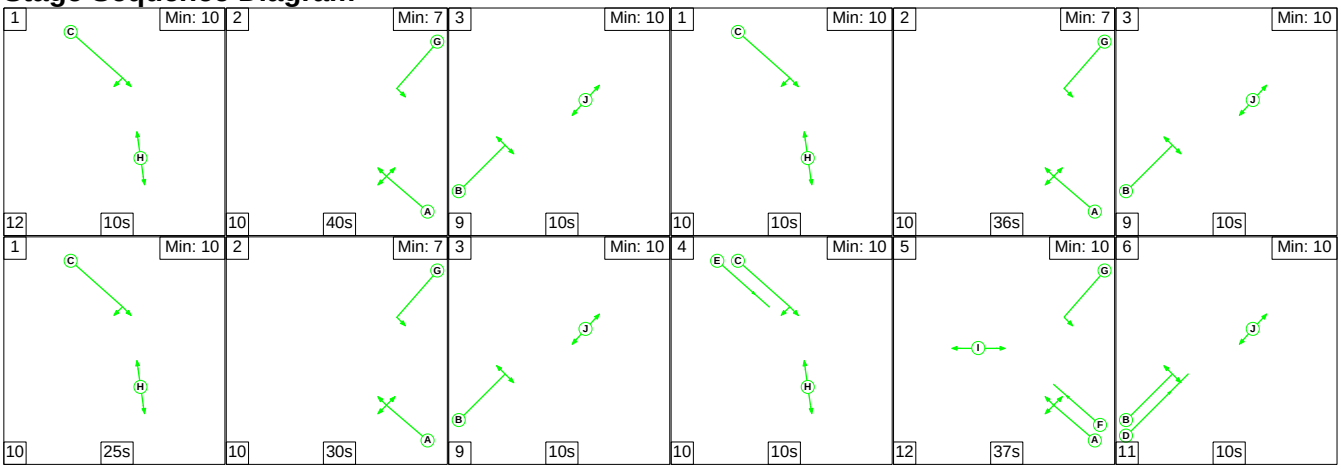
C1 - Bull Street - Corporation Street	PRC for Signalled Lanes (%):	183.8	Total Delay for Signalled Lanes (pcuHr):	1.13	Cycle Time (s): 360
C2 - Bull Street - High Street	PRC for Signalled Lanes (%):	75.8	Total Delay for Signalled Lanes (pcuHr):	6.67	Cycle Time (s): 360
	PRC Over All Lanes (%):	75.8	Total Delay Over All Lanes(pcuHr):	7.80	

Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1-2021 AM DM')

C1 - Bull Street - Corporation Street

Stage Sequence Diagram

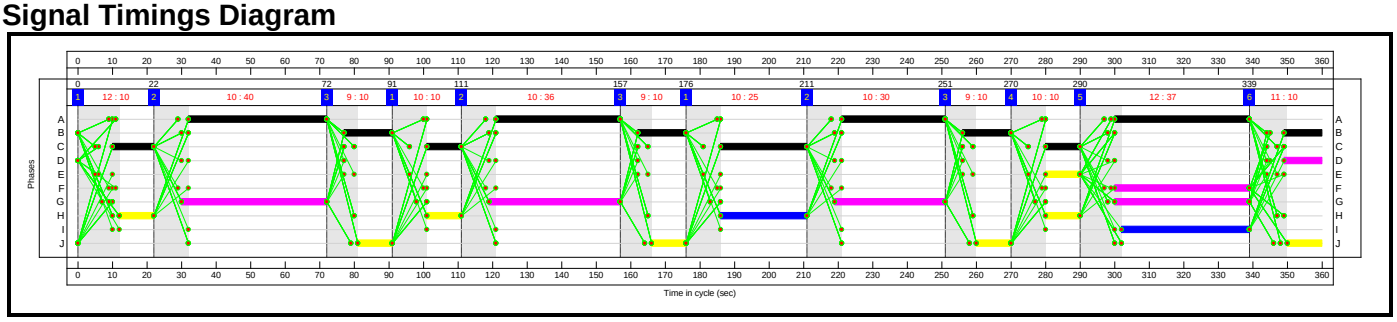


Stage Timings

Stage	1	2	3	1	2	3	1	2	3	4
Duration	10	40	10	10	36	10	25	30	10	10
Change Point	0	22	72	91	111	157	176	211	251	270

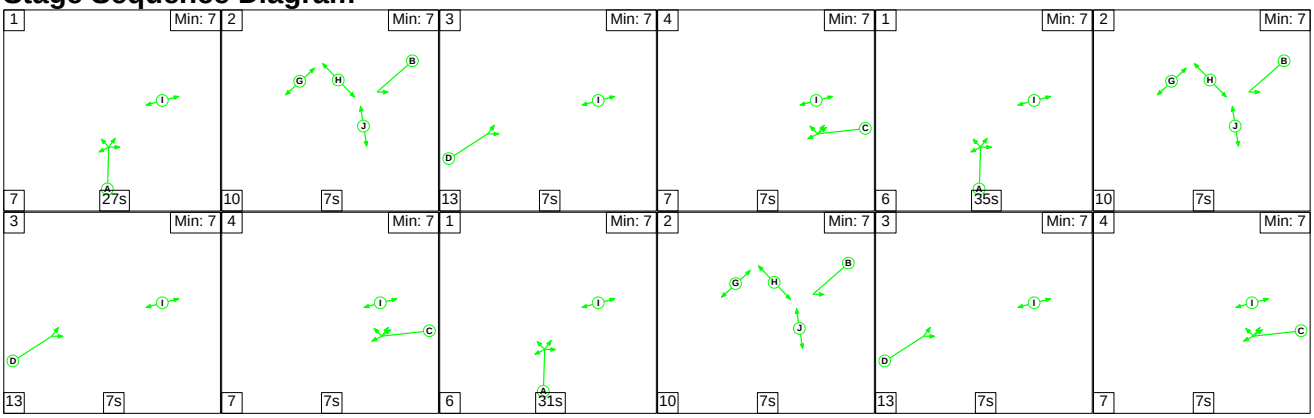
Stage	5	6								
Duration	37	10								
Change Point	290	339								

Signal Timings Diagram

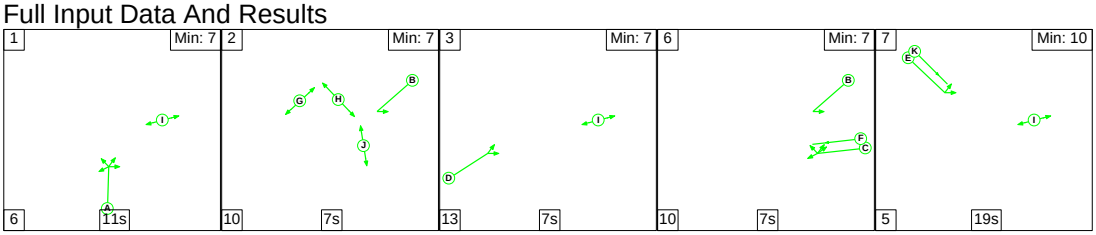


C2 - Bull Street - High Street

Stage Sequence Diagram



Full Input Data And Results

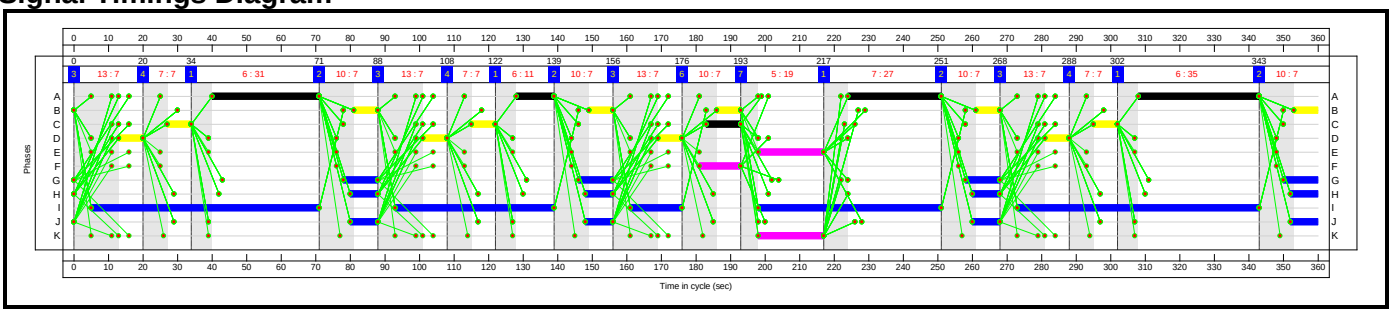


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	27	7	7	7	35	7	7	7	31	7
Change Point	217	251	268	288	302	343	0	20	34	71

Stage	3	4	1	2	3	6	7			
Duration	7	7	11	7	7	7	19			
Change Point	88	108	122	139	156	176	193			

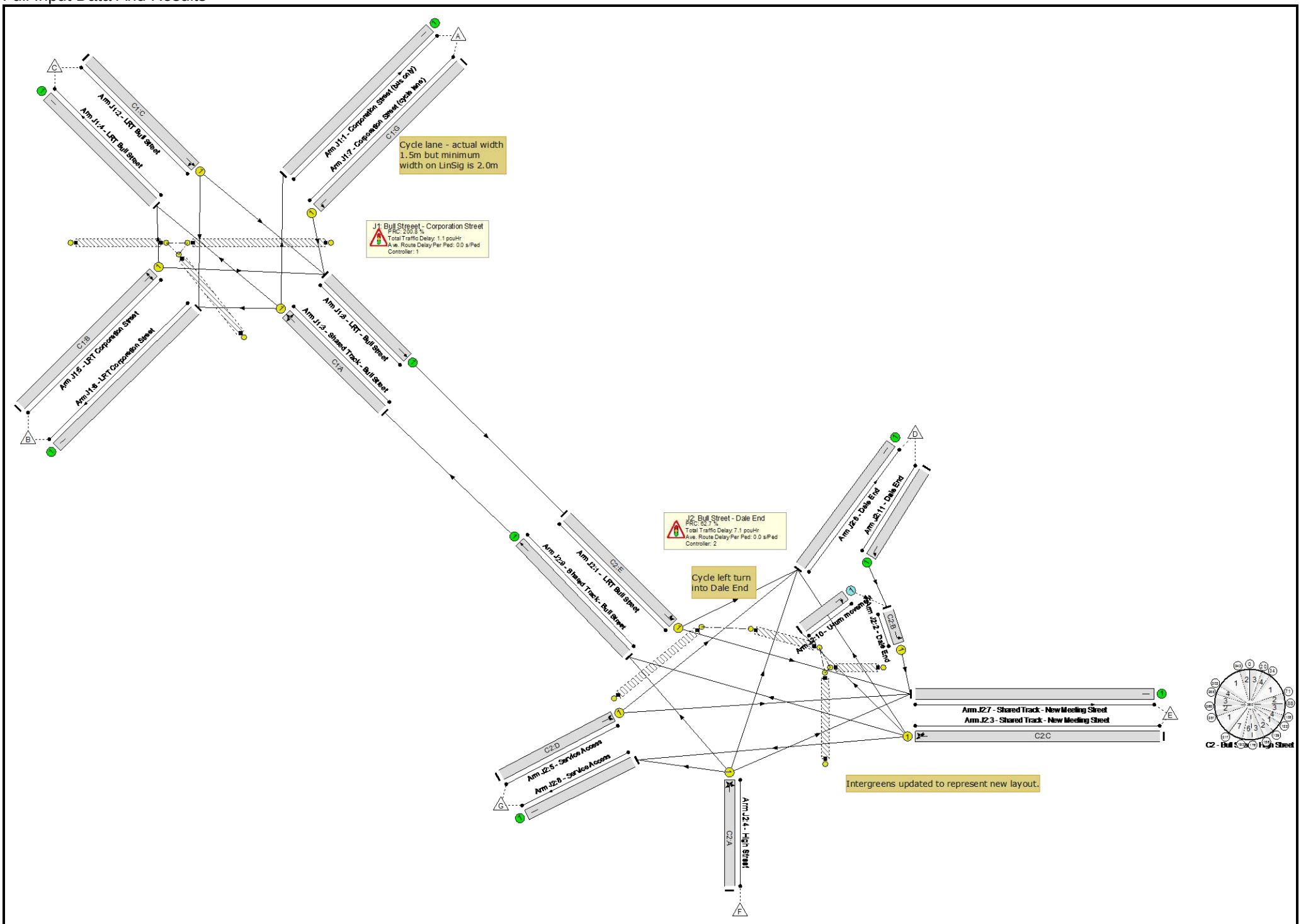
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Bull Streeet/Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**55.3%**
J1: Bull Streeet - Corporation Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**29.9%**
1/1	Corporation Street (bus only)	U	N/A	N/A	-		-	-	-	172	Inf	Inf	0.0%
2/1	LRT Bull Street Right Ahead	U	N/A	N/A	C1:C		4	57	-	58	1995	338	17.2%
3/1	Shared Track - Bull Street Right Ahead Left	U	N/A	N/A	C1:A		4	145	-	230	1857	769	29.9%
4/1	LRT Bull Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
5/1	LRT Corporation Street Left Right	U	N/A	N/A	C1:B		4	53	-	0	2015	319	0.0%
6/1	LRT Corporation Street	U	N/A	N/A	-		-	-	-	29	Inf	Inf	0.0%
7/1	Corporation Street (cycle lane) Left	U	N/A	N/A	C1:G		4	151	-	0	1815	781	0.0%
8/1	LRT - Bull Street Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:H		4	55	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:I		1	37	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:J		4	40	-	0	-	0	0.0%
J2: Bull Street - Dale End	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**55.3%**
1/1	LRT Bull Street Left Left2	U	N/A	N/A	C2:E		1	19	-	58	1942	108	53.8%
2/1	Dale End Left	U	N/A	N/A	C2:B		5	35	-	0	2115	235	0.0%
3/1	Shared Track - New Meeting Street Right Ahead Right2 U-Turn	U	N/A	N/A	C2:C		4	31	-	79	2055	200	39.5%

Full Input Data And Results

4/1	High Street Ahead Right Left Ahead2	U	N/A	N/A	C2:A		4	104	-	337	2031	609	55.3%
5/1	Service Access Ahead Ahead2	U	N/A	N/A	C2:D		4	28	-	0	2015	179	0.0%
6/1	Dale End	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Shared Track - New Meeting Street	U	N/A	N/A	-		-	-	-	244	Inf	Inf	0.0%
8/1	Service Access	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Shared Track - Bull Street Ahead	U	N/A	N/A	-		-	-	-	230	Inf	Inf	0.0%
10/1	U-turn movement Right	O	N/A	N/A	-		-	-	-	0	2015	1055	0.0%
11/1	Dale End Left	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C2:G		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C2:I		5	250	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C2:J		4	32	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C2:H		4	32	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Bull Streeet/Corporation Street	**-**	**-**	**0**	**0**	**0**	**6.4**	**1.8**	**0.0**	**8.2**	**-**	**-**	**-**	**-**
J1: Bull Streeet - Corporation Street	**-**	**-**	**0**	**0**	**0**	**0.8**	**0.3**	**0.0**	**1.1**	**-**	**-**	**-**	**-**
1/1	172	172	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	58	58	-	-	-	0.5	0.1	-	0.6	38.5	1.3	0.1	1.4
3/1	230	230	-	-	-	0.3	0.2	-	0.5	7.7	1.6	0.2	1.8
4/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	29	29	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Bull Street - Dale End	**-**	**-**	**0**	**0**	**0**	**5.6**	**1.5**	**0.0**	**7.1**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	2.1	0.6	-	2.7	168.7	5.6	0.6	6.2
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	79	79	-	-	-	0.9	0.3	-	1.2	54.2	2.3	0.3	2.6
4/1	337	337	-	-	-	2.6	0.6	-	3.2	34.0	9.4	0.6	10.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	244	244	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	230	230	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

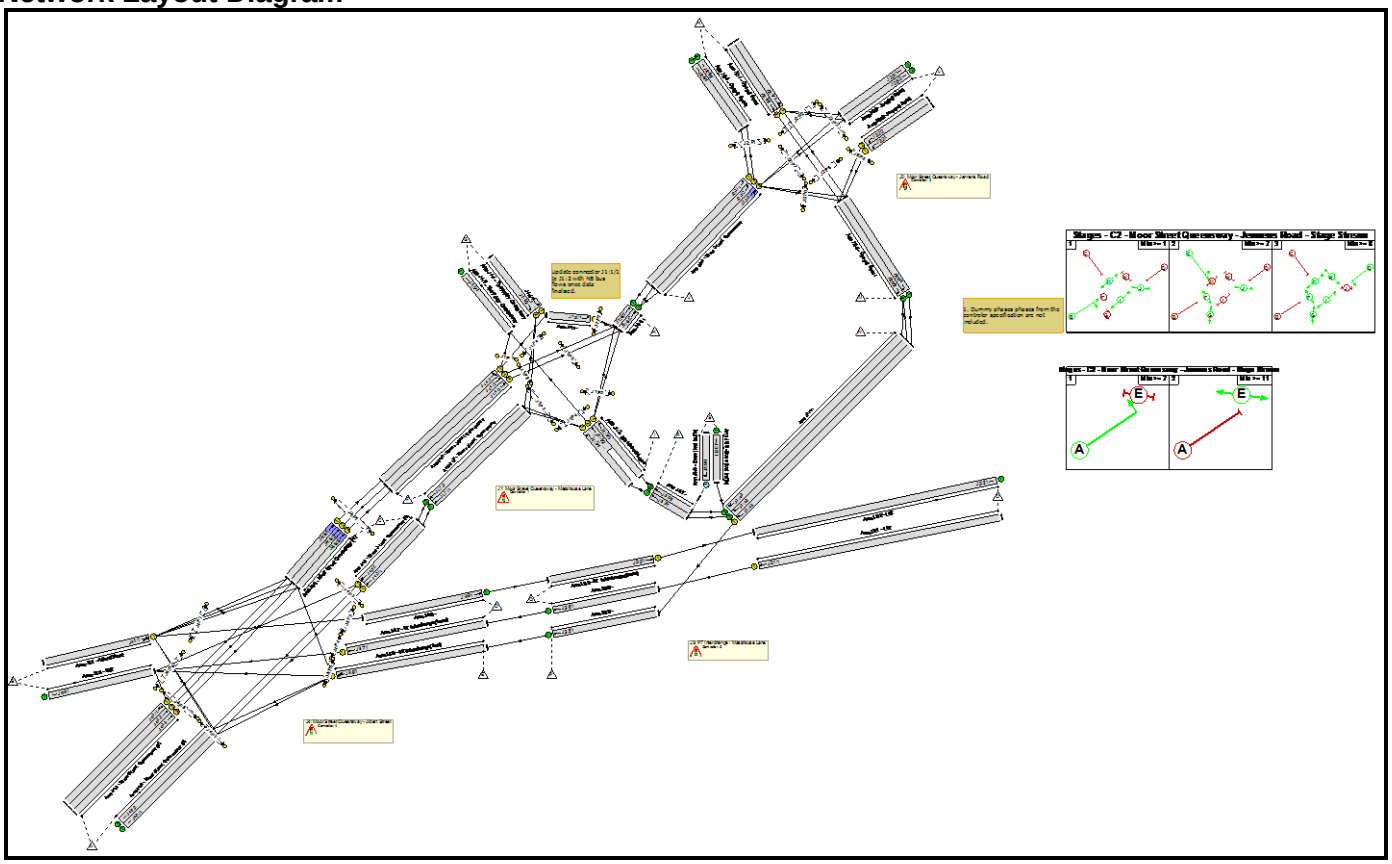
C1 - Bull Street - Corporation Street	PRC for Signalled Lanes (%):	200.8	Total Delay for Signalled Lanes (pcuHr):	1.11	Cycle Time (s): 360
C2 - Bull Street - High Street	PRC for Signalled Lanes (%):	62.7	Total Delay for Signalled Lanes (pcuHr):	7.09	Cycle Time (s): 360
	PRC Over All Lanes (%):	62.7	Total Delay Over All Lanes(pcuHr):	8.20	

Full Input Data And Results

User and Project Details

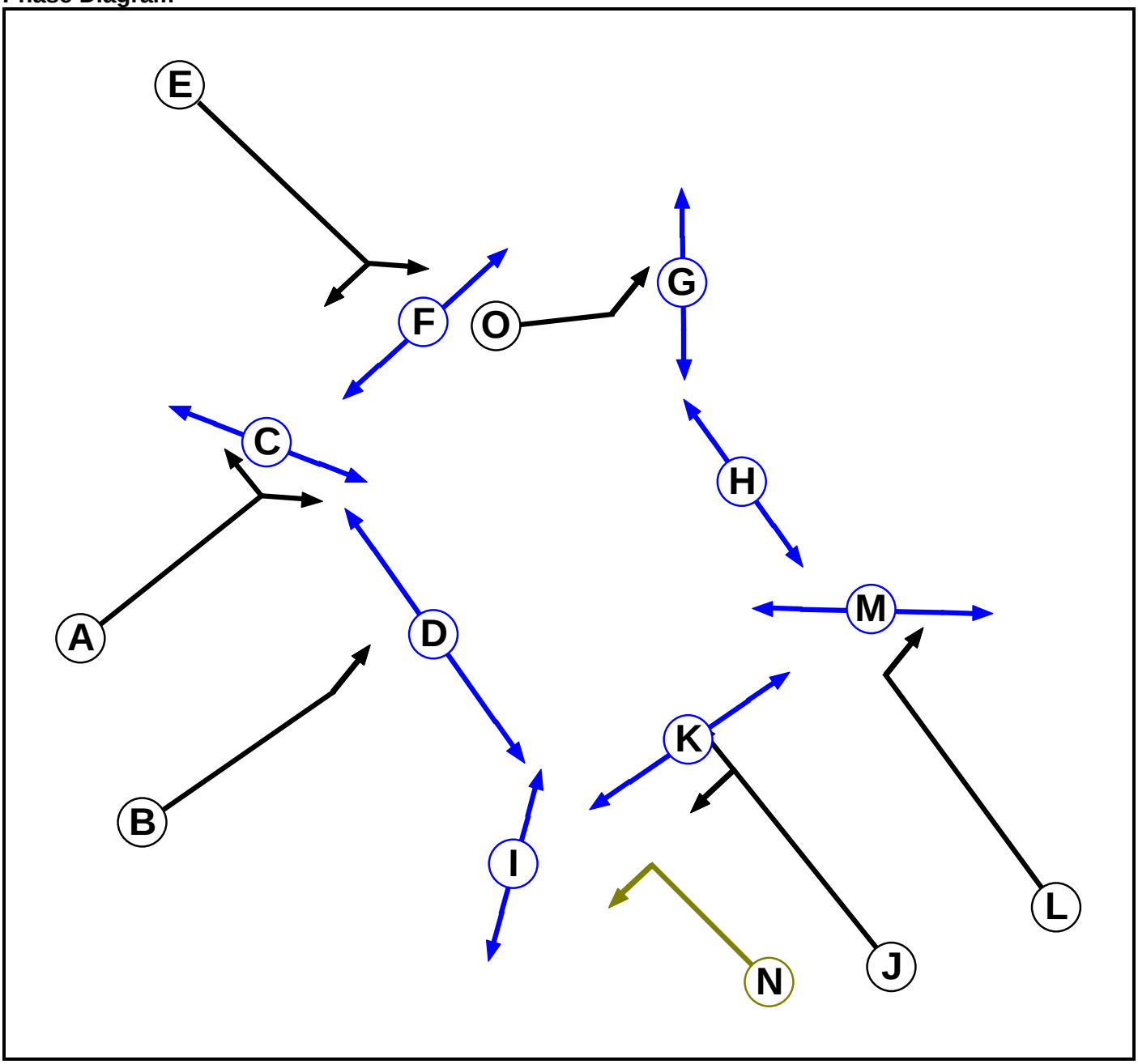
Project:	**359345 - Birmingham Eastside Extension**
Title:	**Moor Street Queensway/Albert Street**
Location:	Birmingham
File name:	Moor Street Queensway - Albert Street (360).lsg3x
Author:	Dragos Suciu
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU, UK
Notes:	Do Something

Network Layout Diagram



C1 - Moor Street Queensway - Masshouse Lane

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Pedestrian		6	6
D	Pedestrian		6	6
E	Traffic		7	5
F	Pedestrian		6	6
G	Pedestrian		7	7
H	Pedestrian		6	6
I	Pedestrian		6	6
J	Traffic		7	7
K	Pedestrian		8	8
L	Traffic		7	7
M	Pedestrian		7	7
N	Filter	J	4	0
O	Traffic		7	7

Full Input Data And Results

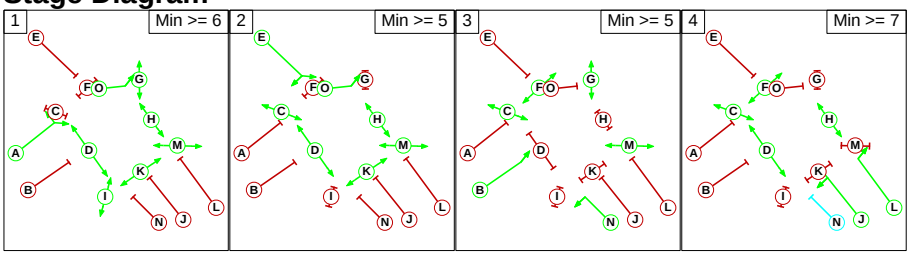
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A		6	5	-	7	-	-	-	-	5	-	-	-	-	-
B	5		-	5	5	-	-	7	-	5	-	7	-	-	8
C	8	-		-	-	-	-	-	-	-	-	-	-	-	-
D	-	8	-		-	-	-	-	-	-	-	-	-	-	-
E	5	7	-	-		8	7	-	10	8	-	7	-	8	-
F	-	-	-	-	7		-	-	-	-	-	-	-	-	-
G	-	-	-	-	7	-		-	-	7	-	-	-	-	-
H	-	6	-	-	-	-	-		-	-	-	-	-	-	-
I	-	-	-	-	5	-	-	-		7	-	-	-	7	-
J	8	6	-	-	5	-	8	-	7		5	-	-	-	-
K	-	-	-	-	-	-	-	-	-	10		-	-	10	-
L	-	5	-	-	5	-	-	-	-	-	-		5	-	5
M	-	-	-	-	-	-	-	-	-	-	-	7		-	-
N	-	-	-	-	5	-	-	-	7	-	5	-	-		-
O	-	5	-	-	-	5	-	-	-	-	-	5	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D G H I K M O
2	C D E H K M O
3	B C F G M N
4	C D F H J L

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	A	Losing	1	1
1	4	A	Losing	2	2
1	4	G	Losing	3	3
1	4	I	Losing	3	3
1	4	M	Losing	1	1
1	4	O	Losing	5	5
2	1	E	Losing	3	3
2	3	E	Losing	2	2
2	3	H	Losing	2	2
2	3	O	Losing	5	5
2	4	E	Losing	2	2
2	4	M	Losing	2	2
2	4	O	Losing	5	5
4	1	F	Losing	3	3
4	1	L	Losing	3	3

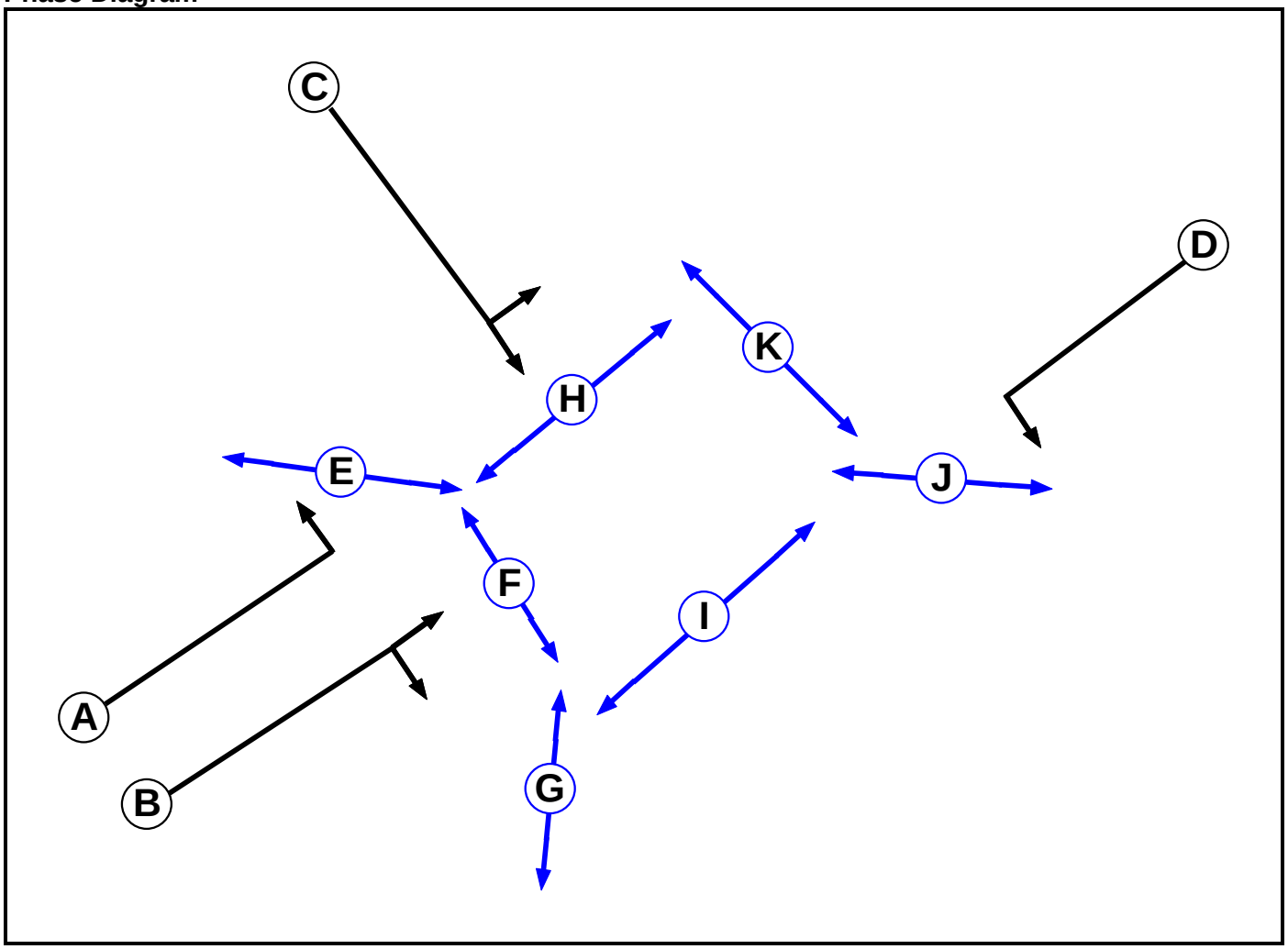
Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		7	10	10
2	13		10	10
3	X	X		7
4	8	7	8	

Full Input Data And Results

C2 - Moor Street Queensway - Jennens Road

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	2		7	7
B	Traffic	1		7	2
C	Traffic	1		7	7
D	Traffic	1		7	3
E	Pedestrian	2		11	11
F	Pedestrian	1		5	5
G	Pedestrian	1		6	6
H	Pedestrian	1		10	10
I	Pedestrian	1		10	10
J	Pedestrian	1		10	10
K	Pedestrian	1		8	8

Full Input Data And Results

Phase Intergreens Matrix

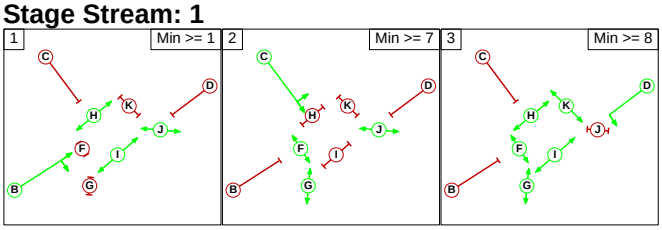
Terminating Phase	Starting Phase											
		A	B	C	D	E	F	G	H	I	J	K
	A		-	-	-	5	-	-	-	-	-	-
	B	-		5	5	-	5	5	-	-	-	8
	C	-	5		7	-	-	-	5	7	-	8
	D	-	5	5		-	-	-	-	-	5	-
	E	11	-	-	-		-	-	-	-	-	-
	F	-	5	-	-	-		-	-	-	-	-
	G	-	6	-	-	-	-		-	-	-	-
	H	-	-	10	-	-	-	-		-	-	-
	I	-	-	8	-	-	-	-	-		-	-
	J	-	-	-	10	-	-	-	-	-		-
	K	-	9	9	-	-	-	-	-	-	-	

Phases in Stage

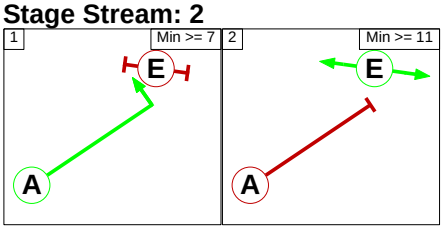
Stream	Stage No.	Phases in Stage
1	1	B H I J
1	2	C F G J
1	3	D F G H I K
2	1	A
2	2	E

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	B	Losing	5	5
1	3	B	Losing	5	5
2	3	C	Losing	4	4
3	1	D	Losing	4	4
3	2	D	Losing	5	5

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

		To Stage		
		1	2	3
From Stage	1		10	13
	2	7		12
	3	9	10	

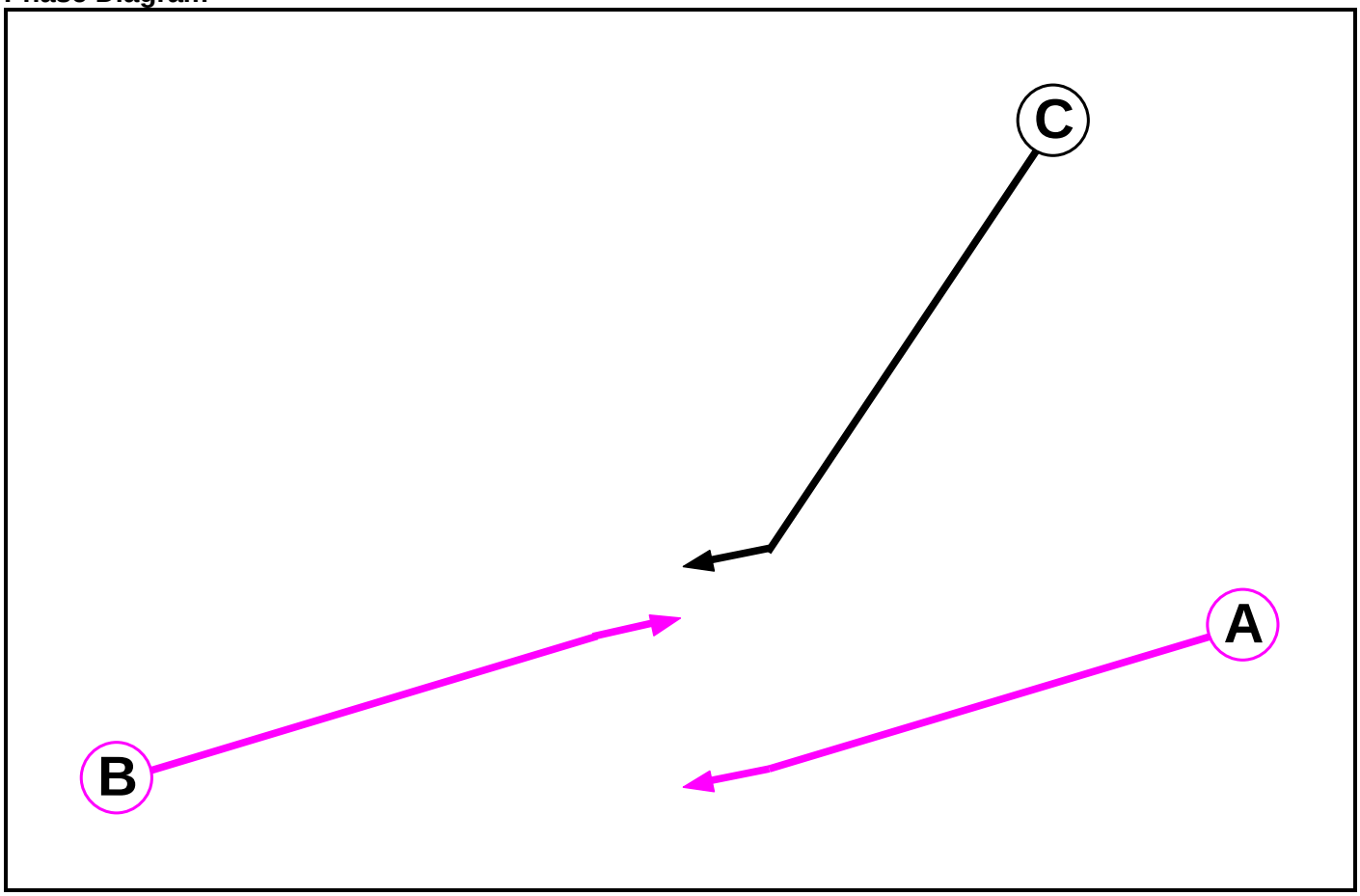
Stage Stream: 2

		To Stage	
		1	2
From Stage	1		5
	2	11	

Full Input Data And Results

C3 - PT Interchange / Masshouse Lane

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	LRT		7	7
B	LRT		7	7
C	Traffic		7	7

Phase Intergreens Matrix

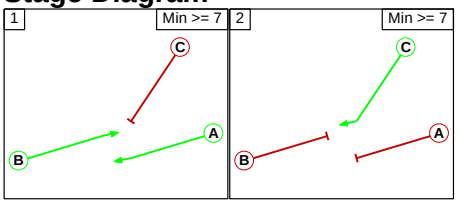
		Starting Phase		
		A	B	C
Terminating Phase	A		-	7
	B	-		7
	C	7	7	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	C

Full Input Data And Results

Stage Diagram



Phase Delays

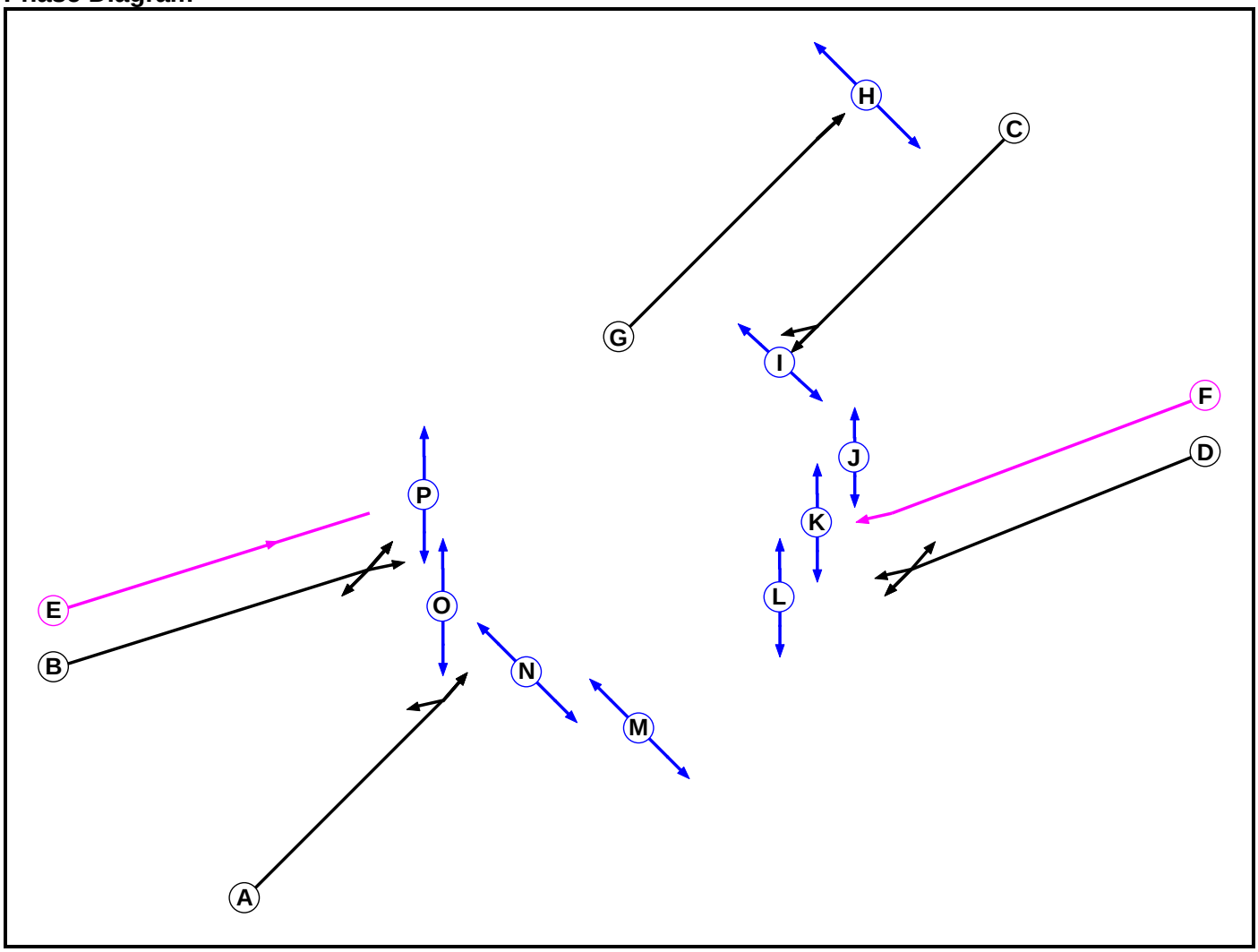
Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

	To Stage		
		1	2
From Stage	1		7
	2	7	

C4 - Moor Street Queensway - Albert Street

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	LRT		10	10
F	LRT		10	10
G	Traffic		7	7
H	Pedestrian		7	7
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		5	5
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Pedestrian		7	7
O	Pedestrian		5	5
P	Pedestrian		5	5

Full Input Data And Results

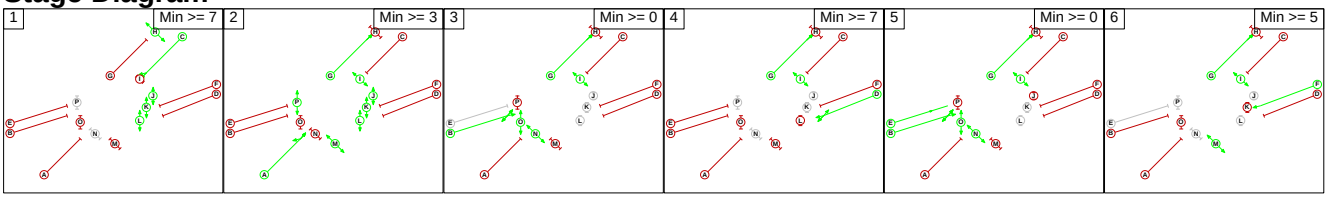
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A		7	6	7	7	6	-	-	-	-	-	-	-	5	8	-
B	5		5	7	-	5	-	-	-	-	-	-	12	-	-	5
C	8	6		7	5	5	-	-	5	-	-	-	12	-	11	-
D	7	6	5		5	5	-	-	-	-	-	6	10	-	10	-
E	5	-	11	7		-	-	-	-	13	-	-	-	-	-	8
F	9	8	7	8	-		-	-	-	-	8	-	-	-	13	-
G	-	-	-	-	-	-		5	-	-	-	-	-	-	-	-
H	-	-	-	-	-	-	11		-	-	-	-	-	-	-	-
I	-	-	8	-	-	-	-	-		-	-	-	-	-	-	-
J	-	-	-	-	7	-	-	-	-		-	-	-	-	-	-
K	-	-	-	-	-	8	-	-	-	-		-	-	-	-	-
L	-	-	-	12	-	-	-	-	-	-	-		-	-	-	-
M	-	8	8	8	-	-	-	-	-	-	-	-		-	-	-
N	12	-	-	-	-	-	-	-	-	-	-	-	-		-	-
O	13	-	13	13	-	13	-	-	-	-	-	-	-	-		-
P	-	8	-	-	8	-	-	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	C H J K L
2	A G I J K L M P
3	B G I N O
4	D G I
5	B E G I N O
6	F G I M

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

From Stage	To Stage						
		1	2	3	4	5	6
	1		12	11	12	11	12
	2	8		8	12	8	8
	3	13	13		13	2	13
	4	8	10	10		10	10
	5	13	13	0	13		13
	6	8	9	13	8	13	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Moor Street Queensway - Masshouse Lane
There are no Opposed Lanes in this Junction

Junction: J2: Moor Street Queensway - Jennens Road
There are no Opposed Lanes in this Junction

Junction: J3: PT Interchange / Masshouse Lane

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
J3:9/1 (Zone (lost traffic))	J3:7/1 (Right)	1439	0	J3:4/2	1.09	All	-	-	-	-	-
				J3:4/3	1.09	All					
	J3:7/2 (Right)	1439	0	J3:4/3	1.09	All					

Junction: J4: Moor Street Queensway - Albert Street
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: Moor Street Queensway - Masshouse Lane												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (The Priory Queensway)	U	E	2	3	1.9	Geom	-	3.00	0.00	Y	Arm J1:2 Left	30.00
J1:1/2 (The Priory Queensway)	U	E	2	3	60.0	Geom	-	3.70	0.00	N	Arm J1:7 Right	9.00
J1:2/1	U	O	2	3	3.8	Geom	-	4.30	0.00	Y	Arm J1:6 Left	55.00
J1:3/1 (Masshouse Lane)	U	J N	2	3	12.2	Geom	-	3.30	0.00	Y	Arm J1:7 Left	9.00
J1:3/2 (Masshouse Lane)	U	J	2	3	6.4	Geom	-	4.05	0.00	Y	Arm J1:5 Ahead	Inf
J1:3/3 (Masshouse Lane)	U	L	2	3	12.2	Geom	-	3.30	0.00	Y	Arm J1:6 Right	18.00
J1:4/1 (Moor Street Queensway)	U	A	2	3	7.8	Geom	-	3.30	0.00	Y	Arm J1:2 Right	Inf
											Arm J1:5 Left	30.00
J1:4/2 (Moor Street Queensway)	U	B	2	3	9.6	Geom	-	3.65	0.00	Y	Arm J1:6 Ahead	Inf
J1:4/3 (Moor Street Queensway)	U	B	2	3	9.6	Geom	-	3.35	0.00	Y	Arm J1:6 Ahead	Inf
J1:5/1 (The Priory Queensway)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1	U		2	3	6.6	Inf	-	-	-	-	-	-
J1:6/2	U		2	3	6.6	Inf	-	-	-	-	-	-
J1:7/1 (Moor Street Queensway)	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:7/2 (Moor Street Queensway)	U		2	3	0.2	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Chapel Street)	U	C	2	3	60.0	Geom	-	3.45	0.00	Y	Arm J2:5 Left	17.00
											Arm J2:6 Ahead	Inf
J2:1/2 (Chapel Street)	U	C	2	3	60.0	Geom	-	3.40	0.00	N	Arm J2:6 Ahead	Inf
J2:2/1 (Jennens Road)	U	D	2	3	60.0	Geom	-	3.65	0.00	Y	Arm J2:6 Left	26.00
J2:2/2 (Jennens Road)	U	D	2	3	60.0	Geom	-	3.70	0.00	N	Arm J2:6 Left	26.00
J2:3/1 (Moor Street Queensway)	U	A	2	3	13.6	Geom	-	3.10	0.00	Y	Arm J2:4 Left	35.00
J2:3/2 (Moor Street Queensway)	U	A	2	3	14.3	Geom	-	3.45	0.00	Y	Arm J2:4 Left	35.00
J2:3/3 (Moor Street Queensway)	U	B	2	3	14.3	Geom	-	3.75	0.00	Y	Arm J2:5 Ahead	Inf
											Arm J2:6 Right	20.00
J2:4/1 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:4/2 (Chapel Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:5/1 (Jennens Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:5/2 (Jennens Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:6/1 (Chapel Street)	U		2	3	13.9	Inf	-	-	-	-	-	-
J2:6/2 (Chapel Street)	U		2	3	13.9	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (LRT)	U	A	2	3	60.0	Geom	-	4.00	0.00	Y	Arm J3:6 Ahead	Inf
J3:2/1 (LRT)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:3/1 (PT Interchange (tram))	U	B	2	3	10.4	Geom	-	4.50	0.00	Y	Arm J3:2 Ahead	Inf
J3:4/1	U	C	2	3	11.3	Geom	-	4.00	0.00	Y	Arm J3:5 Ahead	Inf
J3:4/2	U		2	3	11.3	Inf	-	-	-	-	-	-
J3:4/3	U		2	3	11.3	Inf	-	-	-	-	-	-
J3:5/1	U		2	3	10.4	Inf	-	-	-	-	-	-
J3:6/1	U		2	3	10.4	Inf	-	-	-	-	-	-
J3:7/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:7/2	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:8/1 (Zone (lost traffic))	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:9/1 (Zone (lost traffic))	O		2	3	60.0	User	1800	-	-	-	-	-

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J4:1/1 (Albert Street)	U	B	2	3	20.9	Geom	-	4.00	0.00	Y	Arm J4:5 Ahead	42.00
											Arm J4:6 U-Turn	16.00
											Arm J4:9 Ahead	Inf
J4:2/1 (Moor Street Queensway (N))	U	C	2	3	9.7	Geom	-	3.50	0.00	Y	Arm J4:6 Ahead	Inf
J4:2/2 (Moor Street Queensway (N))	U	C	2	3	9.7	Geom	-	3.45	0.00	Y	Arm J4:4 Ahead	70.00
											Arm J4:6 Ahead	Inf
J4:3/1 (Moor Street Queensway (S))	U	A	2	3	15.7	Geom	-	3.30	0.00	Y	Arm J4:4 U-Turn	16.00
											Arm J4:5 Ahead	Inf
J4:3/2 (Moor Street Queensway (S))	U	A	2	3	15.7	Geom	-	3.30	0.00	Y	Arm J4:5 Ahead	Inf
J4:3/3 (Moor Street Queensway (S))	U	A	2	3	15.7	Geom	-	3.30	0.00	Y	Arm J4:5 Ahead	Inf
J4:4/1 (LRT)	U		2	3	20.9	Inf	-	-	-	-	-	-
J4:5/1 (Moor Street Queensway (N))	U	G	2	3	7.8	Geom	-	3.30	0.00	Y	Arm J1:4 Ahead	Inf
J4:5/2 (Moor Street Queensway (N))	U	G	2	3	7.8	Geom	-	3.65	0.00	Y	Arm J1:4 Ahead	Inf
J4:5/3 (Moor Street Queensway (N))	U	G	2	3	7.8	Geom	-	3.30	0.00	Y	Arm J1:4 Ahead	Inf
J4:6/1 (Moor Street Queensway (S))	U		2	3	15.7	Inf	-	-	-	-	-	-

Full Input Data And Results

J4:6/2 (Moor Street Queensway (S))	U		2	3	15.7	Inf	-	-	-	-	-	-
J4:7/1 (PT Interchange (tram))	U	F	2	3	10.4	Geom	-	4.50	0.00	Y	Arm J4:4 Ahead	Inf
J4:8/1 (PT Interchange (bus))	U	D	2	3	10.4	Geom	-	5.00	0.00	Y	Arm J4:4 Ahead	Inf
											Arm J4:5 U-Turn	12.00
											Arm J4:6 Ahead	30.00
J4:9/1	U		2	3	10.4	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	228
	B	144	0	76	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	278
	C	344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	344
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106
	F	0	0	0	0	0	0	116	188	0	0	0	0	0	0	0	0	0	0	0	304
	G	0	0	0	0	0	4	0	134	0	0	0	0	0	0	0	0	0	0	0	138
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	368	0	517	0	0	0	0	0	0	0	0	0	0	0	885
	J	0	0	0	0	0	0	0	0	0	0	192	342	305	0	0	0	0	0	0	839
	K	0	0	0	0	0	0	0	0	0	0	0	353	159	0	0	0	0	0	0	512
	L	0	0	0	0	0	0	0	0	0	0	0	0	451	0	0	0	0	0	0	451
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0	885	0	991
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	594	0	304	58	0	372	116	839	0	0	192	695	915	0	58	106	58	885	0	5192

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 AM DS (Standard PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	134
J1:1/2 (with short)	138(In) 4(Out)
J1:2/1	134
J1:3/1 (with short)	368(In) 368(Out)
J1:3/2 (short)	0
J1:3/3	517
J1:4/1	116
J1:4/2	96
J1:4/3	92
J1:5/1	116
J1:6/1	421
J1:6/2	418
J1:7/1	186
J1:7/2	186
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	353
J2:1/2	159
J2:2/1	212
J2:2/2	239
J2:3/1	88
J2:3/2	104
J2:3/3	647
J2:4/1	88
J2:4/2	104
J2:5/1	348
J2:5/2	347
J2:6/1	365
J2:6/2	550
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	106
J3:4/2	443
J3:4/3	442
J3:5/1	106
J3:6/1	58

Full Input Data And Results

J3:7/1	443
J3:7/2	442
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	278
J4:2/1	173
J4:2/2	171
J4:3/1	76
J4:3/2	76
J4:3/3	76
J4:4/1	0
J4:5/1	87
J4:5/2	135
J4:5/3	82
J4:6/1	298
J4:6/2	296
J4:7/1	0
J4:8/1	106
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	52.9 %	1922	1922
				Arm J2:6 Right	20.00	47.1 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	27.3 %	1904	1904
				Arm J4:6 U-Turn	16.00	51.8 %		
				Arm J4:9 Ahead	Inf	20.9 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
	B	186	0	297	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	541
	C	328	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	328
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106
	F	0	0	0	0	0	0	100	407	0	0	0	0	0	0	0	0	0	0	0	507
	G	0	0	0	0	0	10	0	148	0	0	0	0	0	0	0	0	0	0	0	158
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	366	0	547	0	0	0	0	0	0	0	0	0	0	0	913
	J	0	0	0	0	0	0	0	0	0	0	486	325	291	0	0	0	0	0	0	1102
	K	0	0	0	0	0	0	0	0	0	0	0	489	167	0	0	0	0	0	0	656
	L	0	0	0	0	0	0	0	0	0	0	0	0	485	0	0	0	0	0	0	485
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0	913	0	1019
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	620	0	507	58	0	376	100	1102	0	0	486	814	943	0	58	106	58	913	0	6141

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 PM DS (Standard PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	148
J1:1/2 (with short)	158(In) 10(Out)
J1:2/1	148
J1:3/1 (with short)	366(In) 366(Out)
J1:3/2 (short)	0
J1:3/3	547
J1:4/1	100
J1:4/2	207
J1:4/3	200
J1:5/1	100
J1:6/1	554
J1:6/2	548
J1:7/1	188
J1:7/2	188
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	489
J2:1/2	167
J2:2/1	230
J2:2/2	255
J2:3/1	234
J2:3/2	252
J2:3/3	616
J2:4/1	234
J2:4/2	252
J2:5/1	408
J2:5/2	406
J2:6/1	376
J2:6/2	567
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	106
J3:4/2	457
J3:4/3	456
J3:5/1	106
J3:6/1	58

Full Input Data And Results

J3:7/1	457
J3:7/2	456
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	541
J4:2/1	164
J4:2/2	164
J4:3/1	70
J4:3/2	70
J4:3/3	70
J4:4/1	0
J4:5/1	130
J4:5/2	248
J4:5/3	129
J4:6/1	310
J4:6/2	310
J4:7/1	0
J4:8/1	106
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	52.8 %	1922	1922
				Arm J2:6 Right	20.00	47.2 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	54.9 %	1916	1916
				Arm J4:6 U-Turn	16.00	34.4 %		
				Arm J4:9 Ahead	Inf	10.7 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	228
	B	144	0	80	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282
	C	330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	330
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106
	F	0	0	0	0	0	0	116	192	0	0	0	0	0	0	0	0	0	0	0	308
	G	0	0	0	0	0	4	0	134	0	0	0	0	0	0	0	0	0	0	0	138
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	368	0	526	0	0	0	0	0	0	0	0	0	0	0	894
	J	0	0	0	0	0	0	0	0	0	0	202	345	305	0	0	0	0	0	0	852
	K	0	0	0	0	0	0	0	0	0	0	0	346	159	0	0	0	0	0	0	505
	L	0	0	0	0	0	0	0	0	0	0	0	0	461	0	0	0	0	0	0	461
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0	894	0	1000
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	580	0	308	58	0	372	116	852	0	0	202	691	925	0	58	106	58	894	0	5220

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 AM DS (Standard PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	134
J1:1/2 (with short)	138(In) 4(Out)
J1:2/1	134
J1:3/1 (with short)	368(In) 368(Out)
J1:3/2 (short)	0
J1:3/3	526
J1:4/1	116
J1:4/2	98
J1:4/3	94
J1:5/1	116
J1:6/1	428
J1:6/2	424
J1:7/1	186
J1:7/2	186
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	346
J2:1/2	159
J2:2/1	217
J2:2/2	244
J2:3/1	95
J2:3/2	107
J2:3/3	650
J2:4/1	95
J2:4/2	107
J2:5/1	346
J2:5/2	345
J2:6/1	370
J2:6/2	555
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	106
J3:4/2	447
J3:4/3	447
J3:5/1	106
J3:6/1	58

Full Input Data And Results

J3:7/1	447
J3:7/2	447
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	282
J4:2/1	166
J4:2/2	164
J4:3/1	76
J4:3/2	76
J4:3/3	76
J4:4/1	0
J4:5/1	88
J4:5/2	134
J4:5/3	86
J4:6/1	291
J4:6/2	289
J4:7/1	0
J4:8/1	106
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	53.1 %	1922	1922
				Arm J2:6 Right	20.00	46.9 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	28.4 %	1905	1905
				Arm J4:6 U-Turn	16.00	51.1 %		
				Arm J4:9 Ahead	Inf	20.6 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
	B	186	0	311	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	555
	C	328	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	328
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106
	F	0	0	0	0	0	0	100	421	0	0	0	0	0	0	0	0	0	0	0	521
	G	0	0	0	0	0	10	0	148	0	0	0	0	0	0	0	0	0	0	0	158
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	366	0	551	0	0	0	0	0	0	0	0	0	0	0	917
	J	0	0	0	0	0	0	0	0	0	0	499	331	291	0	0	0	0	0	0	1121
	K	0	0	0	0	0	0	0	0	0	0	0	503	167	0	0	0	0	0	0	670
	L	0	0	0	0	0	0	0	0	0	0	0	0	489	0	0	0	0	0	0	489
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0	917	0	1023
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	620	0	521	58	0	376	100	1120	0	0	499	834	947	0	58	106	58	917	0	6214

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 PM DS (Standard PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	148
J1:1/2 (with short)	158(In) 10(Out)
J1:2/1	148
J1:3/1 (with short)	366(In) 366(Out)
J1:3/2 (short)	0
J1:3/3	551
J1:4/1	100
J1:4/2	214
J1:4/3	207
J1:5/1	100
J1:6/1	563
J1:6/2	557
J1:7/1	188
J1:7/2	188
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	503
J2:1/2	167
J2:2/1	232
J2:2/2	257
J2:3/1	240
J2:3/2	259
J2:3/3	622
J2:4/1	240
J2:4/2	259
J2:5/1	418
J2:5/2	416
J2:6/1	378
J2:6/2	569
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	106
J3:4/2	459
J3:4/3	458
J3:5/1	106
J3:6/1	58

Full Input Data And Results

J3:7/1	459
J3:7/2	458
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	555
J4:2/1	164
J4:2/2	164
J4:3/1	70
J4:3/2	70
J4:3/3	70
J4:4/1	0
J4:5/1	144
J4:5/2	236
J4:5/3	141
J4:6/1	310
J4:6/2	310
J4:7/1	0
J4:8/1	106
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	53.2 %	1923	1923
				Arm J2:6 Right	20.00	46.8 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	56.0 %	1916	1916
				Arm J4:6 U-Turn	16.00	33.5 %		
				Arm J4:9 Ahead	Inf	10.5 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2026 AM DS (Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	342	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342
	B	216	0	77	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	351
	C	476	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	476
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
	F	0	0	0	0	0	0	174	245	0	0	0	0	0	0	0	0	0	0	0	419
	G	0	0	0	0	0	6	0	201	0	0	0	0	0	0	0	0	0	0	0	207
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	552	0	586	0	0	0	0	0	0	0	0	0	0	0	1138
	J	0	0	0	0	0	0	0	0	0	0	195	408	429	0	0	0	0	0	0	1032
	K	0	0	0	0	0	0	0	0	0	0	0	358	235	0	0	0	0	0	0	593
	L	0	0	0	0	0	0	0	0	0	0	0	0	519	0	0	0	0	0	0	519
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	0	1138	0	1297
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	851	0	419	58	0	558	174	1032	0	0	195	766	1183	0	58	159	58	1138	0	6649

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 AM DS (Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	201
J1:1/2 (with short)	207(In) 6(Out)
J1:2/1	201
J1:3/1 (with short)	552(In) 552(Out)
J1:3/2 (short)	0
J1:3/3	586
J1:4/1	174
J1:4/2	125
J1:4/3	120
J1:5/1	174
J1:6/1	518
J1:6/2	514
J1:7/1	279
J1:7/2	279
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	358
J2:1/2	235
J2:2/1	246
J2:2/2	273
J2:3/1	92
J2:3/2	103
J2:3/3	837
J2:4/1	92
J2:4/2	103
J2:5/1	383
J2:5/2	383
J2:6/1	461
J2:6/2	722
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	159
J3:4/2	569
J3:4/3	569
J3:5/1	159
J3:6/1	58

Full Input Data And Results

J3:7/1	569
J3:7/2	569
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	351
J4:2/1	238
J4:2/2	238
J4:3/1	114
J4:3/2	114
J4:3/3	114
J4:4/1	0
J4:5/1	122
J4:5/2	179
J4:5/3	118
J4:6/1	426
J4:6/2	425
J4:7/1	0
J4:8/1	159
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	48.7 %	1916	1916
				Arm J2:6 Right	20.00	51.3 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	21.9 %	1891	1891
				Arm J4:6 U-Turn	16.00	61.5 %		
				Arm J4:9 Ahead	Inf	16.5 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 6: '2026 PM DS (Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	315
	B	279	0	299	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	636
	C	549	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	549
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
	F	0	0	0	0	0	0	150	464	0	0	0	0	0	0	0	0	0	0	0	614
	G	0	0	0	0	0	15	0	222	0	0	0	0	0	0	0	0	0	0	0	237
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	549	0	609	0	0	0	0	0	0	0	0	0	0	0	1158
	J	0	0	0	0	0	0	0	0	0	0	488	387	420	0	0	0	0	0	0	1295
	K	0	0	0	0	0	0	0	0	0	0	0	490	236	0	0	0	0	0	0	726
	L	0	0	0	0	0	0	0	0	0	0	0	0	547	0	0	0	0	0	0	547
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	0	1158	0	1317
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	987	0	614	58	0	564	150	1295	0	0	488	877	1203	0	58	159	58	1158	0	7669

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 PM DS (Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	222
J1:1/2 (with short)	237(In) 15(Out)
J1:2/1	222
J1:3/1 (with short)	549(In) 549(Out)
J1:3/2 (short)	0
J1:3/3	609
J1:4/1	150
J1:4/2	235
J1:4/3	229
J1:5/1	150
J1:6/1	650
J1:6/2	645
J1:7/1	283
J1:7/2	281
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	490
J2:1/2	236
J2:2/1	260
J2:2/2	287
J2:3/1	237
J2:3/2	251
J2:3/3	807
J2:4/1	237
J2:4/2	251
J2:5/1	439
J2:5/2	438
J2:6/1	470
J2:6/2	733
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	159
J3:4/2	579
J3:4/3	579
J3:5/1	159
J3:6/1	58

Full Input Data And Results

J3:7/1	579
J3:7/2	579
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	636
J4:2/1	275
J4:2/2	274
J4:3/1	105
J4:3/2	105
J4:3/3	105
J4:4/1	0
J4:5/1	152
J4:5/2	301
J4:5/3	161
J4:6/1	495
J4:6/2	492
J4:7/1	0
J4:8/1	159
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	48.0 %	1915	1915
				Arm J2:6 Right	20.00	52.0 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	47.0 %	1905	1905
				Arm J4:6 U-Turn	16.00	43.9 %		
				Arm J4:9 Ahead	Inf	9.1 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2031 AM DS (Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	342	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342
	B	216	0	81	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	355
	C	476	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	476
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
	F	0	0	0	0	0	0	174	249	0	0	0	0	0	0	0	0	0	0	0	423
	G	0	0	0	0	0	6	0	201	0	0	0	0	0	0	0	0	0	0	0	207
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	552	0	596	0	0	0	0	0	0	0	0	0	0	0	1148
	J	0	0	0	0	0	0	0	0	0	0	205	412	428	0	0	0	0	0	0	1045
	K	0	0	0	0	0	0	0	0	0	0	0	351	235	0	0	0	0	0	0	586
	L	0	0	0	0	0	0	0	0	0	0	0	0	529	0	0	0	0	0	0	529
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	0	1148	0	1307
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	851	0	423	58	0	558	174	1046	0	0	205	763	1192	0	58	159	58	1148	0	6693

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 AM DS (Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	201
J1:1/2 (with short)	207(In) 6(Out)
J1:2/1	201
J1:3/1 (with short)	552(In) 552(Out)
J1:3/2 (short)	0
J1:3/3	596
J1:4/1	174
J1:4/2	127
J1:4/3	122
J1:5/1	174
J1:6/1	525
J1:6/2	521
J1:7/1	279
J1:7/2	279
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	351
J2:1/2	235
J2:2/1	251
J2:2/2	278
J2:3/1	98
J2:3/2	107
J2:3/3	840
J2:4/1	98
J2:4/2	107
J2:5/1	382
J2:5/2	381
J2:6/1	465
J2:6/2	727
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	159
J3:4/2	574
J3:4/3	574
J3:5/1	159
J3:6/1	58

Full Input Data And Results

J3:7/1	574
J3:7/2	574
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	355
J4:2/1	238
J4:2/2	238
J4:3/1	114
J4:3/2	114
J4:3/3	114
J4:4/1	0
J4:5/1	124
J4:5/2	182
J4:5/3	117
J4:6/1	426
J4:6/2	425
J4:7/1	0
J4:8/1	159
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	49.0 %	1917	1917
				Arm J2:6 Right	20.00	51.0 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	22.8 %	1892	1892
				Arm J4:6 U-Turn	16.00	60.8 %		
				Arm J4:9 Ahead	Inf	16.3 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 8: '2031 PM DS (Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS')

Traffic Flows, Desired

Desired Flow :

		Destination																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	Tot.
Origin	A	0	0	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	315
	B	279	0	312	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	649
	C	549	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	549
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	E	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
	F	0	0	0	0	0	0	150	477	0	0	0	0	0	0	0	0	0	0	0	627
	G	0	0	0	0	0	15	0	222	0	0	0	0	0	0	0	0	0	0	0	237
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	549	0	613	0	0	0	0	0	0	0	0	0	0	0	1162
	J	0	0	0	0	0	0	0	0	0	0	500	393	420	0	0	0	0	0	0	1313
	K	0	0	0	0	0	0	0	0	0	0	0	505	236	0	0	0	0	0	0	741
	L	0	0	0	0	0	0	0	0	0	0	0	0	551	0	0	0	0	0	0	551
	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	0	1162	0	1321
	O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	58
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	58
	R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tot.	987	0	627	58	0	564	150	1312	0	0	500	898	1207	0	58	159	58	1162	0	7740

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 PM DS (Saturn PCU Factors)
Junction: J1: Moor Street Queensway - Masshouse Lane	
J1:1/1 (short)	222
J1:1/2 (with short)	237(In) 15(Out)
J1:2/1	222
J1:3/1 (with short)	549(In) 549(Out)
J1:3/2 (short)	0
J1:3/3	613
J1:4/1	150
J1:4/2	242
J1:4/3	235
J1:5/1	150
J1:6/1	659
J1:6/2	653
J1:7/1	283
J1:7/2	281
Junction: J2: Moor Street Queensway - Jennens Road	
J2:1/1	505
J2:1/2	236
J2:2/1	262
J2:2/2	289
J2:3/1	242
J2:3/2	258
J2:3/3	813
J2:4/1	242
J2:4/2	258
J2:5/1	450
J2:5/2	448
J2:6/1	472
J2:6/2	735
Junction: J3: PT Interchange / Masshouse Lane	
J3:1/1	58
J3:2/1	58
J3:3/1	58
J3:4/1	159
J3:4/2	581
J3:4/3	581
J3:5/1	159
J3:6/1	58

Full Input Data And Results

J3:7/1	581
J3:7/2	581
J3:8/1	0
J3:9/1	0
Junction: J4: Moor Street Queensway - Albert Street	
J4:1/1	649
J4:2/1	275
J4:2/2	274
J4:3/1	105
J4:3/2	105
J4:3/3	105
J4:4/1	0
J4:5/1	156
J4:5/2	305
J4:5/3	166
J4:6/1	495
J4:6/2	492
J4:7/1	0
J4:8/1	159
J4:9/1	58

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Moor Street Queensway - Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (The Priory Queensway)	3.00	0.00	Y	Arm J1:2 Left	30.00	100.0 %	1824	1824
J1:1/2 (The Priory Queensway)	3.70	0.00	N	Arm J1:7 Right	9.00	100.0 %	1821	1821
J1:2/1	4.30	0.00	Y	Arm J1:6 Left	55.00	100.0 %	1991	1991
J1:3/1 (Masshouse Lane)	3.30	0.00	Y	Arm J1:7 Left	9.00	100.0 %	1667	1667
J1:3/2 (Masshouse Lane)	4.05	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2020	2020
J1:3/3 (Masshouse Lane)	3.30	0.00	Y	Arm J1:6 Right	18.00	100.0 %	1795	1795
J1:4/1 (Moor Street Queensway)	3.30	0.00	Y	Arm J1:2 Right	Inf	0.0 %	1852	1852
				Arm J1:5 Left	30.00	100.0 %		
J1:4/2 (Moor Street Queensway)	3.65	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1980	1980
J1:4/3 (Moor Street Queensway)	3.35	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1950	1950
J1:5/1 (The Priory Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:6/2	Infinite Saturation Flow						Inf	Inf
J1:7/1 (Moor Street Queensway Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/2 (Moor Street Queensway Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Moor Street Queensway - Jennens Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Chapel Street)	3.45	0.00	Y	Arm J2:5 Left	17.00	100.0 %	1801	1801
				Arm J2:6 Ahead	Inf	0.0 %		
J2:1/2 (Chapel Street)	3.40	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2095	2095
J2:2/1 (Jennens Road)	3.65	0.00	Y	Arm J2:6 Left	26.00	100.0 %	1872	1872
J2:2/2 (Jennens Road)	3.70	0.00	N	Arm J2:6 Left	26.00	100.0 %	2009	2009
J2:3/1 (Moor Street Queensway)	3.10	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1846	1846
J2:3/2 (Moor Street Queensway)	3.45	0.00	Y	Arm J2:4 Left	35.00	100.0 %	1879	1879
J2:3/3 (Moor Street Queensway)	3.75	0.00	Y	Arm J2:5 Ahead	Inf	48.3 %	1916	1916
				Arm J2:6 Right	20.00	51.7 %		
J2:4/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:5/1 (Jennens Road Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:5/2 (Jennens Road Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:6/1 (Chapel Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:6/2 (Chapel Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: PT Interchange / Masshouse Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (LRT)	4.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	2015	2015
J3:2/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	2065	2065
J3:4/1	4.00	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	2015	2015
J3:4/2	Infinite Saturation Flow						Inf	Inf
J3:4/3	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:7/1	Infinite Saturation Flow						Inf	Inf
J3:7/2	Infinite Saturation Flow						Inf	Inf
J3:8/1 (Zone (lost traffic) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:9/1 (Zone (lost traffic) Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800

Full Input Data And Results

Junction: J4: Moor Street Queensway - Albert Street

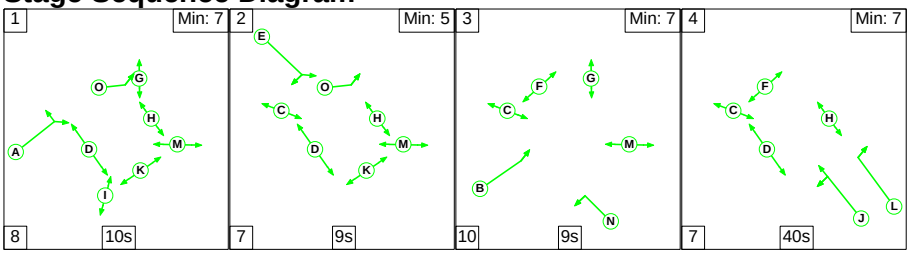
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (Albert Street)	4.00	0.00	Y	Arm J4:5 Ahead	42.00	48.1 %	1905	1905
				Arm J4:6 U-Turn	16.00	43.0 %		
				Arm J4:9 Ahead	Inf	8.9 %		
J4:2/1 (Moor Street Queensway (N))	3.50	0.00	Y	Arm J4:6 Ahead	Inf	100.0 %	1965	1965
J4:2/2 (Moor Street Queensway (N))	3.45	0.00	Y	Arm J4:4 Ahead	70.00	0.0 %	1960	1960
				Arm J4:6 Ahead	Inf	100.0 %		
J4:3/1 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:4 U-Turn	16.00	0.0 %	1945	1945
				Arm J4:5 Ahead	Inf	100.0 %		
J4:3/2 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:3/3 (Moor Street Queensway (S))	3.30	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1945	1945
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:5/2 (Moor Street Queensway (N))	3.65	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1980	1980
J4:5/3 (Moor Street Queensway (N))	3.30	0.00	Y	Arm J1:4 Ahead	Inf	0.0 %	1945	1945
J4:6/1 (Moor Street Queensway (S) Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:6/2 (Moor Street Queensway (S) Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (PT Interchange (tram))	4.50	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2065	2065
J4:8/1 (PT Interchange (bus))	5.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2014	2014
				Arm J4:5 U-Turn	12.00	0.0 %		
				Arm J4:6 Ahead	30.00	100.0 %		
J4:9/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

C1 - Moor Street Queensway - Masshouse Lane

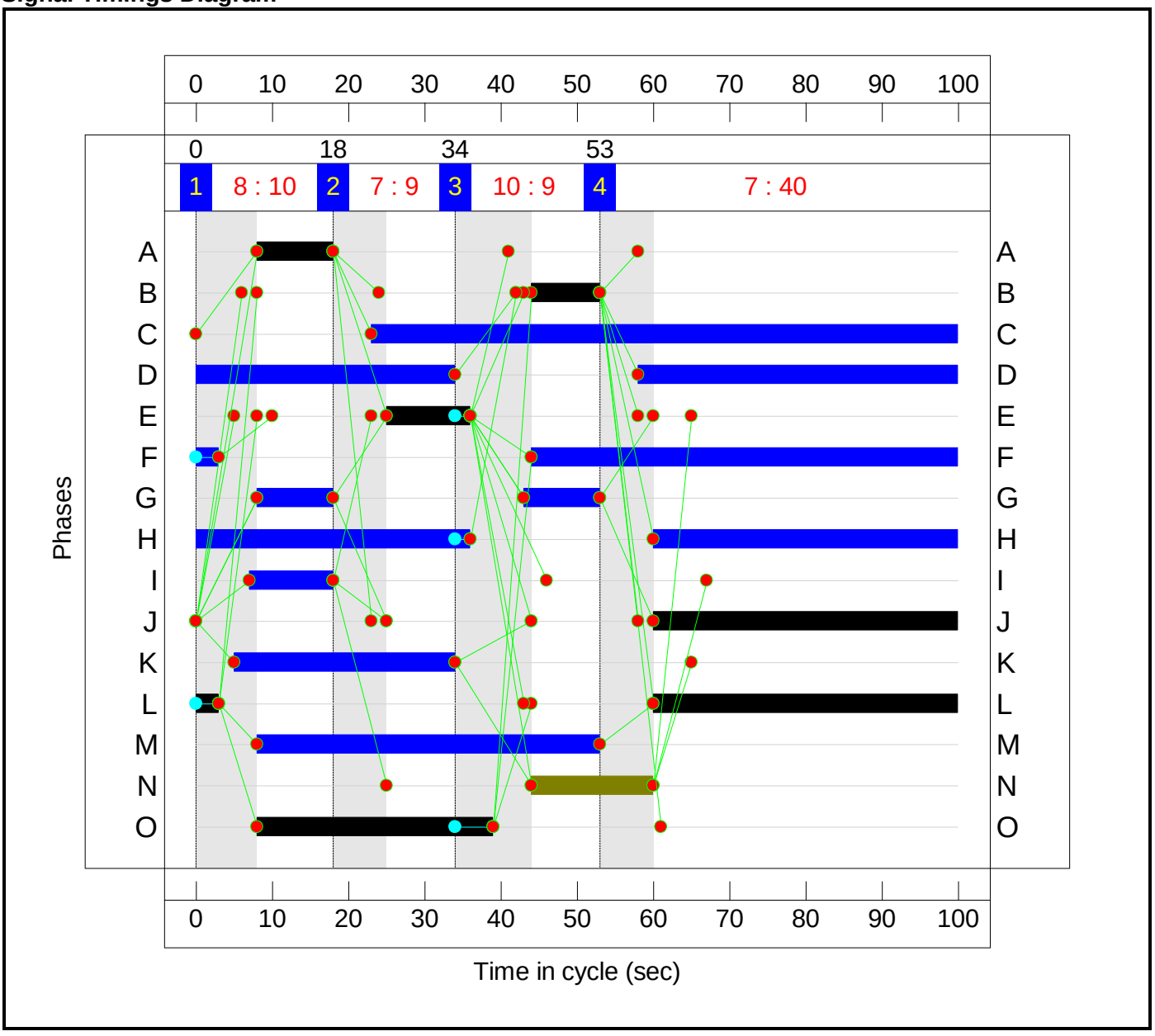
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	10	9	9	40
Change Point	0	18	34	53

Signal Timings Diagram

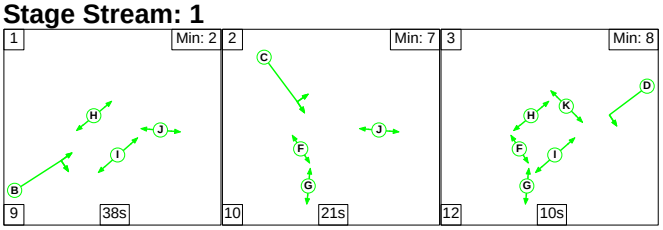


Full Input Data And Results

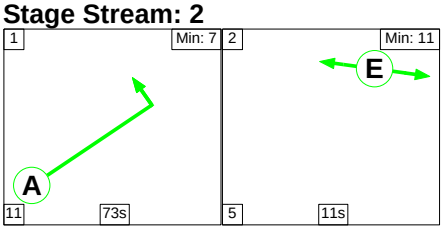
C2 - Moor Street Queensway - Jennens Road

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

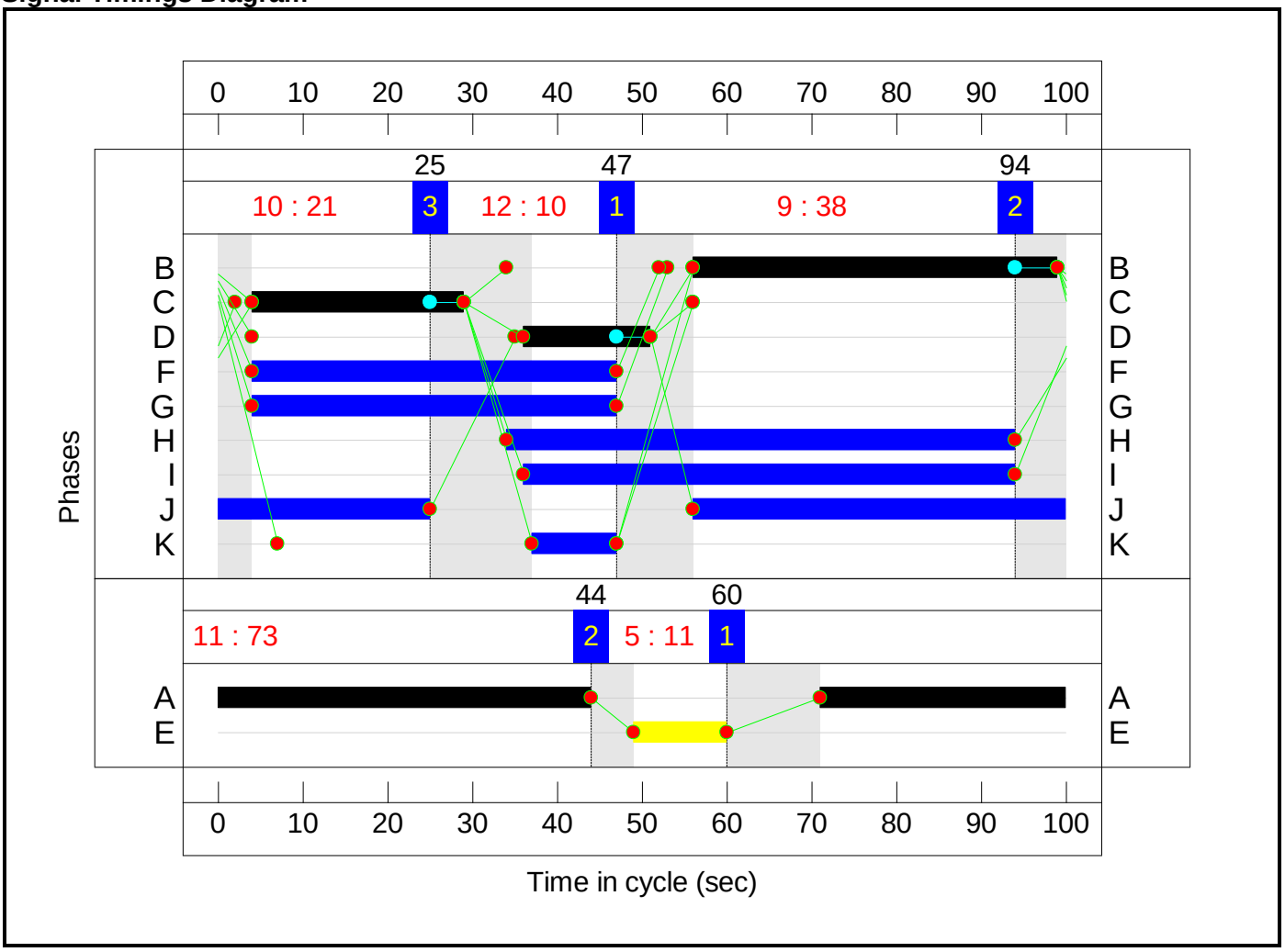
Stage	1	2	3
Duration	38	21	10
Change Point	47	94	25

Stage Stream: 2

Stage	1	2
Duration	73	11
Change Point	60	44

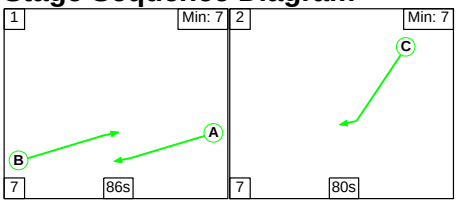
Full Input Data And Results

Signal Timings Diagram



C3 - PT Interchange / Masshouse Lane

Stage Sequence Diagram

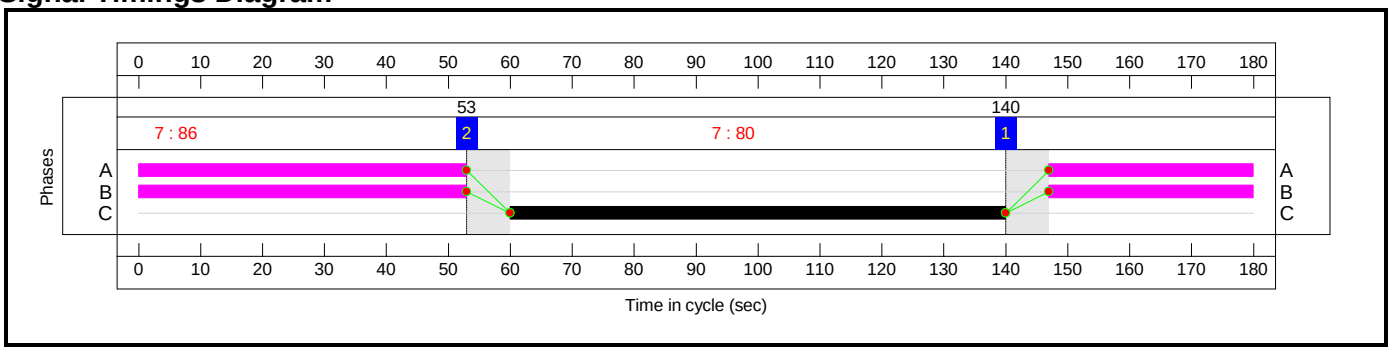


Stage Timings

Stage	1	2
Duration	86	80
Change Point	140	53

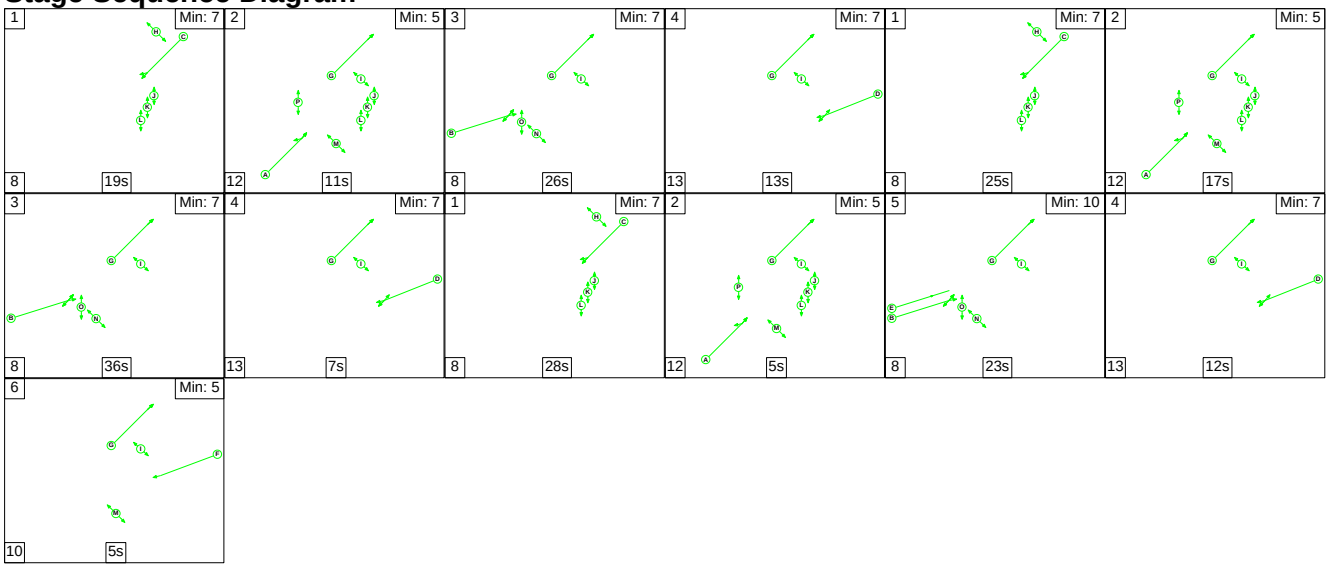
Full Input Data And Results

Signal Timings Diagram



C4 - Moor Street Queensway - Albert Street

Stage Sequence Diagram

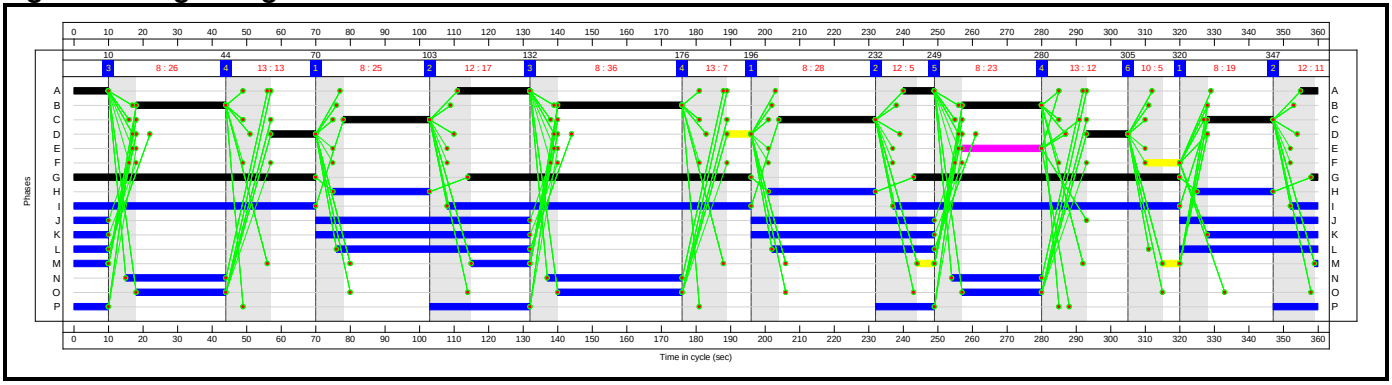


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	19	11	26	13	25	17	36	7	28	5
Change Point	320	347	10	44	70	103	132	176	196	232

Stage	5	4	6							
Duration	23	12	5							
Change Point	249	280	305							

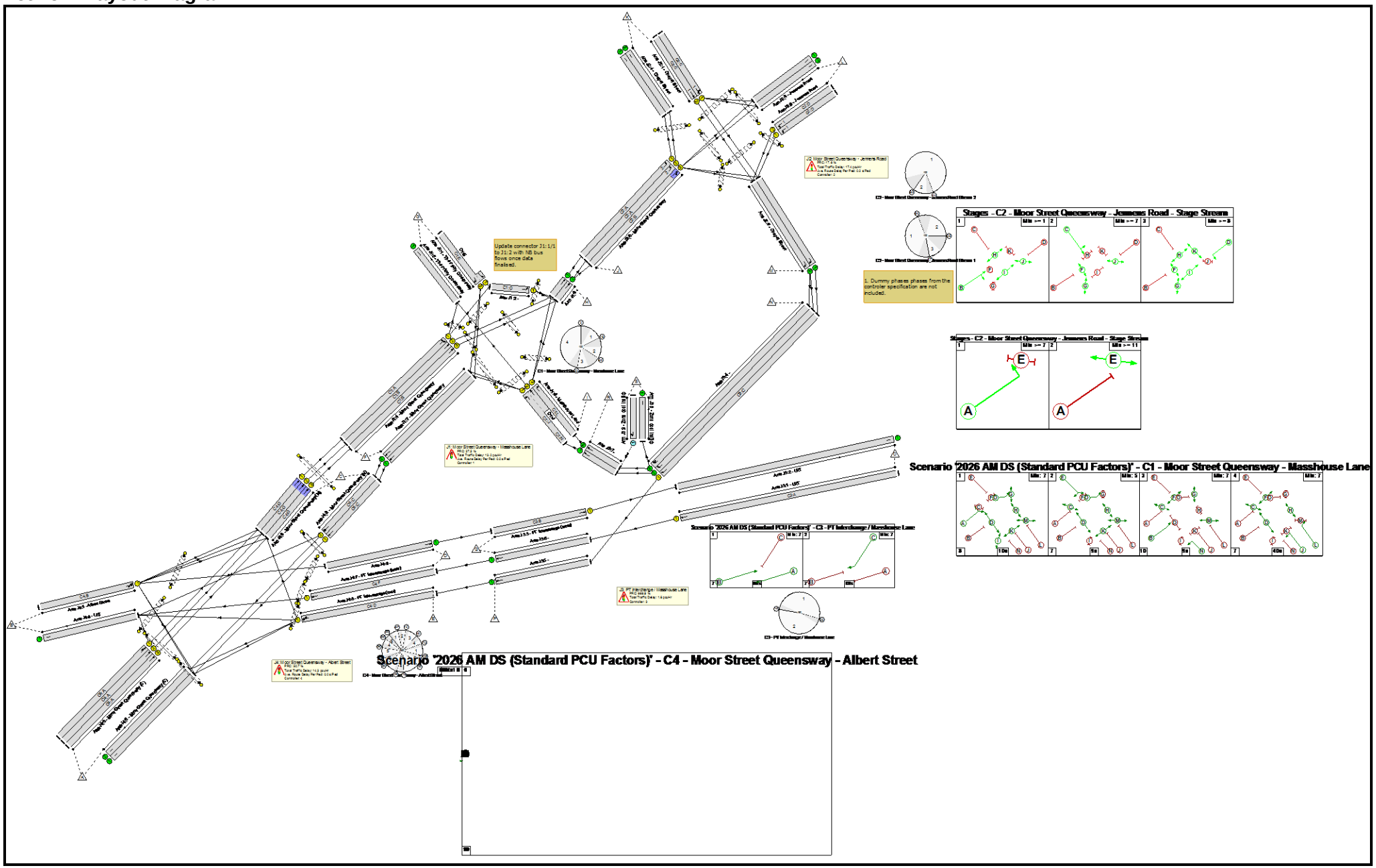
Signal Timings Diagram



Full Input Data And Results

Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.5%**
J1: Moor Street Queensway - Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**65.5%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C1:E		1	11	-	138	1821:1824	7+219	61.2 : 61.2%
2/1	Left	U	N/A	N/A	C1:O		1	31	-	134	1991	637	21.0%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C1:J	C1:N	1	56:40	16	368	1667:2020	950+0	38.7 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C1:L		1	43	-	517	1795	790	65.5%
4/1	Moor Street Queensway Right Left	U	N/A	N/A	C1:A		1	10	-	116	1852	204	56.9%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	9	-	96	1980	198	48.5%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	9	-	92	1950	195	47.2%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	116	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	421	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	418	Inf	Inf	0.0%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	186	Inf	Inf	0.0%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	186	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:C		1	77	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:D		1	76	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:I		1	11	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	29	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:M		1	45	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C1:F		1	59	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C1:G		2	20	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C1:H		1	76	-	0	-	0	0.0%
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.5%**
1/1	Chapel Street Left Ahead	U	2:1	N/A	C2:C		1	25	-	353	1801	468	75.4%
1/2	Chapel Street Ahead	U	2:1	N/A	C2:C		1	25	-	159	2095	545	29.2%
2/1	Jennens Road Left	U	2:1	N/A	C2:D		1	15	-	212	1872	300	70.8%
2/2	Jennens Road Left	U	2:1	N/A	C2:D		1	15	-	239	2009	321	74.4%
3/1	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	73	-	88	1846	1366	6.4%
3/2	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	73	-	104	1879	1390	7.5%
3/3	Moor Street Queensway Ahead Right	U	2:1	N/A	C2:B		1	43	-	647	1922	846	76.5%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	88	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	104	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	348	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	347	Inf	Inf	0.0%
6/1	Chapel Street Right	U	N/A	N/A	-		-	-	-	365	Inf	Inf	0.0%

Full Input Data And Results

6/2	Chapel Street Right	U	N/A	N/A	-		-	-	-	550	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2:1	-	C2:H		1	60	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	2:1	-	C2:K		1	10	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	2:1	-	C2:J		1	69	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	2:1	-	C2:I		1	58	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	2:1	-	C2:G		1	43	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	2:1	-	C2:F		1	43	-	0	-	0	0.0%
J3: PT Interchange / Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.7%**
1/1	LRT Ahead	U	N/A	N/A	C3:A		1	86	-	58	2015	974	6.0%
2/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
3/1	PT Interchange (tram) Ahead	U	N/A	N/A	C3:B		1	86	-	58	2065	998	5.8%
4/1	Ahead	U	N/A	N/A	C3:C		1	80	-	106	2015	907	11.7%
4/2	Right	U	N/A	N/A	-		-	-	-	443	Inf	Inf	0.0%
4/3	Right Right2	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	443	Inf	Inf	0.0%
7/2	Ahead	U	N/A	N/A	-		-	-	-	442	Inf	Inf	0.0%
8/1	Zone (lost traffic)	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Zone (lost traffic) Right	O	N/A	N/A	-		-	-	-	0	1800	836	0.0%
J4: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.7%**

Full Input Data And Results

1/1	Albert Street Ahead U-Turn Ahead2	U	N/A	N/A	C4:B		3	85	-	278	1904	465	59.7%
2/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:C		3	72	-	173	1965	409	42.3%
2/2	Moor Street Queensway (N) Ahead Ahead2	U	N/A	N/A	C4:C		3	72	-	171	1960	408	41.9%
3/1	Moor Street Queensway (S) U-Turn Ahead	U	N/A	N/A	C4:A		3	45	-	76	1945	259	29.3%
3/2	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	45	-	76	1945	259	29.3%
3/3	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	45	-	76	1945	259	29.3%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	231	-	87	1945	1264	6.9%
5/2	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	231	-	135	1980	1287	10.5%
5/3	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	231	-	82	1945	1264	6.5%
6/1	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	298	Inf	Inf	0.0%
6/2	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	296	Inf	Inf	0.0%
7/1	PT Interchange (tram) Ahead	U	N/A	N/A	C4:F		1	10	-	0	2065	63	0.0%
8/1	PT Interchange (bus) Ahead U-Turn Ahead2	U	N/A	N/A	C4:D		3	32	-	106	2014	196	54.1%
9/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C4:H		3	81	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C4:J		3	165	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C4:I		3	249	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C4:K		3	157	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C4:L		3	153	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C4:O		3	85	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C4:P		3	69	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C4:N		3	94	-	0	-	0	0.0%
Ped Link: P9	Unnamed Ped Link	-	N/A	-	C4:M		4	38	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**34.2**	**12.5**	**0.0**	**46.7**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**9.5**	**3.7**	**0.0**	**13.2**	**-**	**-**	**-**	**-**
1/2+1/1	138	138	-	-	-	1.6	0.8	-	2.4	62.0	3.5	0.8	4.3
2/1	134	134	-	-	-	0.0	0.1	-	0.1	3.8	0.0	0.1	0.1
3/1+3/2	368	368	-	-	-	1.0	0.3	-	1.3	13.0	3.8	0.3	4.1
3/3	517	517	-	-	-	3.3	0.9	-	4.2	29.2	12.5	0.9	13.4
4/1	116	116	-	-	-	1.4	0.7	-	2.0	62.5	3.0	0.7	3.7
4/2	96	96	-	-	-	1.1	0.5	-	1.6	60.1	2.5	0.5	3.0
4/3	92	92	-	-	-	1.1	0.4	-	1.5	59.9	2.4	0.4	2.8
5/1	116	116	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	421	421	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	418	418	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**11.5**	**6.0**	**0.0**	**17.4**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	353	353	-	-	-	3.3	1.5	-	4.8	49.3	9.0	1.5	10.5
1/2	159	159	-	-	-	1.3	0.2	-	1.5	34.3	3.5	0.2	3.7
2/1	212	212	-	-	-	2.3	1.2	-	3.5	59.8	5.5	1.2	6.7
2/2	239	239	-	-	-	2.7	1.4	-	4.1	61.2	6.3	1.4	7.7
3/1	88	88	-	-	-	0.1	0.0	-	0.1	5.6	0.8	0.0	0.8
3/2	104	104	-	-	-	0.1	0.0	-	0.2	5.5	0.9	0.0	0.9
3/3	647	647	-	-	-	1.6	1.6	-	3.2	17.9	8.7	1.6	10.3
4/1	88	88	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	104	104	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	348	348	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	347	347	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	365	365	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	550	550	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: PT Interchange / Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**1.6**	**0.1**	**0.0**	**1.8**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
4/1	106	106	-	-	-	0.8	0.1	-	0.9	31.0	3.1	0.1	3.1
4/2	443	443	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

7/1	443	443	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	442	442	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J4: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**11.6**	**2.7**	**0.0**	**14.3**	**-**	**-**	**-**	**-**
1/1	278	278	-	-	-	3.1	0.7	-	3.9	49.9	8.7	0.7	9.5
2/1	173	173	-	-	-	2.0	0.4	-	2.4	48.9	5.2	0.4	5.6
2/2	171	171	-	-	-	2.0	0.4	-	2.3	48.8	5.2	0.4	5.5
3/1	76	76	-	-	-	1.0	0.2	-	1.2	56.7	2.3	0.2	2.6
3/2	76	76	-	-	-	1.0	0.2	-	1.2	56.7	2.3	0.2	2.6
3/3	76	76	-	-	-	1.0	0.2	-	1.2	56.7	2.3	0.2	2.6
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	87	87	-	-	-	0.0	0.0	-	0.0	0.3	0.3	0.0	0.3
5/2	135	135	-	-	-	0.0	0.0	-	0.0	0.2	0.3	0.0	0.3
5/3	82	82	-	-	-	0.0	0.0	-	0.0	0.3	0.3	0.0	0.3
6/1	298	298	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	296	296	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	1.5	0.6	-	2.1	71.8	3.7	0.6	4.2
9/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P9	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

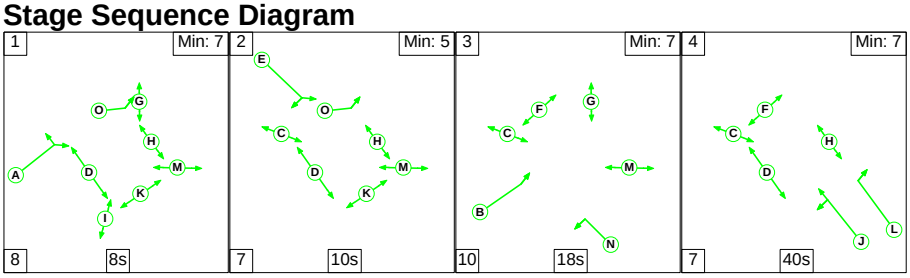
C1 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	37.5	Total Delay for Signalled Lanes (pcuHr):	13.19	Cycle Time (s):	100
C2 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	17.6	Total Delay for Signalled Lanes (pcuHr):	17.15	Cycle Time (s):	100
C2 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	1103.3	Total Delay for Signalled Lanes (pcuHr):	0.30	Cycle Time (s):	100
C3 - PT Interchange / Masshouse Lane		PRC for Signalled Lanes (%):	669.9	Total Delay for Signalled Lanes (pcuHr):	1.77	Cycle Time (s):	180
C4 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	50.7	Total Delay for Signalled Lanes (pcuHr):	14.26	Cycle Time (s):	360
		PRC Over All Lanes (%):	17.6	Total Delay Over All Lanes(pcuHr):	46.66		

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

C1 - Moor Street Queensway - Masshouse Lane

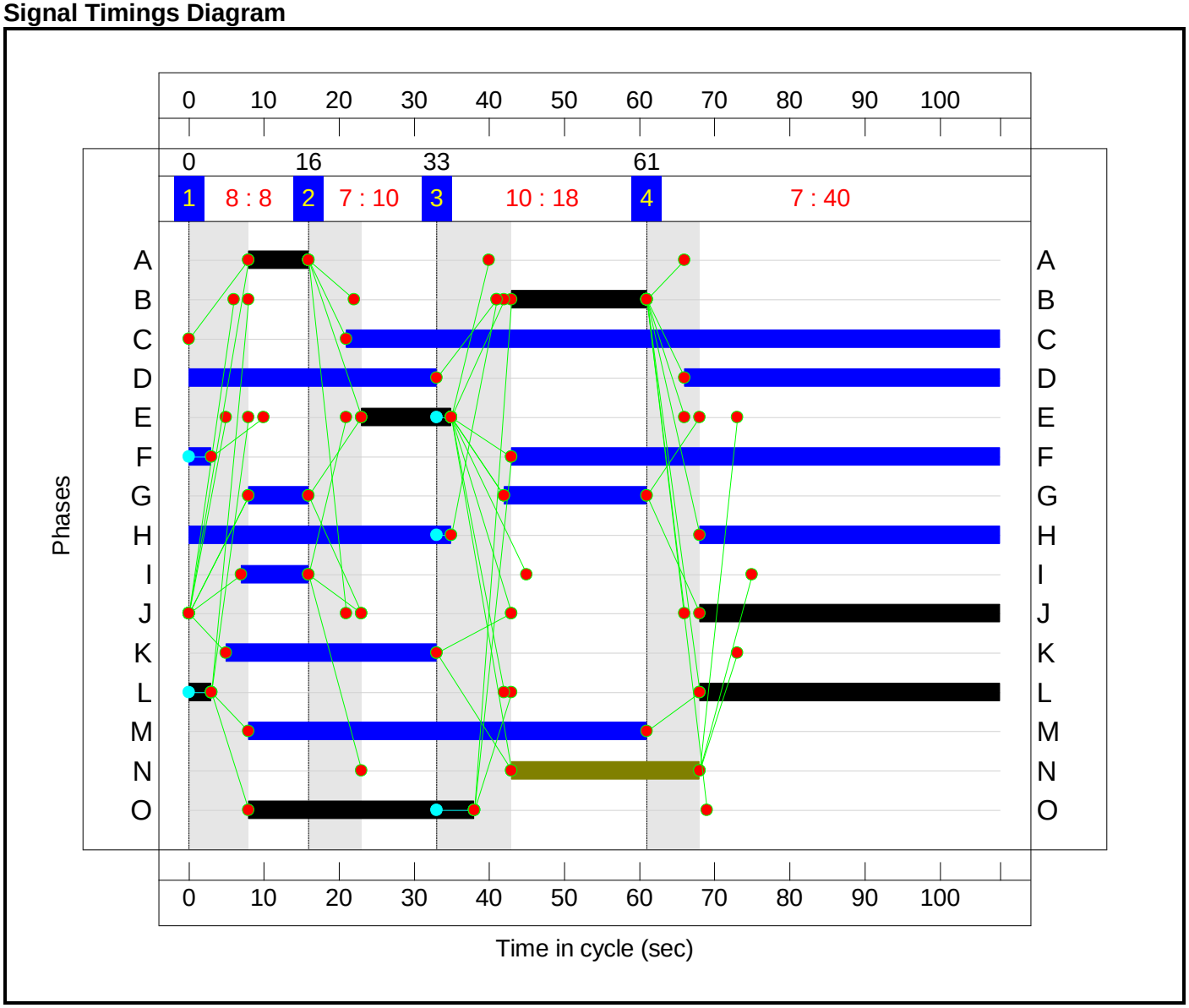
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	8	10	18	40
Change Point	0	16	33	61

Signal Timings Diagram

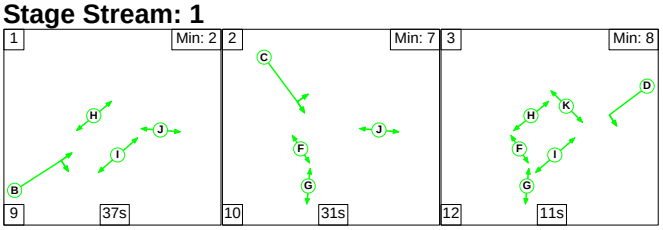


Full Input Data And Results

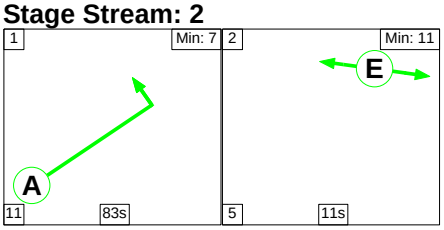
C2 - Moor Street Queensway - Jennens Road

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

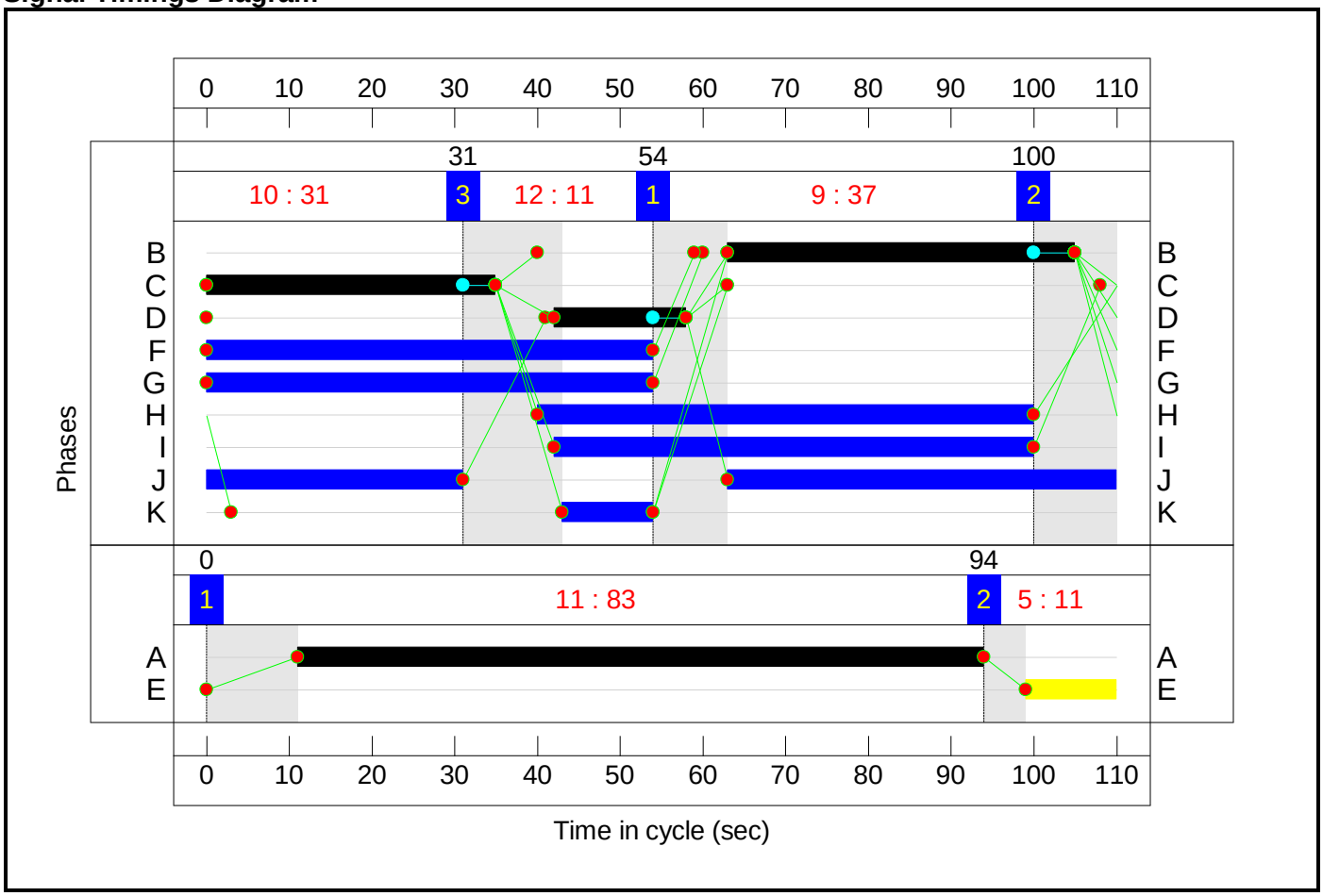
Stage	1	2	3
Duration	37	31	11
Change Point	54	100	31

Stage Stream: 2

Stage	1	2
Duration	83	11
Change Point	0	94

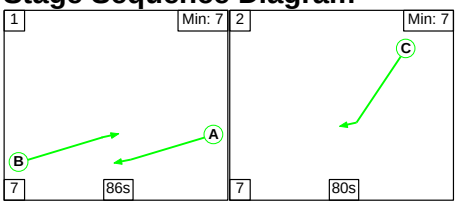
Full Input Data And Results

Signal Timings Diagram



C3 - PT Interchange / Masshouse Lane

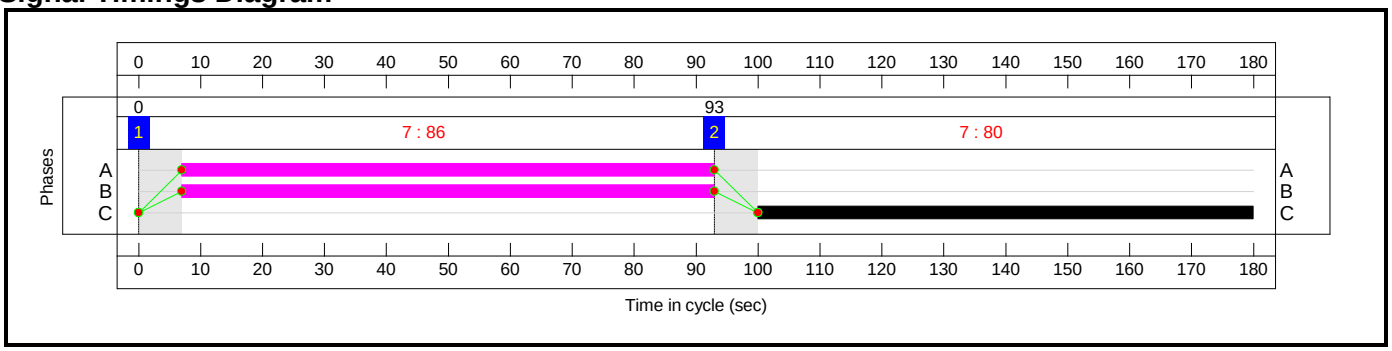
Stage Sequence Diagram



Stage Timings

Stage	1	2
Duration	86	80
Change Point	0	93

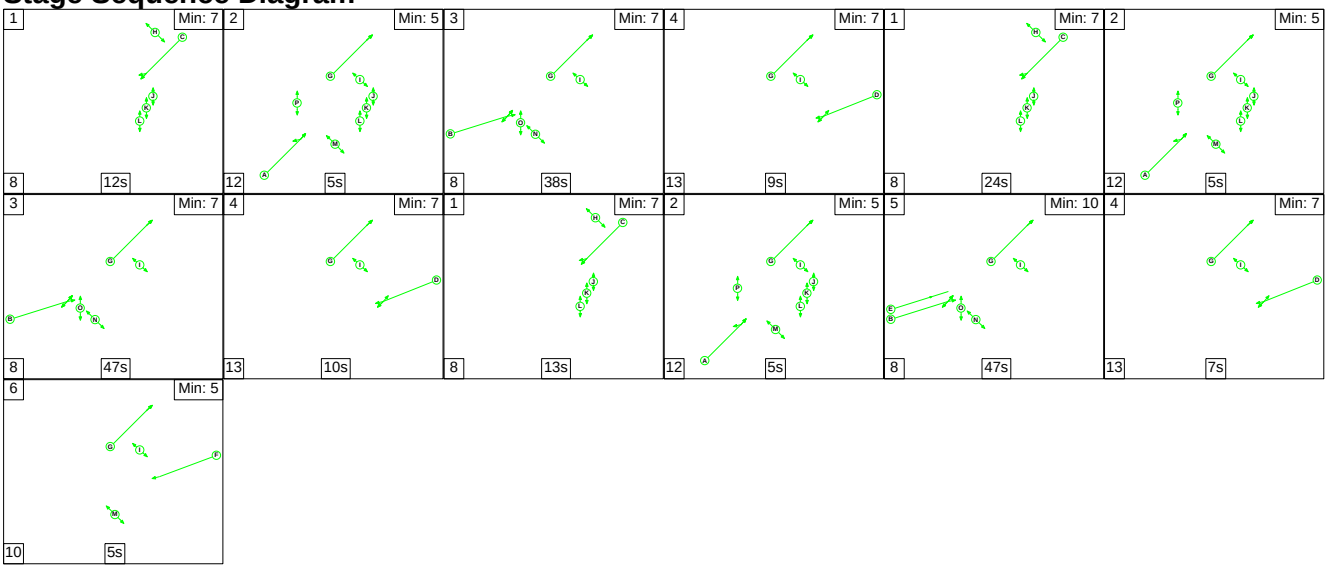
Signal Timings Diagram



Full Input Data And Results

C4 - Moor Street Queensway - Albert Street

Stage Sequence Diagram

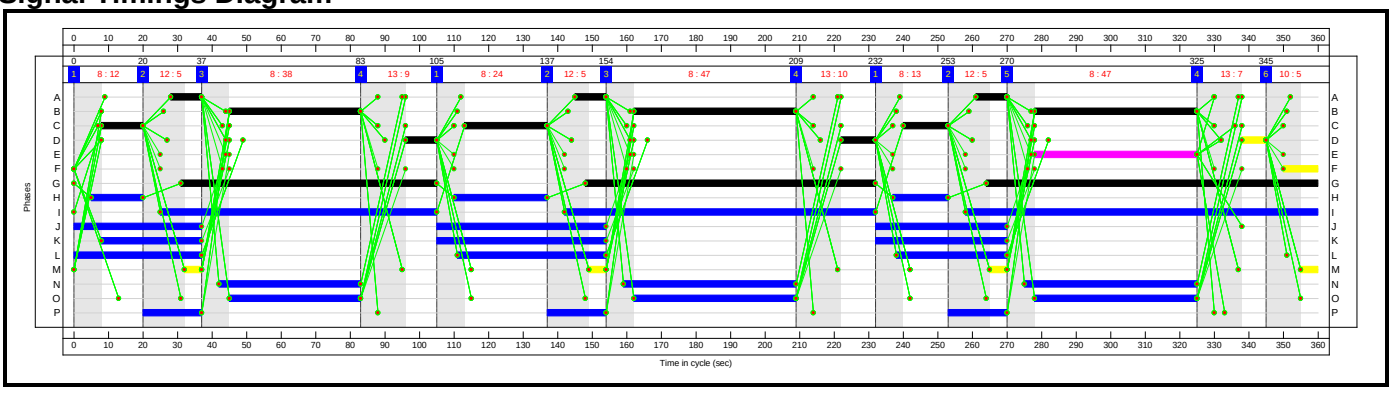


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	12	5	38	9	24	5	47	10	13	5
Change Point	0	20	37	83	105	137	154	209	232	253

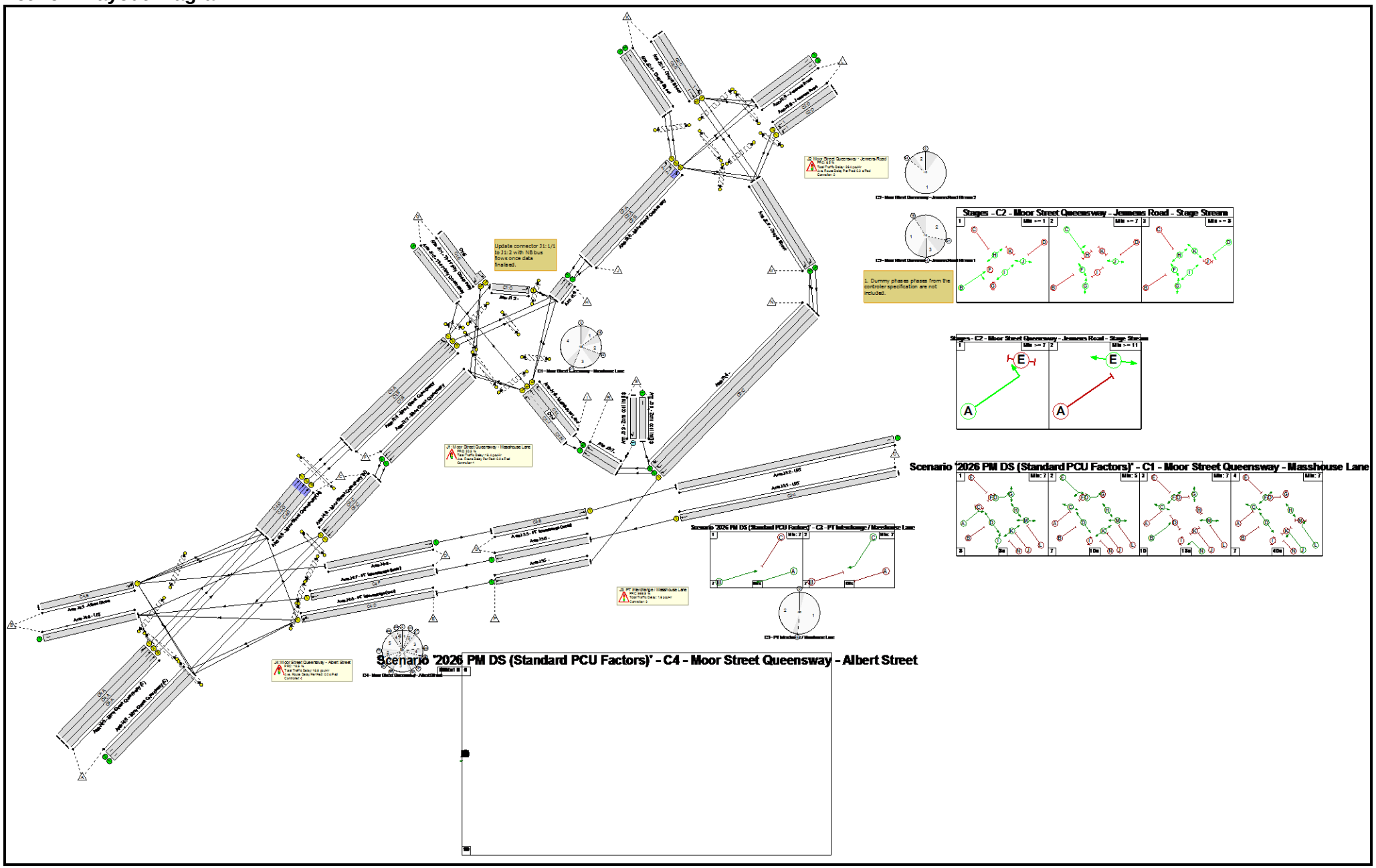
Stage	5	4	6							
Duration	47	7	5							
Change Point	270	325	345							

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.0%**
J1: Moor Street Queensway - Masshouse Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.8%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C1:E		1	12	-	158	1821:1824	15+220	67.4 : 67.4%
2/1	Left	U	N/A	N/A	C1:O		1	30	-	148	1991	571	25.9%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C1:J	C1:N	1	65:40	25	366	1667:2020	1019+0	35.9 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C1:L		1	43	-	547	1795	731	74.8%
4/1	Moor Street Queensway Right Left	U	N/A	N/A	C1:A		1	8	-	100	1852	154	64.8%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	18	-	207	1980	348	59.4%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	18	-	200	1950	343	58.3%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	100	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	548	Inf	Inf	0.0%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	188	Inf	Inf	0.0%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	188	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:C		1	87	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:D		1	75	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:I		1	9	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	28	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:M		1	53	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C1:F		1	68	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C1:G		2	27	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C1:H		1	75	-	0	-	0	0.0%
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
1/1	Chapel Street Left Ahead	U	2:1	N/A	C2:C		1	35	-	489	1801	589	83.0%
1/2	Chapel Street Ahead	U	2:1	N/A	C2:C		1	35	-	167	2095	686	24.4%
2/1	Jennens Road Left	U	2:1	N/A	C2:D		1	16	-	230	1872	289	79.5%
2/2	Jennens Road Left	U	2:1	N/A	C2:D		1	16	-	255	2009	310	82.1%
3/1	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	83	-	234	1846	1410	16.6%
3/2	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	83	-	252	1879	1435	17.6%
3/3	Moor Street Queensway Ahead Right	U	2:1	N/A	C2:B		1	42	-	616	1922	751	82.0%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	234	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	408	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	406	Inf	Inf	0.0%
6/1	Chapel Street Right	U	N/A	N/A	-		-	-	-	376	Inf	Inf	0.0%

Full Input Data And Results

6/2	Chapel Street Right	U	N/A	N/A	-		-	-	-	567	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2:1	-	C2:H		1	60	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	2:1	-	C2:K		1	11	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	2:1	-	C2:J		1	78	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	2:1	-	C2:I		1	58	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	2:1	-	C2:G		1	54	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	2:1	-	C2:F		1	54	-	0	-	0	0.0%
J3: PT Interchange / Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.7%**
1/1	LRT Ahead	U	N/A	N/A	C3:A		1	86	-	58	2015	974	6.0%
2/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
3/1	PT Interchange (tram) Ahead	U	N/A	N/A	C3:B		1	86	-	58	2065	998	5.8%
4/1	Ahead	U	N/A	N/A	C3:C		1	80	-	106	2015	907	11.7%
4/2	Right	U	N/A	N/A	-		-	-	-	457	Inf	Inf	0.0%
4/3	Right Right2	U	N/A	N/A	-		-	-	-	456	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	457	Inf	Inf	0.0%
7/2	Ahead	U	N/A	N/A	-		-	-	-	456	Inf	Inf	0.0%
8/1	Zone (lost traffic)	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Zone (lost traffic) Right	O	N/A	N/A	-		-	-	-	0	1800	656	0.0%
J4: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.3%**

Full Input Data And Results

1/1	Albert Street Ahead U-Turn Ahead2	U	N/A	N/A	C4:B		3	132	-	541	1916	718	75.3%
2/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:C		3	49	-	164	1965	284	57.8%
2/2	Moor Street Queensway (N) Ahead Ahead2	U	N/A	N/A	C4:C		3	49	-	164	1960	283	57.9%
3/1	Moor Street Queensway (S) U-Turn Ahead	U	N/A	N/A	C4:A		3	27	-	70	1945	162	43.2%
3/2	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	27	-	70	1945	162	43.2%
3/3	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	27	-	70	1945	162	43.2%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	254	-	130	1945	1389	9.4%
5/2	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	254	-	248	1980	1414	17.5%
5/3	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	254	-	129	1945	1389	9.3%
6/1	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
6/2	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
7/1	PT Interchange (tram) Ahead	U	N/A	N/A	C4:F		1	10	-	0	2065	63	0.0%
8/1	PT Interchange (bus) Ahead U-Turn Ahead2	U	N/A	N/A	C4:D		3	26	-	106	2014	162	65.3%
9/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C4:H		3	58	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C4:J		3	124	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C4:I		3	272	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C4:K		3	116	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C4:L		3	112	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C4:O		3	132	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C4:P		3	51	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C4:N		3	141	-	0	-	0	0.0%
Ped Link: P9	Unnamed Ped Link	-	N/A	-	C4:M		4	20	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**46.4**	**19.1**	**0.0**	**65.5**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**13.2**	**5.2**	**0.0**	**18.4**	**-**	**-**	**-**	**-**
1/2+1/1	158	158	-	-	-	2.0	1.0	-	3.0	68.4	4.3	1.0	5.4
2/1	148	148	-	-	-	0.0	0.2	-	0.2	4.5	0.0	0.2	0.2
3/1+3/2	366	366	-	-	-	1.1	0.3	-	1.3	13.2	5.4	0.3	5.7
3/3	547	547	-	-	-	4.1	1.5	-	5.6	36.9	14.0	1.5	15.4
4/1	100	100	-	-	-	1.3	0.9	-	2.2	80.1	2.9	0.9	3.8
4/2	207	207	-	-	-	2.4	0.7	-	3.1	53.6	5.7	0.7	6.4
4/3	200	200	-	-	-	2.3	0.7	-	3.0	53.3	5.5	0.7	6.2
5/1	100	100	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	554	554	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	548	548	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	188	188	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	188	188	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**17.6**	**8.9**	**0.0**	**26.4**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	489	489	-	-	-	4.6	2.3	-	7.0	51.3	13.7	2.3	16.0
1/2	167	167	-	-	-	1.3	0.2	-	1.4	30.5	3.7	0.2	3.9
2/1	230	230	-	-	-	2.9	1.8	-	4.7	73.4	6.8	1.8	8.6
2/2	255	255	-	-	-	3.2	2.1	-	5.3	75.2	7.5	2.1	9.6
3/1	234	234	-	-	-	0.2	0.1	-	0.3	5.1	1.9	0.1	2.0
3/2	252	252	-	-	-	0.2	0.1	-	0.4	5.1	2.1	0.1	2.2
3/3	616	616	-	-	-	5.1	2.2	-	7.3	42.9	16.6	2.2	18.8
4/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	408	408	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	406	406	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	376	376	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	567	567	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: PT Interchange / Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**1.6**	**0.1**	**0.0**	**1.8**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
4/1	106	106	-	-	-	0.8	0.1	-	0.9	31.0	3.1	0.1	3.1
4/2	457	457	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

7/1	457	457	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J4: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**14.0**	**4.9**	**0.0**	**18.9**	**-**	**-**	**-**	**-**
1/1	541	541	-	-	-	4.9	1.5	-	6.4	42.8	16.5	1.5	18.0
2/1	164	164	-	-	-	2.2	0.7	-	2.9	63.1	5.6	0.7	6.3
2/2	164	164	-	-	-	2.2	0.7	-	2.9	63.2	5.6	0.7	6.3
3/1	70	70	-	-	-	1.0	0.4	-	1.4	71.8	2.4	0.4	2.7
3/2	70	70	-	-	-	1.0	0.4	-	1.4	71.8	2.4	0.4	2.7
3/3	70	70	-	-	-	1.0	0.4	-	1.4	71.8	2.4	0.4	2.7
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	130	130	-	-	-	0.0	0.0	-	0.0	0.2	0.3	0.0	0.3
5/2	248	248	-	-	-	0.0	0.0	-	0.0	0.1	0.3	0.0	0.3
5/3	129	129	-	-	-	0.0	0.0	-	0.0	0.2	0.3	0.0	0.3
6/1	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	1.6	0.9	-	2.5	84.6	3.6	0.9	4.5
9/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P9	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

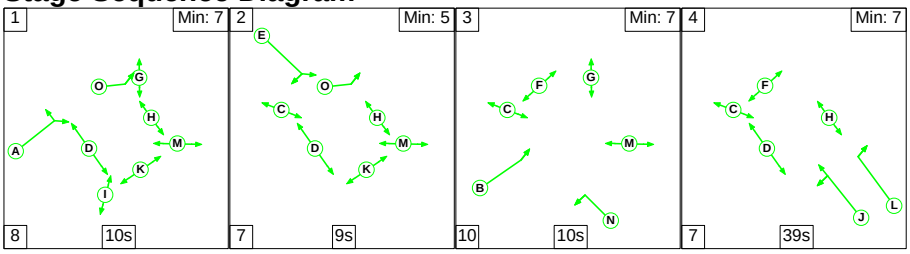
C1 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	20.3	Total Delay for Signalled Lanes (pcuHr):	18.40	Cycle Time (s):	108
C2 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	8.5	Total Delay for Signalled Lanes (pcuHr):	25.74	Cycle Time (s):	110
C2 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	412.5	Total Delay for Signalled Lanes (pcuHr):	0.68	Cycle Time (s):	110
C3 - PT Interchange / Masshouse Lane		PRC for Signalled Lanes (%):	669.9	Total Delay for Signalled Lanes (pcuHr):	1.77	Cycle Time (s):	180
C4 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	19.5	Total Delay for Signalled Lanes (pcuHr):	18.89	Cycle Time (s):	360
		PRC Over All Lanes (%):	8.5	Total Delay Over All Lanes(pcuHr):	65.49		

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

C1 - Moor Street Queensway - Masshouse Lane

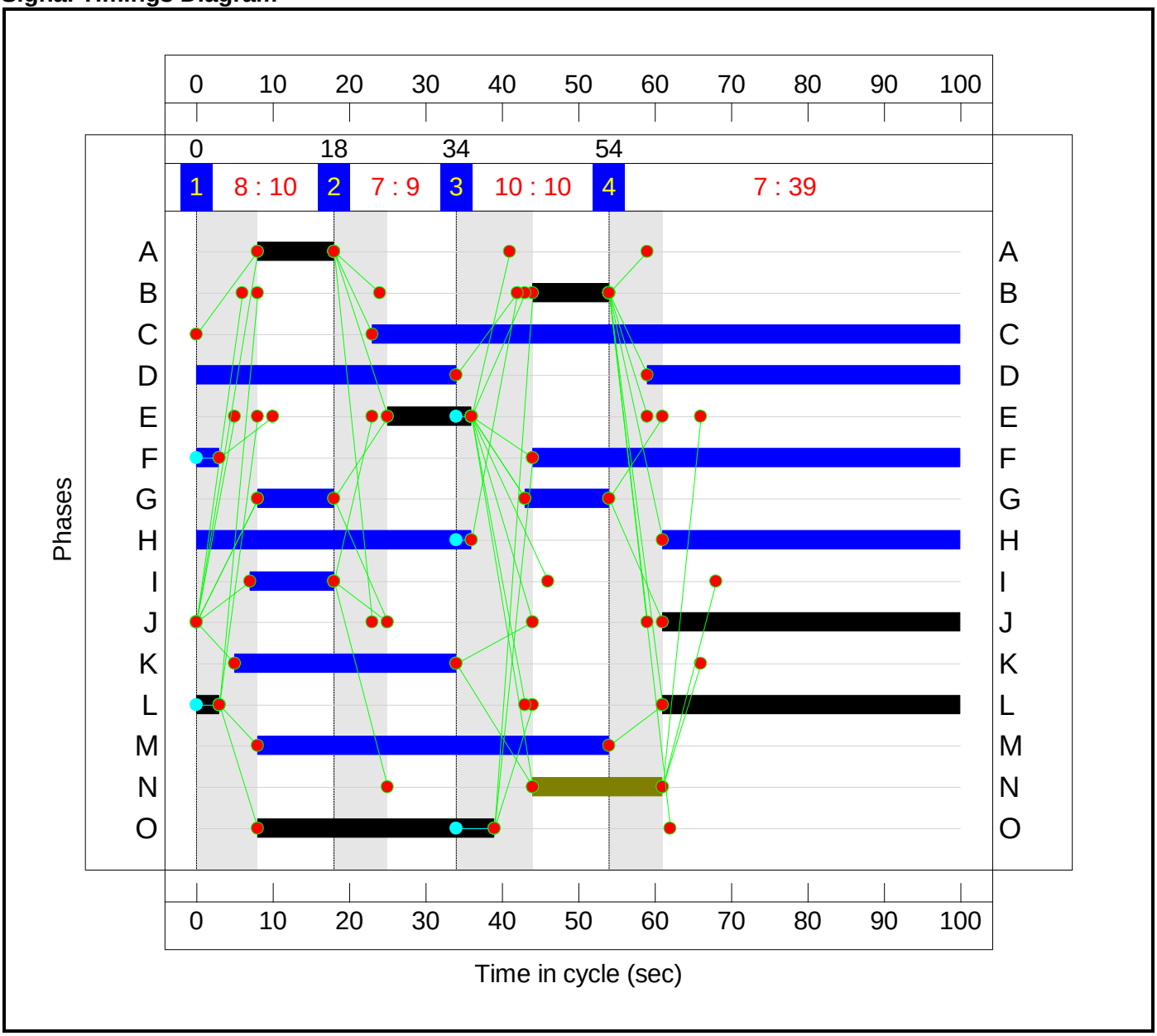
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	10	9	10	39
Change Point	0	18	34	54

Signal Timings Diagram

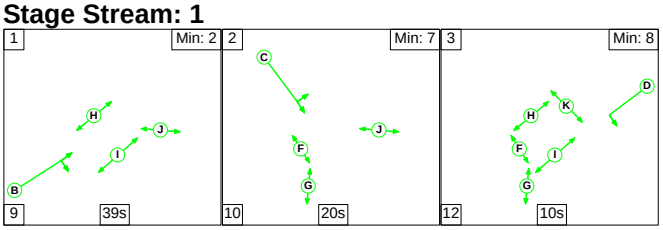


Full Input Data And Results

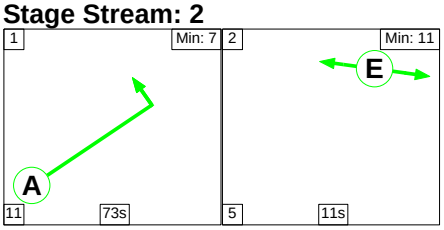
C2 - Moor Street Queensway - Jennens Road

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

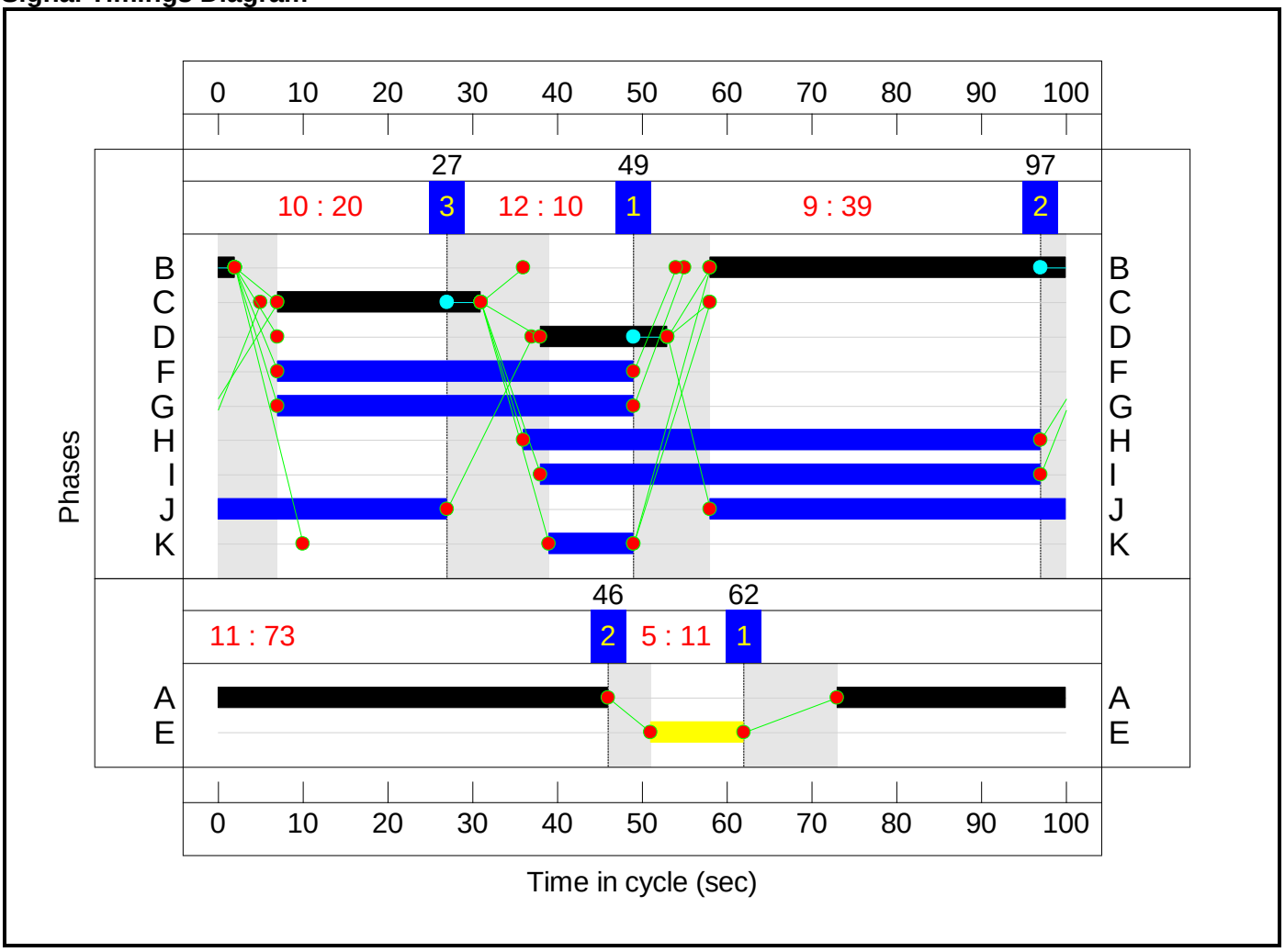
Stage	1	2	3
Duration	39	20	10
Change Point	49	97	27

Stage Stream: 2

Stage	1	2
Duration	73	11
Change Point	62	46

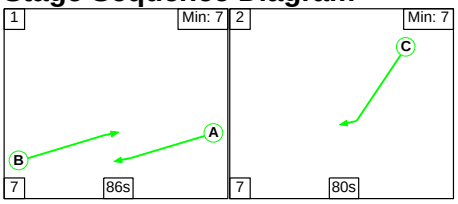
Full Input Data And Results

Signal Timings Diagram



C3 - PT Interchange / Masshouse Lane

Stage Sequence Diagram

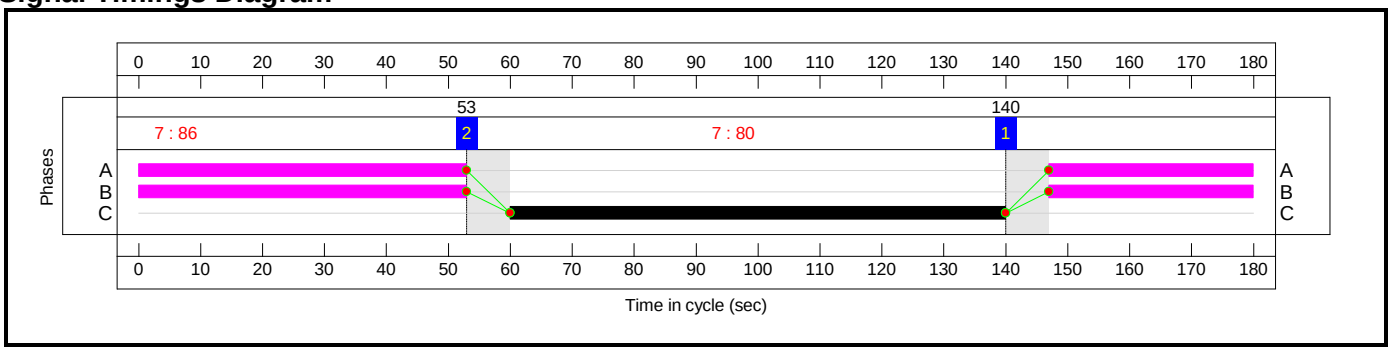


Stage Timings

Stage	1	2
Duration	86	80
Change Point	140	53

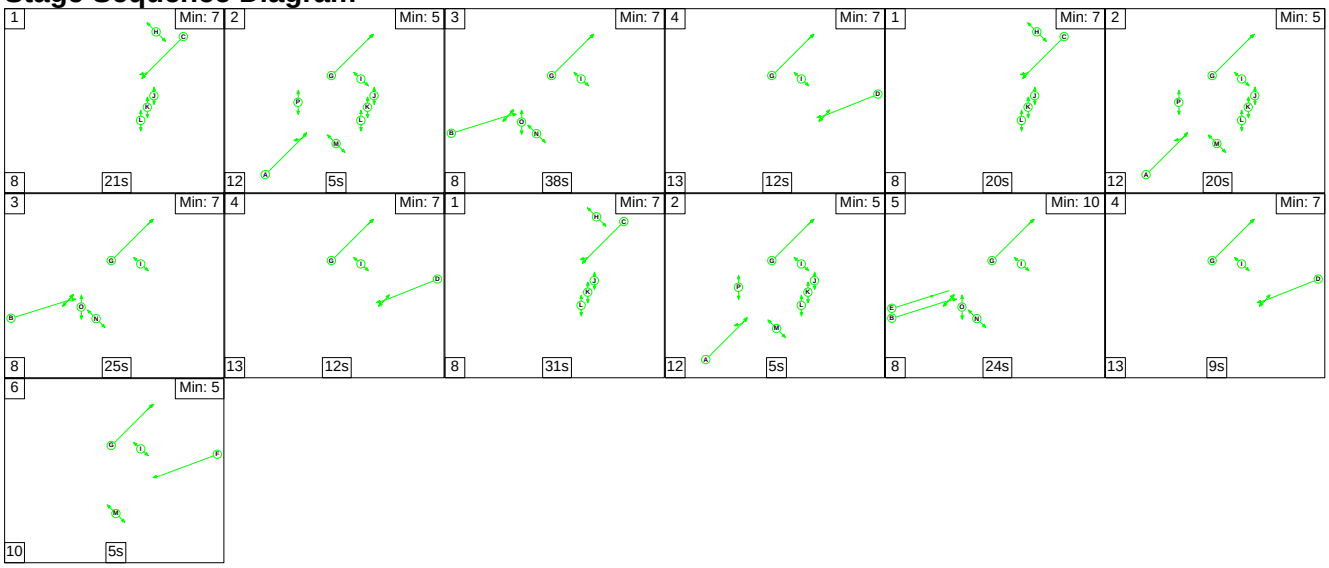
Full Input Data And Results

Signal Timings Diagram



C4 - Moor Street Queensway - Albert Street

Stage Sequence Diagram

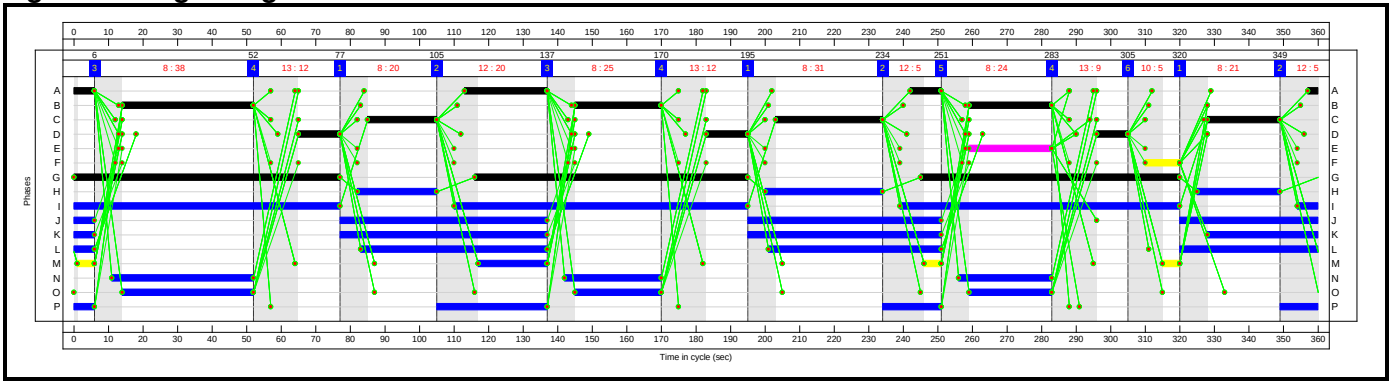


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	21	5	38	12	20	20	25	12	31	5
Change Point	320	349	6	52	77	105	137	170	195	234

Stage	5	4	6							
Duration	24	9	5							
Change Point	251	283	305							

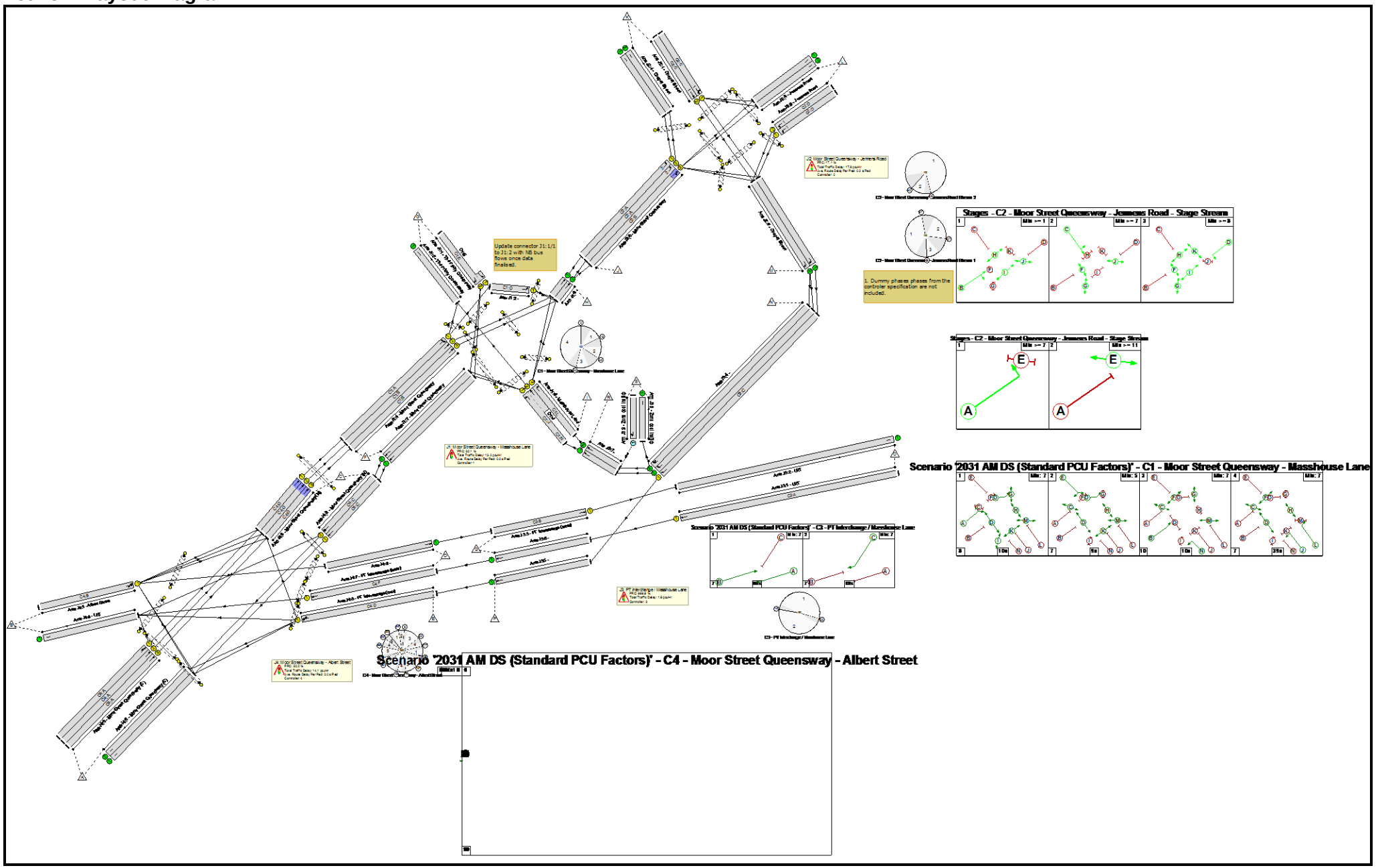
Signal Timings Diagram



Full Input Data And Results

Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**76.8%**
J1: Moor Street Queensway - Masshouse Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**68.1%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C1:E		1	11	-	138	1821:1824	7+219	61.2 : 61.2%
2/1	Left	U	N/A	N/A	C1:O		1	31	-	134	1991	637	21.0%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C1:J	C1:N	1	56:39	17	368	1667:2020	950+0	38.7 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C1:L		1	42	-	526	1795	772	68.1%
4/1	Moor Street Queensway Right Left	U	N/A	N/A	C1:A		1	10	-	116	1852	204	56.9%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	10	-	98	1980	218	45.0%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	10	-	94	1950	214	43.8%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	116	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	428	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	424	Inf	Inf	0.0%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	186	Inf	Inf	0.0%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	186	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:C		1	77	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:D		1	75	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:I		1	11	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	29	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:M		1	46	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C1:F		1	59	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C1:G		2	21	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C1:H		1	75	-	0	-	0	0.0%
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.8%**
1/1	Chapel Street Left Ahead	U	2:1	N/A	C2:C		1	24	-	346	1801	450	76.8%
1/2	Chapel Street Ahead	U	2:1	N/A	C2:C		1	24	-	159	2095	524	30.4%
2/1	Jennens Road Left	U	2:1	N/A	C2:D		1	15	-	217	1872	300	72.4%
2/2	Jennens Road Left	U	2:1	N/A	C2:D		1	15	-	244	2009	321	75.9%
3/1	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	73	-	95	1846	1366	7.0%
3/2	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	73	-	107	1879	1390	7.7%
3/3	Moor Street Queensway Ahead Right	U	2:1	N/A	C2:B		1	44	-	650	1922	865	75.2%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	95	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	107	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	346	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
6/1	Chapel Street Right	U	N/A	N/A	-		-	-	-	370	Inf	Inf	0.0%

Full Input Data And Results

6/2	Chapel Street Right	U	N/A	N/A	-		-	-	-	555	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2:1	-	C2:H		1	61	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	2:1	-	C2:K		1	10	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	2:1	-	C2:J		1	69	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	2:1	-	C2:I		1	59	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	2:1	-	C2:G		1	42	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	2:1	-	C2:F		1	42	-	0	-	0	0.0%
J3: PT Interchange / Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.7%**
1/1	LRT Ahead	U	N/A	N/A	C3:A		1	86	-	58	2015	974	6.0%
2/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
3/1	PT Interchange (tram) Ahead	U	N/A	N/A	C3:B		1	86	-	58	2065	998	5.8%
4/1	Ahead	U	N/A	N/A	C3:C		1	80	-	106	2015	907	11.7%
4/2	Right	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
4/3	Right Right2	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
7/2	Ahead	U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
8/1	Zone (lost traffic)	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Zone (lost traffic) Right	O	N/A	N/A	-		-	-	-	0	1800	831	0.0%
J4: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**59.2%**

Full Input Data And Results

1/1	Albert Street Ahead U-Turn Ahead2	U	N/A	N/A	C4:B		3	87	-	282	1905	476	59.2%
2/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:C		3	72	-	166	1965	409	40.5%
2/2	Moor Street Queensway (N) Ahead Ahead2	U	N/A	N/A	C4:C		3	72	-	164	1960	408	40.2%
3/1	Moor Street Queensway (S) U-Turn Ahead	U	N/A	N/A	C4:A		3	42	-	76	1945	243	31.3%
3/2	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	42	-	76	1945	243	31.3%
3/3	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	42	-	76	1945	243	31.3%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	231	-	88	1945	1264	7.0%
5/2	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	231	-	134	1980	1287	10.4%
5/3	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	231	-	86	1945	1264	6.8%
6/1	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	291	Inf	Inf	0.0%
6/2	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	289	Inf	Inf	0.0%
7/1	PT Interchange (tram) Ahead	U	N/A	N/A	C4:F		1	10	-	0	2065	63	0.0%
8/1	PT Interchange (bus) Ahead U-Turn Ahead2	U	N/A	N/A	C4:D		3	33	-	106	2014	201	52.6%
9/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C4:H		3	81	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C4:J		3	162	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C4:I		3	249	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C4:K		3	154	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C4:L		3	150	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C4:O		3	87	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C4:P		3	66	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C4:N		3	96	-	0	-	0	0.0%
Ped Link: P9	Unnamed Ped Link	-	N/A	-	C4:M		4	35	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**34.2**	**12.7**	**0.0**	**46.9**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**9.4**	**3.7**	**0.0**	**13.2**	**-**	**-**	**-**	**-**
1/2+1/1	138	138	-	-	-	1.6	0.8	-	2.4	62.0	3.5	0.8	4.3
2/1	134	134	-	-	-	0.0	0.1	-	0.1	3.8	0.0	0.1	0.1
3/1+3/2	368	368	-	-	-	1.0	0.3	-	1.3	12.5	3.9	0.3	4.2
3/3	526	526	-	-	-	3.3	1.1	-	4.3	29.8	12.8	1.1	13.8
4/1	116	116	-	-	-	1.4	0.7	-	2.0	62.5	3.0	0.7	3.7
4/2	98	98	-	-	-	1.1	0.4	-	1.5	56.6	2.5	0.4	2.9
4/3	94	94	-	-	-	1.1	0.4	-	1.5	56.5	2.4	0.4	2.8
5/1	116	116	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	428	428	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	424	424	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**11.7**	**6.2**	**0.0**	**17.9**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	346	346	-	-	-	3.3	1.6	-	5.0	51.6	8.8	1.6	10.5
1/2	159	159	-	-	-	1.3	0.2	-	1.6	35.4	3.6	0.2	3.8
2/1	217	217	-	-	-	2.4	1.3	-	3.7	61.1	5.7	1.3	7.0
2/2	244	244	-	-	-	2.7	1.5	-	4.2	62.5	6.4	1.5	8.0
3/1	95	95	-	-	-	0.1	0.0	-	0.2	5.9	0.8	0.0	0.9
3/2	107	107	-	-	-	0.1	0.0	-	0.2	5.8	0.9	0.0	1.0
3/3	650	650	-	-	-	1.6	1.5	-	3.1	17.2	9.2	1.5	10.7
4/1	95	95	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	107	107	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	346	346	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	370	370	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	555	555	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: PT Interchange / Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**1.6**	**0.1**	**0.0**	**1.8**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
4/1	106	106	-	-	-	0.8	0.1	-	0.9	31.0	3.1	0.1	3.1
4/2	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

7/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J4: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**11.4**	**2.6**	**0.0**	**14.1**	**-**	**-**	**-**	**-**
1/1	282	282	-	-	-	3.1	0.7	-	3.8	48.8	8.4	0.7	9.1
2/1	166	166	-	-	-	1.9	0.3	-	2.2	48.5	4.8	0.3	5.2
2/2	164	164	-	-	-	1.9	0.3	-	2.2	48.4	4.8	0.3	5.1
3/1	76	76	-	-	-	1.0	0.2	-	1.2	58.6	2.3	0.2	2.5
3/2	76	76	-	-	-	1.0	0.2	-	1.2	58.6	2.3	0.2	2.5
3/3	76	76	-	-	-	1.0	0.2	-	1.2	58.6	2.3	0.2	2.5
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	88	88	-	-	-	0.0	0.0	-	0.0	0.3	0.3	0.0	0.3
5/2	134	134	-	-	-	0.0	0.0	-	0.0	0.2	0.3	0.0	0.3
5/3	86	86	-	-	-	0.0	0.0	-	0.0	0.3	0.3	0.0	0.3
6/1	291	291	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	289	289	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	1.5	0.5	-	2.1	70.3	3.7	0.5	4.2
9/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P9	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

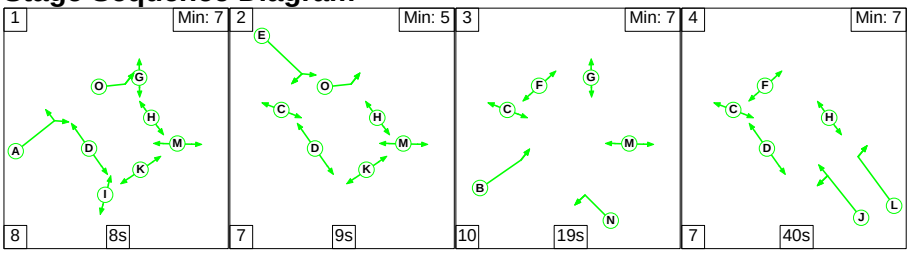
C1 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	32.1	Total Delay for Signalled Lanes (pcuHr):	13.17	Cycle Time (s):	100	
C2 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	17.1	Total Delay for Signalled Lanes (pcuHr):	17.55	Cycle Time (s):	100	
C2 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	1069.5	Total Delay for Signalled Lanes (pcuHr):	0.33	Cycle Time (s):	100	
C3 - PT Interchange / Masshouse Lane		PRC for Signalled Lanes (%):	669.9	Total Delay for Signalled Lanes (pcuHr):	1.77	Cycle Time (s):	180	
C4 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	52.0	Total Delay for Signalled Lanes (pcuHr):	14.07	Cycle Time (s):	360	
		PRC Over All Lanes (%):	17.1	Total Delay Over All Lanes(pcuHr):	46.89			

Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS')

C1 - Moor Street Queensway - Masshouse Lane

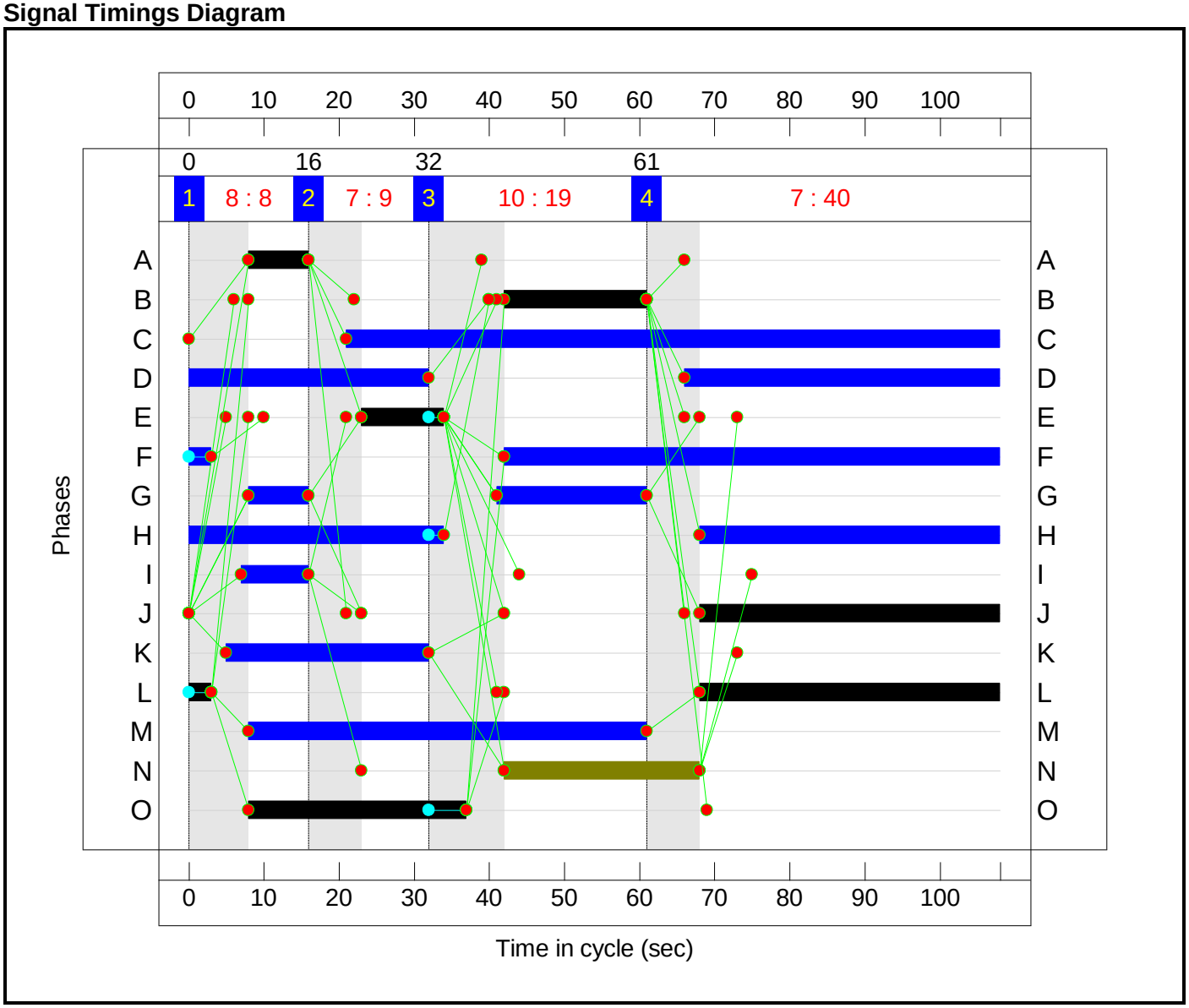
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	8	9	19	40
Change Point	0	16	32	61

Signal Timings Diagram

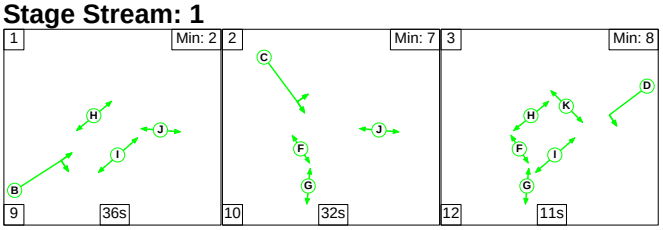


Full Input Data And Results

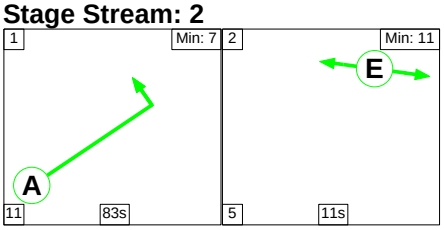
C2 - Moor Street Queensway - Jennens Road

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

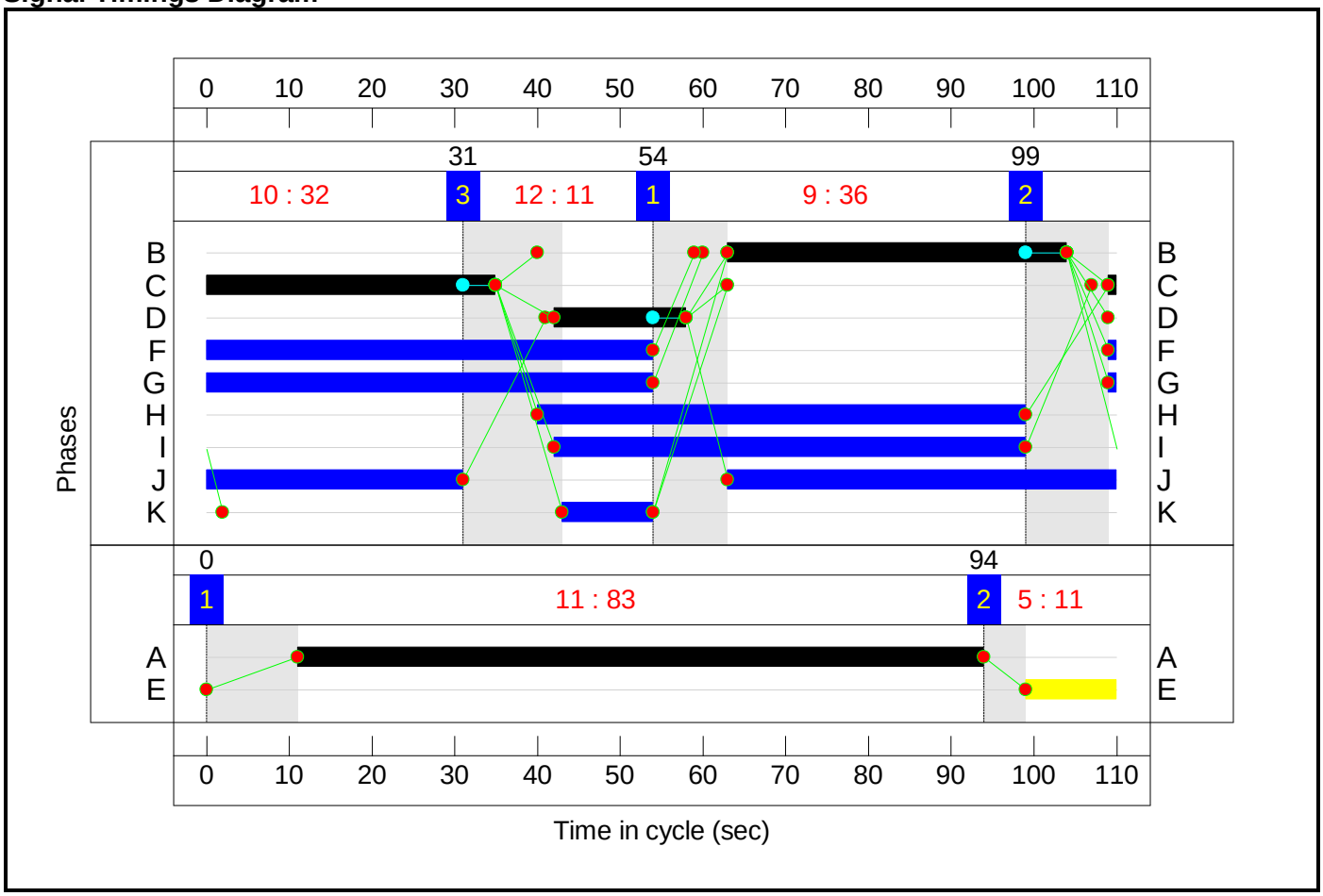
Stage	1	2	3
Duration	36	32	11
Change Point	54	99	31

Stage Stream: 2

Stage	1	2
Duration	83	11
Change Point	0	94

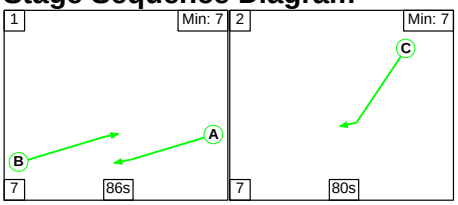
Full Input Data And Results

Signal Timings Diagram



C3 - PT Interchange / Masshouse Lane

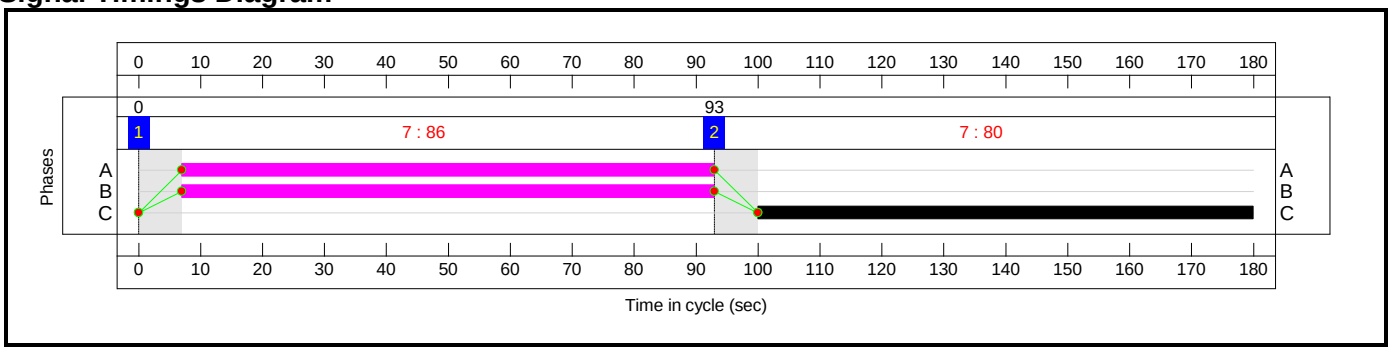
Stage Sequence Diagram



Stage Timings

Stage	1	2
Duration	86	80
Change Point	0	93

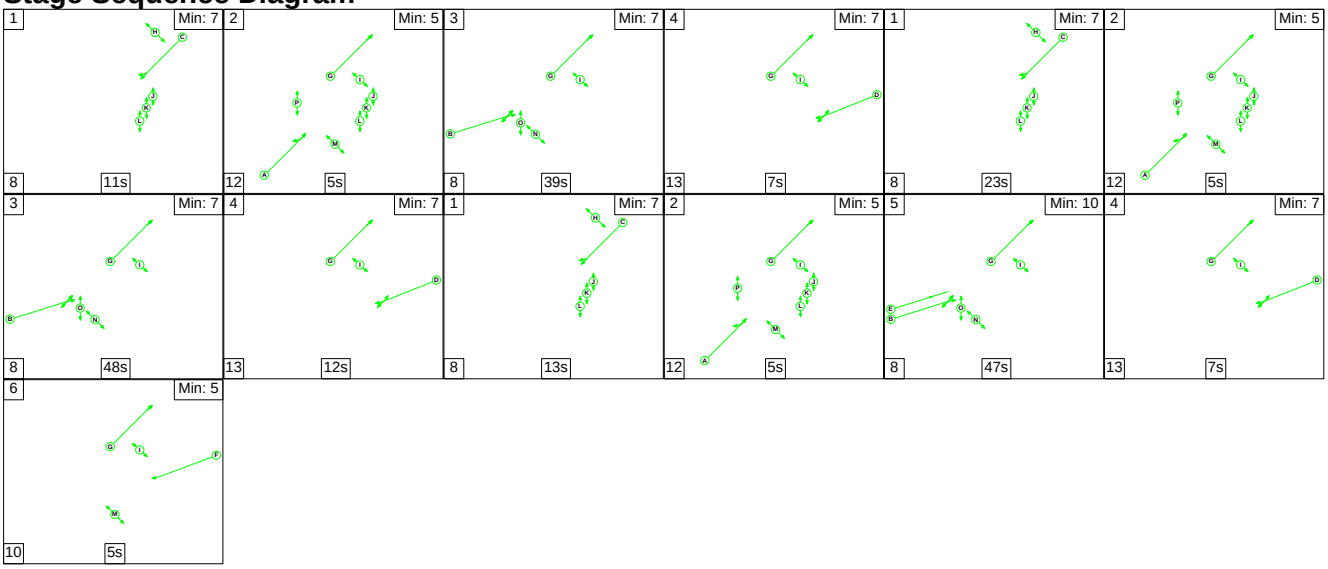
Signal Timings Diagram



Full Input Data And Results

C4 - Moor Street Queensway - Albert Street

Stage Sequence Diagram

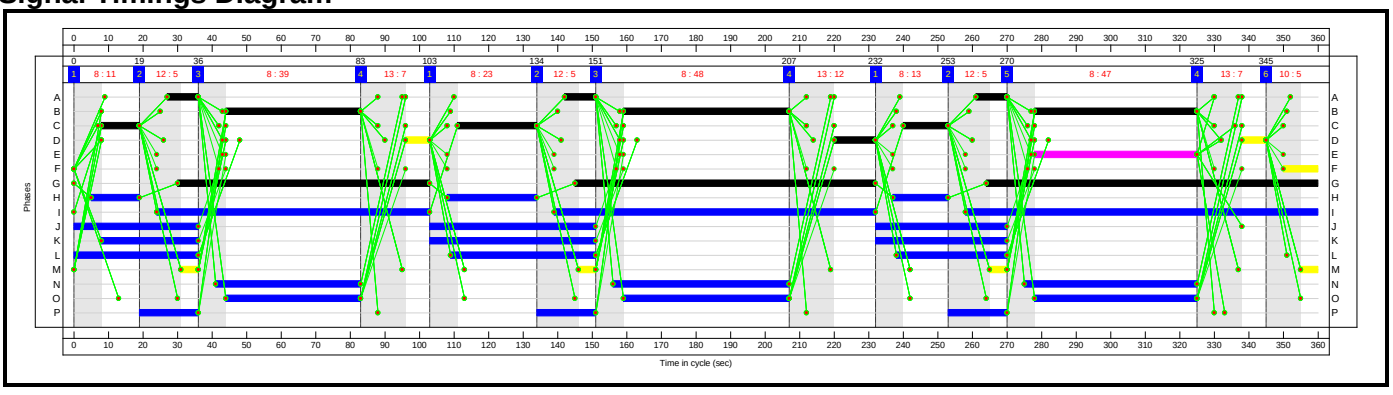


Stage Timings

Stage	1	2	3	4	1	2	3	4	1	2
Duration	11	5	39	7	23	5	48	12	13	5
Change Point	0	19	36	83	103	134	151	207	232	253

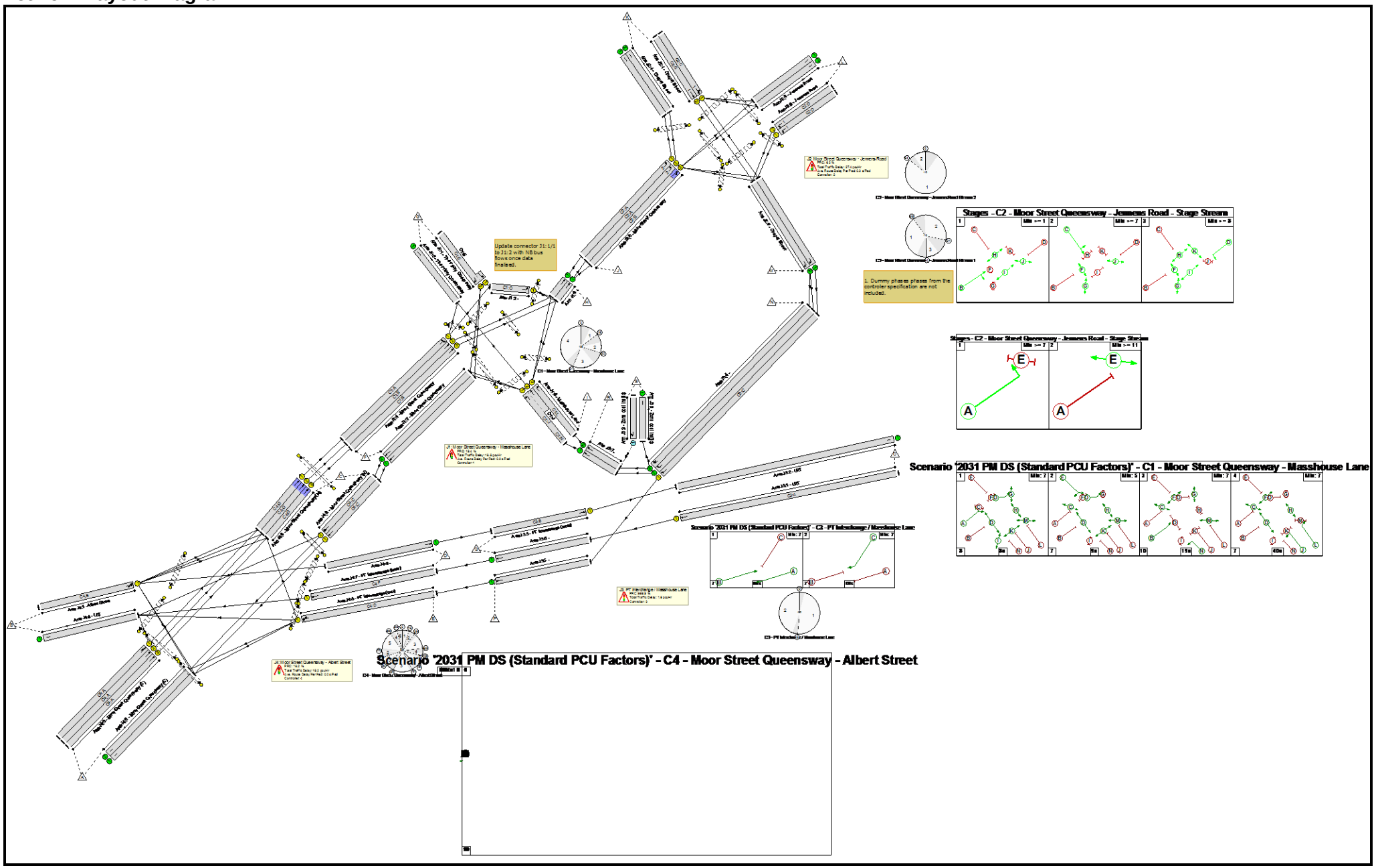
Stage	5	4	6							
Duration	47	7	5							
Change Point	270	325	345							

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Moor Street Queensway/Albert Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.7%**
J1: Moor Street Queensway - Masshouse Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.3%**
1/2+1/1	The Priory Queensway Left Right	U	N/A	N/A	C1:E		1	11	-	158	1821:1824	14+203	73.0 : 73.0%
2/1	Left	U	N/A	N/A	C1:O		1	29	-	148	1991	553	26.8%
3/1+3/2	Masshouse Lane Ahead Left	U	N/A	N/A	C1:J	C1:N	1	66:40	26	366	1667:2020	1034+0	35.4 : 0.0%
3/3	Masshouse Lane Right	U	N/A	N/A	C1:L		1	43	-	551	1795	731	75.3%
4/1	Moor Street Queensway Right Left	U	N/A	N/A	C1:A		1	8	-	100	1852	154	64.8%
4/2	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	19	-	214	1980	367	58.4%
4/3	Moor Street Queensway Ahead	U	N/A	N/A	C1:B		1	19	-	207	1950	361	57.3%
5/1	The Priory Queensway	U	N/A	N/A	-		-	-	-	100	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	563	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	557	Inf	Inf	0.0%
7/1	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	188	Inf	Inf	0.0%
7/2	Moor Street Queensway Ahead	U	N/A	N/A	-		-	-	-	188	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:C		1	87	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:D		1	74	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:I		1	9	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	27	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:M		1	53	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C1:F		1	69	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C1:G		2	28	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C1:H		1	74	-	0	-	0	0.0%
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.7%**
1/1	Chapel Street Left Ahead	U	2:1	N/A	C2:C		1	36	-	503	1801	606	83.0%
1/2	Chapel Street Ahead	U	2:1	N/A	C2:C		1	36	-	167	2095	705	23.7%
2/1	Jennens Road Left	U	2:1	N/A	C2:D		1	16	-	232	1872	289	80.2%
2/2	Jennens Road Left	U	2:1	N/A	C2:D		1	16	-	257	2009	310	82.8%
3/1	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	83	-	240	1846	1410	17.0%
3/2	Moor Street Queensway Left	U	2:2	N/A	C2:A		1	83	-	259	1879	1435	18.1%
3/3	Moor Street Queensway Ahead Right	U	2:1	N/A	C2:B		1	41	-	622	1923	734	84.7%
4/1	Chapel Street	U	N/A	N/A	-		-	-	-	240	Inf	Inf	0.0%
4/2	Chapel Street	U	N/A	N/A	-		-	-	-	259	Inf	Inf	0.0%
5/1	Jennens Road	U	N/A	N/A	-		-	-	-	418	Inf	Inf	0.0%
5/2	Jennens Road	U	N/A	N/A	-		-	-	-	416	Inf	Inf	0.0%
6/1	Chapel Street Right	U	N/A	N/A	-		-	-	-	378	Inf	Inf	0.0%

Full Input Data And Results

6/2	Chapel Street Right	U	N/A	N/A	-		-	-	-	569	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:E		1	11	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	2:1	-	C2:H		1	59	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	2:1	-	C2:K		1	11	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	2:1	-	C2:J		1	78	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	2:1	-	C2:I		1	57	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	2:1	-	C2:G		1	55	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	2:1	-	C2:F		1	55	-	0	-	0	0.0%
J3: PT Interchange / Masshouse Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.7%**
1/1	LRT Ahead	U	N/A	N/A	C3:A		1	86	-	58	2015	974	6.0%
2/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
3/1	PT Interchange (tram) Ahead	U	N/A	N/A	C3:B		1	86	-	58	2065	998	5.8%
4/1	Ahead	U	N/A	N/A	C3:C		1	80	-	106	2015	907	11.7%
4/2	Right	U	N/A	N/A	-		-	-	-	459	Inf	Inf	0.0%
4/3	Right Right2	U	N/A	N/A	-		-	-	-	458	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
7/1	Ahead	U	N/A	N/A	-		-	-	-	459	Inf	Inf	0.0%
7/2	Ahead	U	N/A	N/A	-		-	-	-	458	Inf	Inf	0.0%
8/1	Zone (lost traffic)	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
9/1	Zone (lost traffic) Right	O	N/A	N/A	-		-	-	-	0	1800	674	0.0%
J4: Moor Street Queensway - Albert Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.1%**

Full Input Data And Results

1/1	Albert Street Ahead U-Turn Ahead2	U	N/A	N/A	C4:B		3	134	-	555	1916	729	76.1%
2/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:C		3	47	-	164	1965	273	60.1%
2/2	Moor Street Queensway (N) Ahead Ahead2	U	N/A	N/A	C4:C		3	47	-	164	1960	272	60.2%
3/1	Moor Street Queensway (S) U-Turn Ahead	U	N/A	N/A	C4:A		3	27	-	70	1945	162	43.2%
3/2	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	27	-	70	1945	162	43.2%
3/3	Moor Street Queensway (S) Ahead	U	N/A	N/A	C4:A		3	27	-	70	1945	162	43.2%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	256	-	144	1945	1399	10.3%
5/2	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	256	-	236	1980	1424	16.6%
5/3	Moor Street Queensway (N) Ahead	U	N/A	N/A	C4:G		3	256	-	141	1945	1399	10.1%
6/1	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
6/2	Moor Street Queensway (S)	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
7/1	PT Interchange (tram) Ahead	U	N/A	N/A	C4:F		1	10	-	0	2065	63	0.0%
8/1	PT Interchange (bus) Ahead U-Turn Ahead2	U	N/A	N/A	C4:D		3	26	-	106	2014	162	65.3%
9/1	Ahead	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C4:H		3	56	-	0	-	0	0.0%

Full Input Data And Results

Ped Link: P2	Unnamed Ped Link	-	N/A	-	C4:J		3	122	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C4:I		3	274	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C4:K		3	114	-	0	-	0	0.0%
Ped Link: P5	Unnamed Ped Link	-	N/A	-	C4:L		3	110	-	0	-	0	0.0%
Ped Link: P6	Unnamed Ped Link	-	N/A	-	C4:O		3	134	-	0	-	0	0.0%
Ped Link: P7	Unnamed Ped Link	-	N/A	-	C4:P		3	51	-	0	-	0	0.0%
Ped Link: P8	Unnamed Ped Link	-	N/A	-	C4:N		3	143	-	0	-	0	0.0%
Ped Link: P9	Unnamed Ped Link	-	N/A	-	C4:M		4	20	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Moor Street Queensway/Albert Street	**-**	**-**	**0**	**0**	**0**	**46.9**	**20.2**	**0.0**	**67.1**	**-**	**-**	**-**	**-**
J1: Moor Street Queensway - Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**13.3**	**5.5**	**0.0**	**18.8**	**-**	**-**	**-**	**-**
1/2+1/1	158	158	-	-	-	2.0	1.3	-	3.3	75.9	4.4	1.3	5.7
2/1	148	148	-	-	-	0.0	0.2	-	0.2	4.8	0.0	0.2	0.2
3/1+3/2	366	366	-	-	-	1.0	0.3	-	1.3	12.7	5.3	0.3	5.6
3/3	551	551	-	-	-	4.2	1.5	-	5.7	37.2	14.1	1.5	15.6
4/1	100	100	-	-	-	1.3	0.9	-	2.2	80.1	2.9	0.9	3.8
4/2	214	214	-	-	-	2.4	0.7	-	3.1	51.9	5.8	0.7	6.5
4/3	207	207	-	-	-	2.3	0.7	-	3.0	51.7	5.6	0.7	6.3
5/1	100	100	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	563	563	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	557	557	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	188	188	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	188	188	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Moor Street Queensway - Jennens Road	**-**	**-**	**0**	**0**	**0**	**17.9**	**9.5**	**0.0**	**27.4**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	503	503	-	-	-	4.7	2.3	-	7.0	50.4	14.1	2.3	16.5
1/2	167	167	-	-	-	1.2	0.2	-	1.4	29.7	3.7	0.2	3.8
2/1	232	232	-	-	-	2.9	1.9	-	4.8	74.3	6.8	1.9	8.7
2/2	257	257	-	-	-	3.2	2.2	-	5.4	76.2	7.6	2.2	9.8
3/1	240	240	-	-	-	0.2	0.1	-	0.3	5.1	1.9	0.1	2.0
3/2	259	259	-	-	-	0.3	0.1	-	0.4	5.1	2.2	0.1	2.3
3/3	622	622	-	-	-	5.4	2.6	-	8.0	46.4	17.1	2.6	19.8
4/1	240	240	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	259	259	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	418	418	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	416	416	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	378	378	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	569	569	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: PT Interchange / Masshouse Lane	**-**	**-**	**0**	**0**	**0**	**1.6**	**0.1**	**0.0**	**1.8**	**-**	**-**	**-**	**-**
1/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
2/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	58	58	-	-	-	0.4	0.0	-	0.4	26.7	1.5	0.0	1.6
4/1	106	106	-	-	-	0.8	0.1	-	0.9	31.0	3.1	0.1	3.1
4/2	459	459	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/3	458	458	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

7/1	459	459	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	458	458	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J4: Moor Street Queensway - Albert Street	**-**	**-**	**0**	**0**	**0**	**14.1**	**5.1**	**0.0**	**19.2**	**-**	**-**	**-**	**-**
1/1	555	555	-	-	-	5.0	1.6	-	6.6	42.6	16.8	1.6	18.4
2/1	164	164	-	-	-	2.2	0.7	-	3.0	65.3	5.6	0.7	6.4
2/2	164	164	-	-	-	2.2	0.7	-	3.0	65.4	5.6	0.7	6.4
3/1	70	70	-	-	-	1.0	0.4	-	1.4	71.8	2.3	0.4	2.7
3/2	70	70	-	-	-	1.0	0.4	-	1.4	71.8	2.3	0.4	2.7
3/3	70	70	-	-	-	1.0	0.4	-	1.4	71.8	2.3	0.4	2.7
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	144	144	-	-	-	0.0	0.0	-	0.0	0.2	0.3	0.0	0.3
5/2	236	236	-	-	-	0.0	0.0	-	0.0	0.1	0.3	0.0	0.3
5/3	141	141	-	-	-	0.0	0.0	-	0.0	0.2	0.3	0.0	0.3
6/1	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	1.6	0.9	-	2.5	84.6	3.6	0.9	4.5
9/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P5	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P6	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P7	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P8	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P9	0	0	-	-	-	-	-	-	-	-	-	-	-

Full Input Data And Results

C1 - Moor Street Queensway - Masshouse Lane		PRC for Signalled Lanes (%):	19.4	Total Delay for Signalled Lanes (pcuHr):	18.79	Cycle Time (s):	108
C2 - Moor Street Queensway - Jennens Road	Stream: 1	PRC for Signalled Lanes (%):	6.2	Total Delay for Signalled Lanes (pcuHr):	26.66	Cycle Time (s):	110
C2 - Moor Street Queensway - Jennens Road	Stream: 2	PRC for Signalled Lanes (%):	398.6	Total Delay for Signalled Lanes (pcuHr):	0.71	Cycle Time (s):	110
C3 - PT Interchange / Masshouse Lane		PRC for Signalled Lanes (%):	669.9	Total Delay for Signalled Lanes (pcuHr):	1.77	Cycle Time (s):	180
C4 - Moor Street Queensway - Albert Street		PRC for Signalled Lanes (%):	18.2	Total Delay for Signalled Lanes (pcuHr):	19.23	Cycle Time (s):	360
		PRC Over All Lanes (%):	6.2	Total Delay Over All Lanes(pcuHr):	67.15		

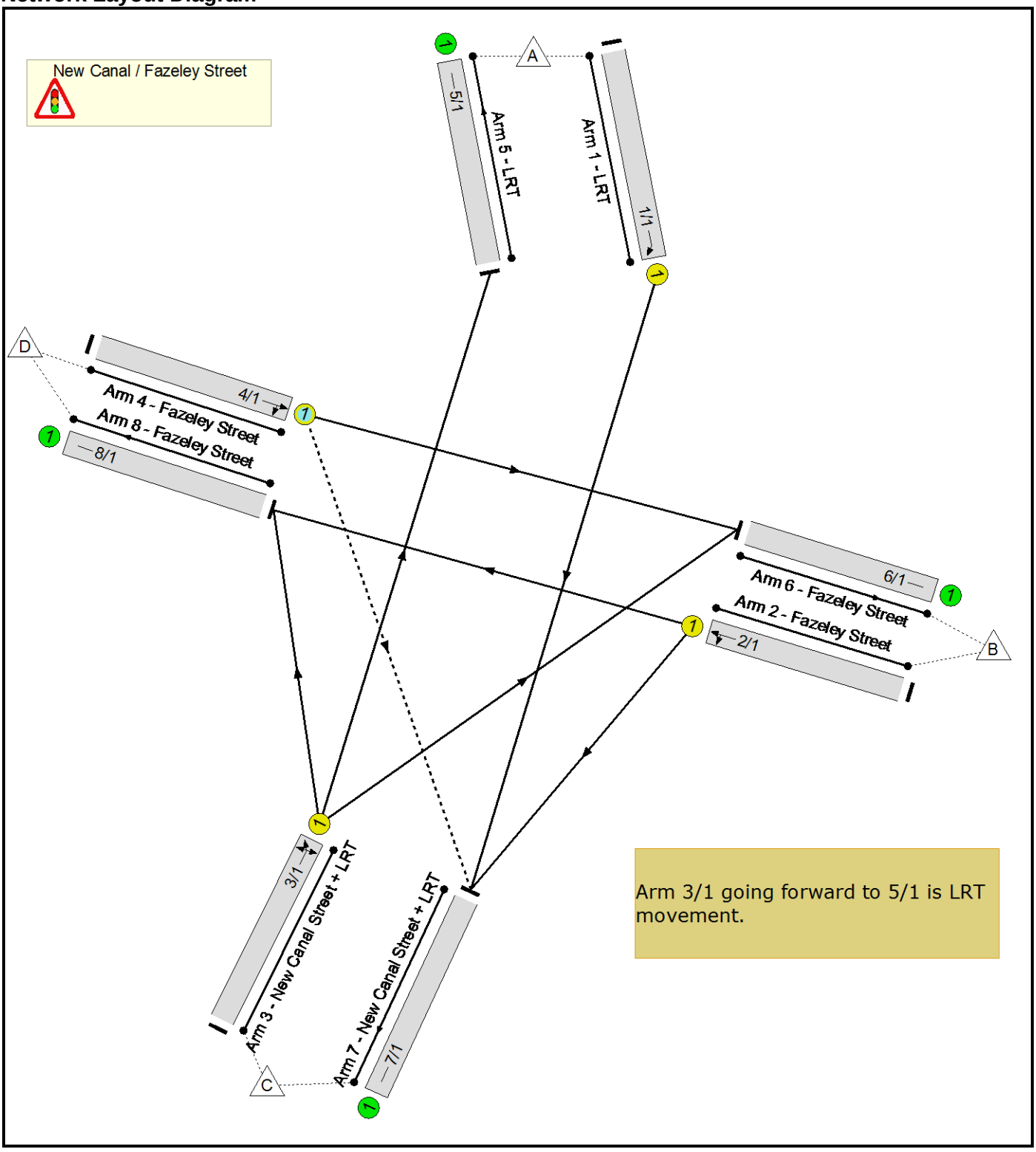
Full Input Data And Results

User and Project Details

Project:	**Birmingham Eastside Extension**
Title:	**New Canal Street / Fazeley Street Junction**
Location:	Birmingham
File name:	New Canal Street - Fazeley Street 360.lsg3x
Author:	W.Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	Do Something

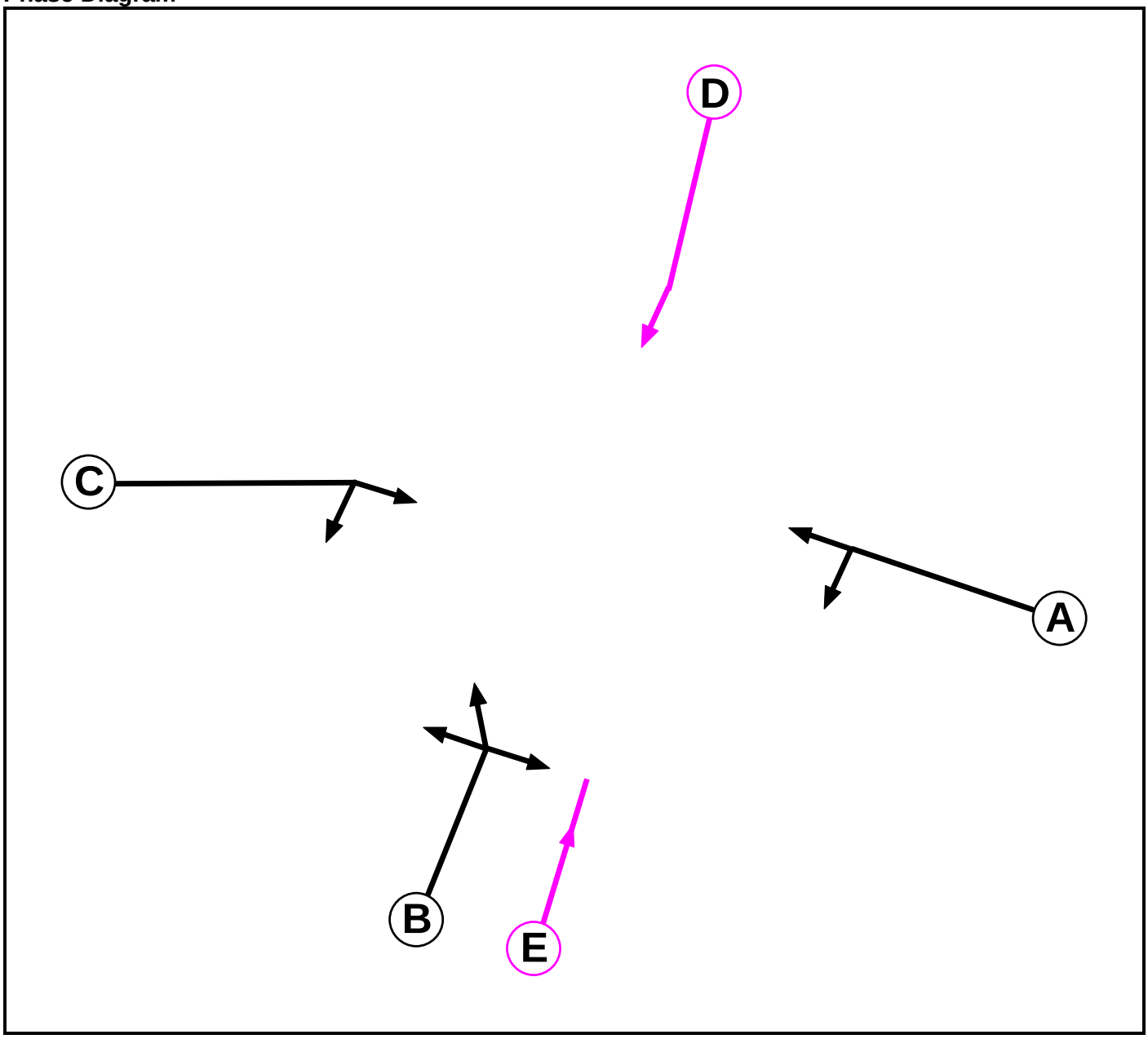
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	LRT	1		7	7
E	LRT	1		7	7

Full Input Data And Results

Phase Intergreens Matrix

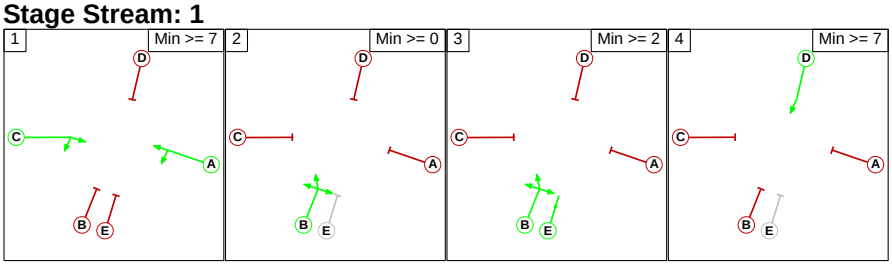
Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		5	-	5	5
	B	5		5	5	-
	C	-	5		5	5
	D	8	7	7		-
	E	7	-	8	-	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B
1	3	B E
1	4	D

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
4	1	C	Gaining absolute	8	8

Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage				
		1	2	3	4
	1		5	5	5
	2	5		2	5
	3	8	0		5
	4	8	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: New Canal / Fazeley Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
4/1 (Fazeley Street)	7/1 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: New Canal / Fazeley Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (LRT)	U	D	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 7 Ahead	Inf
2/1 (Fazeley Street)	U	A	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 7 Left	5.00
											Arm 8 Ahead	Inf
3/1 (New Canal Street + LRT)	U	B	2	3	60.0	Geom	-	4.30	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	10.00
											Arm 8 Left	8.00
4/1 (Fazeley Street)	O	C	2	3	60.0	Geom	-	4.00	0.00	Y	Arm 6 Ahead	Inf
											Arm 7 Right	10.00
5/1 (LRT)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Fazeley Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (New Canal Street + LRT)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Fazeley Street)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	299	0	299
	C	58	123	0	0	181
	D	0	0	0	0	0
	Tot.	58	123	299	0	480

Traffic Lane Flows

Lane	Scenario 1: 2026 AM DS (Standard PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	299
3/1	181
4/1	0
5/1	58
6/1	123
7/1	299
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	32.0 %	1856	1856
				Arm 6 Right	10.00	68.0 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	364	0	364
	C	58	91	0	0	149
	D	0	0	0	0	0
	Tot.	58	91	364	0	513

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 PM DS (Standard PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	364
3/1	149
4/1	0
5/1	58
6/1	91
7/1	364
8/1	0

Lane Saturation Flows

Junction: New Canal / Fazeley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	38.9 %	1873	1873
				Arm 6 Right	10.00	61.1 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	0	0	0
	B	0	0	300	0	300
	C	58	135	0	0	193
	D	0	0	0	0	0
	Tot.	58	135	300	0	493

Traffic Lane Flows

Lane	Scenario 3: 2031 AM DS (Standard PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	300
3/1	193
4/1	0
5/1	58
6/1	135
7/1	300
8/1	0

Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	30.1 %	1851	1851
				Arm 6 Right	10.00	69.9 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	364	0	364
	C	58	96	0	0	154
	D	0	0	0	0	0
	Tot.	58	96	364	0	518

Traffic Lane Flows

Lane	Scenario 4: 2031 PM DS (Standard PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	364
3/1	154
4/1	0
5/1	58
6/1	96
7/1	364
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	37.7 %	1870	1870
				Arm 6 Right	10.00	62.3 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 AM DS (Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	304	0	304
	C	58	125	0	0	183
	D	0	0	0	0	0
	Tot.	58	125	304	0	487

Traffic Lane Flows

Lane	Scenario 5: 2026 AM DS (Saturn PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	304
3/1	183
4/1	0
5/1	58
6/1	125
7/1	304
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	31.7 %	1855	1855
				Arm 6 Right	10.00	68.3 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 PM DS (Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	365	0	365
	C	58	92	0	0	150
	D	0	0	0	0	0
	Tot.	58	92	365	0	515

Traffic Lane Flows

Lane	Scenario 6: 2026 PM DS (Saturn PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	365
3/1	150
4/1	0
5/1	58
6/1	92
7/1	365
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	38.7 %	1873	1873
				Arm 6 Right	10.00	61.3 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 AM DS (Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	304	0	304
	C	58	138	0	0	196
	D	0	0	0	0	0
	Tot.	58	138	304	0	500

Traffic Lane Flows

Lane	Scenario 7: 2031 AM DS (Saturn PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	304
3/1	196
4/1	0
5/1	58
6/1	138
7/1	304
8/1	0

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	29.6 %	1850	1850
				Arm 6 Right	10.00	70.4 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 PM DS (Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: 'With Tram')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	0	0	0
	B	0	0	365	0	365
	C	58	97	0	0	155
	D	0	0	0	0	0
	Tot.	58	97	365	0	520

Traffic Lane Flows

Lane	Scenario 8: 2031 PM DS (Saturn PCU Factors)
Junction: New Canal / Fazeley Street	
1/1	0
2/1	365
3/1	155
4/1	0
5/1	58
6/1	97
7/1	365
8/1	0

Full Input Data And Results

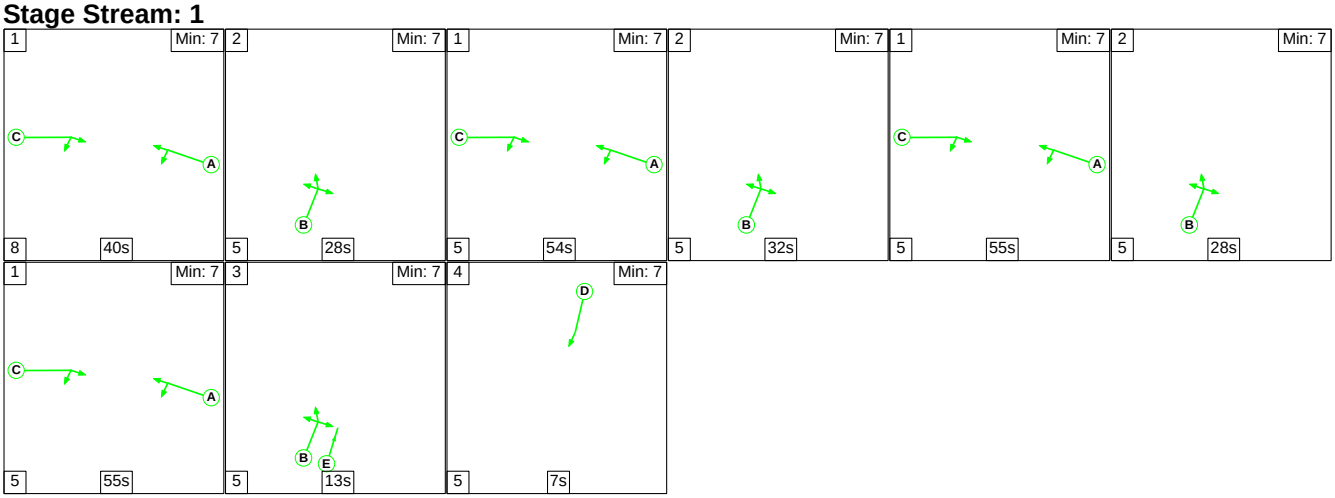
Lane Saturation Flows

Junction: New Canal / Fazeley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (LRT)	3.25	0.00	Y	Arm 7 Ahead	Inf	0.0 %	1940	1940
2/1 (Fazeley Street)	4.00	0.00	Y	Arm 7 Left	5.00	100.0 %	1550	1550
				Arm 8 Ahead	Inf	0.0 %		
3/1 (New Canal Street + LRT)	4.30	0.00	Y	Arm 5 Ahead	Inf	37.4 %	1870	1870
				Arm 6 Right	10.00	62.6 %		
				Arm 8 Left	8.00	0.0 %		
4/1 (Fazeley Street)	4.00	0.00	Y	Arm 6 Ahead	Inf	0.0 %	2015	2015
				Arm 7 Right	10.00	0.0 %		
5/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (New Canal Street + LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Fazeley Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Stage Sequence Diagram

Stage Stream: 1



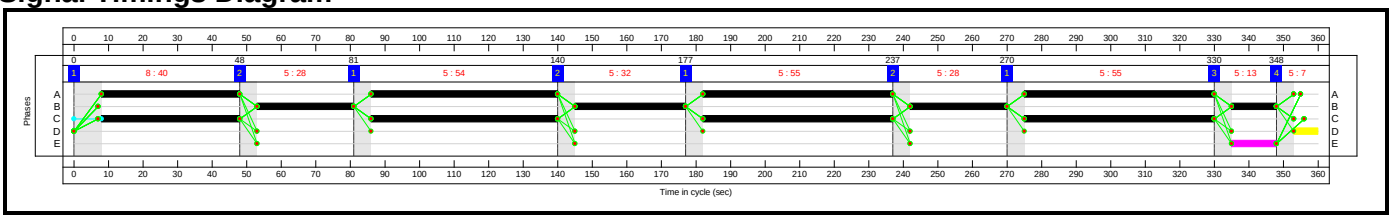
Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2	1	3	4
Duration	40	28	54	32	55	28	55	13	7
Change Point	0	48	81	140	177	237	270	330	348

Full Input Data And Results

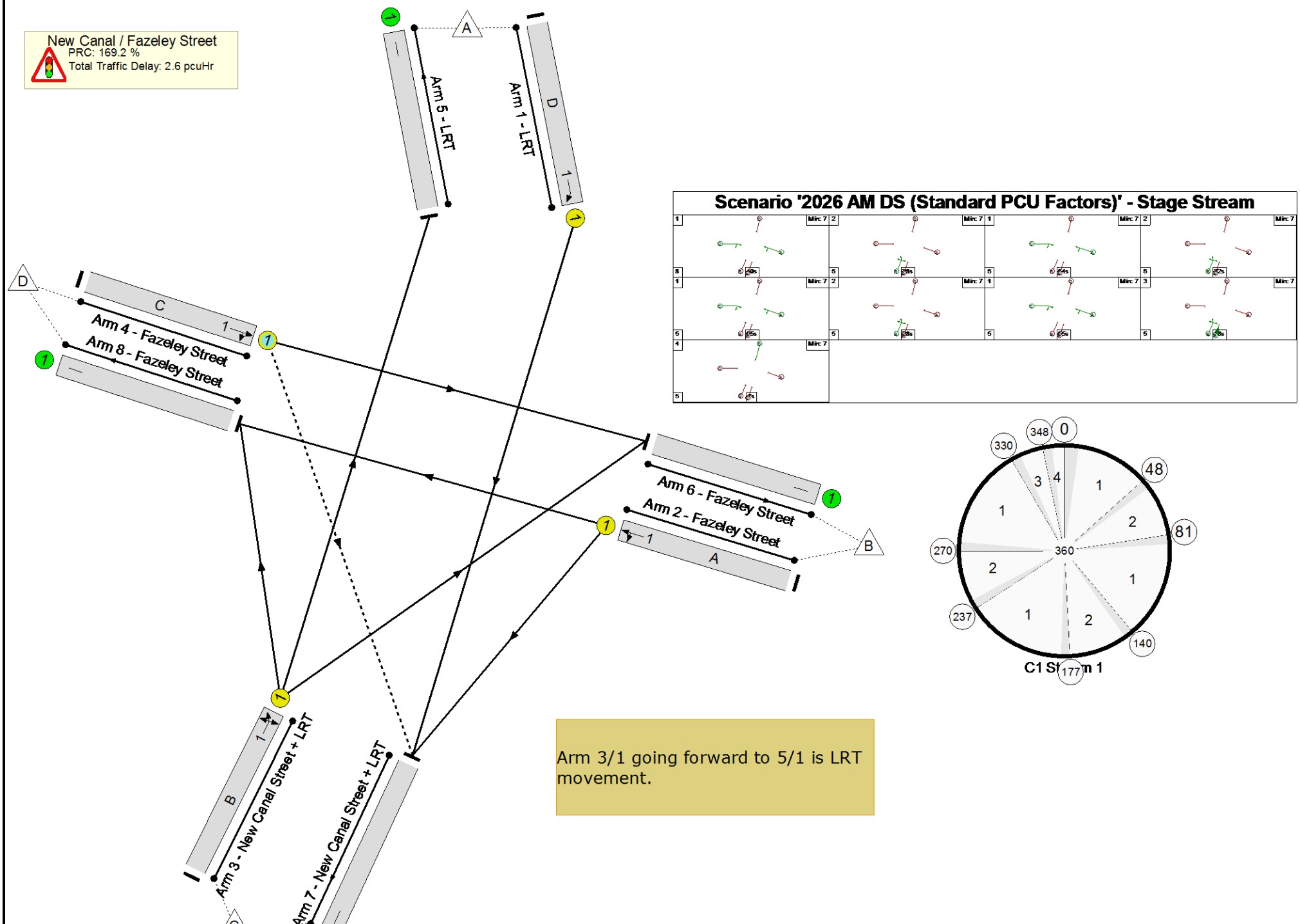
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**33.4%**
New Canal / Fazeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**33.4%**
1/1	LRT Ahead	U	1	N/A	D		1	7	-	0	1940	43	0.0%
2/1	Fazeley Street Left Ahead	U	1	N/A	A		4	204	-	299	1550	896	33.4%
3/1	New Canal Street + LRT Ahead Right Left	U	1	N/A	B		4	101	-	181	1856	541	33.4%
4/1	Fazeley Street Ahead Right	O	1	N/A	C		4	204	-	0	2015	763	0.0%
5/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	123	Inf	Inf	0.0%
7/1	New Canal Street + LRT	U	N/A	N/A	-		-	-	-	299	Inf	Inf	0.0%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**0**	**0**	**0**	**2.1**	**0.5**	**0.0**	**2.6**	**-**	**-**	**-**	**-**
New Canal / Fazeley Street	**-**	**-**	**0**	**0**	**0**	**2.1**	**0.5**	**0.0**	**2.6**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	299	299	-	-	-	0.8	0.3	-	1.1	13.0	4.2	0.3	4.4
3/1	181	181	-	-	-	1.3	0.3	-	1.5	30.0	3.5	0.3	3.8
4/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	123	123	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	299	299	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

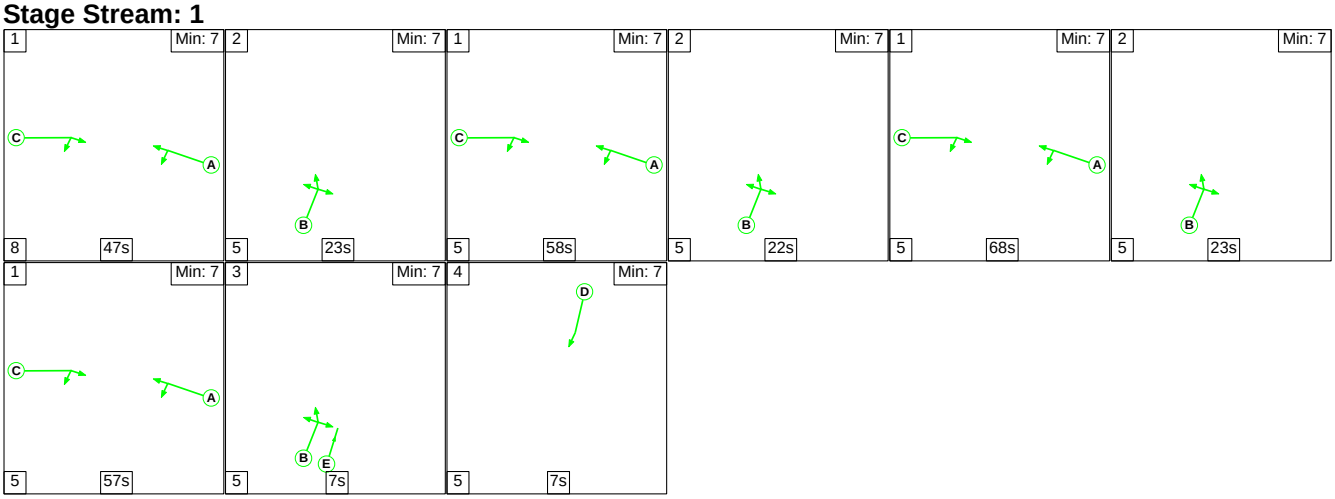
C1 Stream: 1 PRC for Signalled Lanes (%): 169.2 Total Delay for Signalled Lanes (pcuHr): 2.59 Cycle Time (s): 360
PRC Over All Lanes (%): 169.2 Total Delay Over All Lanes(pcuHr): 2.59

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Stage Sequence Diagram

Stage Stream: 1

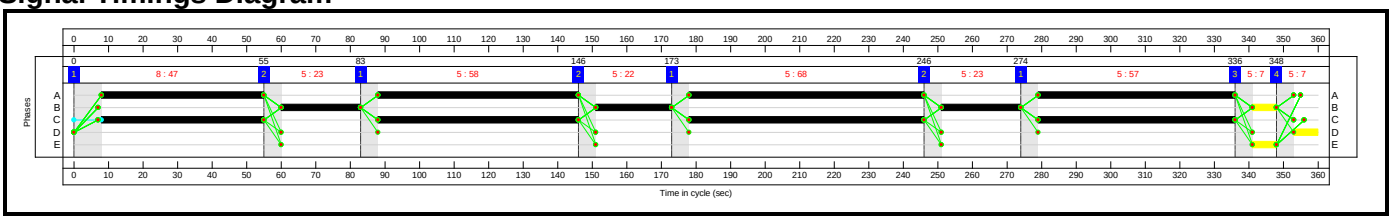


Stage Timings

Stage Stream: 1

Stage	1	2	1	2	1	2	1	3	4
Duration	47	23	58	22	68	23	57	7	7
Change Point	0	55	83	146	173	246	274	336	348

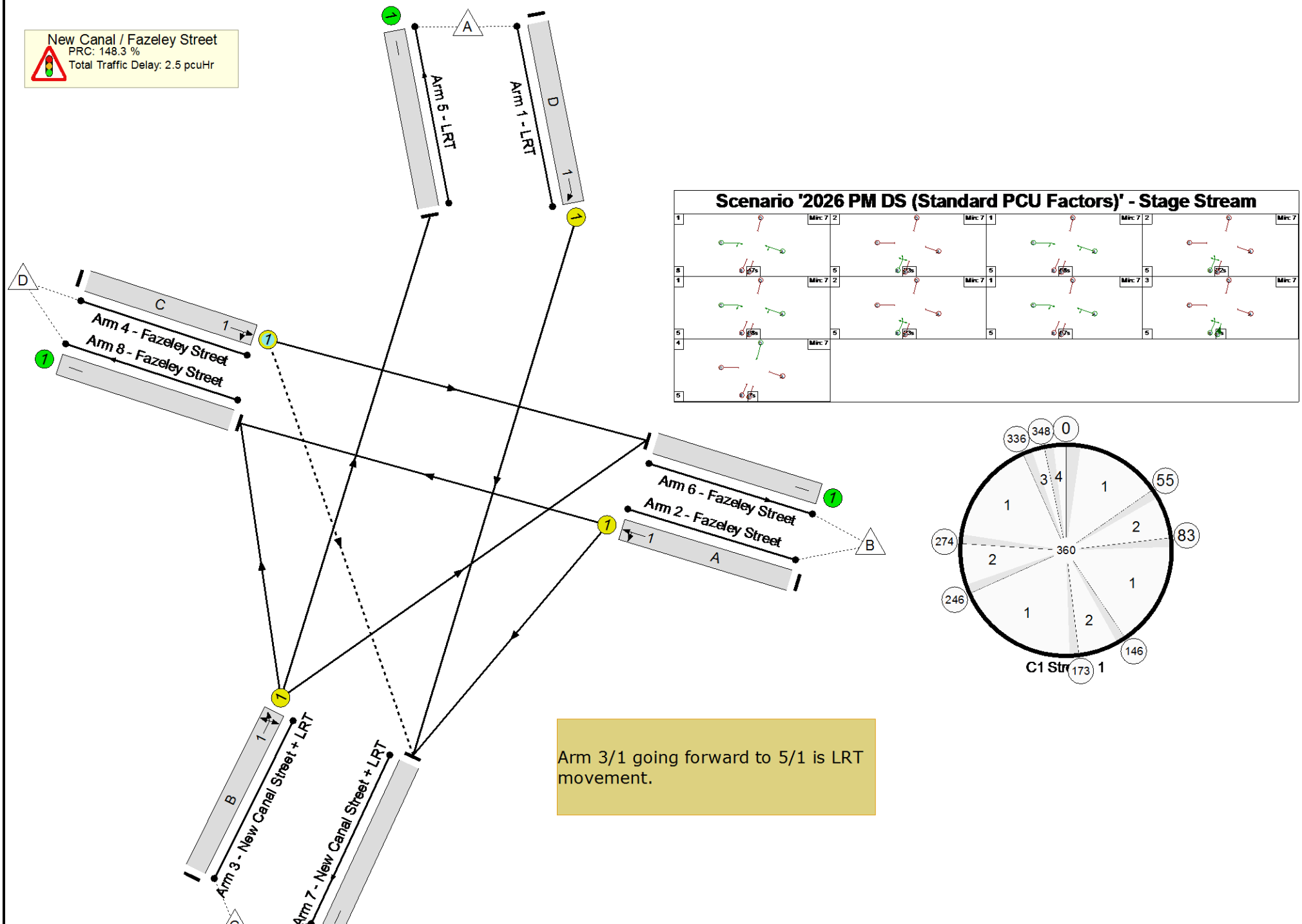
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.3%**
New Canal / Fazeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.3%**
1/1	LRT Ahead	U	1	N/A	D		1	7	-	0	1940	43	0.0%
2/1	Fazeley Street Left Ahead	U	1	N/A	A		4	230	-	364	1550	1007	36.1%
3/1	New Canal Street + LRT Ahead Right Left	U	1	N/A	B		4	75	-	149	1873	411	36.3%
4/1	Fazeley Street Ahead Right	O	1	N/A	C		4	230	-	0	2015	843	0.0%
5/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	91	Inf	Inf	0.0%
7/1	New Canal Street + LRT	U	N/A	N/A	-		-	-	-	364	Inf	Inf	0.0%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**0**	**0**	**0**	**2.0**	**0.6**	**0.0**	**2.5**	**-**	**-**	**-**	**-**
New Canal / Fazeley Street	**-**	**-**	**0**	**0**	**0**	**2.0**	**0.6**	**0.0**	**2.5**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	364	364	-	-	-	0.7	0.3	-	1.0	10.0	4.1	0.3	4.4
3/1	149	149	-	-	-	1.2	0.3	-	1.5	36.8	3.4	0.3	3.7
4/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	91	91	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	364	364	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

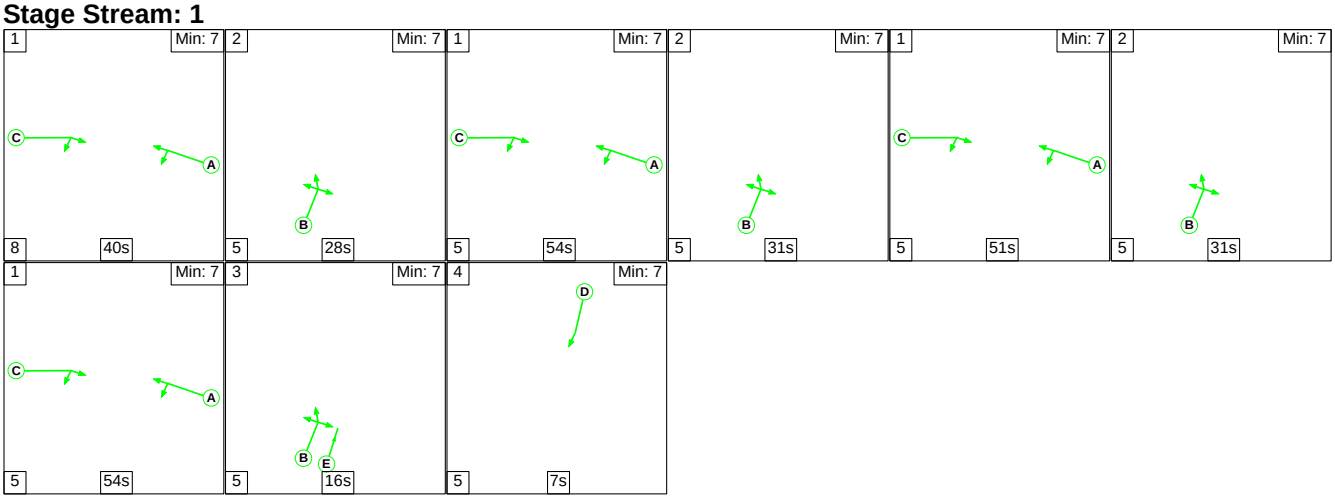
C1 Stream: 1 PRC for Signalled Lanes (%): 148.3 Total Delay for Signalled Lanes (pcuHr): 2.53 Cycle Time (s): 360
PRC Over All Lanes (%): 148.3 Total Delay Over All Lanes(pcuHr): 2.53

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Stage Sequence Diagram

Stage Stream: 1

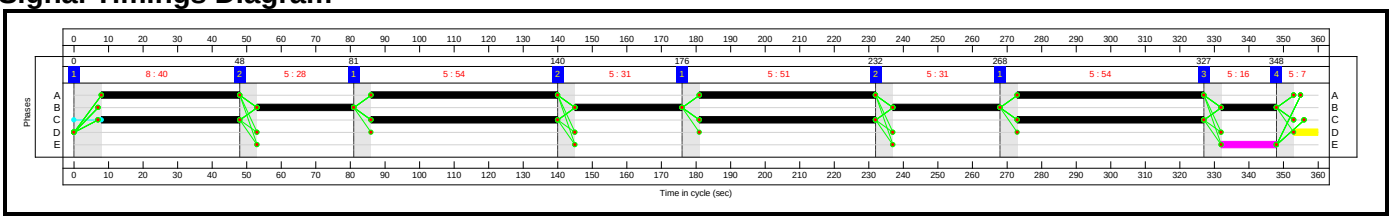


Stage Timings

Stage Stream: 1

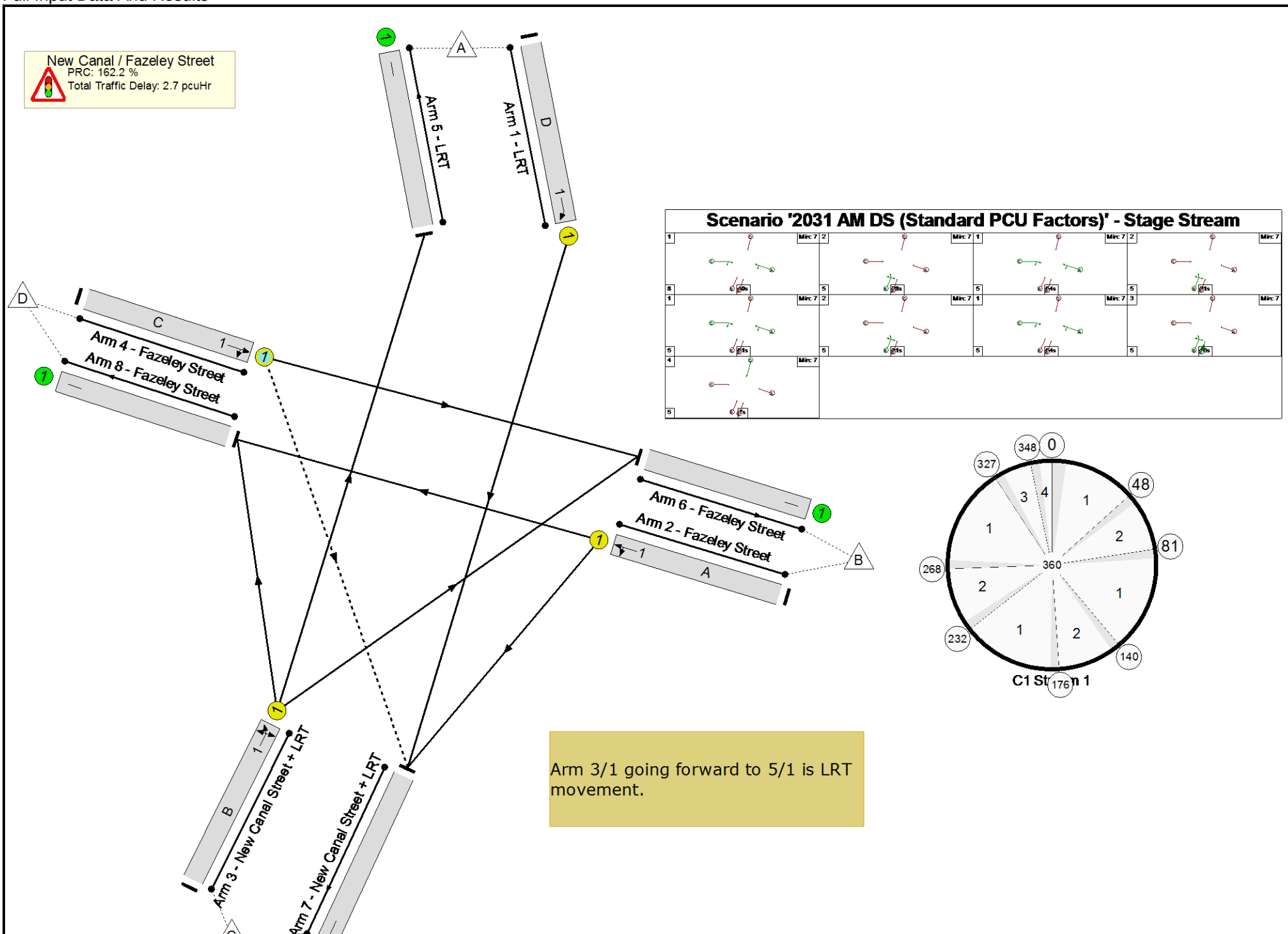
Stage	1	2	1	2	1	2	1	3	4
Duration	40	28	54	31	51	31	54	16	7
Change Point	0	48	81	140	176	232	268	327	348

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


New Canal / Fazeley Street
PRC: 162.2 %
Total Traffic Delay: 2.7 pcuHr
A
D
Arm 5 - LRT
Arm 1 - LRT
C
Arm 4 - Fazeley Street
Arm 8 - Fazeley Street
Arm 6 - Fazeley Street
Arm 2 - Fazeley Street
B
Arm 3 - New Canal Street + LRT
Arm 7 - New Canal Street + LRT
Scenario '2031 AM DS (Standard PCU Factors)' - Stage Stream
0
48
81
140
176
232
268
327
348
360
Arm 3/1 going forward to 5/1 is LRT movement.

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**34.3%**
New Canal / Fazeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**34.3%**
1/1	LRT Ahead	U	1	N/A	D		1	7	-	0	1940	43	0.0%
2/1	Fazeley Street Left Ahead	U	1	N/A	A		4	199	-	300	1550	874	34.3%
3/1	New Canal Street + LRT Ahead Right Left	U	1	N/A	B		4	106	-	193	1851	566	34.1%
4/1	Fazeley Street Ahead Right	O	1	N/A	C		4	199	-	0	2015	738	0.0%
5/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	135	Inf	Inf	0.0%
7/1	New Canal Street + LRT	U	N/A	N/A	-		-	-	-	300	Inf	Inf	0.0%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**0**	**0**	**0**	**2.2**	**0.5**	**0.0**	**2.7**	**-**	**-**	**-**	**-**
New Canal / Fazeley Street	**-**	**-**	**0**	**0**	**0**	**2.2**	**0.5**	**0.0**	**2.7**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	300	300	-	-	-	0.9	0.3	-	1.1	13.8	4.1	0.3	4.3
3/1	193	193	-	-	-	1.3	0.3	-	1.6	29.1	3.8	0.3	4.1
4/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	135	135	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	300	300	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

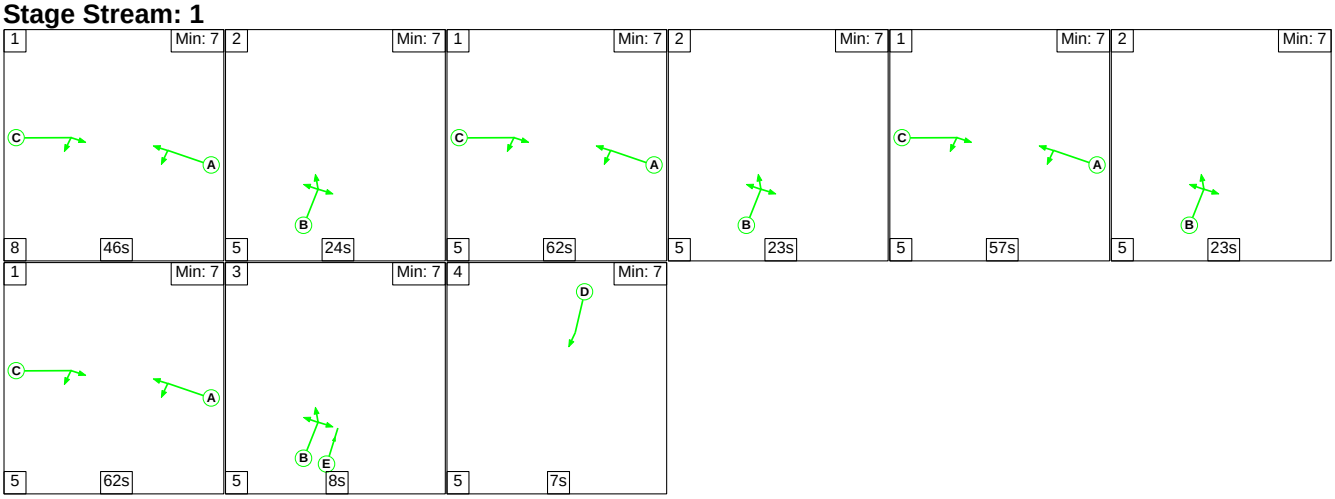
C1 Stream: 1 PRC for Signalled Lanes (%): 162.2 Total Delay for Signalled Lanes (pcuHr): 2.71 Cycle Time (s): 360
PRC Over All Lanes (%): 162.2 Total Delay Over All Lanes(pcuHr): 2.71

Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'With Tram')

Stage Sequence Diagram

Stage Stream: 1

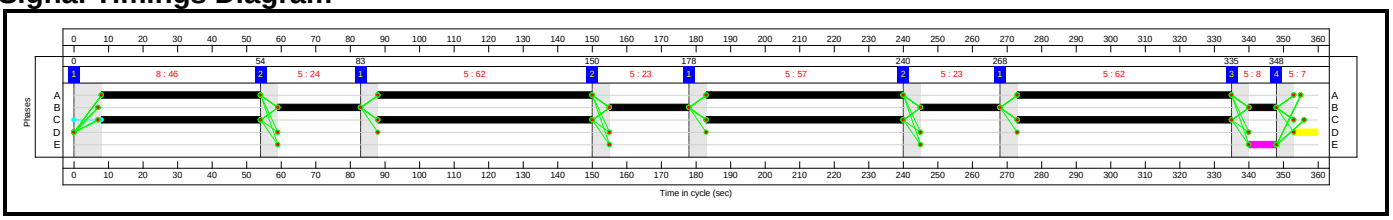


Stage Timings

Stage Stream: 1

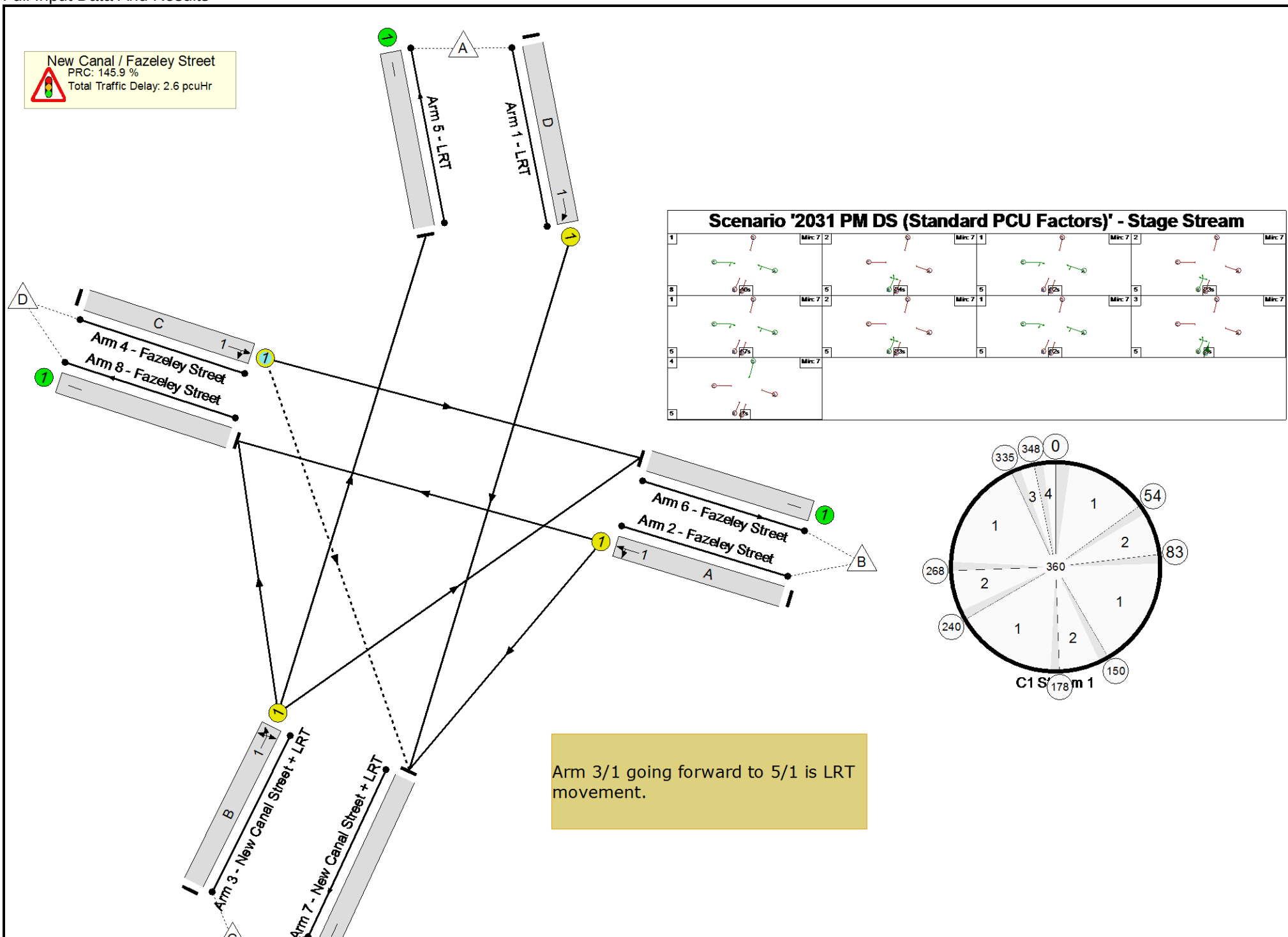
Stage	1	2	1	2	1	2	1	3	4
Duration	46	24	62	23	57	23	62	8	7
Change Point	0	54	83	150	178	240	268	335	348

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


New Canal / Fazeley Street
PRC: 145.9 %
Total Traffic Delay: 2.6 pcuHr
A
D
Arm 5 - LRT
Arm 1 - LRT
C
Arm 4 - Fazeley Street
Arm 8 - Fazeley Street
Arm 6 - Fazeley Street
Arm 2 - Fazeley Street
B
Arm 3 - New Canal Street + LRT
Arm 7 - New Canal Street + LRT
Scenario '2031 PM DS (Standard PCU Factors)' - Stage Stream
0
54
83
150
178
240
268
300
335
348
360
C1 Stream 1
Arm 3/1 going forward to 5/1 is LRT movement.

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.6%**
New Canal / Fazeley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**36.6%**
1/1	LRT Ahead	U	1	N/A	D		1	7	-	0	1940	43	0.0%
2/1	Fazeley Street Left Ahead	U	1	N/A	A		4	227	-	364	1550	995	36.6%
3/1	New Canal Street + LRT Ahead Right Left	U	1	N/A	B		4	78	-	154	1870	426	36.2%
4/1	Fazeley Street Ahead Right	O	1	N/A	C		4	227	-	0	2015	826	0.0%
5/1	LRT	U	N/A	N/A	-		-	-	-	58	Inf	Inf	0.0%
6/1	Fazeley Street	U	N/A	N/A	-		-	-	-	96	Inf	Inf	0.0%
7/1	New Canal Street + LRT	U	N/A	N/A	-		-	-	-	364	Inf	Inf	0.0%
8/1	Fazeley Street	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Fazeley Street Junction	**-**	**-**	**0**	**0**	**0**	**2.0**	**0.6**	**0.0**	**2.6**	**-**	**-**	**-**	**-**
New Canal / Fazeley Street	**-**	**-**	**0**	**0**	**0**	**2.0**	**0.6**	**0.0**	**2.6**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	364	364	-	-	-	0.8	0.3	-	1.1	10.4	4.3	0.3	4.6
3/1	154	154	-	-	-	1.3	0.3	-	1.5	35.9	3.3	0.3	3.6
4/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	58	58	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	96	96	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	364	364	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

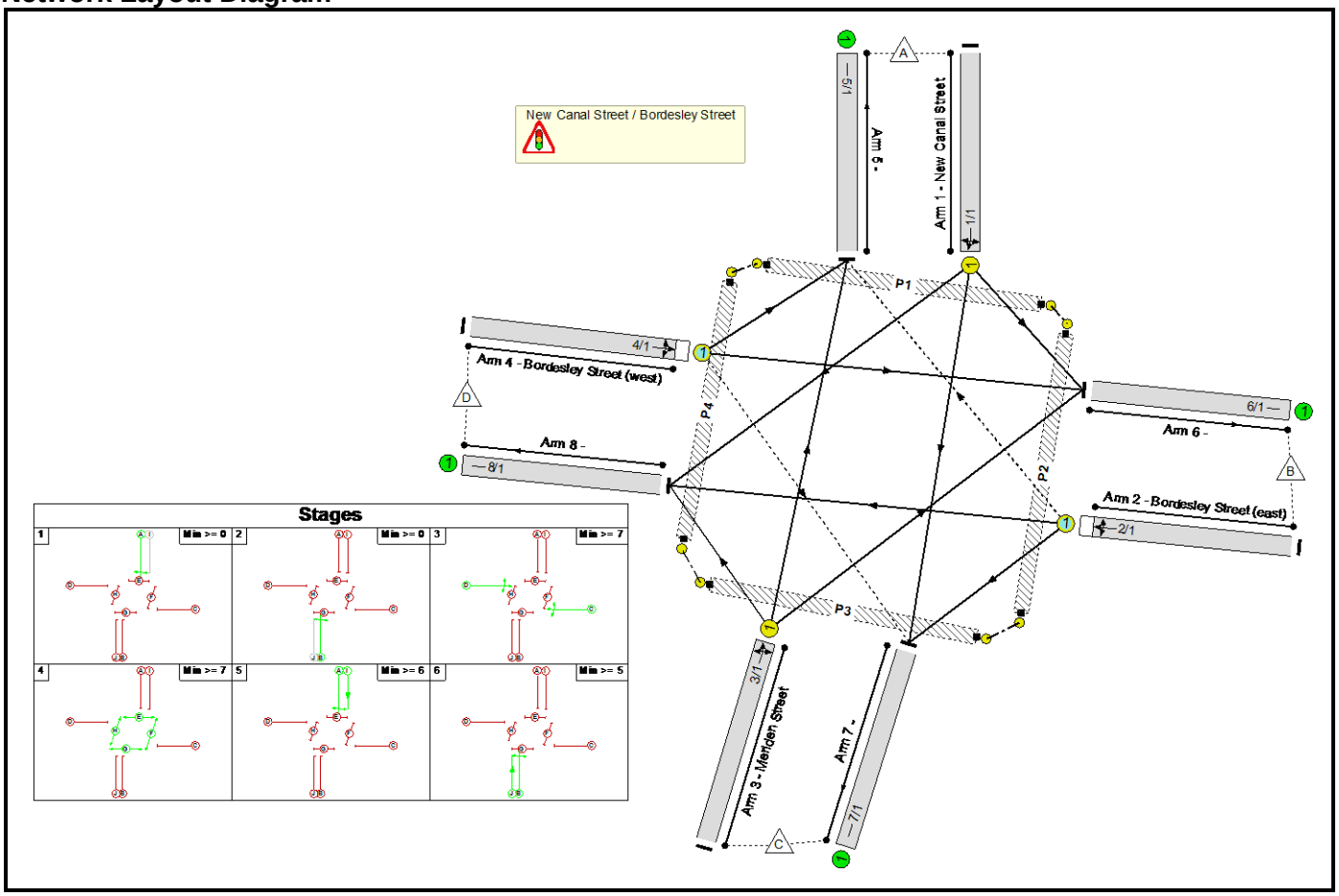
C1 Stream: 1 PRC for Signalled Lanes (%): 145.9 Total Delay for Signalled Lanes (pcuHr): 2.59 Cycle Time (s): 360
PRC Over All Lanes (%): 145.9 Total Delay Over All Lanes(pcuHr): 2.59

Full Input Data And Results

User and Project Details

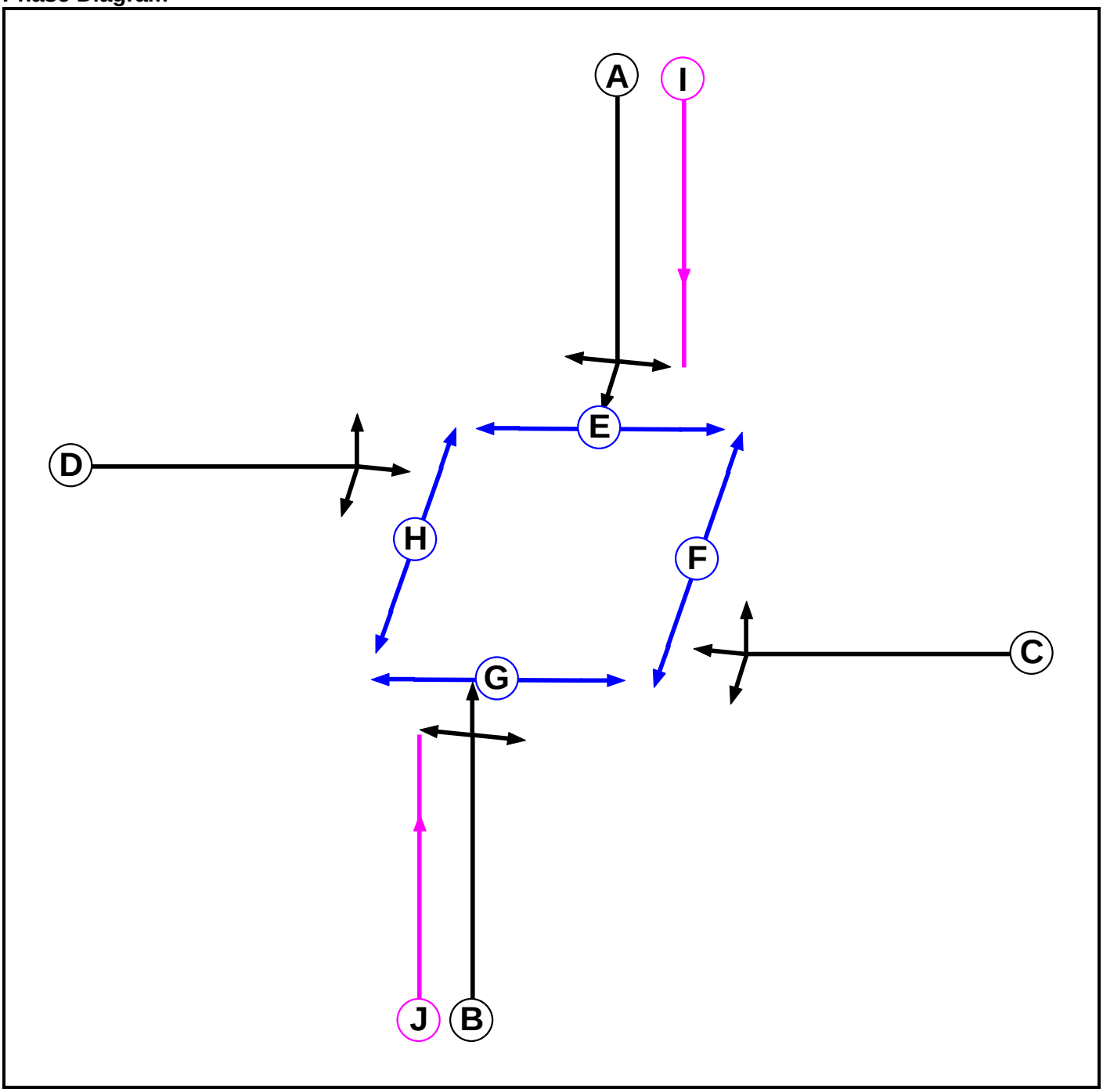
Project:	**Birmingham Eastside Extension**
Title:	**New Canal Street / Bordesley Street**
Location:	
File name:	New Canal Street - Bordesley Street (180) - Revision.lsg3x
Author:	W.Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	Proposed

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	LRT		7	7
J	LRT		7	7

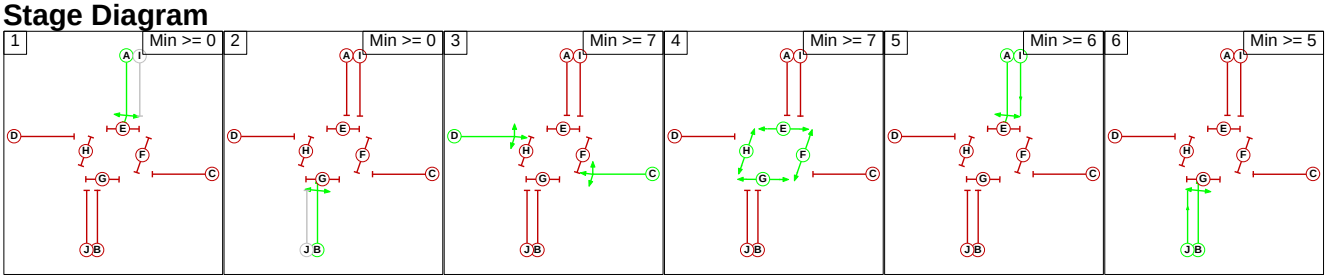
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J
A		5	6	5	5	7	7	7	-	5
B	5		5	5	7	5	6	7	5	-
C	5	5		-	7	7	5	6	5	5
D	5	5	-		6	7	7	5	5	5
E	11	11	11	11		-	-	-	11	11
F	10	10	10	10	-		-	-	-	-
G	10	10	10	10	-	-		-	10	10
H	10	10	10	10	-	-	-		-	-
I	-	7	7	7	7	-	9	-		-
J	6	-	7	7	9	-	7	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	B
3	C D
4	E F G H
5	A I
6	B J

Stage Diagram



Full Input Data And Results

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage					
		1	2	3	4	5	6
From Stage	1		5	6	7	2	5
	2	5		5	7	5	2
	3	5	5		7	5	5
	4	11	11	11		11	11
	5	0	7	7	9		7
	6	6	0	7	9	6	

Full Input Data And Results

Give-Way Lane Input Data

Junction: New Canal Street / Bordesley Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
2/1 (Bordesley Street (east))	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	1.00	-	0.50	1	1.00
4/1 (Bordesley Street (west))	7/1 (Right)	1439	0	2/1	1.09	To 7/1 (Left) To 8/1 (Ahead)	1.00	-	0.50	1	1.00

Full Input Data And Results

Lane Input Data

Junction: New Canal Street / Bordesley Street											
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (New Canal Street)	U	A	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 6 Left	6.70
											Arm 7 Ahead	Inf
											Arm 8 Right	11.65
2/1 (Bordesley Street (east))	O	C	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Right	8.25
											Arm 7 Left	5.80
											Arm 8 Ahead	Inf
3/1 (Meriden Street)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	Inf
											Arm 8 Left	Inf
4/1 (Bordesley Street (west))	O	D	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 Left	7.60
											Arm 6 Ahead	Inf
											Arm 7 Right	11.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 AM DS(Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	81	256	20	357
	B	0	0	14	194	208
	C	181	26	0	0	207
	D	0	117	0	0	117
	Tot.	181	224	270	214	889

Traffic Lane Flows

Lane	Scenario 1: 2026 AM DS(Standard PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	357
2/1	208
3/1	207
4/1	117
5/1	181
6/1	224
7/1	270
8/1	214

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	22.7 %	1881	1881
				Arm 7 Ahead	Inf	71.7 %		
				Arm 8 Right	11.65	5.6 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1946	1946
				Arm 7 Left	5.80	6.7 %		
				Arm 8 Ahead	Inf	93.3 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	87.4 %	1965	1965
				Arm 6 Right	Inf	12.6 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 PM DS(Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	50	347	24	421
	B	0	0	29	118	147
	C	149	49	0	0	198
	D	0	198	0	0	198
	Tot.	149	297	376	142	964

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 PM DS(Standard PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	421
2/1	147
3/1	198
4/1	198
5/1	149
6/1	297
7/1	376
8/1	142

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	11.9 %	1925	1925
				Arm 7 Ahead	Inf	82.4 %		
				Arm 8 Right	11.65	5.7 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1884	1884
				Arm 7 Left	5.80	19.7 %		
				Arm 8 Ahead	Inf	80.3 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	75.3 %	1965	1965
				Arm 6 Right	Inf	24.7 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2031 AM DS(Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	81	256	20	357
	B	0	0	14	195	209
	C	193	27	0	0	220
	D	0	119	0	0	119
	Tot.	193	227	270	215	905

Traffic Lane Flows

Lane	Scenario 3: 2031 AM DS(Standard PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	357
2/1	209
3/1	220
4/1	119
5/1	193
6/1	227
7/1	270
8/1	215

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	22.7 %	1881	1881
				Arm 7 Ahead	Inf	71.7 %		
				Arm 8 Right	11.65	5.6 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1946	1946
				Arm 7 Left	5.80	6.7 %		
				Arm 8 Ahead	Inf	93.3 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	87.7 %	1965	1965
				Arm 6 Right	Inf	12.3 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 PM DS(Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	50	347	24	421
	B	0	0	29	105	134
	C	154	59	0	0	213
	D	0	197	0	0	197
	Tot.	154	306	376	129	965

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 PM DS(Standard PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	421
2/1	134
3/1	213
4/1	197
5/1	154
6/1	306
7/1	376
8/1	129

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	11.9 %	1925	1925
				Arm 7 Ahead	Inf	82.4 %		
				Arm 8 Right	11.65	5.7 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1875	1875
				Arm 7 Left	5.80	21.6 %		
				Arm 8 Ahead	Inf	78.4 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	72.3 %	1965	1965
				Arm 6 Right	Inf	27.7 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2026 AM DS(Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	82	259	21	362
	B	0	0	14	197	211
	C	183	26	0	0	209
	D	0	119	0	0	119
	Tot.	183	227	273	218	901

Traffic Lane Flows

Lane	Scenario 5: 2026 AM DS(Saturn PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	362
2/1	211
3/1	209
4/1	119
5/1	183
6/1	227
7/1	273
8/1	218

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	22.7 %	1881	1881
				Arm 7 Ahead	Inf	71.5 %		
				Arm 8 Right	11.65	5.8 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1947	1947
				Arm 7 Left	5.80	6.6 %		
				Arm 8 Ahead	Inf	93.4 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	87.6 %	1965	1965
				Arm 6 Right	Inf	12.4 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 PM DS(Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	50	348	25	423
	B	0	0	29	118	147
	C	149	50	0	0	199
	D	0	199	0	0	199
	Tot.	149	299	377	143	968

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 PM DS(Saturn PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	423
2/1	147
3/1	199
4/1	199
5/1	149
6/1	299
7/1	377
8/1	143

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	11.8 %	1924	1924
				Arm 7 Ahead	Inf	82.3 %		
				Arm 8 Right	11.65	5.9 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1884	1884
				Arm 7 Left	5.80	19.7 %		
				Arm 8 Ahead	Inf	80.3 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	74.9 %	1965	1965
				Arm 6 Right	Inf	25.1 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2031 AM DS(Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	82	259	21	362
	B	0	0	14	198	212
	C	195	28	0	0	223
	D	0	121	0	0	121
	Tot.	195	231	273	219	918

Traffic Lane Flows

Lane	Scenario 7: 2031 AM DS(Saturn PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	362
2/1	212
3/1	223
4/1	121
5/1	195
6/1	231
7/1	273
8/1	219

Full Input Data And Results

Lane Saturation Flows

Junction: New Canal Street / Bordesley Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	22.7 %	1881	1881
				Arm 7 Ahead	Inf	71.5 %		
				Arm 8 Right	11.65	5.8 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1947	1947
				Arm 7 Left	5.80	6.6 %		
				Arm 8 Ahead	Inf	93.4 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	87.4 %	1965	1965
				Arm 6 Right	Inf	12.6 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 PM DS(Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	50	348	25	423
	B	0	0	29	106	135
	C	154	59	0	0	213
	D	0	197	0	0	197
	Tot.	154	306	377	131	968

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 PM DS(Saturn PCU Factors)
Junction: New Canal Street / Bordesley Street	
1/1	423
2/1	135
3/1	213
4/1	197
5/1	154
6/1	306
7/1	377
8/1	131

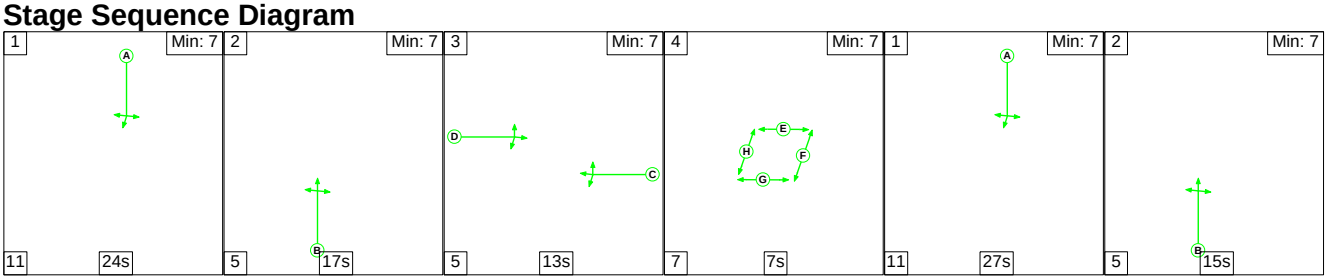
Lane Saturation Flows

Junction: New Canal Street / Bordesley Street

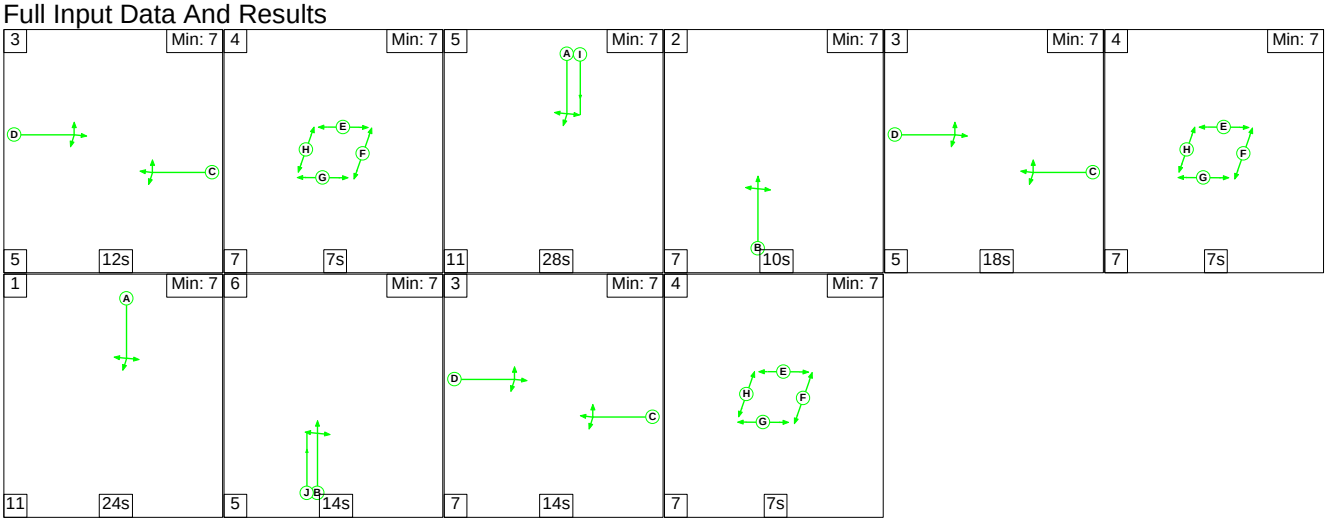
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (New Canal Street)	3.75	0.00	Y	Arm 6 Left	6.70	11.8 %	1924	1924
				Arm 7 Ahead	Inf	82.3 %		
				Arm 8 Right	11.65	5.9 %		
2/1 (Bordesley Street (east))	3.65	0.00	Y	Arm 5 Right	8.25	0.0 %	1876	1876
				Arm 7 Left	5.80	21.5 %		
				Arm 8 Ahead	Inf	78.5 %		
3/1 (Meriden Street)	3.50	0.00	Y	Arm 5 Ahead	Inf	72.3 %	1965	1965
				Arm 6 Right	Inf	27.7 %		
				Arm 8 Left	Inf	0.0 %		
4/1 (Bordesley Street (west))	4.50	0.00	Y	Arm 5 Left	7.60	0.0 %	2065	2065
				Arm 6 Ahead	Inf	100.0 %		
				Arm 7 Right	11.00	0.0 %		
5/1	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 AM DS(Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram



Full Input Data And Results

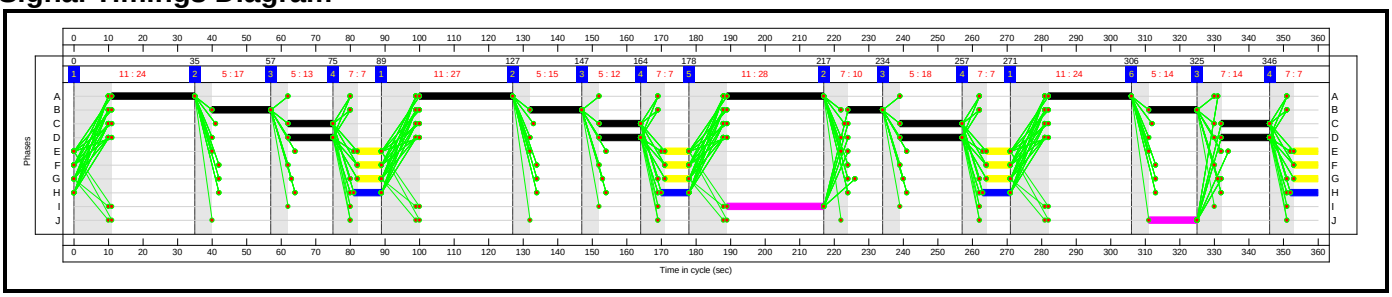


Stage Timings

Stage	1	2	3	4	1	2	3	4	5	2
Duration	24	17	13	7	27	15	12	7	28	10
Change Point	0	35	57	75	89	127	147	164	178	217

Stage	3	4	1	6	3	4				
Duration	18	7	24	14	14	7				
Change Point	234	257	271	306	325	346				

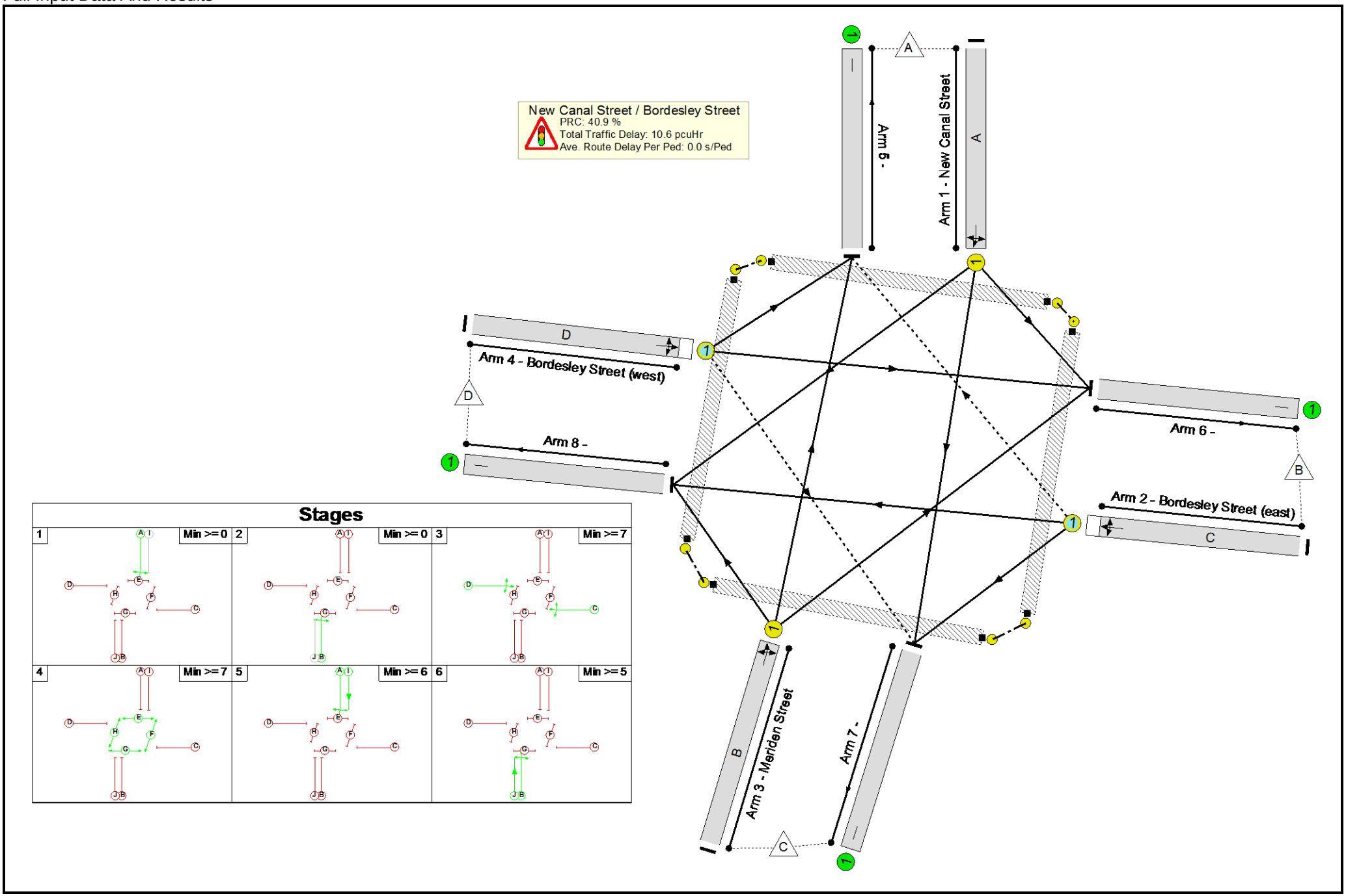
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**63.9%**
New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**63.9%**
1/1	New Canal Street Left Ahead Right	U	N/A	N/A	A		4	103	-	357	1881	559	63.9%
2/1	Bordesley Street (east) Right Left Ahead	O	N/A	N/A	C		4	57	-	208	1946	330	63.1%
3/1	Meriden Street Ahead Right Left	U	N/A	N/A	B		4	56	-	207	1965	327	63.2%
4/1	Bordesley Street (west) Left Ahead Right	O	N/A	N/A	D		4	57	-	117	2065	350	33.4%
5/1		U	N/A	N/A	-		-	-	-	181	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	214	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		4	28	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		4	28	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		4	28	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		4	32	-	0	-	0	0.0%

Full Input Data And Results

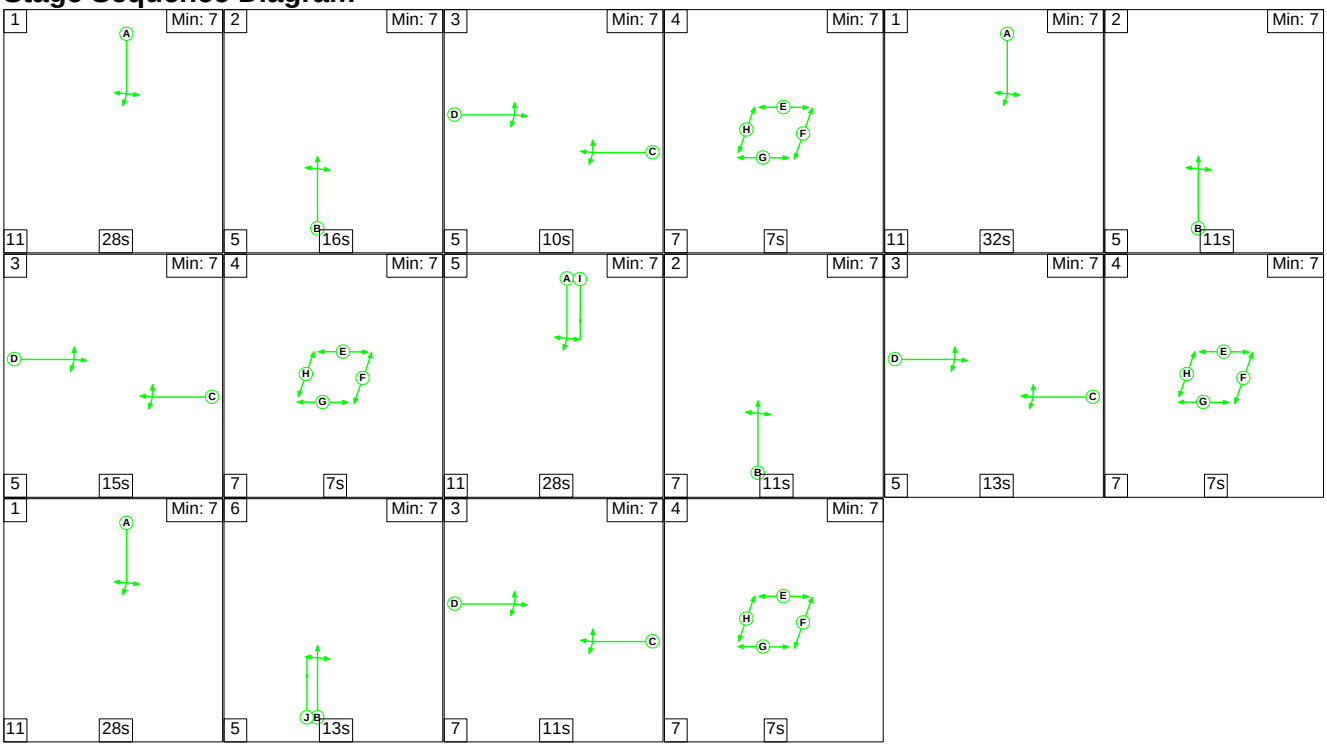
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**7.8**	**2.8**	**0.0**	**10.6**	**-**	**-**	**-**	**-**
New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**7.8**	**2.8**	**0.0**	**10.6**	**-**	**-**	**-**	**-**
1/1	357	357	-	-	-	2.7	0.9	-	3.6	36.3	7.7	0.9	8.6
2/1	208	208	0	0	0	2.0	0.8	0.0	2.9	49.3	4.9	0.8	5.8
3/1	207	207	-	-	-	2.0	0.8	-	2.9	49.7	4.8	0.8	5.7
4/1	117	117	0	0	0	1.1	0.3	0.0	1.3	40.6	2.6	0.3	2.9
5/1	181	181	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	270	270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	214	214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 40.9 Total Delay for Signalled Lanes (pcuHr): 10.63 Cycle Time (s): 360
PRC Over All Lanes (%): 40.9 Total Delay Over All Lanes(pcuHr): 10.63

Full Input Data And Results

Scenario 2: '2026 PM DS(Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

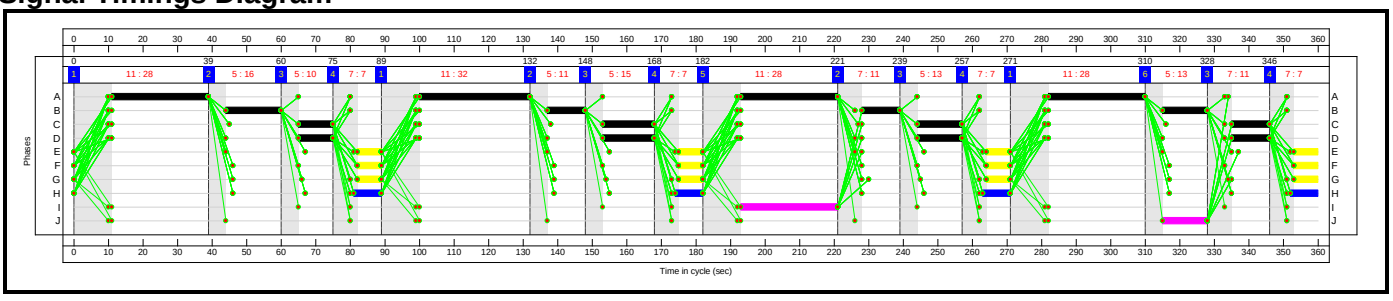


Stage Timings

Stage	1	2	3	4	1	2	3	4	5	2
Duration	28	16	10	7	32	11	15	7	28	11
Change Point	0	39	60	75	89	132	148	168	182	221

Stage	3	4	1	6	3	4				
Duration	13	7	28	13	11	7				
Change Point	239	257	271	310	328	346				

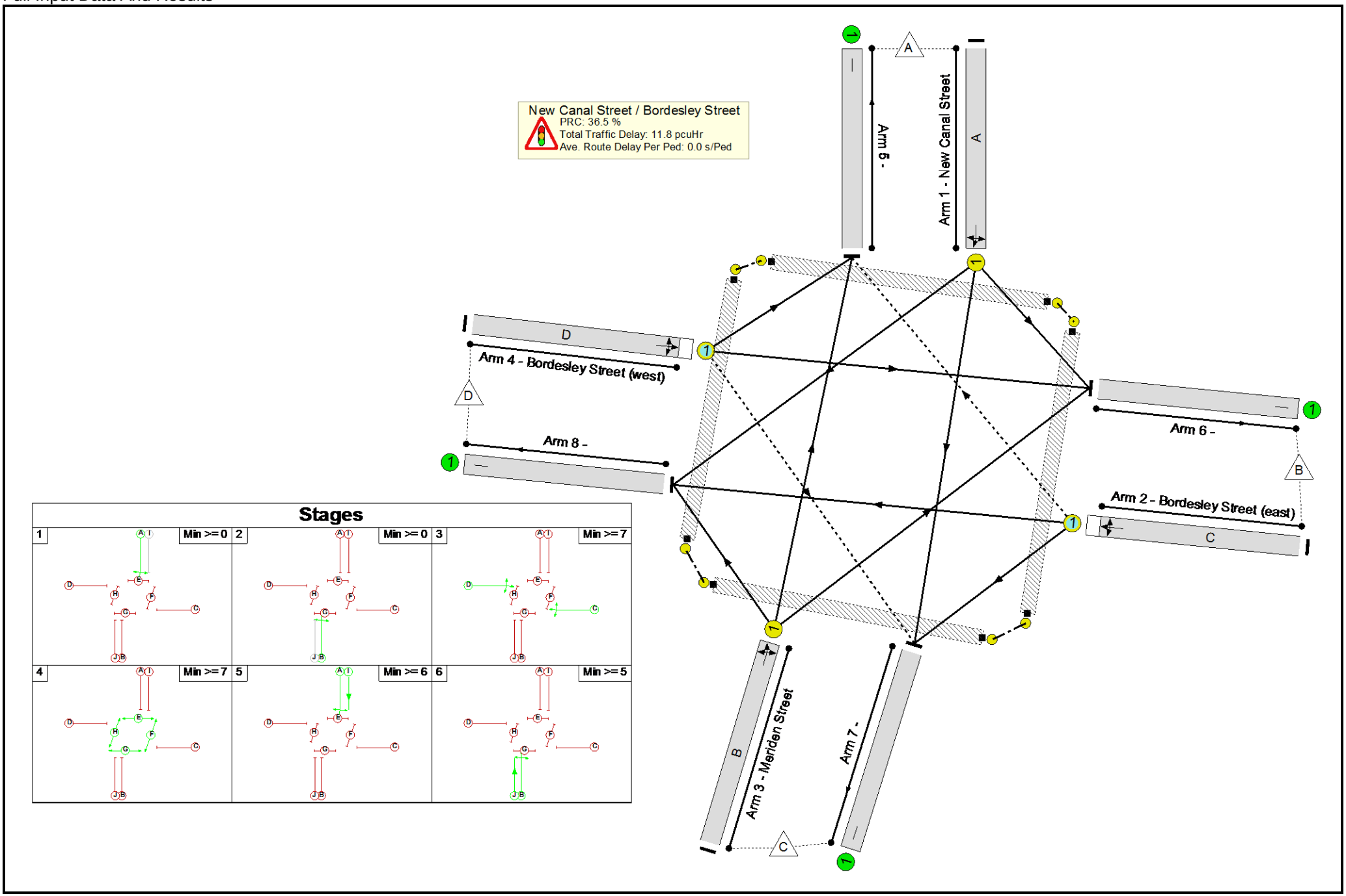
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.0%**
New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**66.0%**
1/1	New Canal Street Left Ahead Right	U	N/A	N/A	A		4	116	-	421	1925	642	65.6%
2/1	Bordesley Street (east) Right Left Ahead	O	N/A	N/A	C		4	49	-	147	1884	277	53.0%
3/1	Meriden Street Ahead Right Left	U	N/A	N/A	B		4	51	-	198	1965	300	66.0%
4/1	Bordesley Street (west) Left Ahead Right	O	N/A	N/A	D		4	49	-	198	2065	304	65.1%
5/1		U	N/A	N/A	-		-	-	-	149	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	297	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	376	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	142	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		4	28	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		4	28	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		4	28	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		4	32	-	0	-	0	0.0%

Full Input Data And Results

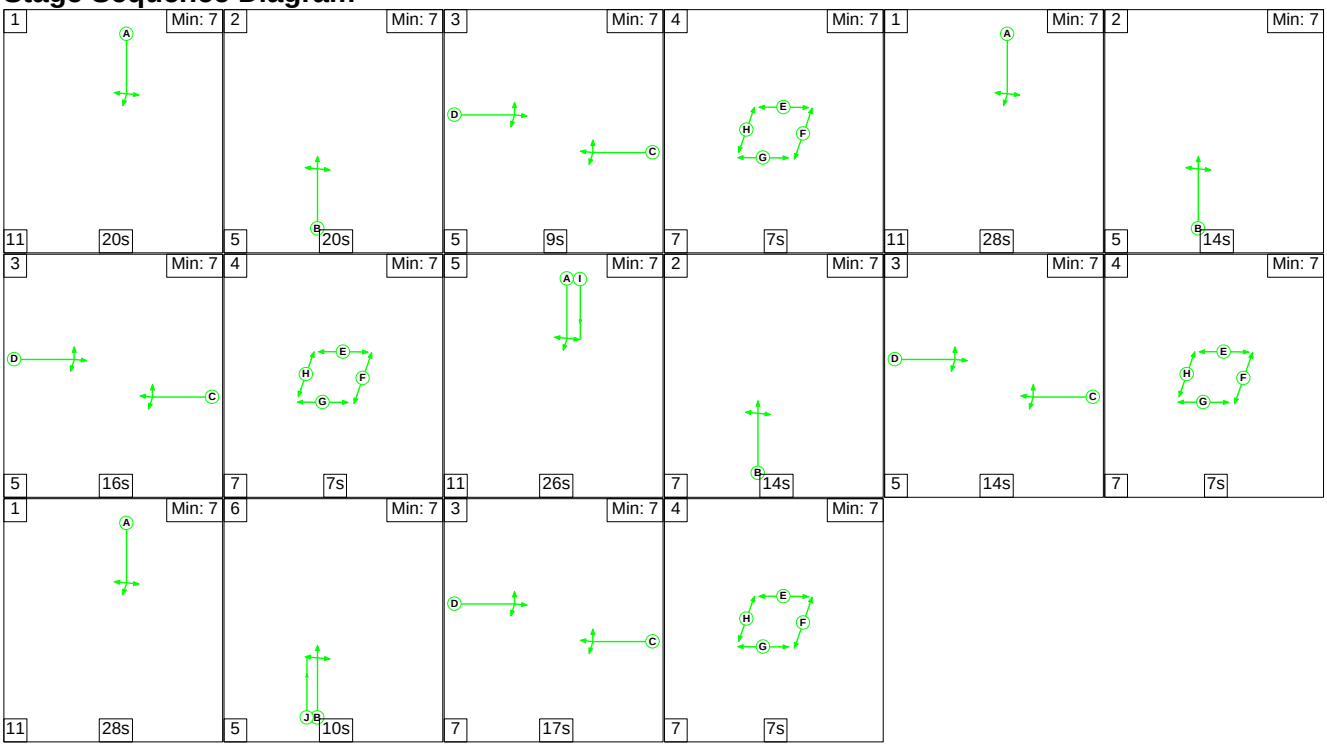
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**8.4**	**3.4**	**0.0**	**11.8**	**-**	**-**	**-**	**-**
New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**8.4**	**3.4**	**0.0**	**11.8**	**-**	**-**	**-**	**-**
1/1	421	421	-	-	-	3.0	0.9	-	3.9	33.7	8.9	0.9	9.8
2/1	147	147	0	0	0	1.5	0.6	0.0	2.0	49.2	3.4	0.6	4.0
3/1	198	198	-	-	-	2.0	1.0	-	2.9	53.2	4.8	1.0	5.7
4/1	198	198	0	0	0	2.0	0.9	0.0	2.9	52.9	4.7	0.9	5.6
5/1	149	149	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	297	297	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	376	376	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	142	142	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 36.5 Total Delay for Signalled Lanes (pcuHr): 11.79 Cycle Time (s): 360
PRC Over All Lanes (%): 36.5 Total Delay Over All Lanes(pcuHr): 11.79

Full Input Data And Results

Scenario 3: '2031 AM DS(Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

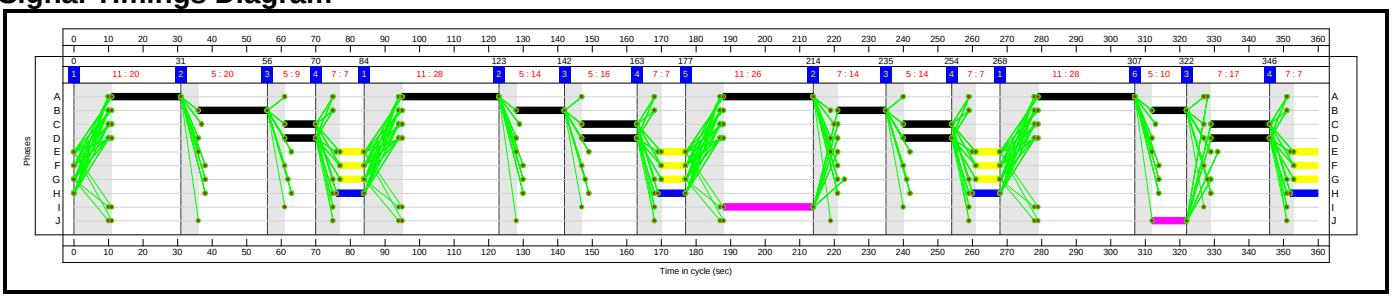


Stage Timings

Stage	1	2	3	4	1	2	3	4	5	2
Duration	20	20	9	7	28	14	16	7	26	14
Change Point	0	31	56	70	84	123	142	163	177	214

Stage	3	4	1	6	3	4				
Duration	14	7	28	10	17	7				
Change Point	235	254	268	307	322	346				

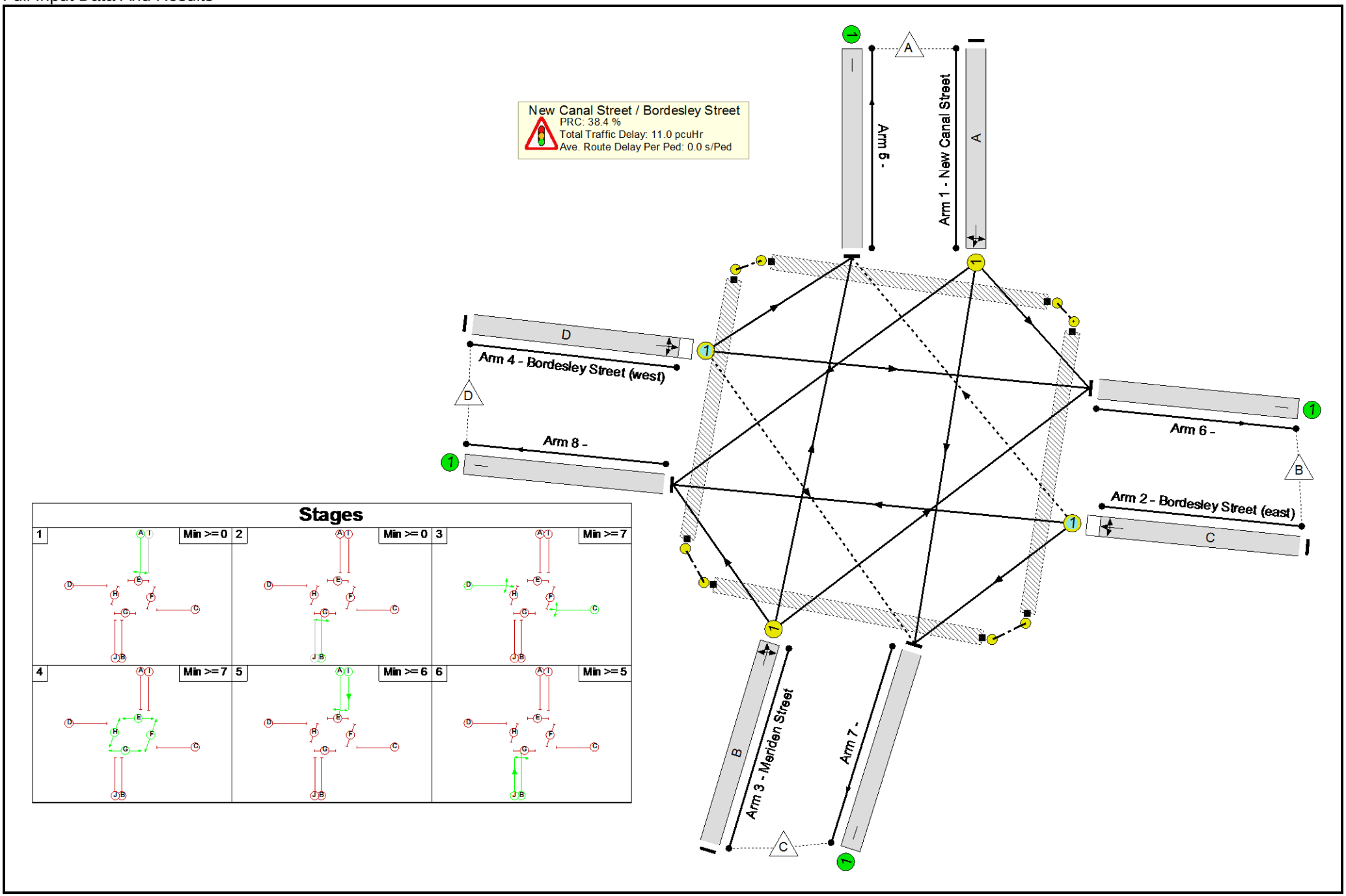
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**65.0%**
New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**65.0%**
1/1	New Canal Street Left Ahead Right	U	N/A	N/A	A		4	102	-	357	1881	554	64.5%
2/1	Bordesley Street (east) Right Left Ahead	O	N/A	N/A	C		4	56	-	209	1946	324	64.4%
3/1	Meriden Street Ahead Right Left	U	N/A	N/A	B		4	58	-	220	1965	338	65.0%
4/1	Bordesley Street (west) Left Ahead Right	O	N/A	N/A	D		4	56	-	119	2065	344	34.6%
5/1		U	N/A	N/A	-		-	-	-	193	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	227	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	215	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		4	28	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		4	28	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		4	28	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		4	32	-	0	-	0	0.0%

Full Input Data And Results

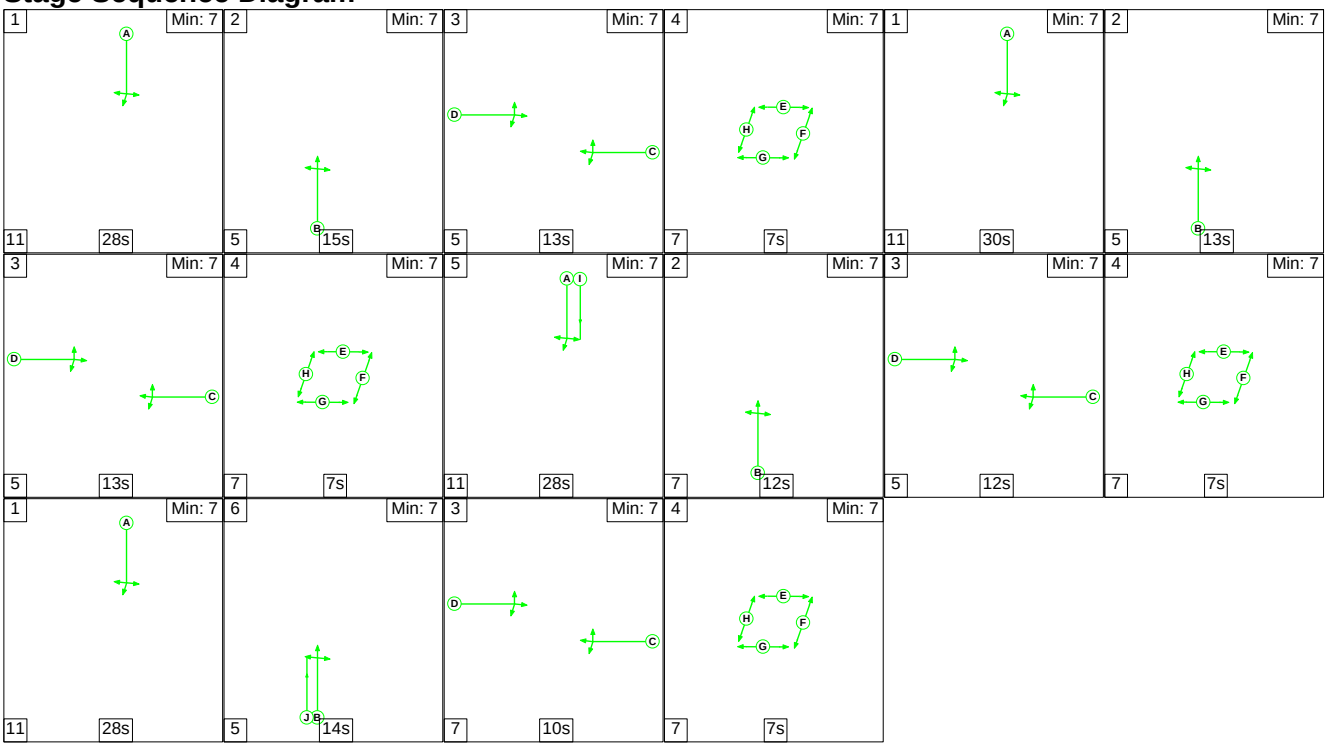
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**8.0**	**3.0**	**0.0**	**11.0**	**-**	**-**	**-**	**-**
New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**8.0**	**3.0**	**0.0**	**11.0**	**-**	**-**	**-**	**-**
1/1	357	357	-	-	-	2.7	0.9	-	3.6	36.7	7.7	0.9	8.6
2/1	209	209	0	0	0	2.0	0.9	0.0	2.9	50.4	4.9	0.9	5.8
3/1	220	220	-	-	-	2.1	0.9	-	3.0	49.7	5.3	0.9	6.2
4/1	119	119	0	0	0	1.1	0.3	0.0	1.4	41.2	2.6	0.3	2.9
5/1	193	193	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	227	227	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	270	270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	215	215	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 PRC for Signalled Lanes (%): 38.4 Total Delay for Signalled Lanes (pcuHr): 10.97 Cycle Time (s): 360
PRC Over All Lanes (%): 38.4 Total Delay Over All Lanes(pcuHr): 10.97

Full Input Data And Results

Scenario 4: '2031 PM DS(Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

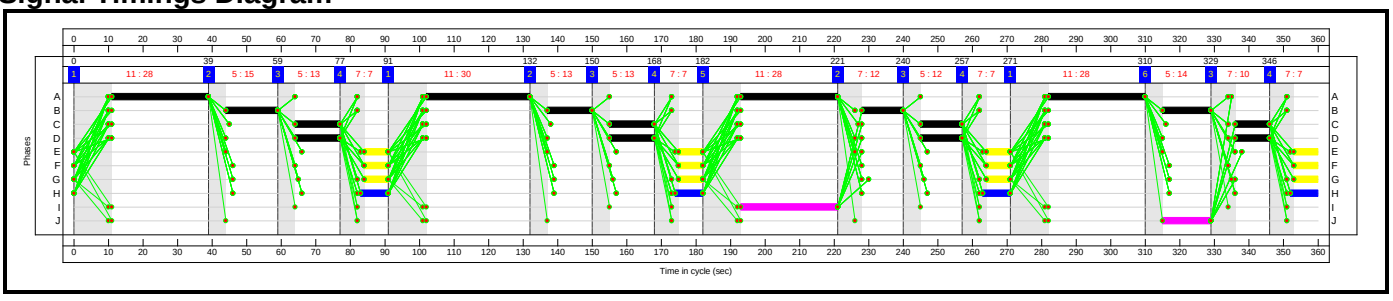


Stage Timings

Stage	1	2	3	4	1	2	3	4	5	2
Duration	28	15	13	7	30	13	13	7	28	12
Change Point	0	39	59	77	91	132	150	168	182	221

Stage	3	4	1	6	3	4				
Duration	12	7	28	14	10	7				
Change Point	240	257	271	310	329	346				

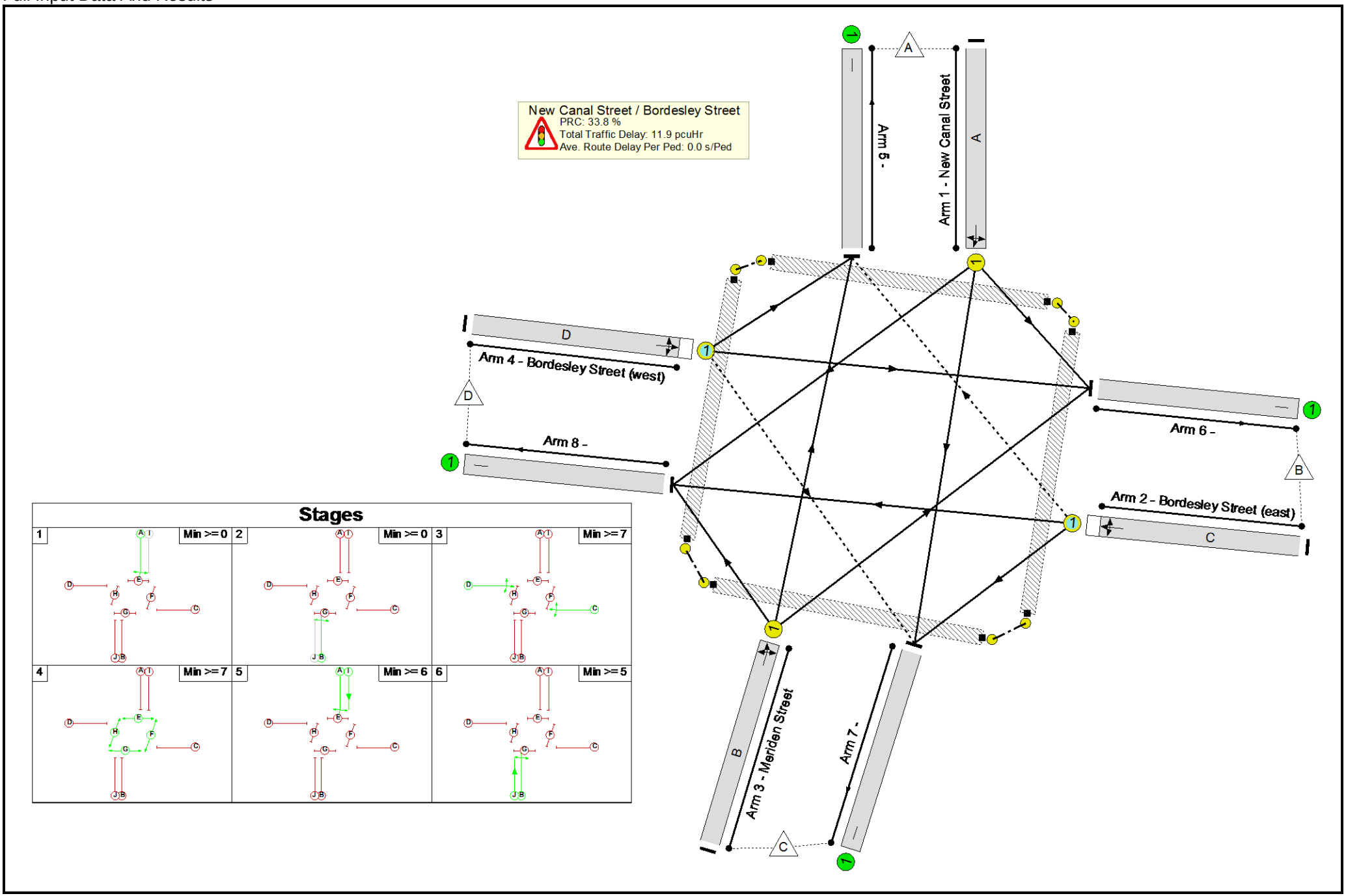
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.3%**
New Canal Street / Bordesley Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.3%**
1/1	New Canal Street Left Ahead Right	U	N/A	N/A	A		4	114	-	421	1925	631	66.7%
2/1	Bordesley Street (east) Right Left Ahead	O	N/A	N/A	C		4	48	-	134	1875	271	49.5%
3/1	Meriden Street Ahead Right Left	U	N/A	N/A	B		4	54	-	213	1965	317	67.3%
4/1	Bordesley Street (west) Left Ahead Right	O	N/A	N/A	D		4	48	-	197	2065	298	66.0%
5/1		U	N/A	N/A	-		-	-	-	154	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	376	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	129	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		4	28	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		4	28	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		4	28	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		4	32	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**8.5**	**3.4**	**0.0**	**11.9**	**-**	**-**	**-**	**-**
New Canal Street / Bordesley Street	**-**	**-**	**0**	**0**	**0**	**8.5**	**3.4**	**0.0**	**11.9**	**-**	**-**	**-**	**-**
1/1	421	421	-	-	-	3.0	1.0	-	4.0	34.5	9.2	1.0	10.2
2/1	134	134	0	0	0	1.3	0.5	0.0	1.8	48.5	3.1	0.5	3.6
3/1	213	213	-	-	-	2.1	1.0	-	3.1	52.6	5.1	1.0	6.1
4/1	197	197	0	0	0	2.0	1.0	0.0	2.9	53.9	4.7	1.0	5.7
5/1	154	154	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	376	376	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	129	129	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-

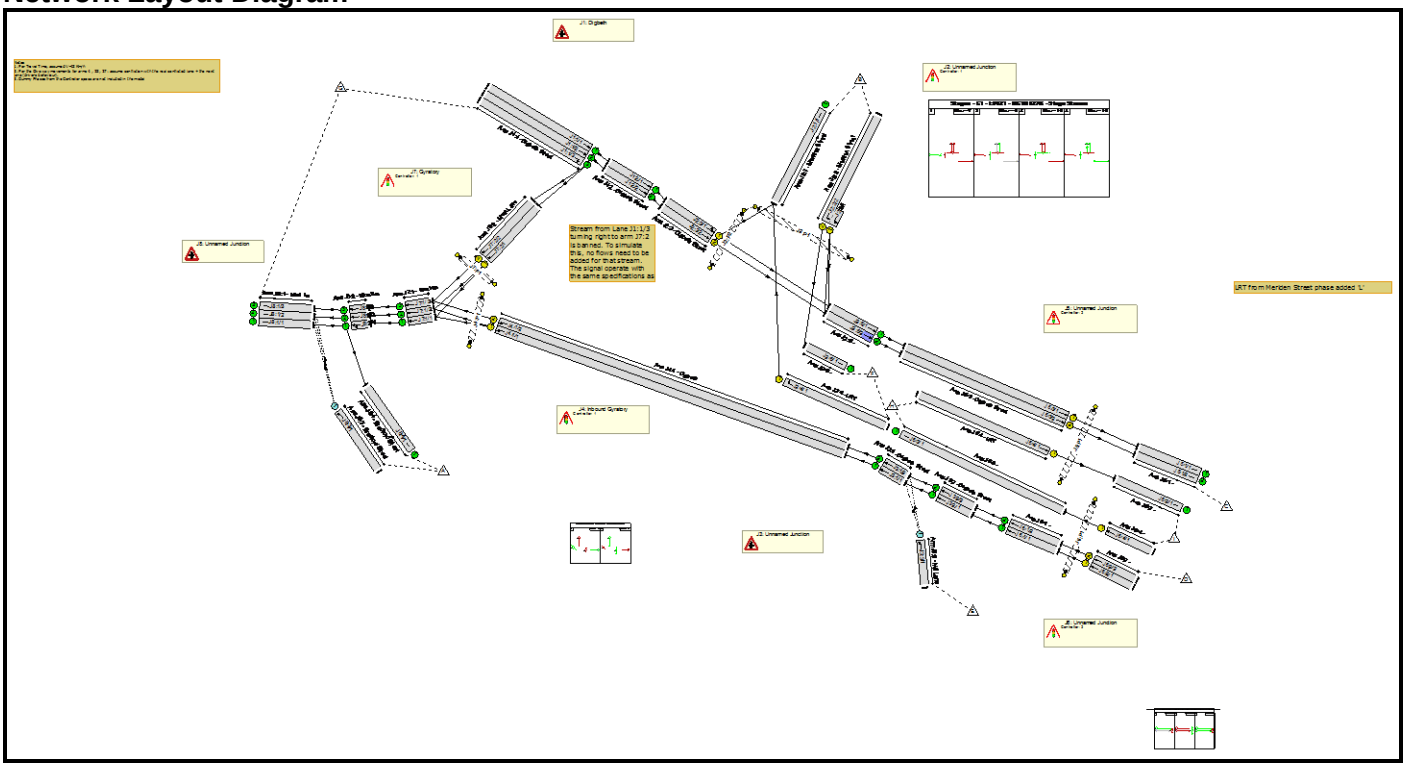
C1 PRC for Signalled Lanes (%): 33.8 Total Delay for Signalled Lanes (pcuHr): 11.90 Cycle Time (s): 360
PRC Over All Lanes (%): 33.8 Total Delay Over All Lanes(pcuHr): 11.90

Full Input Data And Results

User and Project Details

Project:	**Birmingham Eastside Extension**
Title:	**High Street Deritend / Meriden Street (Including Moat Lane Gyratory)**
Location:	Birmingham
File name:	Moat Lane Gyratory (Digbeth Street Only).lsg3x
Author:	W Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street
Notes:	Do Something

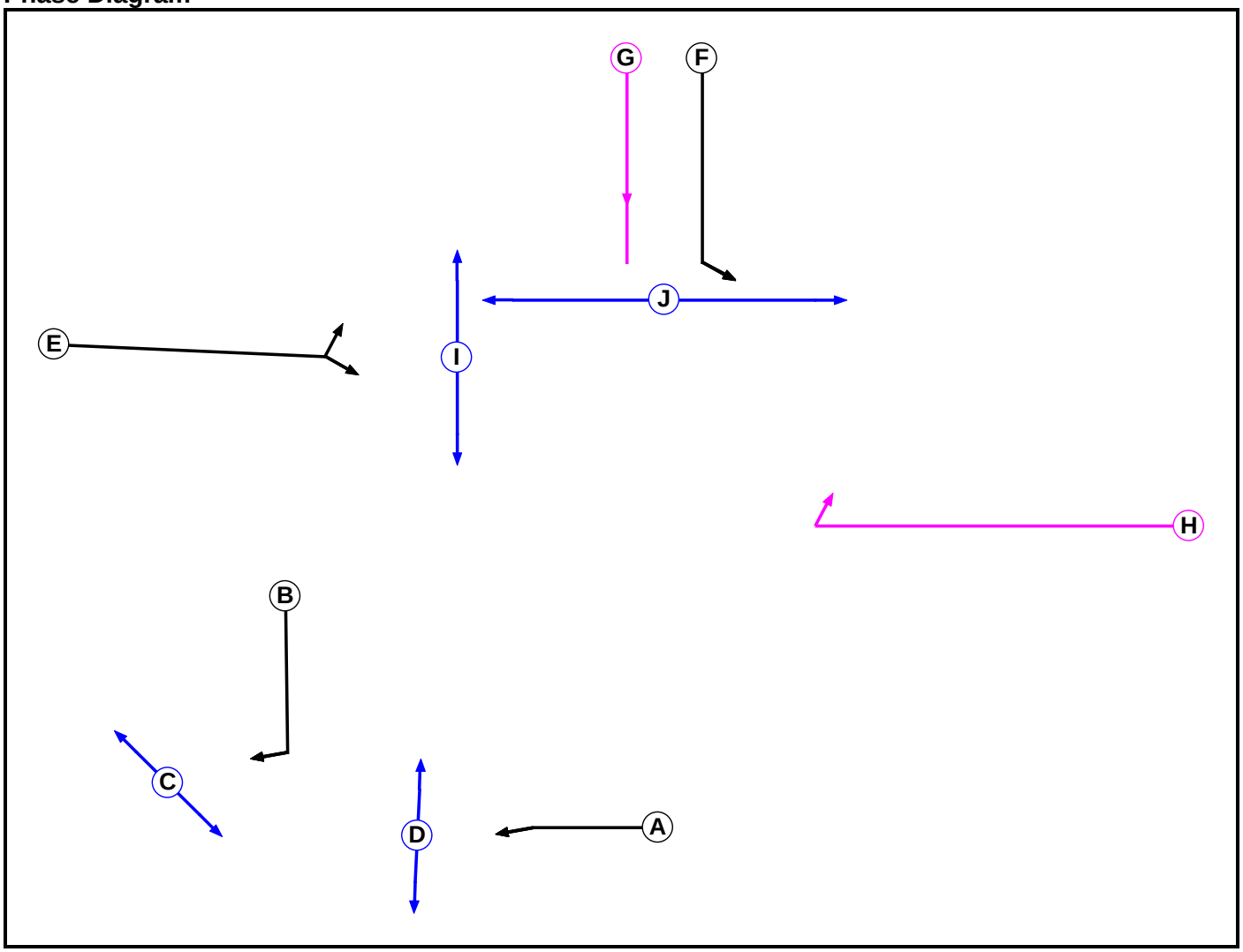
Network Layout Diagram



Full Input Data And Results

C1 - E0621 - MCH1827B

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Pedestrian	1		5	5
D	Pedestrian	1		5	5
E	Traffic	2		7	7
F	Traffic	2		7	7
G	LRT	2		10	10
H	LRT	2		10	10
I	Pedestrian	2		10	10
J	Pedestrian	2		10	10

Full Input Data And Results

Phase Intergreens Matrix

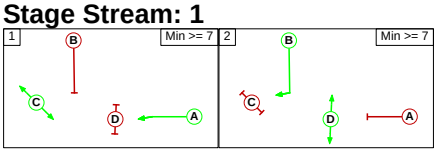
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J
A		-	-	5	-	-	-	-	-	-
B	-		5	-	-	-	-	-	-	-
C	-	10		-	-	-	-	-	-	-
D	10	-	-		-	-	-	-	-	-
E	-	-	-	-		7	6	7	5	8
F	-	-	-	-	5		-	-	-	5
G	-	-	-	-	6	-		-	-	7
H	-	-	-	-	7	-	-		-	9
I	-	-	-	-	10	-	-	-		-
J	-	-	-	-	14	14	14	14	-	

Phases in Stage

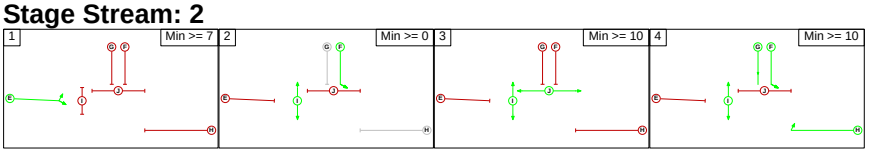
Stream	Stage No.	Phases in Stage
1	1	A C
1	2	B D
2	1	E
2	2	F I
2	3	I J
2	4	F G H I

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	4	G	Gaining absolute	7	7

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

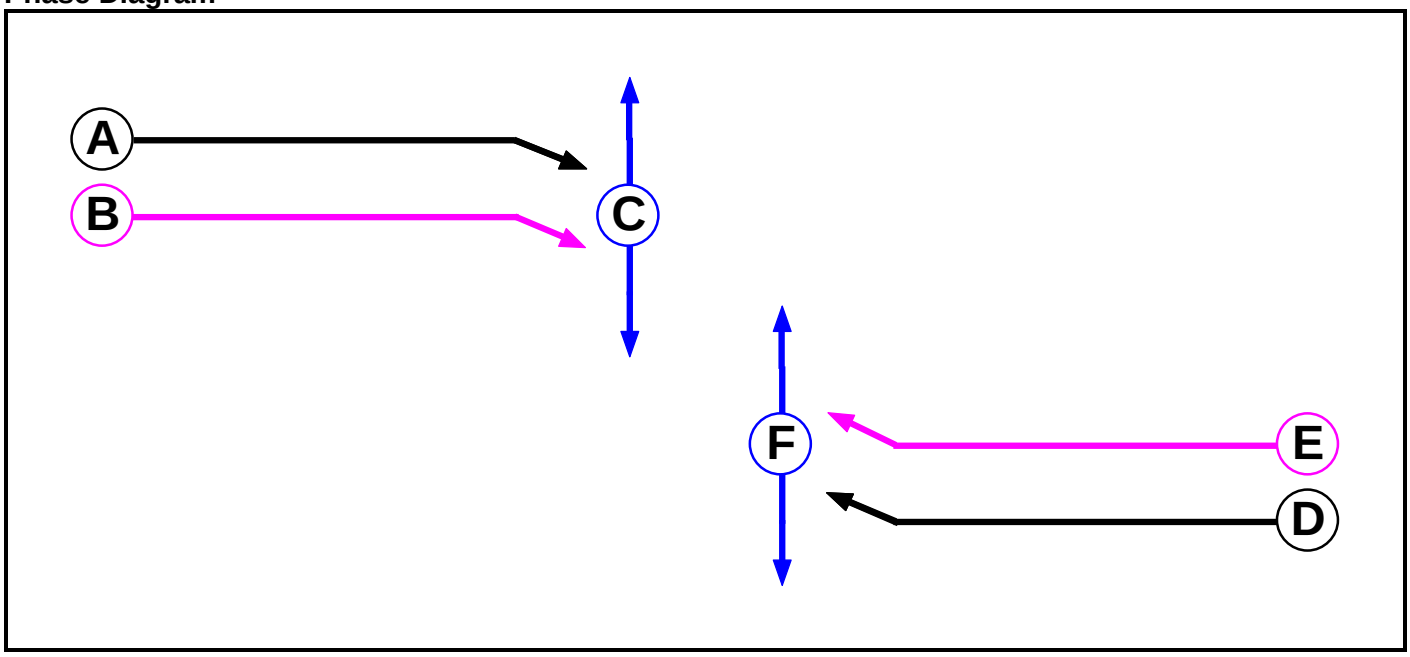
From Stage \ To Stage	1	2
1		10
2	10	

Stage Stream: 2

From Stage \ To Stage	1	2	3	4
1		7	8	7
2	10		5	2
3	14	14		14
4	10	0	9	

C2 - Pedestrian Crossing (across Digbeth B4100)

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	LRT	1		10	10
C	Pedestrian	1		5	5
D	Traffic	2		7	7
E	LRT	2		10	10
F	Pedestrian	2		5	5

Full Input Data And Results

Phase Intergreens Matrix

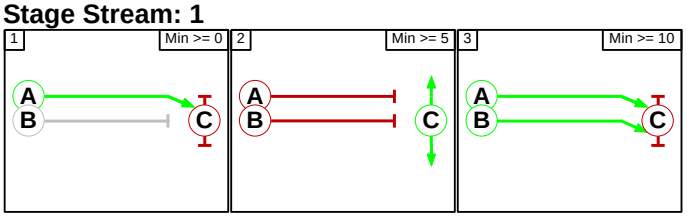
Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		-	5	-	-	-
B	-		7	-	-	-
C	12	12		-	-	-
D	-	-	-		-	5
E	-	-	-	-		7
F	-	-	-	12	12	

Phases in Stage

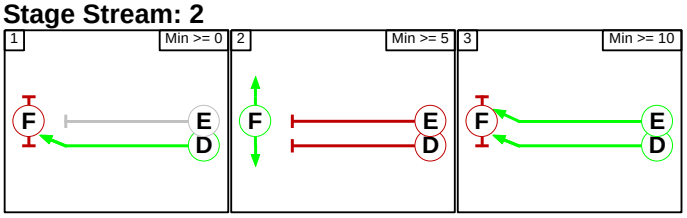
Stream	Stage No.	Phases in Stage
1	1	A
1	2	C
1	3	A B
2	1	D
2	2	F
2	3	D E

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

	To Stage			
		1	2	3
From Stage	1		5	2
	2	12		12
	3	0	7	

Stage Stream: 2

	To Stage			
		1	2	3
From Stage	1		5	2
	2	12		12
	3	0	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Digbeth
There are no Opposed Lanes in this Junction

Junction: J2: Unnamed Junction
There are no Opposed Lanes in this Junction

Junction: J3: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
J3:3/1 (Mill Lane)	J3:1/1 (Left)	715	0	J3:2/1	0.22	All	-	-	-	-	-
				J3:2/2	0.22	All					
	J3:1/2 (Left)	715	0	J3:2/1	0.22	All					
				J3:2/2	0.22	All					

Junction: J4: Inbound Gyratory
There are no Opposed Lanes in this Junction

Junction: J5: Unnamed Junction
There are no Opposed Lanes in this Junction

Junction: J6: Unnamed Junction
There are no Opposed Lanes in this Junction

Full Input Data And Results

Junction: J7: Gyratory
There are no Opposed Lanes in this Junction

Junction: J8: Unnamed Junction											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J8:3/1 (Bradford Street)	J8:1/1 (Left)	715	0	J8:2/1	0.22	To J8:1/1 (Ahead)	-	-	-	-	-
				J8:2/2	0.22	All					
	J8:1/2 (Left)	715	0	J8:2/1	0.22	To J8:1/1 (Ahead)					
				J8:2/2	0.22	All					
				J8:2/3	0.22	All					
	J8:1/3 (Left)	715	0	J8:2/1	0.22	To J8:1/1 (Ahead)					
				J8:2/2	0.22	All					
				J8:2/3	0.22	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Digbeth

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J1:1/1 (Digbeth Street)	U		2	3	6.4	Geom	-	3.65	0.00	Y	Arm J1:2 Ahead	Inf
J1:1/2 (Digbeth Street)	U		2	3	6.4	Geom	-	3.65	0.00	N	Arm J1:2 Ahead	Inf
J1:1/3 (Digbeth Street)	U		2	3	2.6	Geom	-	4.00	0.00	N	Arm J7:2 Right	10.00
J1:2/1 (Digbeth Street)	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:2/2 (Digbeth Street)	U		2	3	0.2	Inf	-	-	-	-	-	-

Junction: J2: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J2:1/1 (Meriden Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/1 (Meriden Street)	U	F	2	3	3.1	Geom	-	3.00	0.00	Y	Arm J2:5 Left	13.00
J2:2/2 (Meriden Street)	U	F	2	3	60.0	Geom	-	4.00	0.00	Y	Arm J2:6 Left	Inf
J2:3/1 (Digbeth Street)	U	E	2	3	5.6	Geom	-	3.65	0.00	Y	Arm J2:1 Left	Inf
											Arm J2:5 Ahead	Inf
J2:3/2 (Digbeth Street)	U	E	2	3	5.6	Geom	-	3.65	0.00	N	Arm J2:5 Ahead	Inf
J2:4/1 (LRT)	U	H	2	3	8.7	Geom	-	4.00	0.00	Y	Arm J2:1 Right	29.00
J2:5/1	U		2	3	0.2	Geom	-	3.20	0.00	Y	Arm J5:3 Ahead	Inf
J2:5/2	U		2	3	0.2	Geom	-	3.20	0.00	Y	Arm J5:3 Ahead	Inf
J2:6/1	U		2	3	0.2	Geom	-	4.00	0.00	Y		

Full Input Data And Results

Junction: J3: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (Digbeth Street)	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:1/2 (Digbeth Street)	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:2/1 (Digbeth Street)	U		2	3	1.7	Geom	-	3.50	0.00	Y	Arm J3:1 Ahead	Inf
J3:2/2 (Digbeth Street)	U		2	3	1.7	Geom	-	3.50	0.00	N	Arm J3:1 Ahead	Inf
J3:3/1 (Mill Lane)	O		2	3	60.0	Geom	-	4.50	0.00	Y	Arm J3:1 Left	8.00

Junction: J4: Inbound Gyratory

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J4:1/1 (Digbeth)	U	A	2	3	13.6	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J4:1/2 (Digbeth)	U	A	2	3	13.6	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf

Junction: J5: Unnamed Junction

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J5:1/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J5:1/2	U		2	3	60.0	Inf	-	-	-	-	-	-
J5:2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J5:3/1 (Digbeth Street)	U	A	2	3	6.1	Geom	-	3.20	0.00	Y	Arm J5:1 Ahead	Inf
J5:3/2 (Digbeth Street)	U	A	2	3	6.1	Geom	-	3.20	0.00	N	Arm J5:1 Ahead	Inf
J5:4/1 (LRT)	U	B	2	3	6.1	Geom	-	4.00	0.00	Y	Arm J5:2 Ahead	Inf

Full Input Data And Results

Junction: J6: Unnamed Junction												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J6:1/1	U		2	3	3.3	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
J6:1/2	U		2	3	3.3	Geom	-	3.50	0.00	Y	Arm J3:2 Ahead	Inf
J6:2/1	U	D	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J6:1 Ahead	Inf
J6:2/2	U	D	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J6:1 Ahead	Inf
J6:3/1	U		2	3	0.2	Geom	-	3.40	0.00	Y		
J6:4/1	U	E	2	3	60.0	Geom	-	3.40	0.00	Y	Arm J6:3 Ahead	Inf

Junction: J7: Gyratory												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J7:1/1 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J7:1/2 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J7:1/3 (Moat Ln)	U		2	3	7.1	Geom	-	3.50	0.00	Y	Arm J8:2 Ahead	Inf
J7:2/1 (Moat Lane)	U	B	2	3	2.6	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf
J7:2/2 (Moat Lane)	U	B	2	3	2.6	Geom	-	3.50	0.00	Y	Arm J7:1 Ahead	Inf

Full Input Data And Results

Junction: J8: Unnamed Junction												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J8:1/1 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	Y		
J8:1/2 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	N		
J8:1/3 (Moat Ln)	U		2	3	6.6	Geom	-	3.50	0.00	N		
J8:2/1 (Moat Ln)	U		2	3	0.2	User	1965	-	-	-	-	-
J8:2/2 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	N	Arm J8:1 Ahead	Inf
J8:2/3 (Moat Ln)	U		2	3	0.2	Geom	-	3.50	0.00	N	Arm J8:1 Ahead	Inf
J8:3/1 (Bradford Street)	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm J8:1 Left	15.00
J8:4/1 (Bradford Street)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DS AM(Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	436	0	0	436
	B	0	0	218	0	0	0	0	0	0	218
	C	0	0	0	0	0	0	0	0	0	0
	D	18	0	0	0	0	0	481	0	0	499
	E	0	0	0	0	0	0	10	0	0	10
	F	0	0	0	0	0	0	0	0	0	0
	G	0	149	789	0	0	0	0	0	0	938
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	18	149	1007	0	0	0	927	0	0	2101

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 DS AM(Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	483
J1:1/2	455
J1:1/3	0
J1:2/1	483
J1:2/2	455
Junction: J2: Unnamed Junction	
J2:1/1	149
J2:2/1 (short)	218
J2:2/2 (with short)	218(In) 0(Out)
J2:3/1	483
J2:3/2	455
J2:4/1	0
J2:5/1	447
J2:5/2	560
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	256
J3:1/2	253
J3:2/1	250
J3:2/2	249
J3:3/1	10
Junction: J4: Inbound Gyratory	
J4:1/1	256
J4:1/2	253
Junction: J5: Unnamed Junction	
J5:1/1	447
J5:1/2	560
J5:2/1	0
J5:3/1	447
J5:3/2	560
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	250
J6:1/2	249
J6:2/1	250
J6:2/2	249
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	78
J7:1/2	178
J7:1/3	253
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	179
J8:1/2	355
J8:1/3	393
J8:2/1	78
J8:2/2	178
J8:2/3	253
J8:3/1	436
J8:4/1	18

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	30.8 %	1980	1980
				Arm J2:5 Ahead	Inf	69.2 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 DS PM(Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	264	0	0	264
	B	0	0	332	0	0	0	0	0	0	332
	C	0	0	0	0	0	0	0	0	0	0
	D	40	0	0	0	0	0	556	0	0	596
	E	2	0	0	0	0	0	48	0	0	50
	F	0	0	0	0	0	0	0	0	0	0
	G	0	141	1105	0	0	0	0	0	0	1246
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	42	141	1437	0	0	0	868	0	0	2488

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DS PM(Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	608
J1:1/2	638
J1:1/3	0
J1:2/1	608
J1:2/2	638
Junction: J2: Unnamed Junction	
J2:1/1	141
J2:2/1 (short)	332
J2:2/2 (with short)	332(In) 0(Out)
J2:3/1	608
J2:3/2	638
J2:4/1	0
J2:5/1	646
J2:5/2	791
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	328
J3:1/2	318
J3:2/1	295
J3:2/2	301
J3:3/1	50
Junction: J4: Inbound Gyratory	
J4:1/1	328
J4:1/2	318
Junction: J5: Unnamed Junction	
J5:1/1	646
J5:1/2	791
J5:2/1	0
J5:3/1	646
J5:3/2	791
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	295
J6:1/2	301
J6:2/1	295
J6:2/2	301
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	146
J7:1/2	182
J7:1/3	318
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	176
J8:1/2	304
J8:1/3	388
J8:2/1	146
J8:2/2	182
J8:2/3	318
J8:3/1	264
J8:4/1	42

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	23.2 %	1980	1980
				Arm J2:5 Ahead	Inf	76.8 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 DS AM(Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	444	0	0	444
	B	0	0	218	0	0	0	0	0	0	218
	C	0	0	0	0	0	0	0	0	0	0
	D	2	0	0	0	0	0	438	0	0	440
	E	0	0	0	0	0	0	8	0	0	8
	F	0	0	0	0	0	0	0	0	0	0
	G	0	163	796	0	0	0	0	0	0	959
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	2	163	1014	0	0	0	890	0	0	2069

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 DS AM(Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	492
J1:1/2	467
J1:1/3	0
J1:2/1	492
J1:2/2	467
Junction: J2: Unnamed Junction	
J2:1/1	163
J2:2/1 (short)	218
J2:2/2 (with short)	218(In) 0(Out)
J2:3/1	492
J2:3/2	467
J2:4/1	0
J2:5/1	452
J2:5/2	562
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	224
J3:1/2	224
J3:2/1	220
J3:2/2	220
J3:3/1	8
Junction: J4: Inbound Gyratory	
J4:1/1	224
J4:1/2	224
Junction: J5: Unnamed Junction	
J5:1/1	452
J5:1/2	562
J5:2/1	0
J5:3/1	452
J5:3/2	562
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	220
J6:1/2	220
J6:2/1	220
J6:2/2	220
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	40
J7:1/2	184
J7:1/3	224
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	170
J8:1/2	345
J8:1/3	375
J8:2/1	40
J8:2/2	184
J8:2/3	224
J8:3/1	444
J8:4/1	2

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	33.1 %	1980	1980
				Arm J2:5 Ahead	Inf	66.9 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 DS PM(Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	265	0	0	265
	B	0	0	332	0	0	0	0	0	0	332
	C	0	0	0	0	0	0	0	0	0	0
	D	40	0	0	0	0	0	574	0	0	614
	E	2	0	0	0	0	0	48	0	0	50
	F	0	0	0	0	0	0	0	0	0	0
	G	0	155	1111	0	0	0	0	0	0	1266
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	42	155	1443	0	0	0	887	0	0	2527

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DS PM(Standard PCU Factors)
Junction: J1: Digbeth	
J1:1/1	618
J1:1/2	648
J1:1/3	0
J1:2/1	618
J1:2/2	648
Junction: J2: Unnamed Junction	
J2:1/1	155
J2:2/1 (short)	332
J2:2/2 (with short)	332(In) 0(Out)
J2:3/1	618
J2:3/2	648
J2:4/1	0
J2:5/1	649
J2:5/2	794
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	338
J3:1/2	326
J3:2/1	305
J3:2/2	309
J3:3/1	50
Junction: J4: Inbound Gyratory	
J4:1/1	338
J4:1/2	326
Junction: J5: Unnamed Junction	
J5:1/1	649
J5:1/2	794
J5:2/1	0
J5:3/1	649
J5:3/2	794
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	305
J6:1/2	309
J6:2/1	305
J6:2/2	309
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	152
J7:1/2	186
J7:1/3	326
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	182
J8:1/2	319
J8:1/3	386
J8:2/1	152
J8:2/2	186
J8:2/3	326
J8:3/1	265
J8:4/1	42

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	25.1 %	1980	1980
				Arm J2:5 Ahead	Inf	74.9 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 DS AM(Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	490	0	0	490
	B	0	0	222	0	0	0	0	0	0	222
	C	0	0	0	0	0	0	0	0	0	0
	D	18	0	0	0	0	0	584	0	0	602
	E	0	0	0	0	0	0	10	0	0	10
	F	0	0	0	0	0	0	0	0	0	0
	G	0	152	953	0	0	0	0	0	0	1105
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	18	152	1175	0	0	0	1084	0	0	2429

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 DS AM(Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	560
J1:1/2	545
J1:1/3	0
J1:2/1	560
J1:2/2	545
Junction: J2: Unnamed Junction	
J2:1/1	152
J2:2/1 (short)	222
J2:2/2 (with short)	222(In) 0(Out)
J2:3/1	560
J2:3/2	545
J2:4/1	0
J2:5/1	534
J2:5/2	641
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	306
J3:1/2	306
J3:2/1	301
J3:2/2	301
J3:3/1	10
Junction: J4: Inbound Gyratory	
J4:1/1	306
J4:1/2	306
Junction: J5: Unnamed Junction	
J5:1/1	534
J5:1/2	641
J5:2/1	0
J5:3/1	534
J5:3/2	641
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	301
J6:1/2	301
J6:2/1	301
J6:2/2	301
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	140
J7:1/2	166
J7:1/3	306
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	194
J8:1/2	393
J8:1/3	497
J8:2/1	140
J8:2/2	166
J8:2/3	306
J8:3/1	490
J8:4/1	18

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	27.1 %	1980	1980
				Arm J2:5 Ahead	Inf	72.9 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 DS PM(Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	317	0	0	317
	B	0	0	333	0	0	0	0	0	0	333
	C	0	0	0	0	0	0	0	0	0	0
	D	40	0	0	0	0	0	657	0	0	697
	E	2	0	0	0	0	0	48	0	0	50
	F	0	0	0	0	0	0	0	0	0	0
	G	0	141	1268	0	0	0	0	0	0	1409
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	42	141	1601	0	0	0	1022	0	0	2806

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DS PM(Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	683
J1:1/2	726
J1:1/3	0
J1:2/1	683
J1:2/2	726
Junction: J2: Unnamed Junction	
J2:1/1	141
J2:2/1 (short)	333
J2:2/2 (with short)	333(In) 0(Out)
J2:3/1	683
J2:3/2	726
J2:4/1	0
J2:5/1	740
J2:5/2	861
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	382
J3:1/2	365
J3:2/1	343
J3:2/2	354
J3:3/1	50
Junction: J4: Inbound Gyratory	
J4:1/1	382
J4:1/2	365
Junction: J5: Unnamed Junction	
J5:1/1	740
J5:1/2	861
J5:2/1	0
J5:3/1	740
J5:3/2	861
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	343
J6:1/2	354
J6:2/1	343
J6:2/2	354
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	178
J7:1/2	204
J7:1/3	365
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	263
J8:1/2	333
J8:1/3	426
J8:2/1	178
J8:2/2	204
J8:2/3	365
J8:3/1	317
J8:4/1	42

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	20.6 %	1980	1980
				Arm J2:5 Ahead	Inf	79.4 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 DS AM(Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	498	0	0	498
	B	0	0	222	0	0	0	0	0	0	222
	C	0	0	0	0	0	0	0	0	0	0
	D	2	0	0	0	0	0	540	0	0	542
	E	0	0	0	0	0	0	8	0	0	8
	F	0	0	0	0	0	0	0	0	0	0
	G	0	166	961	0	0	0	0	0	0	1127
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	2	166	1183	0	0	0	1046	0	0	2397

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 DS AM(Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	568
J1:1/2	559
J1:1/3	0
J1:2/1	568
J1:2/2	559
Junction: J2: Unnamed Junction	
J2:1/1	166
J2:2/1 (short)	222
J2:2/2 (with short)	222(In) 0(Out)
J2:3/1	568
J2:3/2	559
J2:4/1	0
J2:5/1	530
J2:5/2	653
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	275
J3:1/2	275
J3:2/1	271
J3:2/2	271
J3:3/1	8
Junction: J4: Inbound Gyratory	
J4:1/1	275
J4:1/2	275
Junction: J5: Unnamed Junction	
J5:1/1	530
J5:1/2	653
J5:2/1	0
J5:3/1	530
J5:3/2	653
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	271
J6:1/2	271
J6:2/1	271
J6:2/2	271
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	71
J7:1/2	204
J7:1/3	275
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	189
J8:1/2	407
J8:1/3	450
J8:2/1	71
J8:2/2	204
J8:2/3	275
J8:3/1	498
J8:4/1	2

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	29.2 %	1980	1980
				Arm J2:5 Ahead	Inf	70.8 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 8: '2031 DS PM(Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	0	0	0	0	0	317	0	0	317
	B	0	0	334	0	0	0	0	0	0	334
	C	0	0	0	0	0	0	0	0	0	0
	D	40	0	0	0	0	0	674	0	0	714
	E	2	0	0	0	0	0	48	0	0	50
	F	0	0	0	0	0	0	0	0	0	0
	G	0	156	1274	0	0	0	0	0	0	1430
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	42	156	1608	0	0	0	1039	0	0	2845

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DS PM(Saturn PCU Factors)
Junction: J1: Digbeth	
J1:1/1	692
J1:1/2	738
J1:1/3	0
J1:2/1	692
J1:2/2	738
Junction: J2: Unnamed Junction	
J2:1/1	156
J2:2/1 (short)	334
J2:2/2 (with short)	334(In) 0(Out)
J2:3/1	692
J2:3/2	738
J2:4/1	0
J2:5/1	741
J2:5/2	867
J2:6/1	0
Junction: J3: Unnamed Junction	
J3:1/1	392
J3:1/2	372
J3:2/1	351
J3:2/2	363
J3:3/1	50
Junction: J4: Inbound Gyratory	
J4:1/1	392
J4:1/2	372
Junction: J5: Unnamed Junction	
J5:1/1	741
J5:1/2	867
J5:2/1	0
J5:3/1	741
J5:3/2	867
J5:4/1	0
Junction: J6: Unnamed Junction	
J6:1/1	351
J6:1/2	363
J6:2/1	351
J6:2/2	363
J6:3/1	0

J6:4/1	0
Junction: J7: Gyratory	
J7:1/1	177
J7:1/2	215
J7:1/3	372
J7:2/1	0
J7:2/2	0
Junction: J8: Unnamed Junction	
J8:1/1	264
J8:1/2	354
J8:1/3	421
J8:2/1	177
J8:2/2	215
J8:2/3	372
J8:3/1	317
J8:4/1	42

Lane Saturation Flows

Junction: J1: Digbeth								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth Street)	3.65	0.00	Y	Arm J1:2 Ahead	Inf	100.0 %	1980	1980
J1:1/2 (Digbeth Street)	3.65	0.00	N	Arm J1:2 Ahead	Inf	100.0 %	2120	2120
J1:1/3 (Digbeth Street)	4.00	0.00	N	Arm J7:2 Right	10.00	0.0 %	2155	2155
J1:2/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:2/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Meriden Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/1 (Meriden Street)	3.00	0.00	Y	Arm J2:5 Left	13.00	100.0 %	1717	1717
J2:2/2 (Meriden Street)	4.00	0.00	Y	Arm J2:6 Left	Inf	0.0 %	2015	2015
J2:3/1 (Digbeth Street)	3.65	0.00	Y	Arm J2:1 Left	Inf	22.5 %	1980	1980
				Arm J2:5 Ahead	Inf	77.5 %		
J2:3/2 (Digbeth Street)	3.65	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2120	2120
J2:4/1 (LRT)	4.00	0.00	Y	Arm J2:1 Right	29.00	0.0 %	2015	2015
J2:5/1	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:5/2	3.20	0.00	Y	Arm J5:3 Ahead	Inf	100.0 %	1935	1935
J2:6/1	4.00	0.00	Y				2015	2015

Junction: J3: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Digbeth Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:1/2 (Digbeth Street Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:2/1 (Digbeth Street)	3.50	0.00	Y	Arm J3:1 Ahead	Inf	100.0 %	1965	1965
J3:2/2 (Digbeth Street)	3.50	0.00	N	Arm J3:1 Ahead	Inf	100.0 %	2105	2105
J3:3/1 (Mill Lane)	4.50	0.00	Y	Arm J3:1 Left	8.00	100.0 %	1739	1739

Junction: J4: Inbound Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J4:1/1 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965
J4:1/2 (Digbeth)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	100.0 %	1965	1965

Full Input Data And Results

Junction: J5: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J5:1/1	Infinite Saturation Flow						Inf	Inf
J5:1/2	Infinite Saturation Flow						Inf	Inf
J5:2/1	Infinite Saturation Flow						Inf	Inf
J5:3/1 (Digbeth Street)	3.20	0.00	Y	Arm J5:1 Ahead	Inf	100.0 %	1935	1935
J5:3/2 (Digbeth Street)	3.20	0.00	N	Arm J5:1 Ahead	Inf	100.0 %	2075	2075
J5:4/1 (LRT)	4.00	0.00	Y	Arm J5:2 Ahead	Inf	0.0 %	2015	2015

Junction: J6: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J6:1/1	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:1/2	3.50	0.00	Y	Arm J3:2 Ahead	Inf	100.0 %	1965	1965
J6:2/1	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:2/2	3.10	0.00	Y	Arm J6:1 Ahead	Inf	100.0 %	1925	1925
J6:3/1	3.40	0.00	Y				1955	1955
J6:4/1	3.40	0.00	Y	Arm J6:3 Ahead	Inf	0.0 %	1955	1955

Junction: J7: Gyratory								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J7:1/1 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/2 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:1/3 (Moat Ln)	3.50	0.00	Y	Arm J8:2 Ahead	Inf	100.0 %	1965	1965
J7:2/1 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965
J7:2/2 (Moat Lane)	3.50	0.00	Y	Arm J7:1 Ahead	Inf	0.0 %	1965	1965

Full Input Data And Results

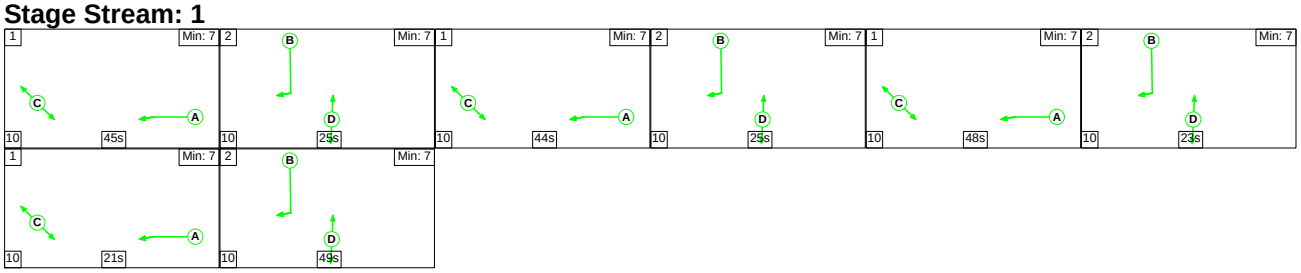
Junction: J8: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J8:1/1 (Moat Ln)	3.50	0.00	Y				1965	1965
J8:1/2 (Moat Ln)	3.50	0.00	N				2105	2105
J8:1/3 (Moat Ln)	3.50	0.00	N				2105	2105
J8:2/1 (Moat Ln Lane 1)	This lane uses a directly entered Saturation Flow						1965	1965
J8:2/2 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:2/3 (Moat Ln)	3.50	0.00	N	Arm J8:1 Ahead	Inf	100.0 %	2105	2105
J8:3/1 (Bradford Street)	3.50	0.00	Y	Arm J8:1 Left	15.00	100.0 %	1786	1786
J8:4/1 (Bradford Street Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 DS AM(Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

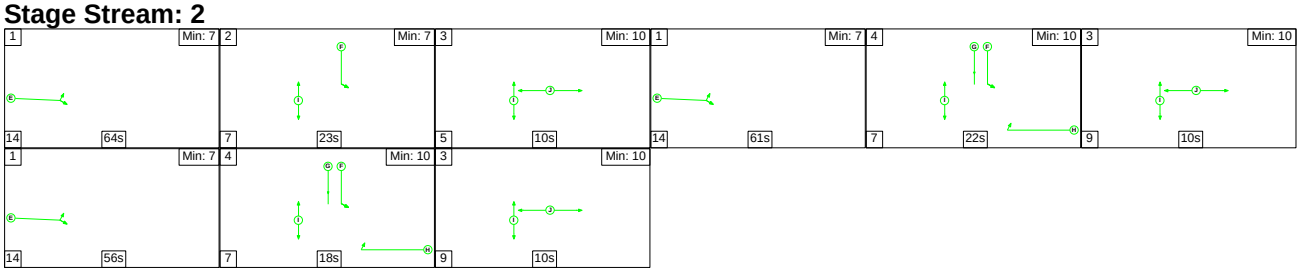
C1 - E0621 - MCH1827B

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

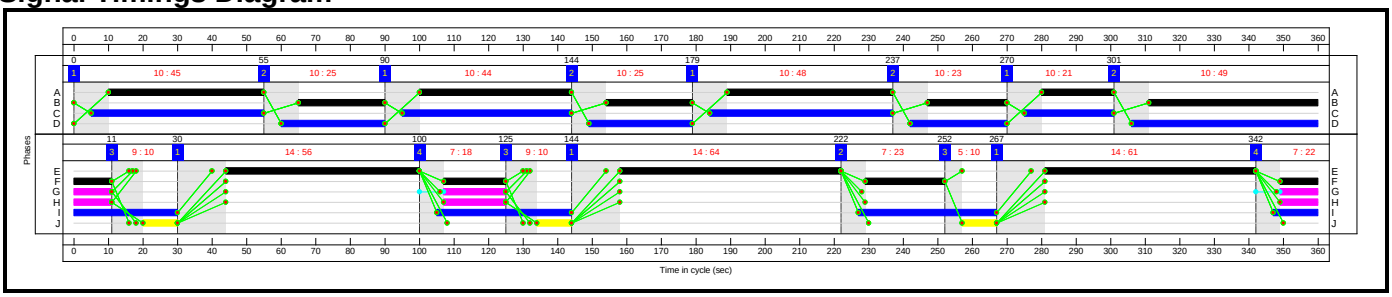
Stage	1	2	1	2	1	2	1	2
Duration	45	25	44	25	48	23	21	49
Change Point	0	55	90	144	179	237	270	301

Stage Stream: 2

Stage	1	2	3	1	4	3	1	4	3
Duration	64	23	10	61	22	10	56	18	10
Change Point	144	222	252	267	342	11	30	100	125

Full Input Data And Results

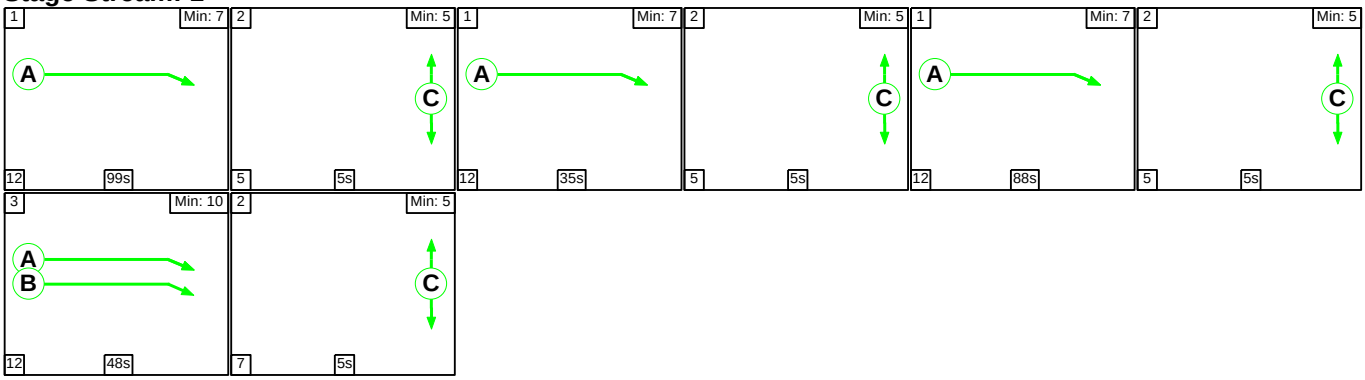
Signal Timings Diagram



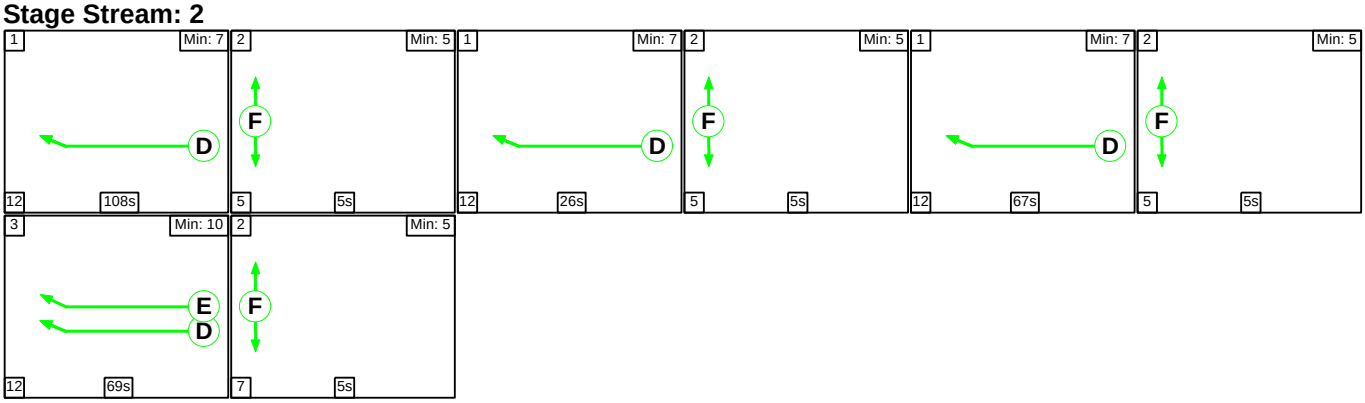
C2 - Pedestrian Crossing (across Digbeth B4100)

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

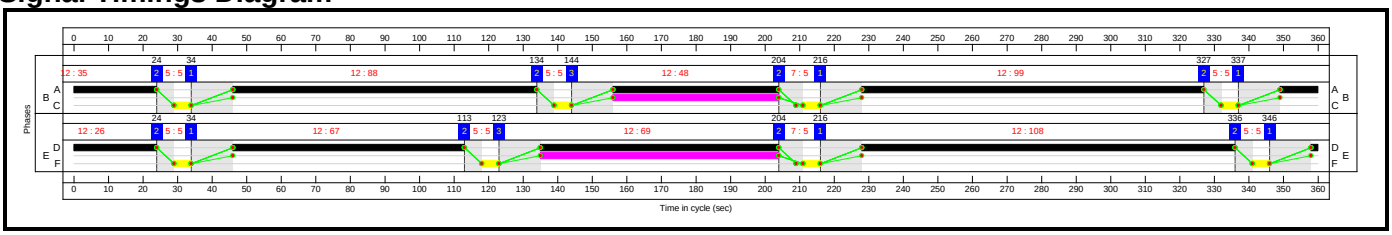
Stage	1	2	1	2	1	2	3	2
Duration	99	5	35	5	88	5	48	5
Change Point	216	327	337	24	34	134	144	204

Stage Stream: 2

Stage	1	2	1	2	1	2	3	2
Duration	108	5	26	5	67	5	69	5
Change Point	216	336	346	24	34	113	123	204

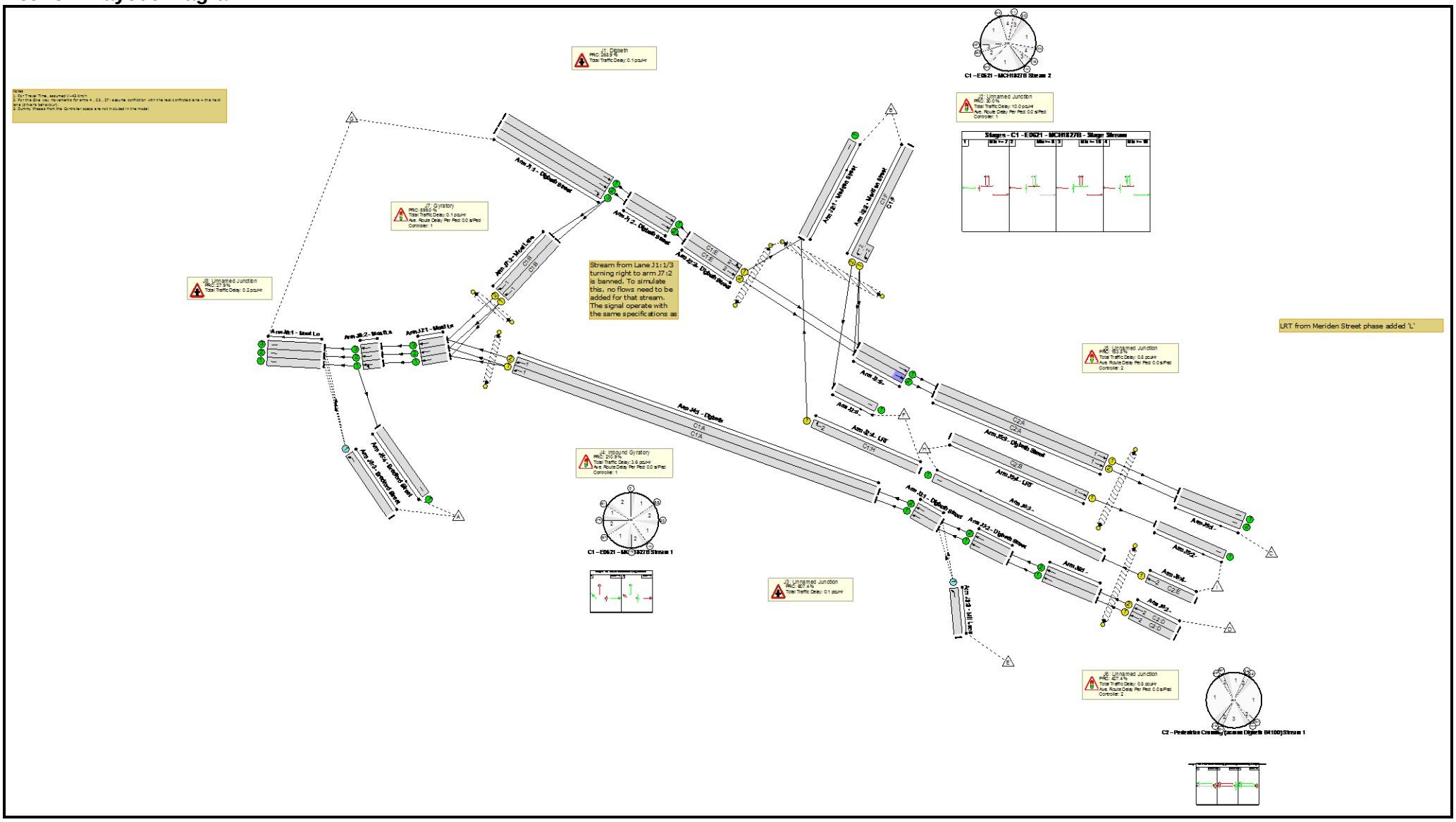
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	-	-	**N/A**	-	-		-	-	-	-	-	-	**70.4%**
J1: Digbeth	-	-	**N/A**	-	-		-	-	-	-	-	-	**24.4%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	483	1980	1980	24.4%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	455	2120	2120	21.5%
1/3	Digbeth Street Right	U	N/A	N/A	-		-	-	-	0	2155	2155	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	483	Inf	Inf	0.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	455	Inf	Inf	0.0%
J2: Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**69.3%**
1/1	Meriden Street	U	N/A	N/A	-		-	-	-	149	Inf	Inf	0.0%
2/2+2/1	Meriden Street Left Left2	U	1:2	N/A	C1:F		3	63	-	218	2015:1717	0+315	0.0 : 69.3%
3/1	Digbeth Street Left Ahead	U	1:2	N/A	C1:E		3	181	-	483	1980	1012	47.7%
3/2	Digbeth Street Ahead	U	1:2	N/A	C1:E		3	181	-	455	2120	1084	42.0%
4/1	LRT Right	U	1:2	N/A	C1:H		2	40	-	0	2015	235	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	447	1935	1935	23.1%
5/2	Ahead	U	N/A	N/A	-		-	-	-	560	1935	1935	28.9%
6/1		U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:2	-	C1:J		3	30	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:I		3	122	-	0	-	0	0.0%

Full Input Data And Results

J3: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**12.7%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	256	Inf	Inf	0.0%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	253	Inf	Inf	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	250	1965	1965	12.7%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	249	2105	2105	11.8%
3/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	10	1739	605	1.7%
J4: Inbound Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**29.0%**
1/1	Digbeth Ahead	U	1:1	N/A	C1:A		4	158	-	256	1965	884	29.0%
1/2	Digbeth Ahead	U	1:1	N/A	C1:A		4	158	-	253	1965	884	28.6%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:D		4	142	-	0	-	0	0.0%
J5: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**35.5%**
1/1		U	N/A	N/A	-		-	-	-	447	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	560	Inf	Inf	0.0%
2/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	447	1935	1473	30.4%
3/2	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	560	2075	1579	35.5%
4/1	LRT Ahead	U	2:1	N/A	C2:B		1	48	-	0	2015	274	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:1	-	C2:C		4	20	-	0	-	0	0.0%
J6: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**17.1%**
1/1	Ahead	U	N/A	N/A	-		-	-	-	250	1965	1965	12.7%
1/2	Ahead	U	N/A	N/A	-		-	-	-	249	1965	1965	12.7%
2/1	Ahead	U	2:2	N/A	C2:D		4	270	-	250	1925	1465	17.1%
2/2	Ahead	U	2:2	N/A	C2:D		4	270	-	249	1925	1465	17.0%

Full Input Data And Results

3/1		U	N/A	N/A	-		-	-	-	0	1955	1955	0.0%
4/1	Ahead	U	2:2	N/A	C2:E		1	69	-	0	1955	380	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:F		4	20	-	0	-	0	0.0%
J7: Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**12.9%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	78	1965	1965	4.0%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	178	1965	1965	9.1%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	253	1965	1965	12.9%
2/1	Moat Lane Ahead	U	1:1	N/A	C1:B		4	122	-	0	1965	688	0.0%
2/2	Moat Lane Ahead	U	1:1	N/A	C1:B		4	122	-	0	1965	688	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:C		4	178	-	0	-	0	0.0%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.4%**
1/1	Moat Ln	U	N/A	N/A	-		-	-	-	179	1965	1965	9.1%
1/2	Moat Ln	U	N/A	N/A	-		-	-	-	355	2105	2105	16.9%
1/3	Moat Ln	U	N/A	N/A	-		-	-	-	393	2105	2105	18.7%
2/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	78	1965	1965	4.0%
2/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	178	2105	2105	8.5%
2/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	253	2105	2105	12.0%
3/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	436	1786	619	70.4%
4/1	Bradford Street	U	N/A	N/A	-		-	-	-	18	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**446**	**0**	**0**	**11.9**	**3.9**	**0.0**	**15.8**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	455	455	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
1/3	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	483	483	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	455	455	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**7.7**	**2.3**	**0.0**	**10.0**	**-**	**-**	**-**	**-**
1/1	149	149	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	218	218	-	-	-	2.8	1.1	-	3.9	64.1	7.1	1.1	8.2
3/1	483	483	-	-	-	2.5	0.5	-	3.0	22.4	10.7	0.5	11.2
3/2	455	455	-	-	-	2.3	0.4	-	2.7	21.1	9.7	0.4	10.1
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	447	447	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/2	560	560	-	-	-	0.1	0.2	-	0.3	1.7	0.8	0.2	1.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Unnamed Junction	**-**	**-**	**10**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	256	256	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	253	253	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	250	250	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	10	10	10	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J4: Inbound Gyratory	**-**	**-**	**0**	**0**	**0**	**3.2**	**0.4**	**0.0**	**3.6**	**-**	**-**	**-**	**-**
1/1	256	256	-	-	-	1.6	0.2	-	1.8	25.6	5.5	0.2	5.7
1/2	253	253	-	-	-	1.6	0.2	-	1.8	25.6	5.4	0.2	5.6
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.3**	**0.5**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	447	447	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	560	560	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	447	447	-	-	-	0.1	0.2	-	0.4	2.9	1.9	0.2	2.1
3/2	560	560	-	-	-	0.2	0.3	-	0.5	3.0	2.9	0.3	3.2
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.4**	**0.4**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	250	250	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/2	249	249	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	250	250	-	-	-	0.2	0.1	-	0.3	4.4	1.8	0.1	1.9
2/2	249	249	-	-	-	0.2	0.1	-	0.3	4.4	1.8	0.1	1.9
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Gyratory	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	78	78	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/2	178	178	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/3	253	253	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J8: Unnamed Junction	**-**	**-**	**436**	**0**	**0**	**0.2**	**0.0**	**0.0**	**0.2**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	179	179	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	355	355	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	393	393	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	78	78	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	178	178	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	253	253	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	436	436	436	0	0	0.2	0.0	-	0.2	1.6	3.9	0.0	3.9
4/1	18	18	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 - E0621 - MCH1827B	Stream: 1	PRC for Signalled Lanes (%):	210.9	Total Delay for Signalled Lanes (pcuHr):	3.62
C1 - E0621 - MCH1827B	Stream: 2	PRC for Signalled Lanes (%):	30.0	Total Delay for Signalled Lanes (pcuHr):	9.56
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 1	PRC for Signalled Lanes (%):	153.8	Total Delay for Signalled Lanes (pcuHr):	0.83
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 2	PRC for Signalled Lanes (%):	427.4	Total Delay for Signalled Lanes (pcuHr):	0.62
		PRC Over All Lanes (%):	27.9	Total Delay Over All Lanes(pcuHr):	15.80

Cycle Time (s):	360
Cycle Time (s):	360
Cycle Time (s):	360
Cycle Time (s):	360

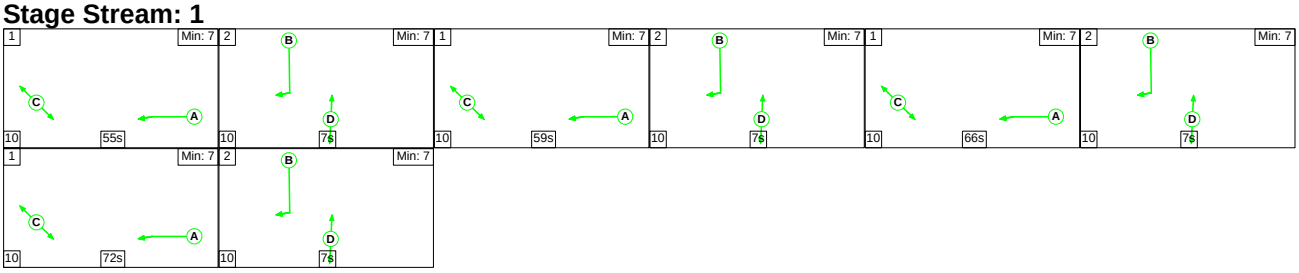
Full Input Data And Results

Scenario 2: '2026 DS PM(Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

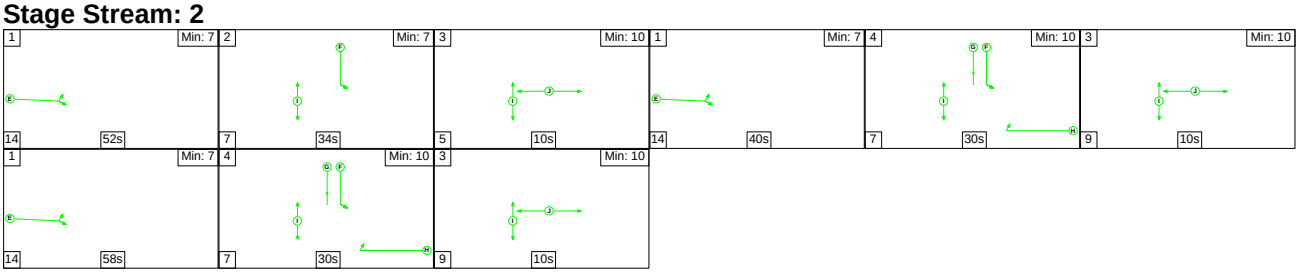
C1 - E0621 - MCH1827B

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

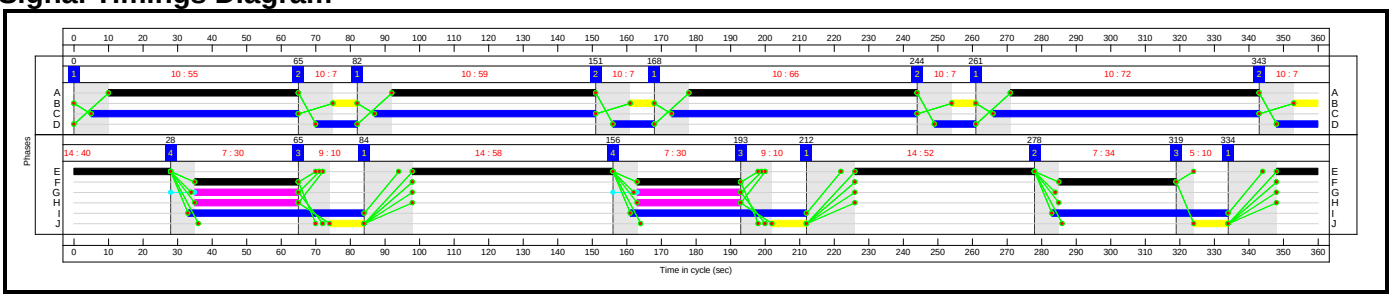
Stage Stream: 1

Stage	1	2	1	2	1	2	1	2
Duration	55	7	59	7	66	7	72	7
Change Point	0	65	82	151	168	244	261	343

Stage Stream: 2

Stage	1	2	3	1	4	3	1	4	3
Duration	52	34	10	40	30	10	58	30	10
Change Point	212	278	319	334	28	65	84	156	193

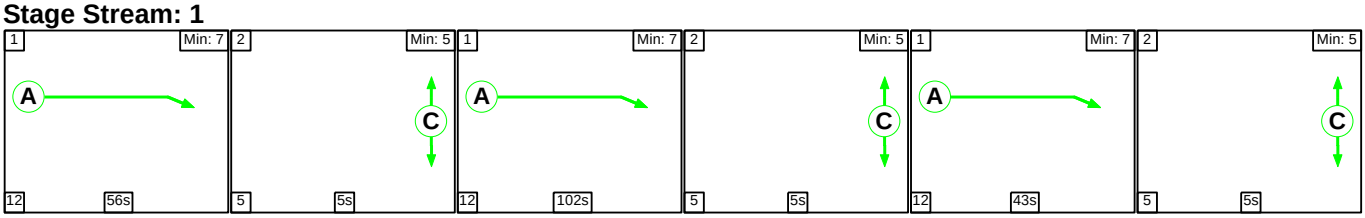
Signal Timings Diagram



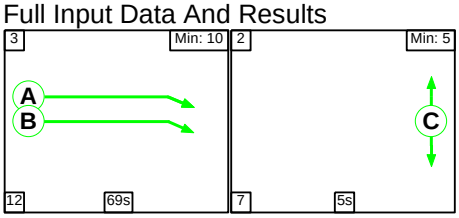
C2 - Pedestrian Crossing (across Digbeth B4100)

Stage Sequence Diagram

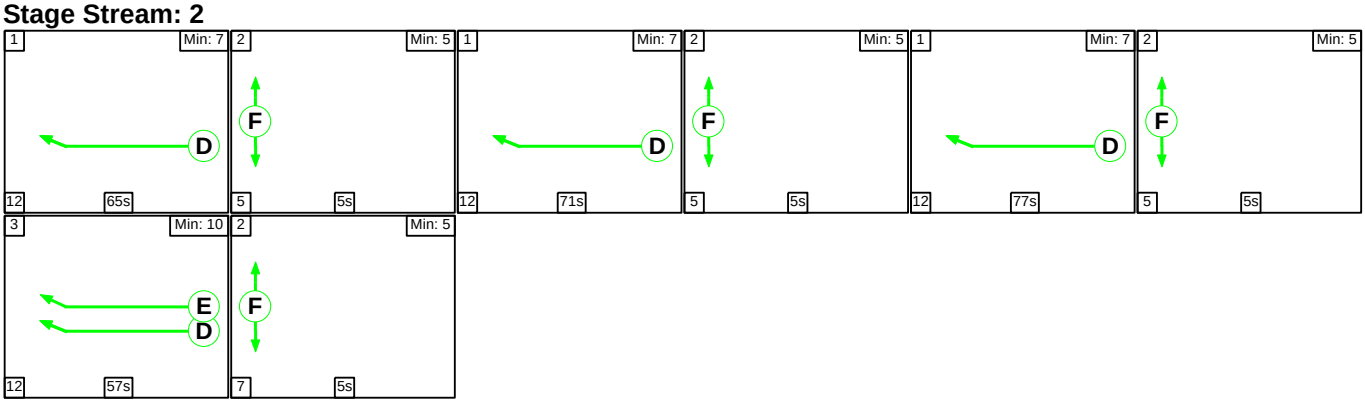
Stage Stream: 1



Full Input Data And Results



Stage Stream: 2



Stage Timings

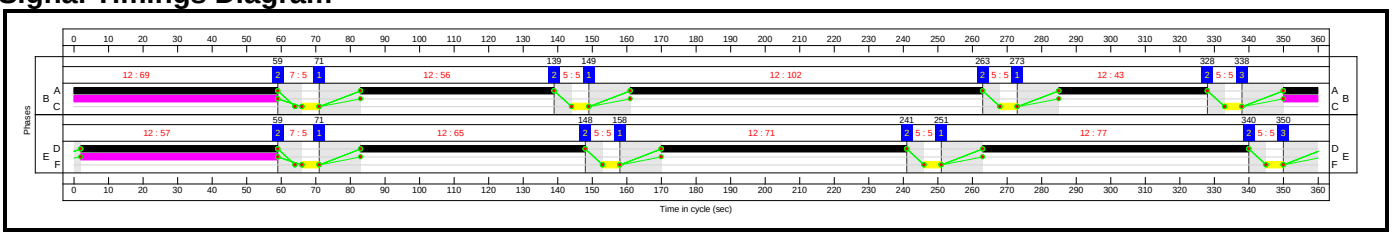
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	56	5	102	5	43	5	69	5
Change Point	71	139	149	263	273	328	338	59

Stage Stream: 2

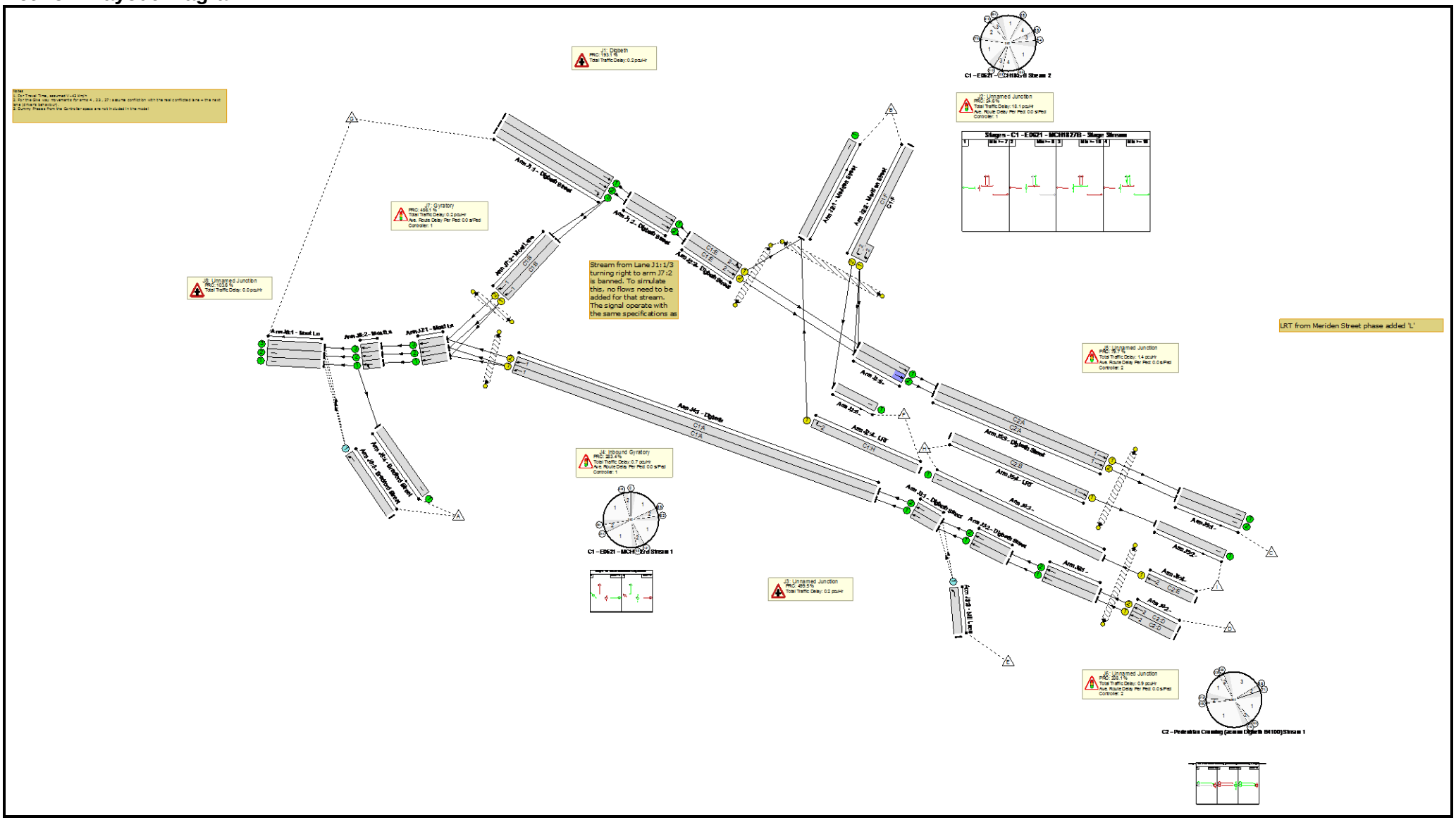
Stage	1	2	1	2	1	2	3	2
Duration	65	5	71	5	77	5	57	5
Change Point	71	148	158	241	251	340	350	59

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.3%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**30.7%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	608	1980	1980	30.7%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	638	2120	2120	30.1%
1/3	Digbeth Street Right	U	N/A	N/A	-		-	-	-	0	2155	2155	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	608	Inf	Inf	0.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	638	Inf	Inf	0.0%
J2: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.3%**
1/1	Meriden Street	U	N/A	N/A	-		-	-	-	141	Inf	Inf	0.0%
2/2+2/1	Meriden Street Left Left2	U	1:2	N/A	C1:F		3	94	-	332	2015:1717	0+463	0.0 : 71.8%
3/1	Digbeth Street Left Ahead	U	1:2	N/A	C1:E		3	150	-	608	1980	842	72.3%
3/2	Digbeth Street Ahead	U	1:2	N/A	C1:E		3	150	-	638	2120	901	70.8%
4/1	LRT Right	U	1:2	N/A	C1:H		2	60	-	0	2015	347	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	646	1935	1935	33.4%
5/2	Ahead	U	N/A	N/A	-		-	-	-	791	1935	1935	40.9%
6/1		U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:2	-	C1:J		3	30	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:I		3	153	-	0	-	0	0.0%

Full Input Data And Results

J3: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**15.0%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	328	Inf	Inf	0.0%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	318	Inf	Inf	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	295	1965	1965	15.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	301	2105	2105	14.3%
3/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	50	1739	585	8.6%
J4: Inbound Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**23.5%**
1/1	Digbeth Ahead	U	1:1	N/A	C1:A		4	252	-	328	1965	1397	23.5%
1/2	Digbeth Ahead	U	1:1	N/A	C1:A		4	252	-	318	1965	1397	22.8%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:D		4	48	-	0	-	0	0.0%
J5: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.1%**
1/1		U	N/A	N/A	-		-	-	-	646	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	791	Inf	Inf	0.0%
2/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	646	1935	1473	43.9%
3/2	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	791	2075	1579	50.1%
4/1	LRT Ahead	U	2:1	N/A	C2:B		1	69	-	0	2015	392	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:1	-	C2:C		4	20	-	0	-	0	0.0%
J6: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**20.5%**
1/1	Ahead	U	N/A	N/A	-		-	-	-	295	1965	1965	15.0%
1/2	Ahead	U	N/A	N/A	-		-	-	-	301	1965	1965	15.3%
2/1	Ahead	U	2:2	N/A	C2:D		4	270	-	295	1925	1465	20.1%
2/2	Ahead	U	2:2	N/A	C2:D		4	270	-	301	1925	1465	20.5%

Full Input Data And Results

3/1		U	N/A	N/A	-		-	-	-	0	1955	1955	0.0%
4/1	Ahead	U	2:2	N/A	C2:E		1	57	-	0	1955	315	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:F		4	20	-	0	-	0	0.0%
J7: Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**16.2%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	146	1965	1965	7.4%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	182	1965	1965	9.3%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	318	1965	1965	16.2%
2/1	Moat Lane Ahead	U	1:1	N/A	C1:B		4	28	-	0	1965	175	0.0%
2/2	Moat Lane Ahead	U	1:1	N/A	C1:B		4	28	-	0	1965	175	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:C		4	272	-	0	-	0	0.0%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.2%**
1/1	Moat Ln	U	N/A	N/A	-		-	-	-	176	1965	1965	9.0%
1/2	Moat Ln	U	N/A	N/A	-		-	-	-	304	2105	2105	14.4%
1/3	Moat Ln	U	N/A	N/A	-		-	-	-	388	2105	2105	18.4%
2/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	146	1965	1965	7.4%
2/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	182	2105	2105	8.6%
2/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	318	2105	2105	15.1%
3/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	264	1786	597	44.2%
4/1	Bradford Street	U	N/A	N/A	-		-	-	-	42	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**314**	**0**	**0**	**15.2**	**6.5**	**0.0**	**21.7**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	638	638	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
1/3	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	638	638	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**13.8**	**4.3**	**0.0**	**18.1**	**-**	**-**	**-**	**-**
1/1	141	141	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	332	332	-	-	-	3.7	1.2	-	4.9	53.7	11.1	1.2	12.3
3/1	608	608	-	-	-	4.8	1.3	-	6.1	36.3	16.7	1.3	18.0
3/2	638	638	-	-	-	5.0	1.2	-	6.2	35.2	17.4	1.2	18.6
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	646	646	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
5/2	791	791	-	-	-	0.2	0.3	-	0.6	2.6	7.9	0.3	8.2
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Unnamed Junction	**-**	**-**	**50**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	295	295	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/2	301	301	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	50	50	50	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J4: Inbound Gyratory	**-**	**-**	**0**	**0**	**0**	**0.4**	**0.3**	**0.0**	**0.7**	**-**	**-**	**-**	**-**
1/1	328	328	-	-	-	0.2	0.2	-	0.4	3.9	1.0	0.2	1.2
1/2	318	318	-	-	-	0.2	0.1	-	0.3	3.8	0.9	0.1	1.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.5**	**0.9**	**0.0**	**1.4**	**-**	**-**	**-**	**-**
1/1	646	646	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	791	791	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	646	646	-	-	-	0.2	0.4	-	0.6	3.4	2.9	0.4	3.3
3/2	791	791	-	-	-	0.3	0.5	-	0.8	3.6	4.1	0.5	4.6
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.5**	**0.4**	**0.0**	**0.9**	**-**	**-**	**-**	**-**
1/1	295	295	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
1/2	301	301	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/1	295	295	-	-	-	0.2	0.1	-	0.4	4.6	2.2	0.1	2.3
2/2	301	301	-	-	-	0.3	0.1	-	0.4	4.6	2.3	0.1	2.4
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Gyratory	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	146	146	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/2	182	182	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	318	318	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J8: Unnamed Junction	**-**	**-**	**264**	**0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	176	176	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	304	304	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	388	388	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	146	146	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	182	182	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	264	264	264	0	0	0.0	0.0	-	0.0	0.0	0.4	0.0	0.4
4/1	42	42	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	283.4	Total Delay for Signalled Lanes (pcuHr):	0.70	Cycle Time (s): 360
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	24.6	Total Delay for Signalled Lanes (pcuHr):	17.30	Cycle Time (s): 360
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 1 PRC for Signalled Lanes (%):	79.7	Total Delay for Signalled Lanes (pcuHr):	1.40	Cycle Time (s): 360
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 2 PRC for Signalled Lanes (%):	338.1	Total Delay for Signalled Lanes (pcuHr):	0.76	Cycle Time (s): 360
	PRC Over All Lanes (%):	24.6	Total Delay Over All Lanes(pcuHr):	21.73	

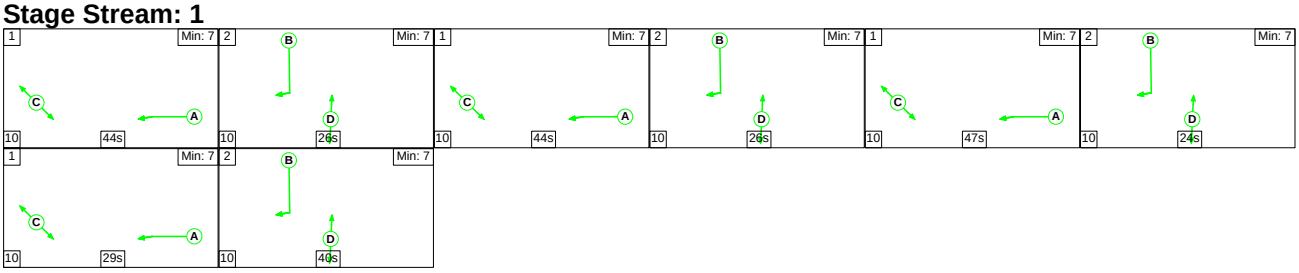
Full Input Data And Results

Scenario 3: '2031 DS AM(Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

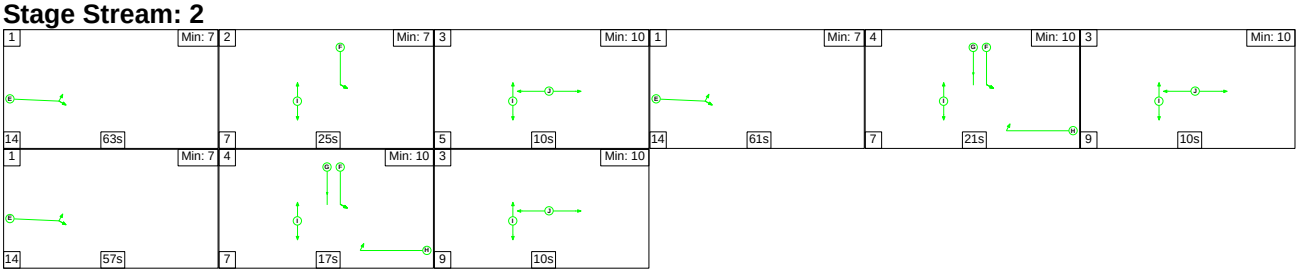
C1 - E0621 - MCH1827B

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

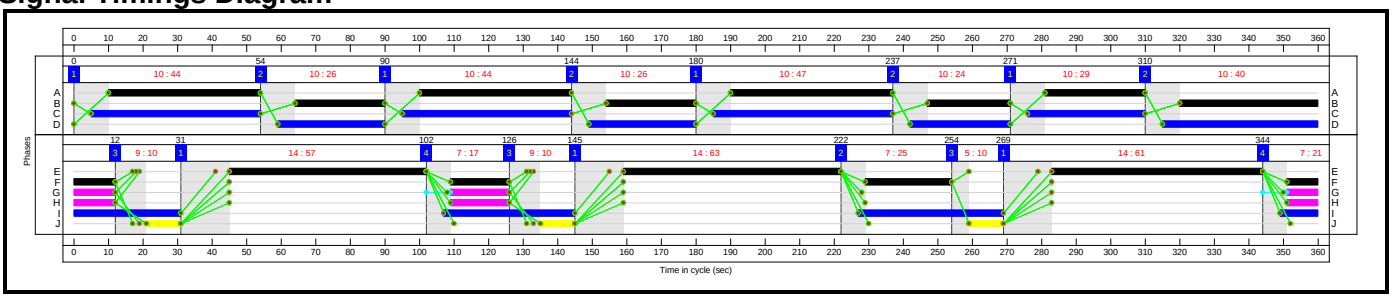
Stage Stream: 1

Stage	1	2	1	2	1	2	1	2
Duration	44	26	44	26	47	24	29	40
Change Point	0	54	90	144	180	237	271	310

Stage Stream: 2

Stage	1	2	3	1	4	3	1	4	3
Duration	63	25	10	61	21	10	57	17	10
Change Point	145	222	254	269	344	12	31	102	126

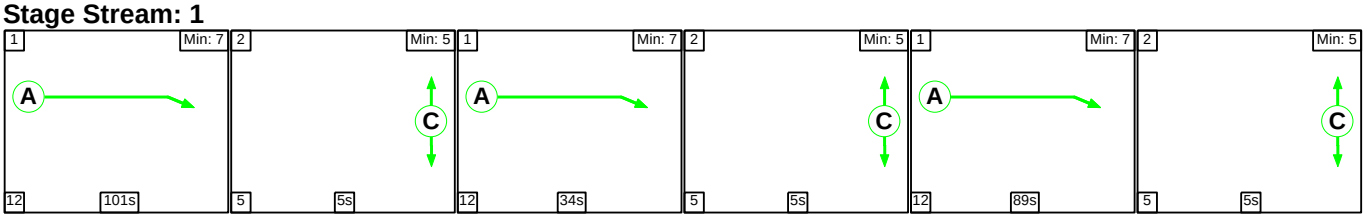
Signal Timings Diagram



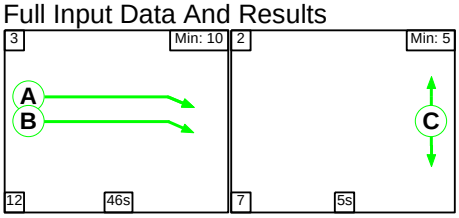
C2 - Pedestrian Crossing (across Digbeth B4100)

Stage Sequence Diagram

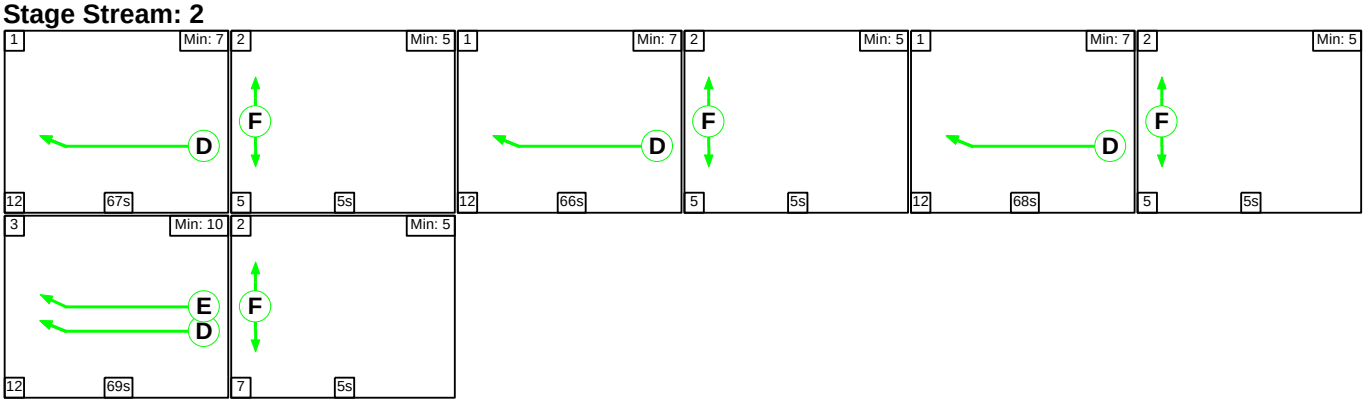
Stage Stream: 1



Full Input Data And Results



Stage Stream: 2



Stage Timings

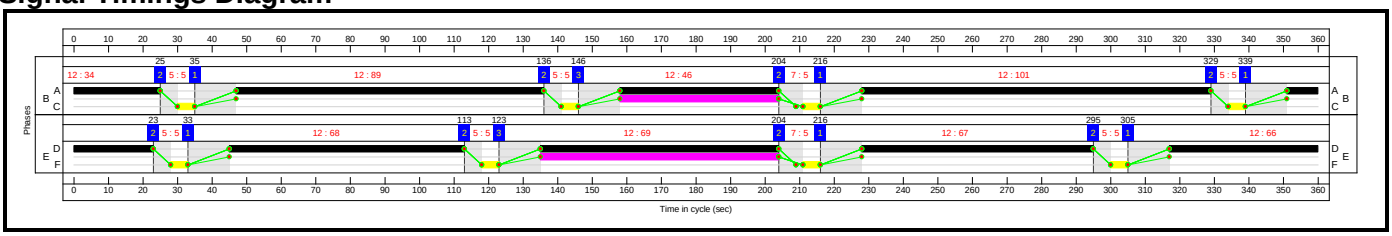
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	101	5	34	5	89	5	46	5
Change Point	216	329	339	25	35	136	146	204

Stage Stream: 2

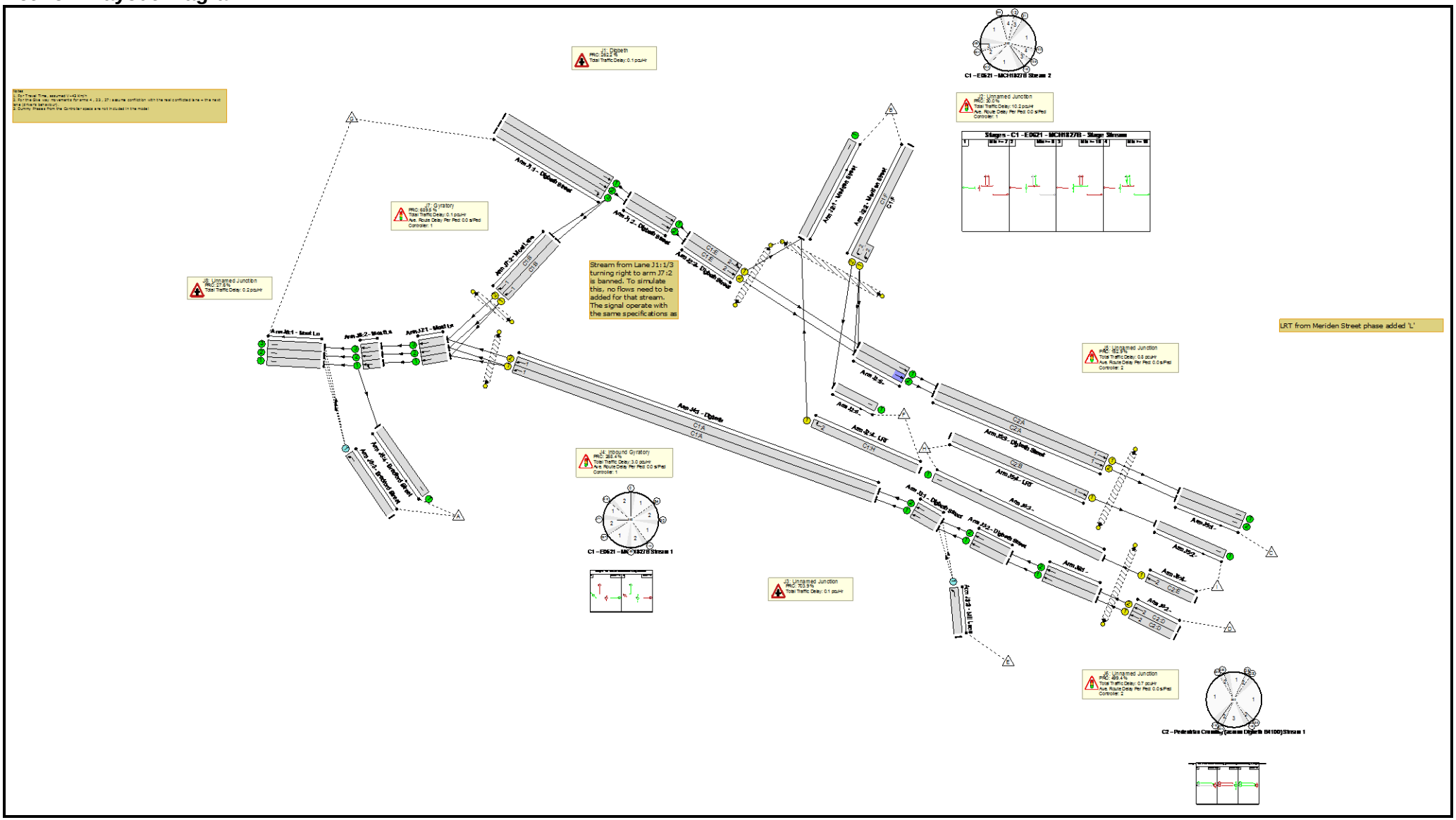
Stage	1	2	1	2	1	2	3	2
Duration	67	5	66	5	68	5	69	5
Change Point	216	295	305	23	33	113	123	204

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	-	-	**N/A**	-	-		-	-	-	-	-	-	**70.5%**
J1: Digbeth	-	-	**N/A**	-	-		-	-	-	-	-	-	**24.8%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	492	1980	1980	24.8%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	467	2120	2120	22.0%
1/3	Digbeth Street Right	U	N/A	N/A	-		-	-	-	0	2155	2155	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	492	Inf	Inf	0.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	467	Inf	Inf	0.0%
J2: Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**69.3%**
1/1	Meriden Street	U	N/A	N/A	-		-	-	-	163	Inf	Inf	0.0%
2/2+2/1	Meriden Street Left Left2	U	1:2	N/A	C1:F		3	63	-	218	2015:1717	0+315	0.0 : 69.3%
3/1	Digbeth Street Left Ahead	U	1:2	N/A	C1:E		3	181	-	492	1980	1012	48.6%
3/2	Digbeth Street Ahead	U	1:2	N/A	C1:E		3	181	-	467	2120	1084	43.1%
4/1	LRT Right	U	1:2	N/A	C1:H		2	38	-	0	2015	224	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	452	1935	1935	23.4%
5/2	Ahead	U	N/A	N/A	-		-	-	-	562	1935	1935	29.0%
6/1		U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:2	-	C1:J		3	30	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:I		3	122	-	0	-	0	0.0%

Full Input Data And Results

J3: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.2%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	220	1965	1965	11.2%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	220	2105	2105	10.5%
3/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	8	1739	618	1.3%
J4: Inbound Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**24.4%**
1/1	Digbeth Ahead	U	1:1	N/A	C1:A		4	164	-	224	1965	917	24.4%
1/2	Digbeth Ahead	U	1:1	N/A	C1:A		4	164	-	224	1965	917	24.4%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:D		4	136	-	0	-	0	0.0%
J5: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**35.6%**
1/1		U	N/A	N/A	-		-	-	-	452	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	562	Inf	Inf	0.0%
2/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	452	1935	1473	30.7%
3/2	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	562	2075	1579	35.6%
4/1	LRT Ahead	U	2:1	N/A	C2:B		1	46	-	0	2015	263	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:1	-	C2:C		4	20	-	0	-	0	0.0%
J6: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**15.0%**
1/1	Ahead	U	N/A	N/A	-		-	-	-	220	1965	1965	11.2%
1/2	Ahead	U	N/A	N/A	-		-	-	-	220	1965	1965	11.2%
2/1	Ahead	U	2:2	N/A	C2:D		4	270	-	220	1925	1465	15.0%
2/2	Ahead	U	2:2	N/A	C2:D		4	270	-	220	1925	1465	15.0%

Full Input Data And Results

3/1		U	N/A	N/A	-		-	-	-	0	1955	1955	0.0%
4/1	Ahead	U	2:2	N/A	C2:E		1	69	-	0	1955	380	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:F		4	20	-	0	-	0	0.0%
J7: Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**11.4%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	40	1965	1965	2.0%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	184	1965	1965	9.4%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	224	1965	1965	11.4%
2/1	Moat Lane Ahead	U	1:1	N/A	C1:B		4	116	-	0	1965	655	0.0%
2/2	Moat Lane Ahead	U	1:1	N/A	C1:B		4	116	-	0	1965	655	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:C		4	184	-	0	-	0	0.0%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**70.5%**
1/1	Moat Ln	U	N/A	N/A	-		-	-	-	170	1965	1965	8.7%
1/2	Moat Ln	U	N/A	N/A	-		-	-	-	345	2105	2105	16.4%
1/3	Moat Ln	U	N/A	N/A	-		-	-	-	375	2105	2105	17.8%
2/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	40	1965	1965	2.0%
2/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	184	2105	2105	8.7%
2/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	224	2105	2105	10.6%
3/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	444	1786	630	70.5%
4/1	Bradford Street	U	N/A	N/A	-		-	-	-	2	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**452**	**0**	**0**	**11.4**	**3.8**	**0.0**	**15.2**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	492	492	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	467	467	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
1/3	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	492	492	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	467	467	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**7.8**	**2.3**	**0.0**	**10.2**	**-**	**-**	**-**	**-**
1/1	163	163	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	218	218	-	-	-	2.8	1.1	-	3.9	64.1	7.0	1.1	8.1
3/1	492	492	-	-	-	2.6	0.5	-	3.1	22.6	10.8	0.5	11.3
3/2	467	467	-	-	-	2.4	0.4	-	2.8	21.3	9.9	0.4	10.2
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	452	452	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/2	562	562	-	-	-	0.1	0.2	-	0.3	1.7	0.9	0.2	1.1
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Unnamed Junction	**-**	**-**	**8**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	220	220	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/2	220	220	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	8	8	8	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J4: Inbound Gyratory	**-**	**-**	**0**	**0**	**0**	**2.7**	**0.3**	**0.0**	**3.0**	**-**	**-**	**-**	**-**
1/1	224	224	-	-	-	1.3	0.2	-	1.5	24.3	4.4	0.2	4.5
1/2	224	224	-	-	-	1.3	0.2	-	1.5	24.3	4.4	0.2	4.5
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.3**	**0.5**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	452	452	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	562	562	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	452	452	-	-	-	0.1	0.2	-	0.4	2.9	1.9	0.2	2.1
3/2	562	562	-	-	-	0.2	0.3	-	0.5	3.1	3.0	0.3	3.3
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.4**	**0.3**	**0.0**	**0.7**	**-**	**-**	**-**	**-**
1/1	220	220	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/2	220	220	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	220	220	-	-	-	0.2	0.1	-	0.3	4.4	1.5	0.1	1.6
2/2	220	220	-	-	-	0.2	0.1	-	0.3	4.4	1.5	0.1	1.6
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Gyratory	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	40	40	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0
1/2	184	184	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	224	224	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J8: Unnamed Junction	**-**	**-**	**444**	**0**	**0**	**0.2**	**0.0**	**0.0**	**0.2**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	170	170	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	375	375	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	40	40	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	184	184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	444	444	444	0	0	0.2	0.0	-	0.2	1.3	3.3	0.0	3.3
4/1	2	2	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 - E0621 - MCH1827B	Stream: 1	PRC for Signalled Lanes (%):	268.4	Total Delay for Signalled Lanes (pcuHr):	3.02
C1 - E0621 - MCH1827B	Stream: 2	PRC for Signalled Lanes (%):	30.0	Total Delay for Signalled Lanes (pcuHr):	9.73
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 1	PRC for Signalled Lanes (%):	152.9	Total Delay for Signalled Lanes (pcuHr):	0.84
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 2	PRC for Signalled Lanes (%):	499.4	Total Delay for Signalled Lanes (pcuHr):	0.53
		PRC Over All Lanes (%):	27.6	Total Delay Over All Lanes(pcuHr):	15.22

Cycle Time (s):	360
Cycle Time (s):	360
Cycle Time (s):	360
Cycle Time (s):	360

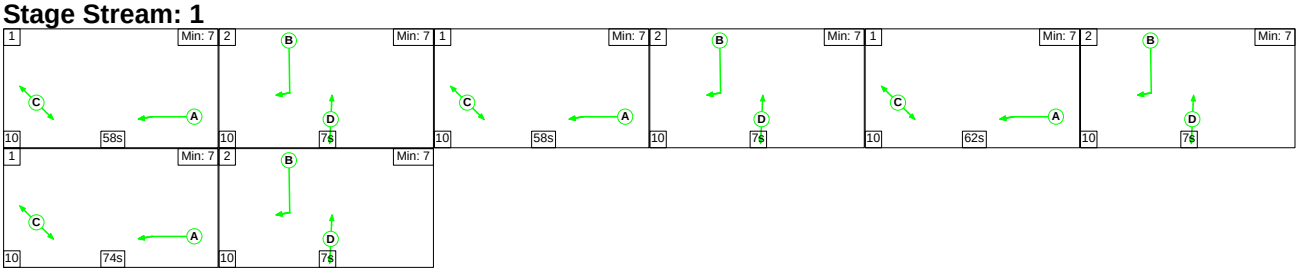
Full Input Data And Results

Scenario 4: '2031 DS PM(Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

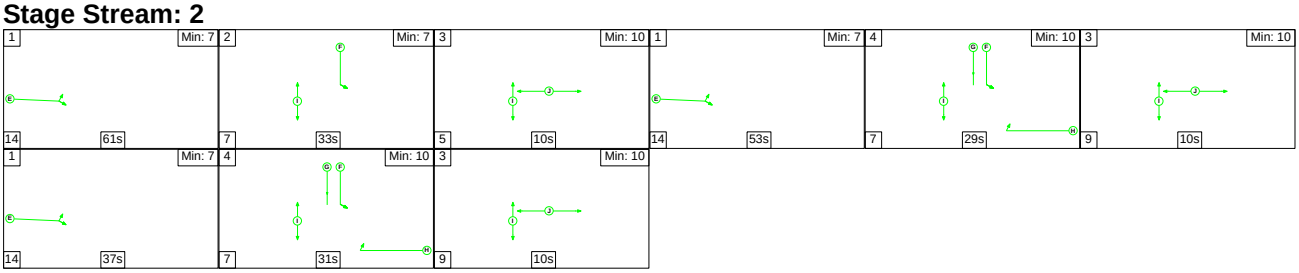
C1 - E0621 - MCH1827B

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

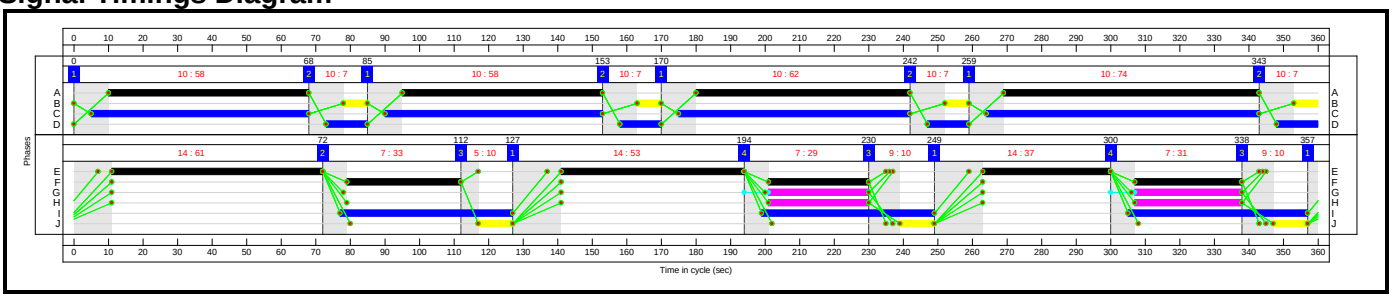
Stage Stream: 1

Stage	1	2	1	2	1	2	1	2
Duration	58	7	58	7	62	7	74	7
Change Point	0	68	85	153	170	242	259	343

Stage Stream: 2

Stage	1	2	3	1	4	3	1	4	3
Duration	61	33	10	53	29	10	37	31	10
Change Point	357	72	112	127	194	230	249	300	338

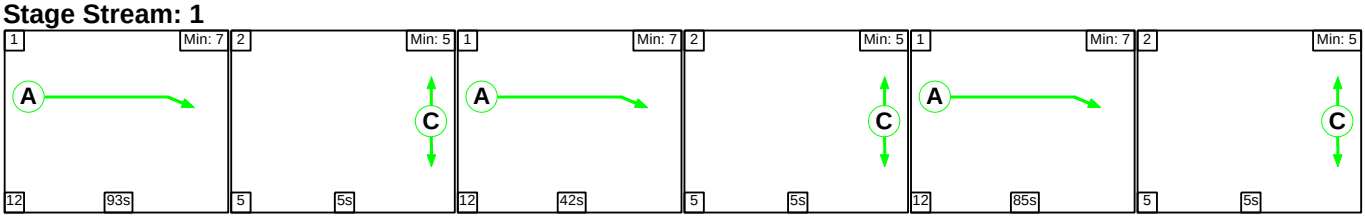
Signal Timings Diagram



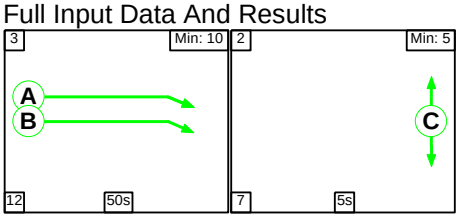
C2 - Pedestrian Crossing (across Digbeth B4100)

Stage Sequence Diagram

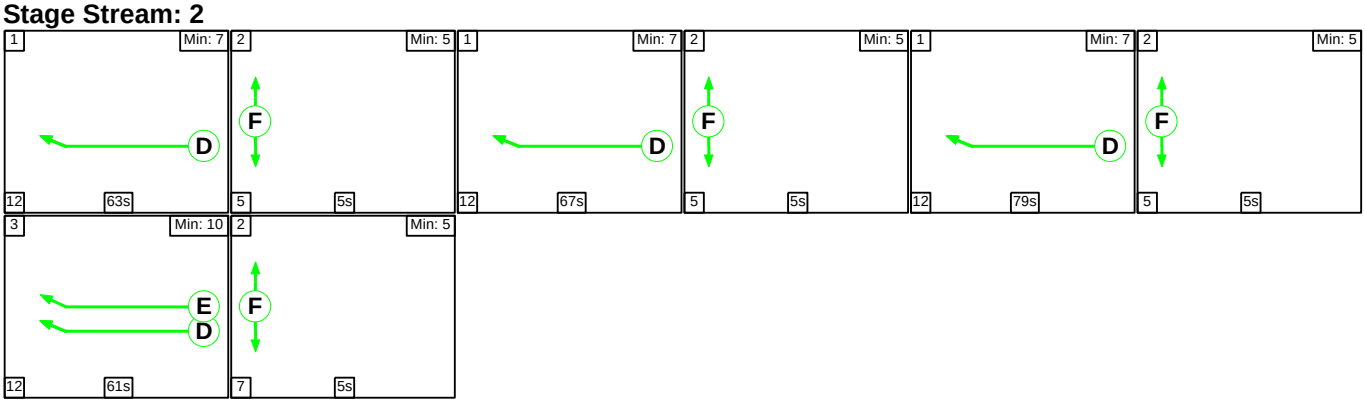
Stage Stream: 1



Full Input Data And Results



Stage Stream: 2



Stage Timings

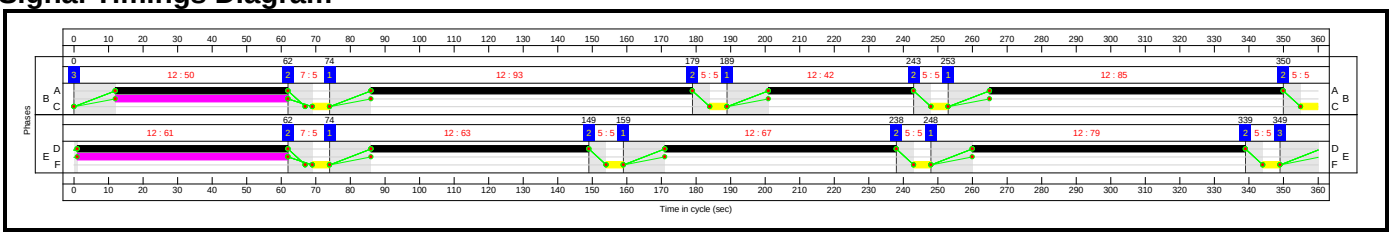
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	93	5	42	5	85	5	50	5
Change Point	74	179	189	243	253	350	0	62

Stage Stream: 2

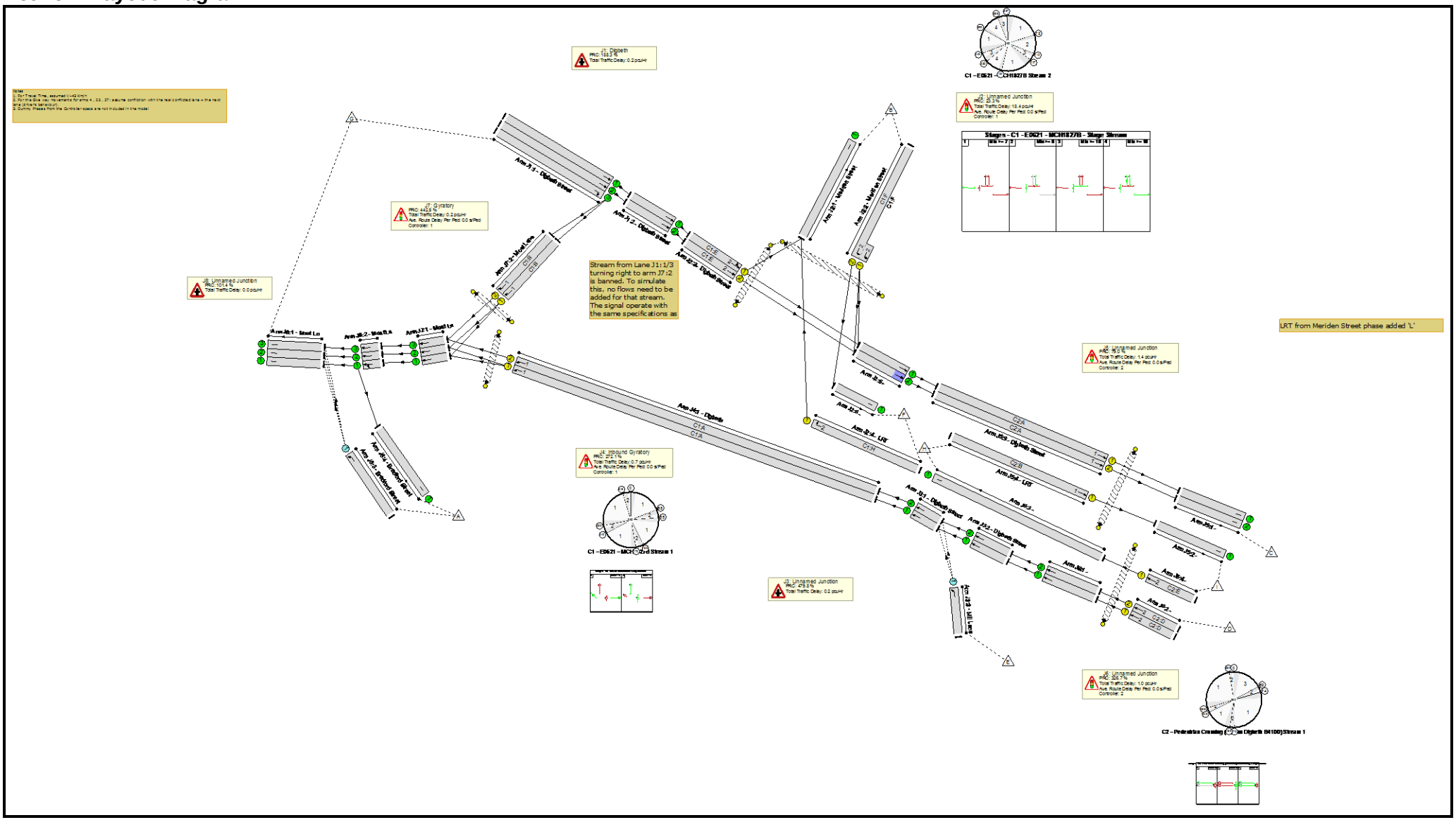
Stage	1	2	1	2	1	2	3	2
Duration	63	5	67	5	79	5	61	5
Change Point	74	149	159	238	248	339	349	62

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


J1: Digbeth
PRC: 100.0 %
Total Traffic Delay: 0.0 pcuHr
C1 – E0621 – MCH827/8 Stream 2
J2: Unnamed Junction
PRC: 29.3 %
Total Traffic Delay: 18.4 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
Controller: 1
Stages - C1 - E0621 - MCH827/8 - Stage Stream
J7: Gyratory
PRC: 44.6 %
Total Traffic Delay: 0.2 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
Controller: 1
Arm J3.1 - Digbeth Street
Arm J3.2 - Digbeth Street
Arm J3.3a - Digbeth Street
Arm J3.3 - Digbeth Street
Arm J2.1 - Moseley Street
Arm J2.2 - Moseley Street
C1E
C1F
Arm J7.3 - Moat Lane
Arm J7.2 - Moat Lane
C1B
C1C
J8: Unnamed Junction
PRC: 101.4 %
Total Traffic Delay: 0.0 pcuHr
Stream from Lane J1:1/3 turning right to arm J7:2 is banned. To simulate this, no flows need to be added for that stream. The signal operate with the same specifications as
LRT from Meriden Street phase added 'L'
Arm J8.1 - Moat Lane
Arm J8.2 - Moat Lane
Arm J7.1 - Moat Lane
J4: Unnamed Junction
PRC: 79.0 %
Total Traffic Delay: 1.4 pcuHr
Ave. Route Delay Per Ped: 0.0 s/Ped
Controller: 2
Arm J4.1 - Digbeth
Arm J4.2 -
Arm J4.3 - LRT
C1A
C1H
C2A
C2B
C2C
C2D
C2E
Arm J4.4 - LRT
Arm J4.5 - Digbeth Street
Arm J4.6 - Digbeth Street
Arm J4.7 - Digbeth Street
Arm J4.8 - Digbeth Street
Arm J4.9 - Digbeth Street
Arm J4.10 - Digbeth Street
Arm J4.11 - Digbeth Street
Arm J4.12 - Digbeth Street
Arm J4.13 - Digbeth Street
Arm J4.14 - Digbeth Street
Arm J4.15 - Digbeth Street
Arm J4.16 - Digbeth Street
Arm J4.17 - Digbeth Street
Arm

Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.0%**
J1: Digbeth	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.2%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	618	1980	1980	31.2%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	648	2120	2120	30.6%
1/3	Digbeth Street Right	U	N/A	N/A	-		-	-	-	0	2155	2155	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	618	Inf	Inf	0.0%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	648	Inf	Inf	0.0%
J2: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.0%**
1/1	Meriden Street	U	N/A	N/A	-		-	-	-	155	Inf	Inf	0.0%
2/2+2/1	Meriden Street Left Left2	U	1:2	N/A	C1:F		3	93	-	332	2015:1717	0+458	0.0 : 72.5%
3/1	Digbeth Street Left Ahead	U	1:2	N/A	C1:E		3	151	-	618	1980	847	73.0%
3/2	Digbeth Street Ahead	U	1:2	N/A	C1:E		3	151	-	648	2120	907	71.5%
4/1	LRT Right	U	1:2	N/A	C1:H		2	60	-	0	2015	347	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	649	1935	1935	33.5%
5/2	Ahead	U	N/A	N/A	-		-	-	-	794	1935	1935	41.0%
6/1		U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:2	-	C1:J		3	30	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:I		3	152	-	0	-	0	0.0%

Full Input Data And Results

J3: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**15.5%**
1/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	338	Inf	Inf	0.0%
1/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	326	Inf	Inf	0.0%
2/1	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	305	1965	1965	15.5%
2/2	Digbeth Street Ahead	U	N/A	N/A	-		-	-	-	309	2105	2105	14.7%
3/1	Mill Lane Left	O	N/A	N/A	-		-	-	-	50	1739	581	8.6%
J4: Inbound Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**24.2%**
1/1	Digbeth Ahead	U	1:1	N/A	C1:A		4	252	-	338	1965	1397	24.2%
1/2	Digbeth Ahead	U	1:1	N/A	C1:A		4	252	-	326	1965	1397	23.3%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:D		4	48	-	0	-	0	0.0%
J5: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.3%**
1/1		U	N/A	N/A	-		-	-	-	649	Inf	Inf	0.0%
1/2		U	N/A	N/A	-		-	-	-	794	Inf	Inf	0.0%
2/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
3/1	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	649	1935	1473	44.1%
3/2	Digbeth Street Ahead	U	2:1	N/A	C2:A		4	270	-	794	2075	1579	50.3%
4/1	LRT Ahead	U	2:1	N/A	C2:B		1	50	-	0	2015	285	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:1	-	C2:C		4	20	-	0	-	0	0.0%
J6: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**21.1%**
1/1	Ahead	U	N/A	N/A	-		-	-	-	305	1965	1965	15.5%
1/2	Ahead	U	N/A	N/A	-		-	-	-	309	1965	1965	15.7%
2/1	Ahead	U	2:2	N/A	C2:D		4	270	-	305	1925	1465	20.8%
2/2	Ahead	U	2:2	N/A	C2:D		4	270	-	309	1925	1465	21.1%

Full Input Data And Results

3/1		U	N/A	N/A	-		-	-	-	0	1955	1955	0.0%
4/1	Ahead	U	2:2	N/A	C2:E		1	61	-	0	1955	337	0.0%
Ped Link: P1	Unnamed Ped Link	-	2:2	-	C2:F		4	20	-	0	-	0	0.0%
J7: Gyratory	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**16.6%**
1/1	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	152	1965	1965	7.7%
1/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	186	1965	1965	9.5%
1/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	326	1965	1965	16.6%
2/1	Moat Lane Ahead	U	1:1	N/A	C1:B		4	28	-	0	1965	175	0.0%
2/2	Moat Lane Ahead	U	1:1	N/A	C1:B		4	28	-	0	1965	175	0.0%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:C		4	272	-	0	-	0	0.0%
J8: Unnamed Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.7%**
1/1	Moat Ln	U	N/A	N/A	-		-	-	-	182	1965	1965	9.3%
1/2	Moat Ln	U	N/A	N/A	-		-	-	-	319	2105	2105	15.2%
1/3	Moat Ln	U	N/A	N/A	-		-	-	-	386	2105	2105	18.3%
2/1	Moat Ln Ahead Left	U	N/A	N/A	-		-	-	-	152	1965	1965	7.7%
2/2	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	186	2105	2105	8.8%
2/3	Moat Ln Ahead	U	N/A	N/A	-		-	-	-	326	2105	2105	15.5%
3/1	Bradford Street Left	O	N/A	N/A	-		-	-	-	265	1786	593	44.7%
4/1	Bradford Street	U	N/A	N/A	-		-	-	-	42	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Meriden Street (Including Moat Lane Gyratory)	**-**	**-**	**315**	**0**	**0**	**15.4**	**6.7**	**0.0**	**22.1**	**-**	**-**	**-**	**-**
J1: Digbeth	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	618	618	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	648	648	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
1/3	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	618	618	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	648	648	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**14.0**	**4.5**	**0.0**	**18.4**	**-**	**-**	**-**	**-**
1/1	155	155	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2+2/1	332	332	-	-	-	3.7	1.3	-	5.0	54.5	11.3	1.3	12.6
3/1	618	618	-	-	-	4.9	1.3	-	6.2	36.3	17.3	1.3	18.7
3/2	648	648	-	-	-	5.1	1.2	-	6.3	35.2	18.0	1.2	19.2
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	649	649	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
5/2	794	794	-	-	-	0.2	0.3	-	0.6	2.6	8.5	0.3	8.9
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J3: Unnamed Junction	**-**	**-**	**50**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	338	338	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	305	305	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/2	309	309	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
3/1	50	50	50	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J4: Inbound Gyratory	**-**	**-**	**0**	**0**	**0**	**0.4**	**0.3**	**0.0**	**0.7**	**-**	**-**	**-**	**-**
1/1	338	338	-	-	-	0.2	0.2	-	0.4	3.8	1.2	0.2	1.4
1/2	326	326	-	-	-	0.2	0.2	-	0.3	3.7	0.9	0.2	1.1
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J5: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.5**	**0.9**	**0.0**	**1.4**	**-**	**-**	**-**	**-**
1/1	649	649	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	794	794	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	649	649	-	-	-	0.2	0.4	-	0.6	3.4	5.5	0.4	5.8
3/2	794	794	-	-	-	0.3	0.5	-	0.8	3.6	4.9	0.5	5.4
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J6: Unnamed Junction	**-**	**-**	**0**	**0**	**0**	**0.5**	**0.5**	**0.0**	**1.0**	**-**	**-**	**-**	**-**
1/1	305	305	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
1/2	309	309	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/1	305	305	-	-	-	0.3	0.1	-	0.4	4.6	2.3	0.1	2.4
2/2	309	309	-	-	-	0.3	0.1	-	0.4	4.6	2.3	0.1	2.5
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J7: Gyratory	**-**	**-**	**0**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	152	152	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
1/2	186	186	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
1/3	326	326	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
2/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
J8: Unnamed Junction	**-**	**-**	**265**	**0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**-**	**-**	**-**

Full Input Data And Results

1/1	182	182	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/2	319	319	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
1/3	386	386	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	152	152	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	186	186	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/3	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	265	265	265	0	0	0.0	0.0	-	0.0	0.1	0.5	0.0	0.5
4/1	42	42	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

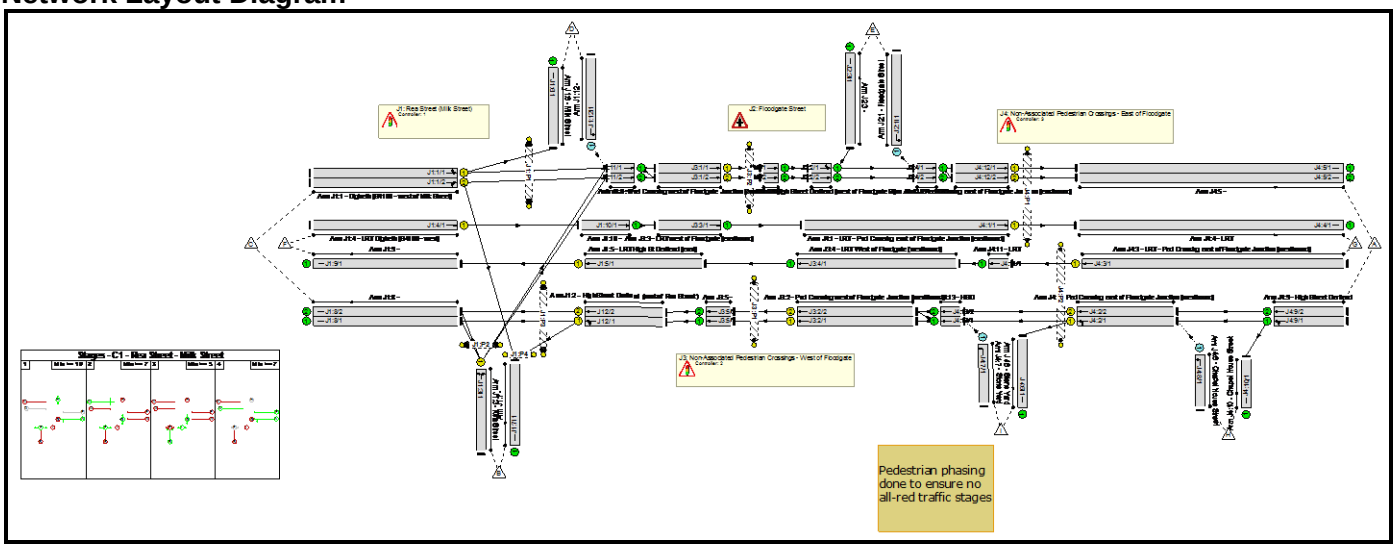
C1 - E0621 - MCH1827B	Stream: 1 PRC for Signalled Lanes (%):	272.1	Total Delay for Signalled Lanes (pcuHr):	0.70	Cycle Time (s): 360
C1 - E0621 - MCH1827B	Stream: 2 PRC for Signalled Lanes (%):	23.3	Total Delay for Signalled Lanes (pcuHr):	17.60	Cycle Time (s): 360
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 1 PRC for Signalled Lanes (%):	79.0	Total Delay for Signalled Lanes (pcuHr):	1.40	Cycle Time (s): 360
C2 - Pedestrian Crossing (across Digbeth B4100)	Stream: 2 PRC for Signalled Lanes (%):	326.7	Total Delay for Signalled Lanes (pcuHr):	0.79	Cycle Time (s): 360
	PRC Over All Lanes (%):	23.3	Total Delay Over All Lanes(pcuHr):	22.09	

Full Input Data And Results

User and Project Details

Project:	**BEE**
Title:	**High Street Deritend / Rea Street (including Milk Street and Floodgate Street)**
Location:	High Street Deritend
File name:	High Street Deritend - Rea Street.lsg3x
Author:	W Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham
Notes:	Do Something

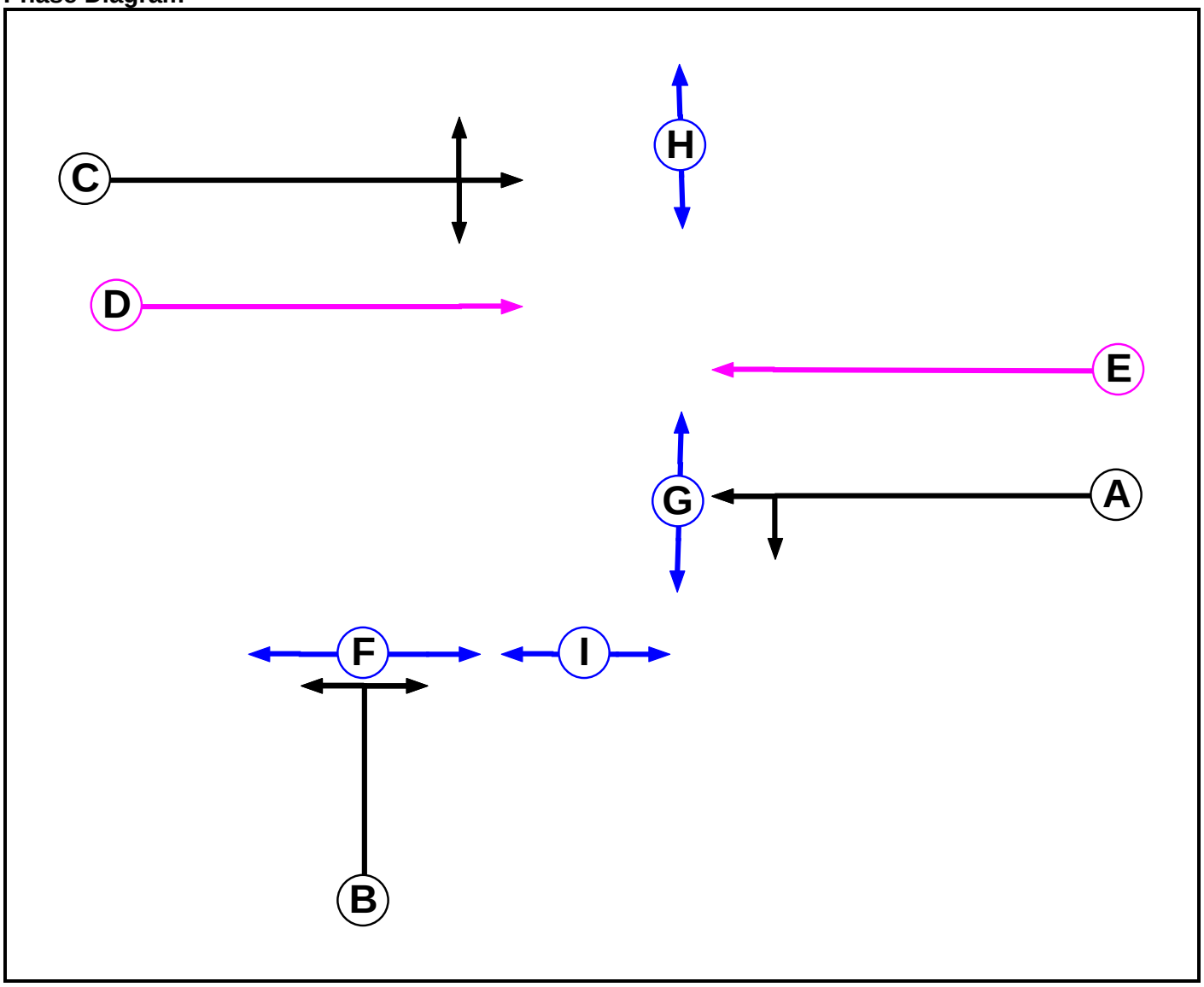
Network Layout Diagram



Full Input Data And Results

C1 - Rea Street - Milk Street

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	LRT		10	10
E	LRT		10	10
F	Pedestrian		10	10
G	Pedestrian		10	10
H	Pedestrian		10	10
I	Pedestrian		5	5

Full Input Data And Results

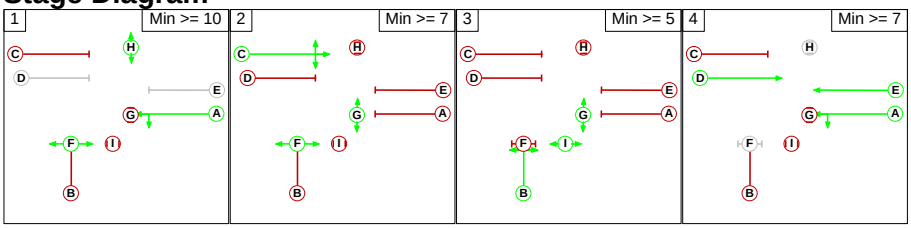
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I
A		6	5	-	-	-	5	-	6
B	5		6	6	5	5	-	9	-
C	7	5		5	5	-	-	8	9
D	-	6	6		-	-	-	-	-
E	-	7	7	-		-	-	-	-
F	-	7	-	-	-		-	-	-
G	8	-	-	-	-	-		-	-
H	-	8	8	-	-	-	-		-
I	8	-	8	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A F H
2	C F G
3	B G I
4	A D E

Stage Diagram



Phase Delays

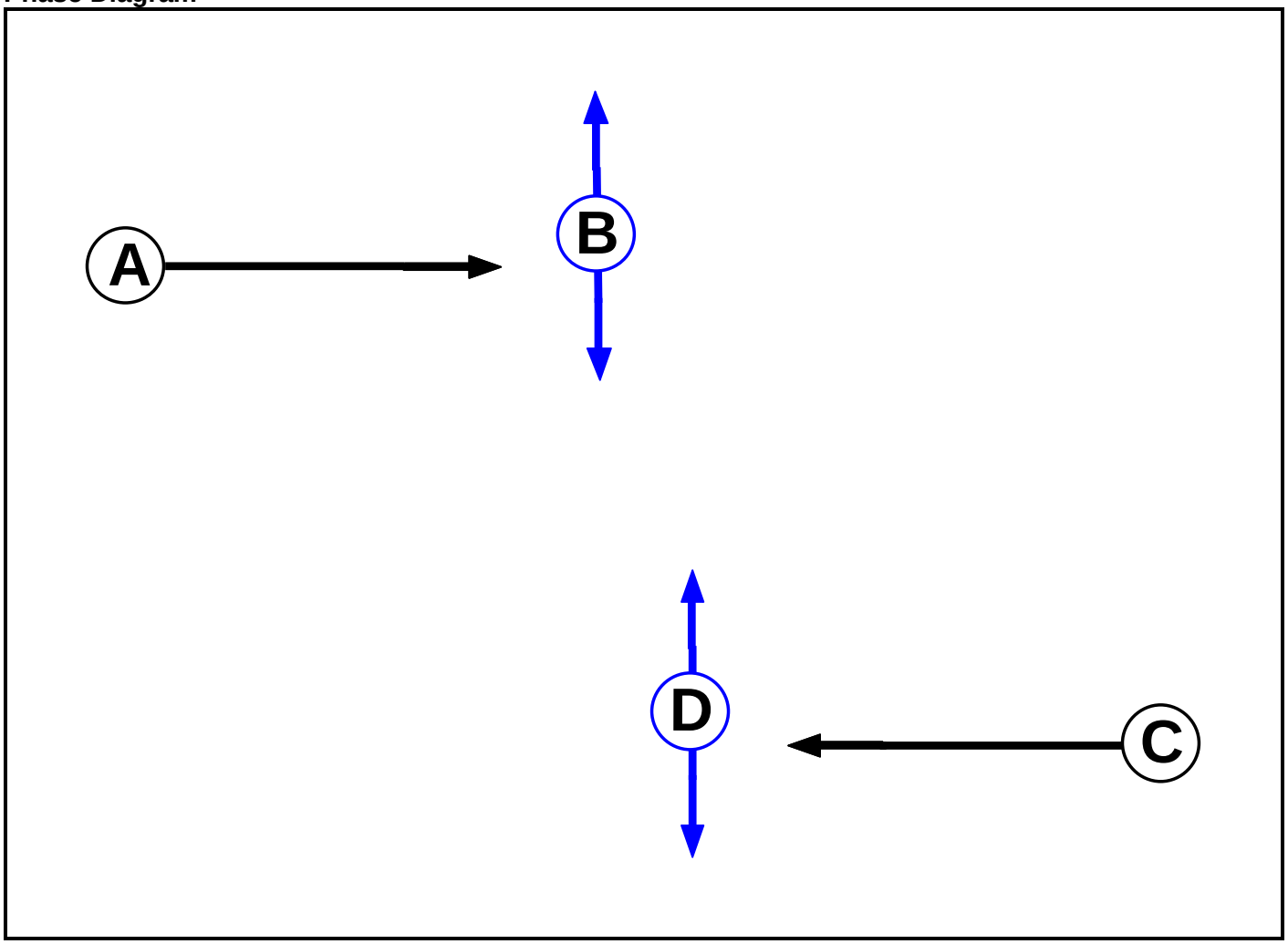
Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4
1		8	8	2
2	8		9	8
3	9	8		8
4	0	7	7	

C2 - Ped West of Floodgate

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Pedestrian	1		10	10
C	Traffic	2		7	7
D	Pedestrian	2		10	10

Full Input Data And Results

Phase Intergreens Matrix

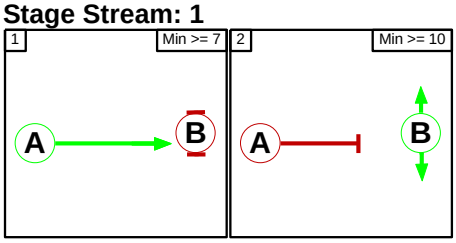
Terminating Phase	Starting Phase			
	A	B	C	D
A		5	-	-
B	9		-	-
C	-	-		5
D	-	-	9	

Phases in Stage

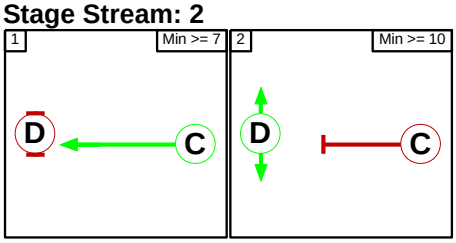
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage		
		1	2
	1		5
	2	9	

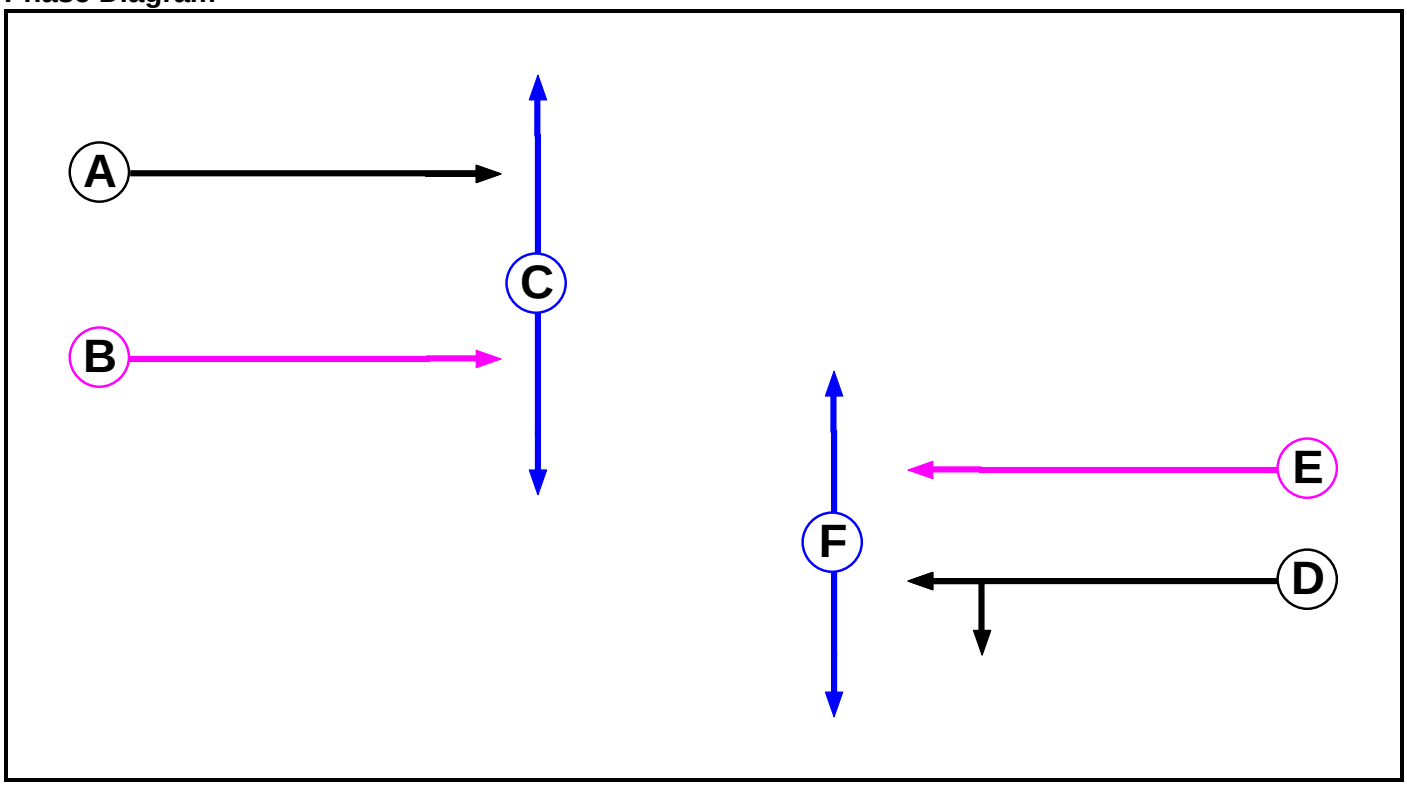
Full Input Data And Results

Stage Stream: 2

	To Stage		
From Stage		1	2
	1		5
	2	9	

C3 - Ped East of Floodgate

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	LRT	1		7	7
C	Pedestrian	1		10	10
D	Traffic	2		7	7
E	LRT	2		7	7
F	Pedestrian	2		10	10

Full Input Data And Results

Phase Intergreens Matrix

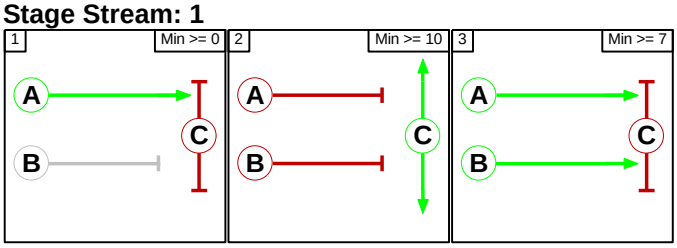
Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		-	5	-	-	-
B	-		7	-	-	-
C	13	13		-	-	-
D	-	-	-		-	5
E	-	-	-	-		7
F	-	-	-	12	12	

Phases in Stage

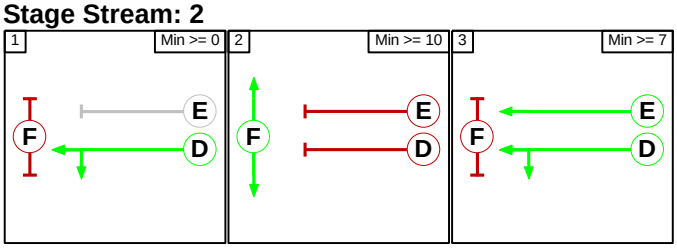
Stream	Stage No.	Phases in Stage
1	1	A
1	2	C
1	3	A B
2	1	D
2	2	F
2	3	D E

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

	To Stage			
		1	2	3
From Stage	1		5	2
	2	13		13
	3	0	7	

Stage Stream: 2

	To Stage			
		1	2	3
From Stage	1		5	2
	2	12		12
	3	0	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Rea Street (Milk Street)											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J1:12/1	J1:11/1 (Left)	1439	0	J1:1/1	1.09	To J1:11/1 (Ahead)	-	-	-	-	-
				J1:3/1	1.09	To J1:11/1 (Right)					

Junction: J2: Floodgate Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/1 (Floodgate Street)	J2:4/1 (Left)	715	0	J2:2/1	0.22	To J2:4/1 (Ahead)	-	-	-	-	-

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate
There are no Opposed Lanes in this Junction

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J4:7/1 (Stone Yard)	J4:13/1 (Left)	715	0	J4:2/1	0.22	To J4:13/1 (Ahead)	-	-	-	-	-
J4:8/1 (Chapel House Street)	J4:2/1 (Left)	715	0	J4:9/1	0.22	To J4:2/1 (Ahead)	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: J1: Rea Street (Milk Street)												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	U	C	2	3	22.6	Geom	-	3.10	0.00	Y	Arm J1:6 Left	11.00
											Arm J1:11 Ahead	Inf
J1:1/2 (Digbeth (B4100 - west of Milk Street))	U	C	2	3	22.6	Geom	-	3.10	0.00	Y	Arm J1:7 Right	18.00
											Arm J1:11 Ahead	Inf
J1:2/1 (High Street Deritend (east of Rea Street))	U	A	2	3	8.7	Geom	-	3.10	0.00	Y	Arm J1:7 Left	12.00
											Arm J1:8 Ahead	Inf
J1:2/2 (High Street Deritend (east of Rea Street))	U	A	2	3	8.7	Geom	-	3.10	0.00	N	Arm J1:8 Ahead	Inf
J1:3/1 (Rea Street)	U	B	2	3	60.0	Geom	-	4.00	0.00	Y	Arm J1:8 Left	13.00
											Arm J1:11 Right	Inf
J1:4/1 (LRT Digbeth (B4100 - west))	U	D	2	3	20.0	Geom	-	4.00	0.00	Y	Arm J1:10 Ahead	Inf
J1:5/1 (LRT High St Deritend (east))	U	E	2	3	8.7	Geom	-	4.00	0.00	Y	Arm J1:9 Ahead	Inf
J1:6/1 (Milk Street)	U		2	3	15.7	Inf	-	-	-	-	-	-
J1:7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:8/1	U		2	3	34.8	Inf	-	-	-	-	-	-
J1:8/2	U		2	3	34.8	Inf	-	-	-	-	-	-
J1:9/1	U		2	3	20.0	Inf	-	-	-	-	-	-
J1:10/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:11/1	U		2	3	8.7	Inf	-	-	-	-	-	-
J1:11/2	U		2	3	8.7	Inf	-	-	-	-	-	-
J1:12/1	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm J1:11 Left	7.00

Full Input Data And Results

Junction: J2: Floodgate Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J2:1/1 (Floodgate Street)	O		2	3	78.3	Geom	-	4.00	0.00	Y	Arm J2:4 Left	12.50
J2:2/1 (High Street Deritend (west of Floodgate St))	U		2	3	1.7	Inf	-	-	-	-	-	-
J2:2/2 (High Street Deritend (west of Floodgate St))	U		2	3	1.7	Inf	-	-	-	-	-	-
J2:3/1	U		2	3	78.3	Inf	-	-	-	-	-	-
J2:4/1 (HSD)	U		2	3	0.2	Inf	-	-	-	-	-	-
J2:4/2 (HSD)	U		2	3	0.2	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	U	A	2	3	12.2	Geom	-	3.00	0.00	Y	Arm J3:6 Ahead	Inf
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	U	A	2	3	12.2	Geom	-	3.50	0.00	Y	Arm J3:6 Ahead	Inf
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	U	C	2	3	10.4	Geom	-	3.10	0.00	Y	Arm J3:5 Ahead	Inf
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	U	C	2	3	10.4	Geom	-	3.10	0.00	N	Arm J3:5 Ahead	Inf
J3:3/1 (LRT west of Floodgate (eastbound))	U		2	3	8.7	Geom	-	4.00	0.00	Y	Arm J4:1 Ahead	Inf
J3:4/1 (LRT West of Floodgate (westbound))	U		2	3	9.6	Geom	-	4.00	0.00	Y	Arm J1:5 Ahead	Inf
J3:5/1	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:5/2	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	U	B	2	3	9.6	Geom	-	4.00	0.00	Y	Arm J4:4 Ahead	Inf
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	U	D	2	3	17.4	Geom	-	3.10	0.00	Y	Arm J4:6 Left	Inf
											Arm J4:13 Ahead	Inf
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	U	D	2	3	17.4	Geom	-	3.10	0.00	N	Arm J4:13 Ahead	Inf
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	U	E	2	3	60.0	Geom	-	4.00	0.00	Y	Arm J4:11 Ahead	Inf
J4:4/1 (LRT)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:6/1 (Stone Yard)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:7/1 (Stone Yard)	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm J4:13 Left	8.50
J4:8/1 (Chapel House Street)	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm J4:2 Left	7.60
J4:9/1 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:9/2 (High Street Deritend)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:10/1 (Chapel House Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J4:11/1 (LRT)	U		2	3	0.2	Inf	-	-	-	-	-	-
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	U	A	2	3	5.2	Geom	-	3.15	0.00	Y	Arm J4:5 Ahead	Inf

J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	U	A	2	3	5.2	Geom	-	3.15	0.00	N	Arm J4:5 Ahead	Inf
J4:13/1 (HSD)	U		2	3	0.2	Inf	-	-	-	-	-	-
J4:13/2 (HSD)	U		2	3	0.2	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	134	431	0	0	0	0	7	0	572
	B	0	0	50	0	0	0	0	0	0	50
	C	242	547	0	100	70	0	0	0	0	959
	D	65	0	0	0	12	0	0	0	0	77
	E	12	0	0	0	0	0	0	0	0	12
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	319	681	481	100	82	0	0	7	0	1670

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 AM DS (Standard PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	402
J1:1/2	557
J1:2/1	255
J1:2/2	310
J1:3/1	50
J1:4/1	0
J1:5/1	0
J1:6/1	100
J1:7/1	681
J1:8/1	146
J1:8/2	335
J1:9/1	0
J1:10/1	0
J1:11/1	379
J1:11/2	10
J1:12/1	77
Junction: J2: Floodgate Street	
J2:1/1	12
J2:2/1	214
J2:2/2	175
J2:3/1	82
J2:4/1	144
J2:4/2	175
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	214
J3:1/2	175
J3:2/1	255
J3:2/2	310
J3:3/1	0
J3:4/1	0
J3:5/1	255
J3:5/2	310
J3:6/1	214
J3:6/2	175
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	255
J4:2/2	310
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	130
J4:5/2	189
J4:6/1	0
J4:7/1	0
J4:8/1	0
J4:9/1	262
J4:9/2	310
J4:10/1	7
J4:11/1	0
J4:12/1	130
J4:12/2	189
J4:13/1	255
J4:13/2	310

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	24.9 %	1862	1862
				Arm J1:11 Ahead	Inf	75.1 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	98.2 %	1779	1779
				Arm J1:11 Ahead	Inf	1.8 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	52.5 %	1806	1806
				Arm J1:8 Ahead	Inf	47.5 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	0.0 %	1965	1965
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	0.0 %	1965	1965
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	89	335	0	0	0	0	89	0	513
	B	0	0	189	0	0	0	0	0	0	189
	C	632	649	0	81	73	0	0	0	0	1435
	D	115	0	0	0	8	0	0	0	0	123
	E	256	0	0	0	0	0	0	0	0	256
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	10	41	0	0	0	0	0	0	51
	I	0	3	14	0	0	0	0	0	0	17
	Tot.	1003	751	579	81	81	0	0	89	0	2584

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 PM DS (Standard PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	717
J1:1/2	718
J1:2/1	226
J1:2/2	266
J1:3/1	189
J1:4/1	0
J1:5/1	0
J1:6/1	81
J1:7/1	751
J1:8/1	219
J1:8/2	360
J1:9/1	0
J1:10/1	0
J1:11/1	759
J1:11/2	69
J1:12/1	123
Junction: J2: Floodgate Street	
J2:1/1	256
J2:2/1	459
J2:2/2	369
J2:3/1	81
J2:4/1	634
J2:4/2	369
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	459
J3:1/2	369
J3:2/1	226
J3:2/2	266
J3:3/1	0
J3:4/1	0
J3:5/1	226
J3:5/2	266
J3:6/1	459
J3:6/2	369
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	245
J4:2/2	230
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	468
J4:5/2	535
J4:6/1	0
J4:7/1	17
J4:8/1	51
J4:9/1	283
J4:9/2	230
J4:10/1	89
J4:11/1	0
J4:12/1	468
J4:12/2	535
J4:13/1	262
J4:13/2	230

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	11.3 %	1896	1896
				Arm J1:11 Ahead	Inf	88.7 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	90.4 %	1790	1790
				Arm J1:11 Ahead	Inf	9.6 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	45.1 %	1822	1822
				Arm J1:8 Ahead	Inf	54.9 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	100.0 %	1670	1670
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	100.0 %	1641	1641
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	188	370	0	0	0	0	7	0	565
	B	0	0	45	0	0	0	0	0	0	45
	C	235	538	0	102	68	0	0	0	0	943
	D	76	0	0	0	16	0	0	0	0	92
	E	71	0	0	0	0	0	0	0	0	71
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	2	5	0	0	0	0	0	0	7
	I	0	1	3	0	0	0	0	0	0	4
	Tot.	382	729	423	102	84	0	0	7	0	1727

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 AM DS (Standard PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	392
J1:1/2	551
J1:2/1	252
J1:2/2	317
J1:3/1	45
J1:4/1	0
J1:5/1	0
J1:6/1	102
J1:7/1	729
J1:8/1	84
J1:8/2	339
J1:9/1	0
J1:10/1	0
J1:11/1	382
J1:11/2	13
J1:12/1	92
Junction: J2: Floodgate Street	
J2:1/1	71
J2:2/1	239
J2:2/2	156
J2:3/1	84
J2:4/1	226
J2:4/2	156
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	239
J3:1/2	156
J3:2/1	252
J3:2/2	317
J3:3/1	0
J3:4/1	0
J3:5/1	252
J3:5/2	317
J3:6/1	239
J3:6/2	156
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	258
J4:2/2	307
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	158
J4:5/2	224
J4:6/1	0
J4:7/1	4
J4:8/1	7
J4:9/1	258
J4:9/2	307
J4:10/1	7
J4:11/1	0
J4:12/1	158
J4:12/2	224
J4:13/1	262
J4:13/2	307

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	26.0 %	1859	1859
				Arm J1:11 Ahead	Inf	74.0 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	97.6 %	1780	1780
				Arm J1:11 Ahead	Inf	2.4 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	75.8 %	1758	1758
				Arm J1:8 Ahead	Inf	24.2 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	100.0 %	1670	1670
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	100.0 %	1641	1641
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	92	353	0	0	0	0	89	0	534
	B	0	0	183	0	0	0	0	0	0	183
	C	593	678	0	86	77	0	0	0	0	1434
	D	120	0	0	0	9	0	0	0	0	129
	E	286	0	0	0	0	0	0	0	0	286
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	11	45	0	0	0	0	0	0	56
	I	0	3	15	0	0	0	0	0	0	18
	Tot.	999	784	596	86	86	0	0	89	0	2640

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 PM DS (Standard PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	712
J1:1/2	722
J1:2/1	238
J1:2/2	281
J1:3/1	183
J1:4/1	0
J1:5/1	0
J1:6/1	86
J1:7/1	784
J1:8/1	224
J1:8/2	372
J1:9/1	0
J1:10/1	0
J1:11/1	755
J1:11/2	44
J1:12/1	129
Junction: J2: Floodgate Street	
J2:1/1	286
J2:2/1	450
J2:2/2	349
J2:3/1	86
J2:4/1	650
J2:4/2	349
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	450
J3:1/2	349
J3:2/1	238
J3:2/2	281
J3:3/1	0
J3:4/1	0
J3:5/1	238
J3:5/2	281
J3:6/1	450
J3:6/2	349
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	260
J4:2/2	241
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	465
J4:5/2	534
J4:6/1	0
J4:7/1	18
J4:8/1	56
J4:9/1	293
J4:9/2	241
J4:10/1	89
J4:11/1	0
J4:12/1	465
J4:12/2	534
J4:13/1	278
J4:13/2	241

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	12.1 %	1894	1894
				Arm J1:11 Ahead	Inf	87.9 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	93.9 %	1785	1785
				Arm J1:11 Ahead	Inf	6.1 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	44.5 %	1823	1823
				Arm J1:8 Ahead	Inf	55.5 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	100.0 %	1670	1670
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	100.0 %	1641	1641
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2026 AM DS (Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	136	524	0	0	0	0	7	0	667
	B	0	0	51	0	0	0	0	0	0	51
	C	330	623	0	102	75	0	0	0	0	1130
	D	68	0	0	0	9	0	0	0	0	77
	E	13	0	0	0	0	0	0	0	0	13
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0
	Tot.	411	759	575	102	84	0	0	7	0	1938

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 AM DS (Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	499
J1:1/2	631
J1:2/1	302
J1:2/2	358
J1:3/1	51
J1:4/1	0
J1:5/1	0
J1:6/1	102
J1:7/1	759
J1:8/1	192
J1:8/2	383
J1:9/1	0
J1:10/1	0
J1:11/1	474
J1:11/2	8
J1:12/1	77
Junction: J2: Floodgate Street	
J2:1/1	13
J2:2/1	268
J2:2/2	214
J2:3/1	84
J2:4/1	197
J2:4/2	214
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	268
J3:1/2	214
J3:2/1	302
J3:2/2	358
J3:3/1	0
J3:4/1	0
J3:5/1	302
J3:5/2	358
J3:6/1	268
J3:6/2	214
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	305
J4:2/2	355
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	180
J4:5/2	231
J4:6/1	0
J4:7/1	0
J4:8/1	0
J4:9/1	312
J4:9/2	355
J4:10/1	7
J4:11/1	0
J4:12/1	180
J4:12/2	231
J4:13/1	305
J4:13/2	355

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	20.4 %	1873	1873
				Arm J1:11 Ahead	Inf	79.6 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	98.7 %	1779	1779
				Arm J1:11 Ahead	Inf	1.3 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	45.0 %	1822	1822
				Arm J1:8 Ahead	Inf	55.0 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	0.0 %	1965	1965
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	0.0 %	1965	1965
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 6: '2026 PM DS (Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	92	421	0	0	0	0	89	0	602
	B	0	0	191	0	0	0	0	0	0	191
	C	721	721	0	82	75	0	0	0	0	1599
	D	116	0	0	0	7	0	0	0	0	123
	E	258	0	0	0	0	0	0	0	0	258
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	9	43	0	0	0	0	0	0	52
	I	0	2	15	0	0	0	0	0	0	17
	Tot.	1095	824	670	82	82	0	0	89	0	2842

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 PM DS (Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	814
J1:1/2	785
J1:2/1	270
J1:2/2	312
J1:3/1	191
J1:4/1	0
J1:5/1	0
J1:6/1	82
J1:7/1	824
J1:8/1	263
J1:8/2	407
J1:9/1	0
J1:10/1	0
J1:11/1	855
J1:11/2	64
J1:12/1	123
Junction: J2: Floodgate Street	
J2:1/1	258
J2:2/1	503
J2:2/2	416
J2:3/1	82
J2:4/1	679
J2:4/2	416
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	503
J3:1/2	416
J3:2/1	270
J3:2/2	312
J3:3/1	0
J3:4/1	0
J3:5/1	270
J3:5/2	312
J3:6/1	503
J3:6/2	416
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	290
J4:2/2	275
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	512
J4:5/2	583
J4:6/1	0
J4:7/1	17
J4:8/1	52
J4:9/1	327
J4:9/2	275
J4:10/1	89
J4:11/1	0
J4:12/1	512
J4:12/2	583
J4:13/1	307
J4:13/2	275

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	10.1 %	1899	1899
				Arm J1:11 Ahead	Inf	89.9 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	91.8 %	1788	1788
				Arm J1:11 Ahead	Inf	8.2 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	38.1 %	1837	1837
				Arm J1:8 Ahead	Inf	61.9 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	100.0 %	1670	1670
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	100.0 %	1641	1641
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: '2031 AM DS (Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	192	461	0	0	0	0	7	0	660
	B	0	0	46	0	0	0	0	0	0	46
	C	321	613	0	103	73	0	0	0	0	1110
	D	80	0	0	0	12	0	0	0	0	92
	E	72	0	0	0	0	0	0	0	0	72
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	2	6	0	0	0	0	0	0	8
	I	0	1	3	0	0	0	0	0	0	4
	Tot.	473	808	516	103	85	0	0	7	0	1992

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 AM DS (Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	492
J1:1/2	618
J1:2/1	299
J1:2/2	366
J1:3/1	46
J1:4/1	0
J1:5/1	0
J1:6/1	103
J1:7/1	808
J1:8/1	127
J1:8/2	389
J1:9/1	0
J1:10/1	0
J1:11/1	481
J1:11/2	5
J1:12/1	92
Junction: J2: Floodgate Street	
J2:1/1	72
J2:2/1	278
J2:2/2	208
J2:3/1	85
J2:4/1	265
J2:4/2	208
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	278
J3:1/2	208
J3:2/1	299
J3:2/2	366
J3:3/1	0
J3:4/1	0
J3:5/1	299
J3:5/2	366
J3:6/1	278
J3:6/2	208
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	305
J4:2/2	356
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	194
J4:5/2	279
J4:6/1	0
J4:7/1	4
J4:8/1	8
J4:9/1	304
J4:9/2	356
J4:10/1	7
J4:11/1	0
J4:12/1	194
J4:12/2	279
J4:13/1	309
J4:13/2	356

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	20.9 %	1872	1872
				Arm J1:11 Ahead	Inf	79.1 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	99.2 %	1778	1778
				Arm J1:11 Ahead	Inf	0.8 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	65.2 %	1780	1780
				Arm J1:8 Ahead	Inf	34.8 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	100.0 %	1670	1670
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	100.0 %	1641	1641
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 8: '2031 PM DS (Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination									
		A	B	C	D	E	F	G	H	I	Tot.
Origin	A	0	95	440	0	0	0	0	89	0	624
	B	0	0	185	0	0	0	0	0	0	185
	C	682	750	0	87	79	0	0	0	0	1598
	D	122	0	0	0	8	0	0	0	0	130
	E	288	0	0	0	0	0	0	0	0	288
	F	0	0	0	0	0	0	0	0	0	0
	G	0	0	0	0	0	0	0	0	0	0
	H	0	9	47	0	0	0	0	0	0	56
	I	0	2	16	0	0	0	0	0	0	18
	Tot.	1092	856	688	87	87	0	0	89	0	2899

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 PM DS (Saturn PCU Factors)
Junction: J1: Rea Street (Milk Street)	
J1:1/1	811
J1:1/2	787
J1:2/1	283
J1:2/2	326
J1:3/1	185
J1:4/1	0
J1:5/1	0
J1:6/1	87
J1:7/1	856
J1:8/1	270
J1:8/2	418
J1:9/1	0
J1:10/1	0
J1:11/1	854
J1:11/2	37
J1:12/1	130
Junction: J2: Floodgate Street	
J2:1/1	288
J2:2/1	495
J2:2/2	396
J2:3/1	87
J2:4/1	696
J2:4/2	396
Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate	
J3:1/1	495
J3:1/2	396
J3:2/1	283
J3:2/2	326
J3:3/1	0
J3:4/1	0
J3:5/1	283
J3:5/2	326
J3:6/1	495
J3:6/2	396
Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate	
J4:1/1	0
J4:2/1	305
J4:2/2	286
J4:3/1	0
J4:4/1	0

Full Input Data And Results

J4:5/1	510
J4:5/2	582
J4:6/1	0
J4:7/1	18
J4:8/1	56
J4:9/1	338
J4:9/2	286
J4:10/1	89
J4:11/1	0
J4:12/1	510
J4:12/2	582
J4:13/1	323
J4:13/2	286

Full Input Data And Results

Lane Saturation Flows

Junction: J1: Rea Street (Milk Street)								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:6 Left	11.00	10.7 %	1897	1897
				Arm J1:11 Ahead	Inf	89.3 %		
J1:1/2 (Digbeth (B4100 - west of Milk Street))	3.10	0.00	Y	Arm J1:7 Right	18.00	95.3 %	1783	1783
				Arm J1:11 Ahead	Inf	4.7 %		
J1:2/1 (High Street Deritend (east of Rea Street))	3.10	0.00	Y	Arm J1:7 Left	12.00	37.5 %	1839	1839
				Arm J1:8 Ahead	Inf	62.5 %		
J1:2/2 (High Street Deritend (east of Rea Street))	3.10	0.00	N	Arm J1:8 Ahead	Inf	100.0 %	2065	2065
J1:3/1 (Rea Street)	4.00	0.00	Y	Arm J1:8 Left	13.00	100.0 %	1807	1807
				Arm J1:11 Right	Inf	0.0 %		
J1:4/1 (LRT Digbeth (B4100 - west))	4.00	0.00	Y	Arm J1:10 Ahead	Inf	0.0 %	2015	2015
J1:5/1 (LRT High St Deritend (east))	4.00	0.00	Y	Arm J1:9 Ahead	Inf	0.0 %	2015	2015
J1:6/1 (Milk Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf
J1:8/2	Infinite Saturation Flow						Inf	Inf
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:11/2	Infinite Saturation Flow						Inf	Inf
J1:12/1	3.50	0.00	Y	Arm J1:11 Left	7.00	100.0 %	1618	1618

Full Input Data And Results

Junction: J2: Floodgate Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Floodgate Street)	4.00	0.00	Y	Arm J2:4 Left	12.50	100.0 %	1799	1799
J2:2/1 (High Street Deritend (west of Floodgate St) Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Deritend (west of Floodgate St) Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1	Infinite Saturation Flow						Inf	Inf
J2:4/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Junction: J3: Non-Associated Pedestrian Crossings - West of Floodgate								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Ped Crossing west of Floodgate Junction (easttbound))	3.00	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1915	1915
J3:1/2 (Ped Crossing west of Floodgate Junction (easttbound))	3.50	0.00	Y	Arm J3:6 Ahead	Inf	100.0 %	1965	1965
J3:2/1 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J3:5 Ahead	Inf	100.0 %	1925	1925
J3:2/2 (Ped Crossing west of Floodgate Junction (westbound))	3.10	0.00	N	Arm J3:5 Ahead	Inf	100.0 %	2065	2065
J3:3/1 (LRT west of Floodgate (eastbound))	4.00	0.00	Y	Arm J4:1 Ahead	Inf	0.0 %	2015	2015
J3:4/1 (LRT West of Floodgate (westbound))	4.00	0.00	Y	Arm J1:5 Ahead	Inf	0.0 %	2015	2015
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:5/2	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf
J3:6/2	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J4: Non-Associated Pedestrian Crossings - East of Floodgate

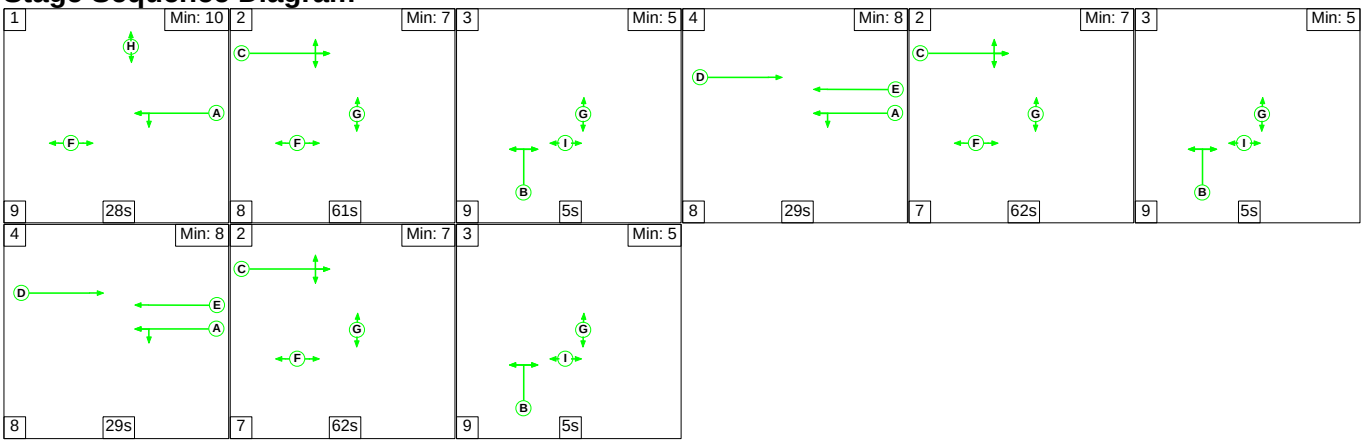
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J4:1/1 (LRT - Ped Crossing east of Floodgate Junction (eastbound))	4.00	0.00	Y	Arm J4:4 Ahead	Inf	0.0 %	2015	2015
J4:2/1 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	Y	Arm J4:6 Left	Inf	0.0 %	1925	1925
				Arm J4:13 Ahead	Inf	100.0 %		
J4:2/2 (Ped Crossing east of Floodgate Junction (westbound))	3.10	0.00	N	Arm J4:13 Ahead	Inf	100.0 %	2065	2065
J4:3/1 (LRT - Ped Crossing east of Floodgate Junction (westbound))	4.00	0.00	Y	Arm J4:11 Ahead	Inf	0.0 %	2015	2015
J4:4/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:5/1	Infinite Saturation Flow						Inf	Inf
J4:5/2	Infinite Saturation Flow						Inf	Inf
J4:6/1 (Stone Yard Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:7/1 (Stone Yard)	3.50	0.00	Y	Arm J4:13 Left	8.50	100.0 %	1670	1670
J4:8/1 (Chapel House Street)	3.50	0.00	Y	Arm J4:2 Left	7.60	100.0 %	1641	1641
J4:9/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:9/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J4:10/1 (Chapel House Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:11/1 (LRT Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:12/1 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	Y	Arm J4:5 Ahead	Inf	100.0 %	1930	1930
J4:12/2 (Ped Crossing east of Floodgate Junction (eastbound))	3.15	0.00	N	Arm J4:5 Ahead	Inf	100.0 %	2070	2070
J4:13/1 (HSD Lane 1)	Infinite Saturation Flow						Inf	Inf
J4:13/2 (HSD Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Rea Street - Milk Street

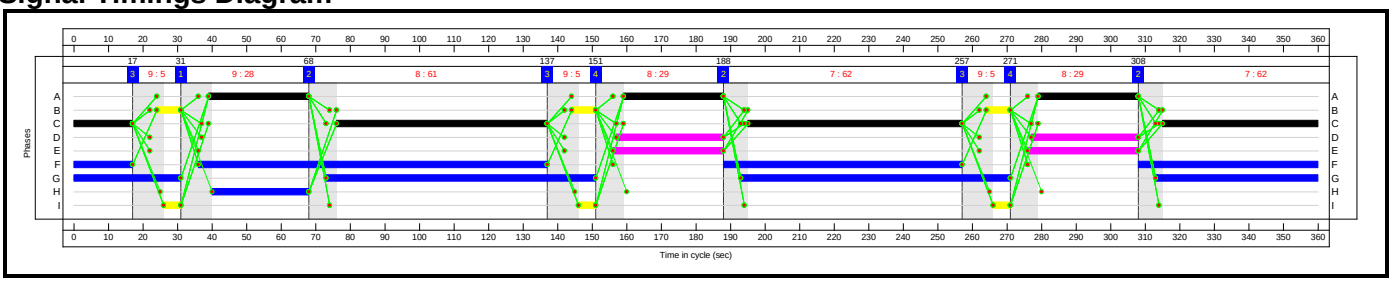
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	2	3	4	2	3
Duration	28	61	5	29	62	5	29	62	5
Change Point	31	68	137	151	188	257	271	308	17

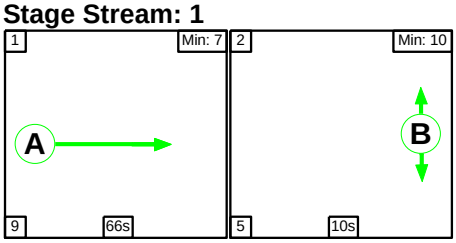
Signal Timings Diagram



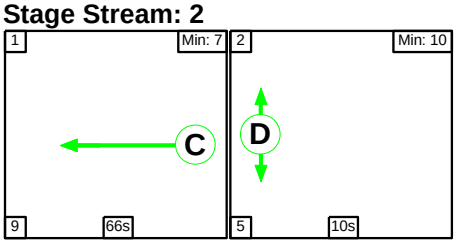
C2 - Ped West of Floodgate

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

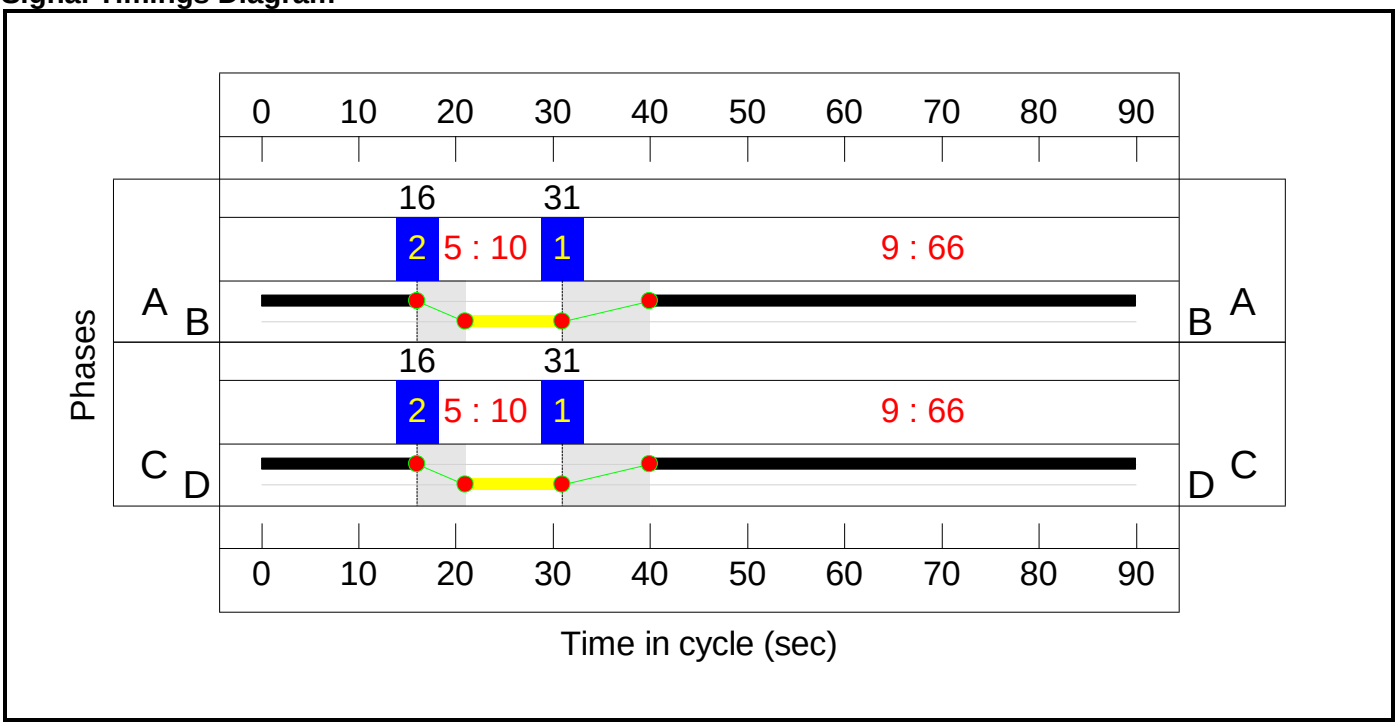
Stage Stream: 1

Stage	1	2
Duration	66	10
Change Point	31	16

Stage Stream: 2

Stage	1	2
Duration	66	10
Change Point	31	16

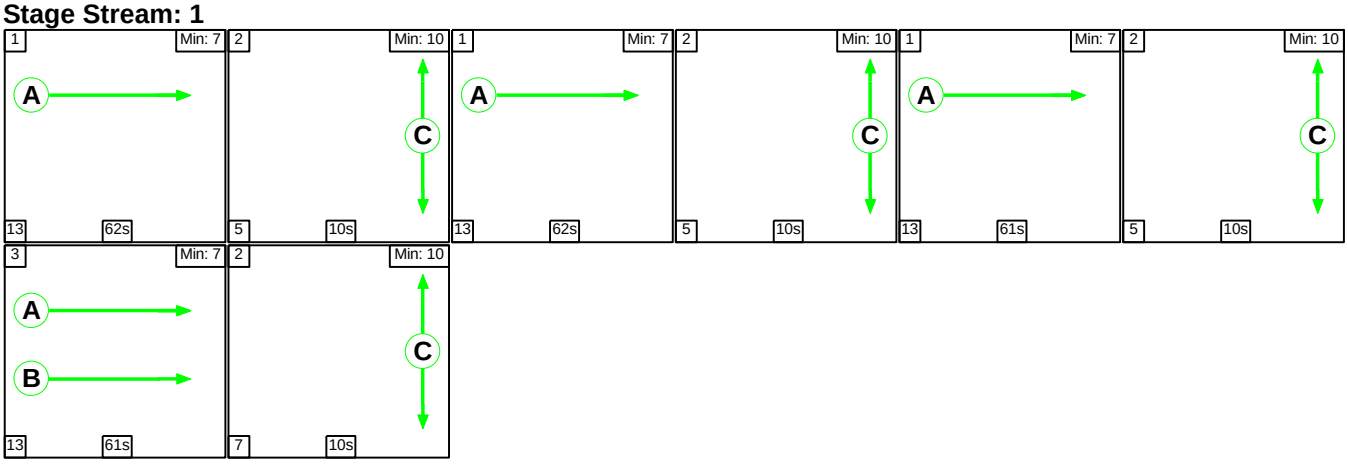
Signal Timings Diagram



C3 - Ped East of Floodgate

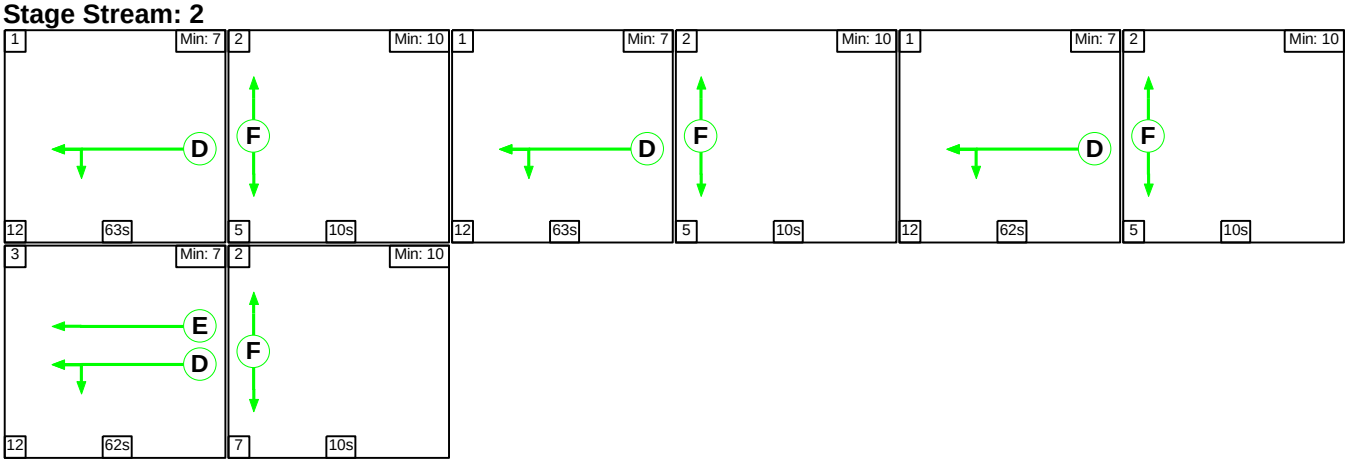
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

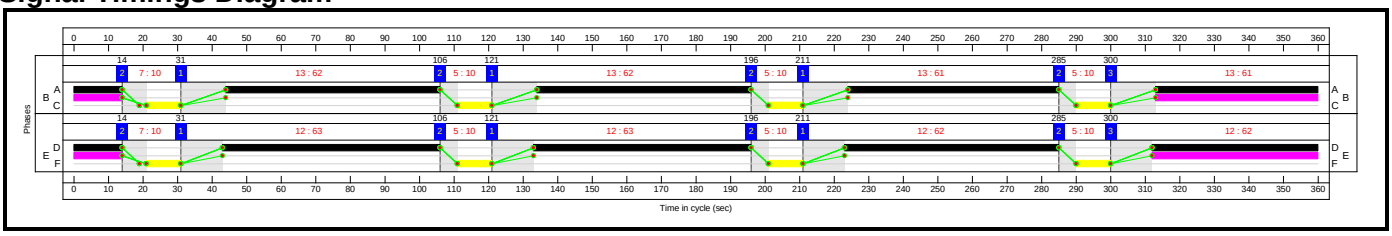
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	62	10	62	10	61	10	61	10
Change Point	31	106	121	196	211	285	300	14

Stage Stream: 2

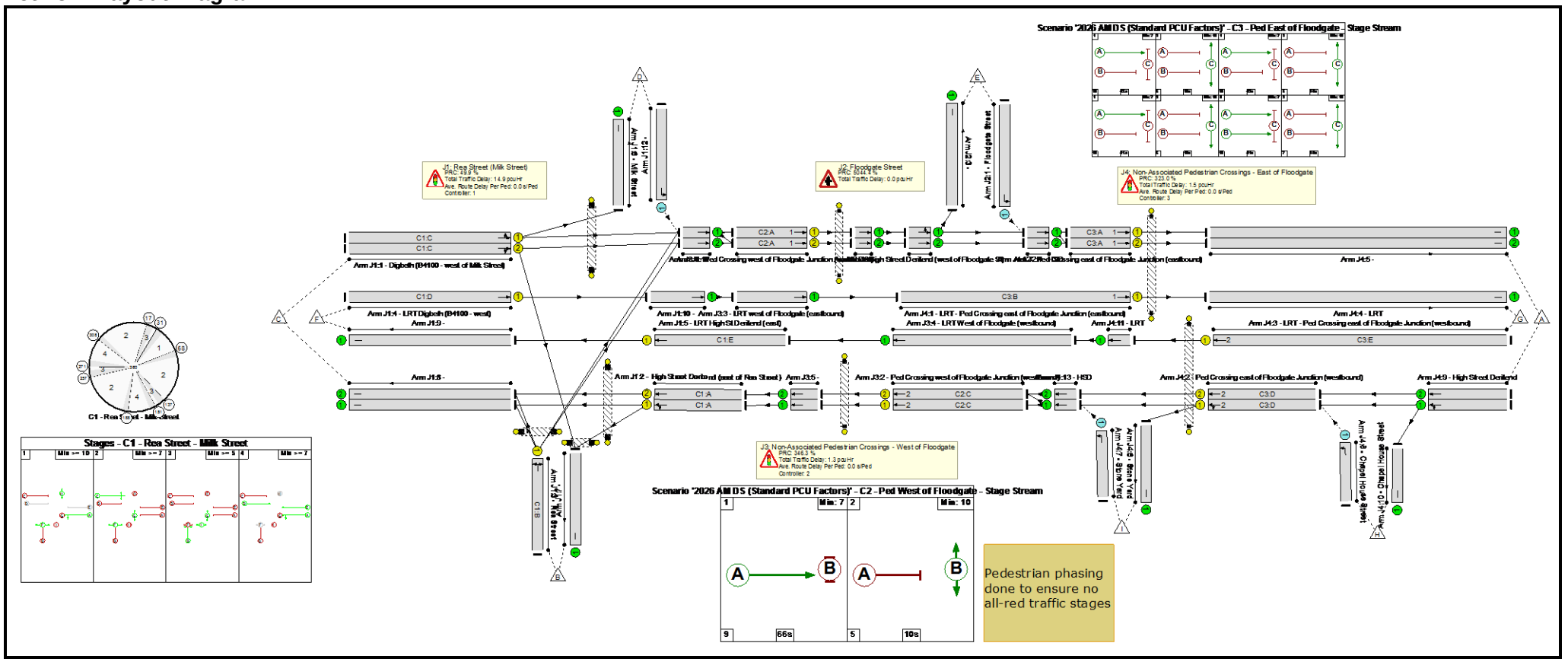
Stage	1	2	1	2	1	2	3	2
Duration	63	10	63	10	62	10	62	10
Change Point	31	106	121	196	211	285	300	14

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**60.0%**
J1: Rea Street (Milk Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**60.0%**
1/1	Digbeth (B4100 - west of Milk Street) Left Ahead	U	N/A	N/A	C1:C		3	185	-	402	1862	972	41.3%
1/2	Digbeth (B4100 - west of Milk Street) Right Ahead	U	N/A	N/A	C1:C		3	185	-	557	1779	929	60.0%
2/1	High Street Deritend (east of Rea Street) Left Ahead	U	N/A	N/A	C1:A		3	87	-	255	1806	452	56.5%
2/2	High Street Deritend (east of Rea Street) Ahead	U	N/A	N/A	C1:A		3	87	-	310	2065	516	60.0%
3/1	Rea Street Left Right	U	N/A	N/A	C1:B		3	21	-	50	1807	120	41.5%
4/1	LRT Digbeth (B4100 - west) Ahead	U	N/A	N/A	C1:D		2	62	-	0	2015	358	0.0%
5/1	LRT High St Deritend (east) Ahead	U	N/A	N/A	C1:E		2	64	-	0	2015	369	0.0%
6/1	Milk Street	U	N/A	N/A	-		-	-	-	100	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	681	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	146	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	335	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	379	Inf	Inf	0.0%

Full Input Data And Results

11/2	Ahead	U	N/A	N/A	-		-	-	-	10	Inf	Inf	0.0%
12/1	Left	O	N/A	N/A	-		-	-	-	77	1618	1121	6.9%
Ped Link: P1	H	-	N/A	-	C1:H		1	28	-	0	-	0	0.0%
Ped Link: P2	E	-	N/A	-	C1:F		3	239	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:G		3	234	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:I		3	15	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**1.7%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	12	1799	686	1.7%
2/1	High Street Deritend (west of Floodgate St) Left Ahead	U	N/A	N/A	-		-	-	-	214	Inf	Inf	0.0%
2/2	High Street Deritend (west of Floodgate St) Ahead	U	N/A	N/A	-		-	-	-	175	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	82	Inf	Inf	0.0%
4/1	HSD Ahead	U	N/A	N/A	-		-	-	-	144	Inf	Inf	0.0%
4/2	HSD Ahead	U	N/A	N/A	-		-	-	-	175	Inf	Inf	0.0%
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**20.2%**
1/1	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	214	1915	1426	15.0%
1/2	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	175	1965	1463	12.0%
2/1	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	255	1925	1433	17.8%
2/2	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	310	2065	1537	20.2%

Full Input Data And Results

3/1	LRT west of Floodgate (eastbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
4/1	LRT West of Floodgate (westbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	255	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	214	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	175	Inf	Inf	0.0%
Ped Link: P1	Ped West of Floodgate	-	2:2	-	C2:D		1	10	-	0	-	0	0.0%
Ped Link: P2	Ped West of Floodgate	-	2:1	-	C2:B		1	10	-	0	-	0	0.0%
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**21.3%**
1/1	LRT - Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:B		1	61	-	0	2015	347	0.0%
2/1	Ped Crossing east of Floodgate Junction (westbound) Left Ahead	U	3:2	N/A	C3:D		4	250	-	255	1925	1358	18.8%
2/2	Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:D		4	250	-	310	2065	1457	21.3%
3/1	LRT - Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:E		1	62	-	0	2015	353	0.0%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	130	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	189	Inf	Inf	0.0%
6/1	Stone Yard	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Stone Yard Left	O	N/A	N/A	-		-	-	-	0	1965	659	0.0%

Full Input Data And Results

8/1	Chapel House Street Left	O	N/A	N/A	-		-	-	-	0	1965	659	0.0%
9/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	262	Inf	Inf	0.0%
9/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
10/1	Chapel House Street	U	N/A	N/A	-		-	-	-	7	Inf	Inf	0.0%
11/1	LRT Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
12/1	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	130	1930	1340	9.7%
12/2	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	189	2070	1438	13.1%
13/1	HSD Ahead	U	N/A	N/A	-		-	-	-	255	Inf	Inf	0.0%
13/2	HSD Ahead	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:C		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:2	-	C3:F		4	40	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**57**	**32**	**0**	**14.0**	**3.7**	**0.0**	**17.7**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street)	**-**	**-**	**45**	**32**	**0**	**12.0**	**2.9**	**0.0**	**14.9**	**-**	**-**	**-**	**-**
1/1	402	402	-	-	-	2.0	0.4	-	2.3	20.6	8.2	0.4	8.5
1/2	557	557	-	-	-	3.1	0.7	-	3.8	24.8	13.0	0.7	13.7
2/1	255	255	-	-	-	2.8	0.6	-	3.4	48.4	7.4	0.6	8.0
2/2	310	310	-	-	-	3.4	0.7	-	4.2	48.4	9.0	0.7	9.8
3/1	50	50	-	-	-	0.7	0.4	-	1.1	79.1	1.6	0.4	1.9
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	100	100	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	681	681	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	146	146	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	335	335	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	379	379	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	10	10	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	77	77	45	32	0	0.0	0.0	-	0.1	2.8	0.4	0.0	0.4
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**12**	**0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**-**	**-**	**-**
1/1	12	12	12	0	0	0.0	0.0	-	0.0	2.7	0.0	0.0	0.0

2/1	214	214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	175	175	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	144	144	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	175	175	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**0**	**0**	**0**	**0.9**	**0.4**	**0.0**	**1.3**	**-**	**-**	**-**	**-**
1/1	214	214	-	-	-	0.2	0.1	-	0.3	4.8	1.5	0.1	1.6
1/2	175	175	-	-	-	0.2	0.1	-	0.2	4.6	1.2	0.1	1.3
2/1	255	255	-	-	-	0.2	0.1	-	0.3	4.9	1.8	0.1	1.9
2/2	310	310	-	-	-	0.3	0.1	-	0.4	4.9	2.3	0.1	2.5
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	255	255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	214	214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	175	175	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**0**	**0**	**0**	**1.1**	**0.4**	**0.0**	**1.5**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	255	255	-	-	-	0.3	0.1	-	0.4	6.1	2.3	0.1	2.4
2/2	310	310	-	-	-	0.4	0.1	-	0.5	6.2	2.8	0.1	2.9
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	130	130	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	189	189	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

8/1	0	0	0	0	0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	262	262	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	7	7	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	130	130	-	-	-	0.2	0.1	-	0.2	6.0	1.1	0.1	1.2
12/2	189	189	-	-	-	0.2	0.1	-	0.3	6.1	1.6	0.1	1.7
13/1	255	255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	310	310	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

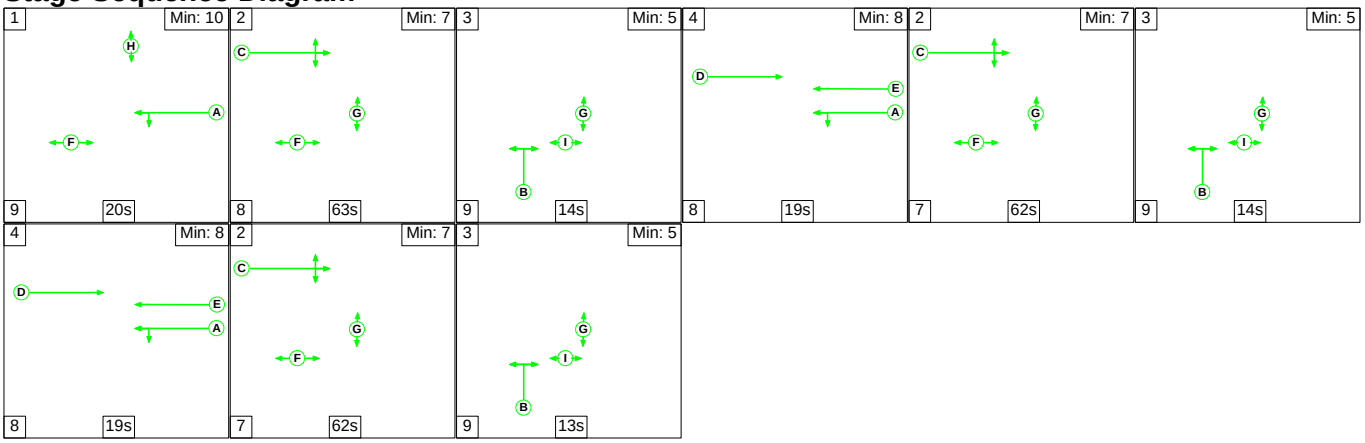
C1 - Rea Street - Milk Street	PRC for Signalled Lanes (%):	49.9	Total Delay for Signalled Lanes (pcuHr):	14.83	Cycle Time (s): 360
C2 - Ped West of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	499.6	Total Delay for Signalled Lanes (pcuHr):	0.51	Cycle Time (s): 90
C2 - Ped West of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	346.3	Total Delay for Signalled Lanes (pcuHr):	0.77	Cycle Time (s): 90
C3 - Ped East of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	584.5	Total Delay for Signalled Lanes (pcuHr):	0.54	Cycle Time (s): 360
C3 - Ped East of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	323.0	Total Delay for Signalled Lanes (pcuHr):	0.97	Cycle Time (s): 360
	PRC Over All Lanes (%):	49.9	Total Delay Over All Lanes(pcuHr):	17.68	

Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Rea Street - Milk Street

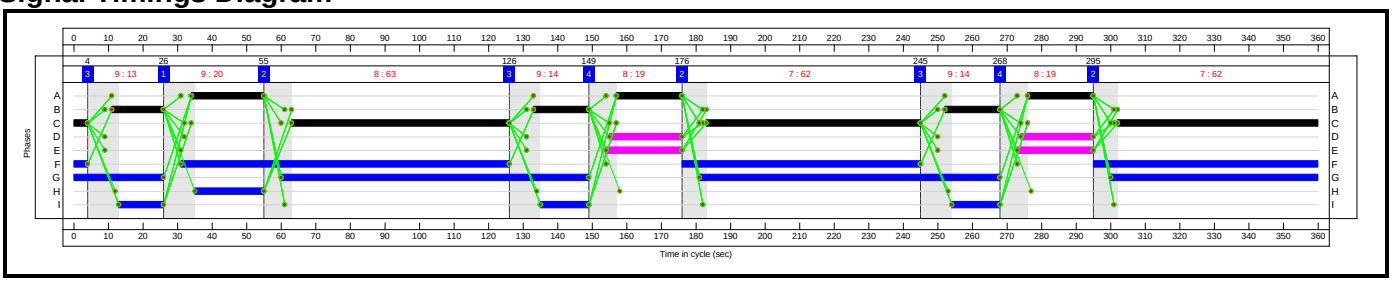
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	2	3	4	2	3
Duration	20	63	14	19	62	14	19	62	13
Change Point	26	55	126	149	176	245	268	295	4

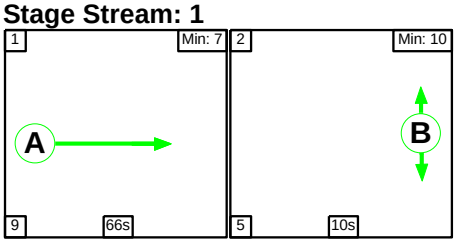
Signal Timings Diagram



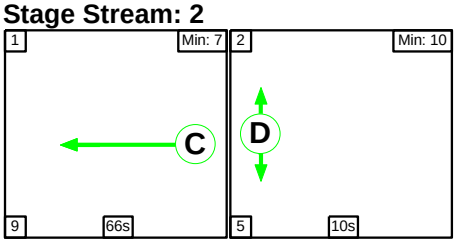
C2 - Ped West of Floodgate

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

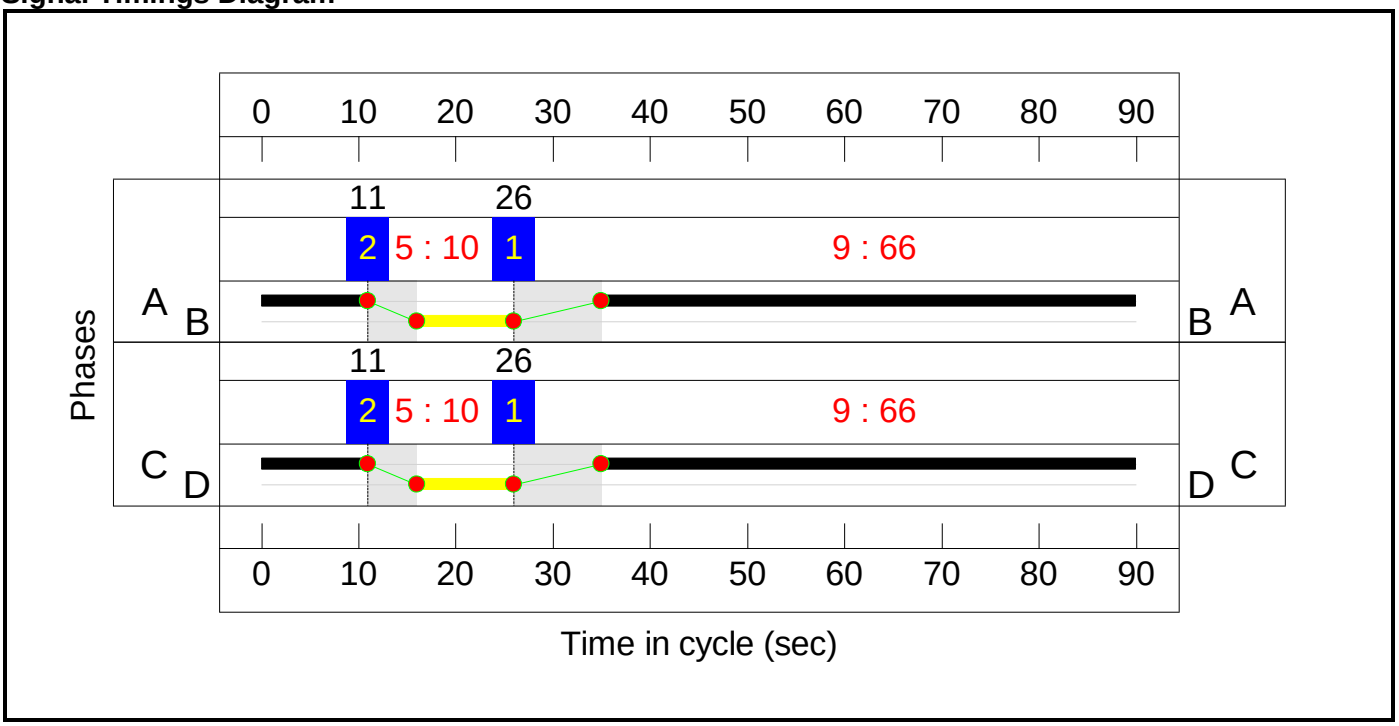
Stage Stream: 1

Stage	1	2
Duration	66	10
Change Point	26	11

Stage Stream: 2

Stage	1	2
Duration	66	10
Change Point	26	11

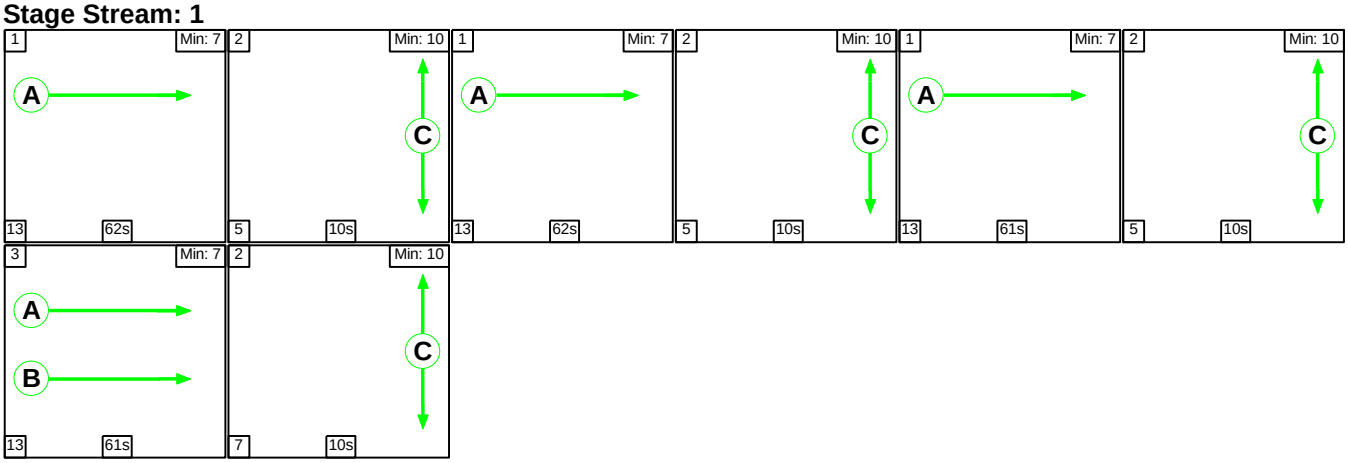
Signal Timings Diagram



C3 - Ped East of Floodgate

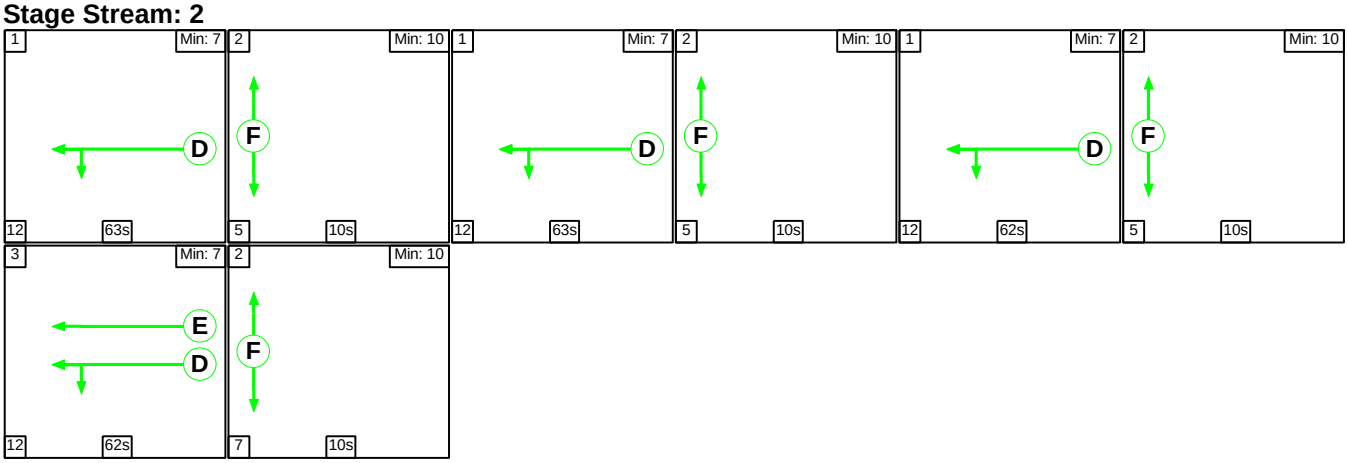
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

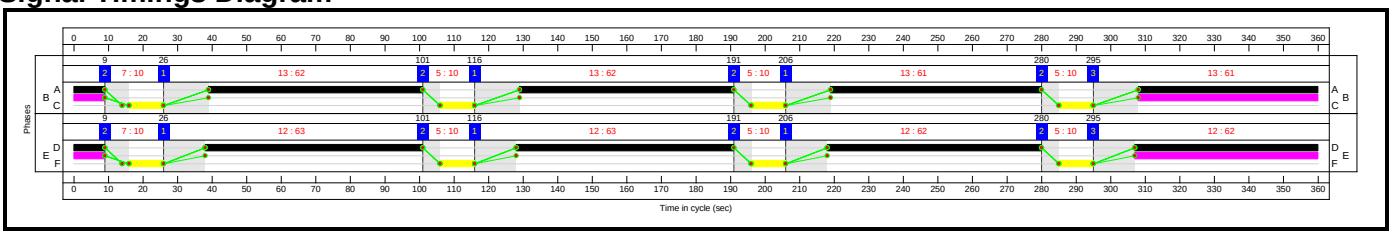
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	62	10	62	10	61	10	61	10
Change Point	26	101	116	191	206	280	295	9

Stage Stream: 2

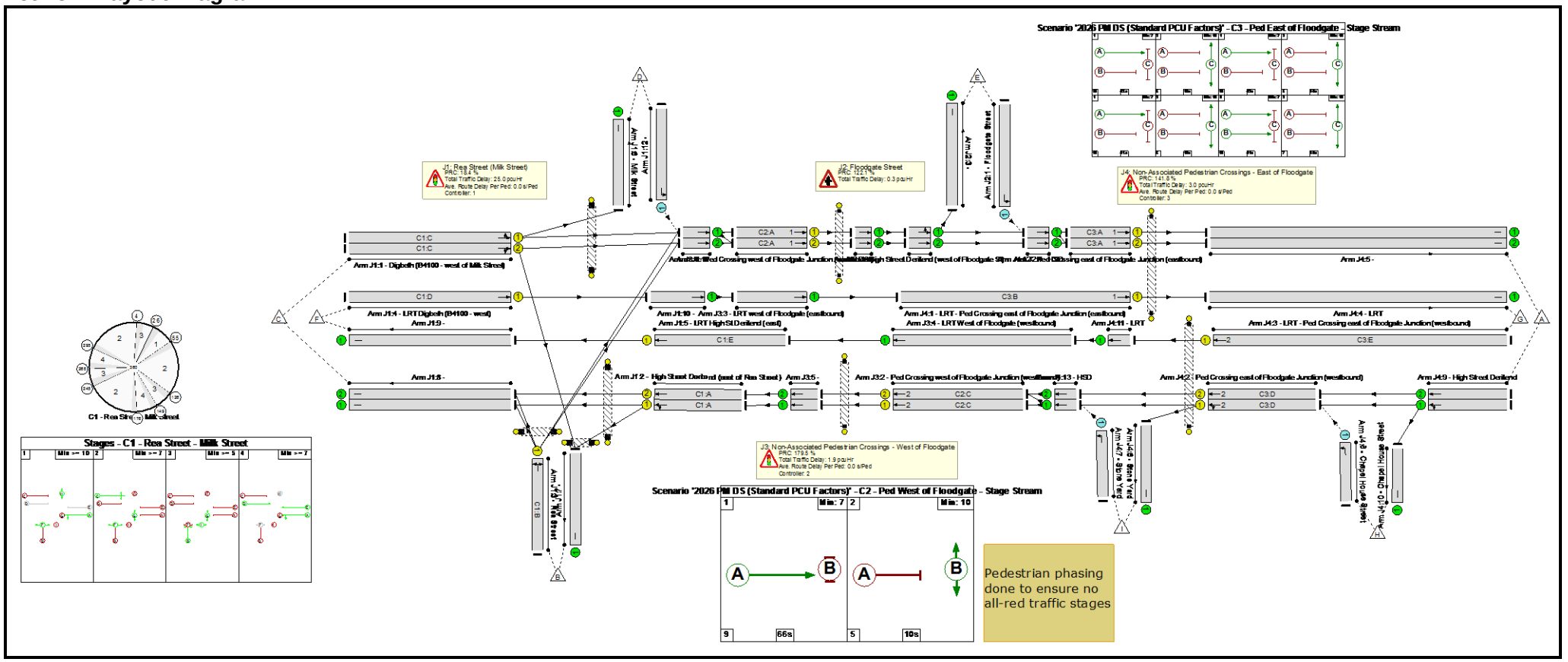
Stage	1	2	1	2	1	2	3	2
Duration	63	10	63	10	62	10	62	10
Change Point	26	101	116	191	206	280	295	9

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.0%**
J1: Rea Street (Milk Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.0%**
1/1	Digbeth (B4100 - west of Milk Street) Left Ahead	U	N/A	N/A	C1:C		3	187	-	717	1896	1001	71.7%
1/2	Digbeth (B4100 - west of Milk Street) Right Ahead	U	N/A	N/A	C1:C		3	187	-	718	1790	945	76.0%
2/1	High Street Deritend (east of Rea Street) Left Ahead	U	N/A	N/A	C1:A		3	59	-	226	1822	314	72.0%
2/2	High Street Deritend (east of Rea Street) Ahead	U	N/A	N/A	C1:A		3	59	-	266	2065	356	74.8%
3/1	Rea Street Left Right	U	N/A	N/A	C1:B		3	47	-	189	1807	251	75.3%
4/1	LRT Digbeth (B4100 - west) Ahead	U	N/A	N/A	C1:D		2	42	-	0	2015	246	0.0%
5/1	LRT High St Deritend (east) Ahead	U	N/A	N/A	C1:E		2	44	-	0	2015	257	0.0%
6/1	Milk Street	U	N/A	N/A	-		-	-	-	81	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	751	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	219	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	360	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	759	Inf	Inf	0.0%

Full Input Data And Results

11/2	Ahead	U	N/A	N/A	-		-	-	-	69	Inf	Inf	0.0%
12/1	Left	O	N/A	N/A	-		-	-	-	123	1618	859	14.3%
Ped Link: P1	H	-	N/A	-	C1:H		1	20	-	0	-	0	0.0%
Ped Link: P2	E	-	N/A	-	C1:F		3	233	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:G		3	262	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:I		3	41	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**40.5%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	256	1799	632	40.5%
2/1	High Street Deritend (west of Floodgate St) Left Ahead	U	N/A	N/A	-		-	-	-	459	Inf	Inf	0.0%
2/2	High Street Deritend (west of Floodgate St) Ahead	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	81	Inf	Inf	0.0%
4/1	HSD Ahead	U	N/A	N/A	-		-	-	-	634	Inf	Inf	0.0%
4/2	HSD Ahead	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**32.2%**
1/1	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	459	1915	1426	32.2%
1/2	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	369	1965	1463	25.2%
2/1	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	226	1925	1433	15.8%
2/2	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	266	2065	1537	17.3%

Full Input Data And Results

3/1	LRT west of Floodgate (eastbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
4/1	LRT West of Floodgate (westbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	226	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	266	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	459	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
Ped Link: P1	Ped West of Floodgate	-	2:2	-	C2:D		1	10	-	0	-	0	0.0%
Ped Link: P2	Ped West of Floodgate	-	2:1	-	C2:B		1	10	-	0	-	0	0.0%
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**37.2%**
1/1	LRT - Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:B		1	61	-	0	2015	347	0.0%
2/1	Ped Crossing east of Floodgate Junction (westbound) Left Ahead	U	3:2	N/A	C3:D		4	250	-	245	1925	1358	18.0%
2/2	Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:D		4	250	-	230	2065	1457	15.8%
3/1	LRT - Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:E		1	62	-	0	2015	353	0.0%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	468	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	535	Inf	Inf	0.0%
6/1	Stone Yard	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Stone Yard Left	O	N/A	N/A	-		-	-	-	17	1670	661	2.6%

Full Input Data And Results

8/1	Chapel House Street Left	O	N/A	N/A	-		-	-	-	51	1641	672	7.6%
9/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	283	Inf	Inf	0.0%
9/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	230	Inf	Inf	0.0%
10/1	Chapel House Street	U	N/A	N/A	-		-	-	-	89	Inf	Inf	0.0%
11/1	LRT Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
12/1	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	468	1930	1340	34.9%
12/2	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	535	2070	1438	37.2%
13/1	HSD Ahead	U	N/A	N/A	-		-	-	-	262	Inf	Inf	0.0%
13/2	HSD Ahead	U	N/A	N/A	-		-	-	-	230	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:C		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:2	-	C3:F		4	40	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**401**	**46**	**0**	**21.5**	**8.8**	**0.0**	**30.3**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street)	**-**	**-**	**82**	**41**	**0**	**18.0**	**7.0**	**0.0**	**25.0**	**-**	**-**	**-**	**-**
1/1	717	717	-	-	-	4.3	1.3	-	5.5	27.8	18.5	1.3	19.8
1/2	718	718	-	-	-	4.5	1.6	-	6.0	30.2	19.1	1.6	20.7
2/1	226	226	-	-	-	2.9	1.3	-	4.2	66.9	7.2	1.3	8.5
2/2	266	266	-	-	-	3.5	1.4	-	4.9	66.7	8.5	1.4	9.9
3/1	189	189	-	-	-	2.6	1.5	-	4.1	77.5	6.2	1.5	7.7
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	81	81	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	751	751	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	219	219	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	360	360	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	759	759	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	69	69	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	123	123	82	41	0	0.2	0.1	-	0.3	8.4	1.4	0.1	1.5
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**256**	**0**	**0**	**0.0**	**0.3**	**0.0**	**0.3**	**-**	**-**	**-**	**-**
1/1	256	256	256	0	0	0.0	0.3	-	0.3	4.8	0.0	0.3	0.3

2/1	459	459	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	81	81	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	634	634	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**0**	**0**	**0**	**1.3**	**0.6**	**0.0**	**1.9**	**-**	**-**	**-**	**-**
1/1	459	459	-	-	-	0.5	0.2	-	0.7	5.7	3.8	0.2	4.1
1/2	369	369	-	-	-	0.4	0.2	-	0.5	5.3	2.9	0.2	3.0
2/1	226	226	-	-	-	0.2	0.1	-	0.3	4.8	1.6	0.1	1.7
2/2	266	266	-	-	-	0.2	0.1	-	0.4	4.8	1.9	0.1	2.0
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	226	226	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	266	266	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	459	459	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**63**	**5**	**0**	**2.2**	**0.8**	**0.0**	**3.0**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	245	245	-	-	-	0.3	0.1	-	0.4	6.1	2.2	0.1	2.3
2/2	230	230	-	-	-	0.3	0.1	-	0.4	5.9	2.0	0.1	2.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	468	468	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	535	535	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	17	17	12	5	0	0.0	0.0	-	0.0	2.8	0.0	0.0	0.0

Full Input Data And Results

8/1	51	51	51	0	0	0.0	0.0	-	0.0	2.9	0.0	0.0	0.0
9/1	283	283	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	230	230	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	89	89	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	468	468	-	-	-	0.7	0.3	-	1.0	7.6	4.9	0.3	5.2
12/2	535	535	-	-	-	0.8	0.3	-	1.1	7.7	5.8	0.3	6.1
13/1	262	262	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	230	230	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

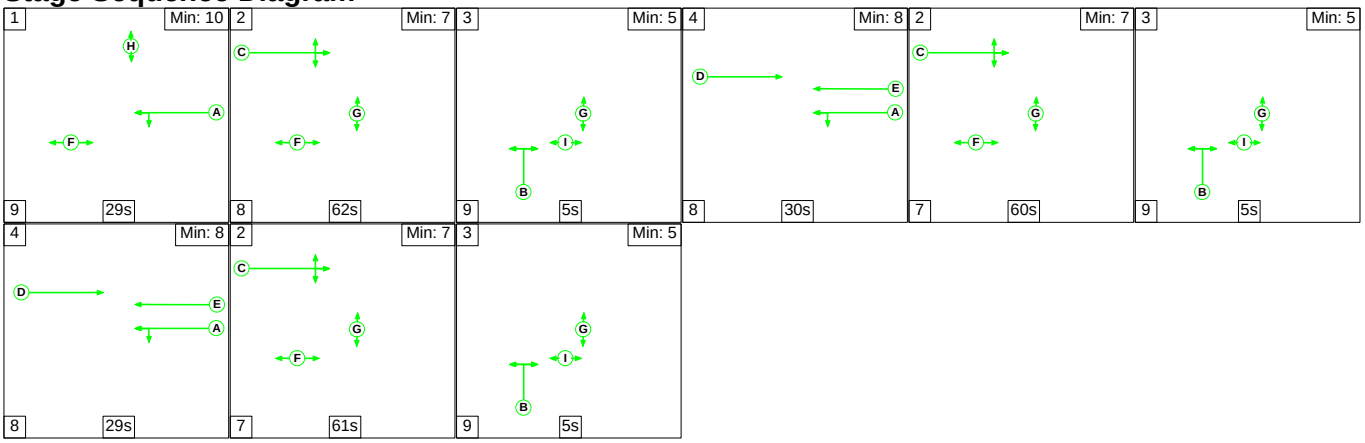
C1 - Rea Street - Milk Street	PRC for Signalled Lanes (%):	18.4	Total Delay for Signalled Lanes (pcuHr):	24.75	Cycle Time (s): 360
C2 - Ped West of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	179.5	Total Delay for Signalled Lanes (pcuHr):	1.27	Cycle Time (s): 90
C2 - Ped West of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	420.1	Total Delay for Signalled Lanes (pcuHr):	0.66	Cycle Time (s): 90
C3 - Ped East of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	141.8	Total Delay for Signalled Lanes (pcuHr):	2.13	Cycle Time (s): 360
C3 - Ped East of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	398.9	Total Delay for Signalled Lanes (pcuHr):	0.79	Cycle Time (s): 360
	PRC Over All Lanes (%):	18.4	Total Delay Over All Lanes(pcuHr):	30.28	

Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Rea Street - Milk Street

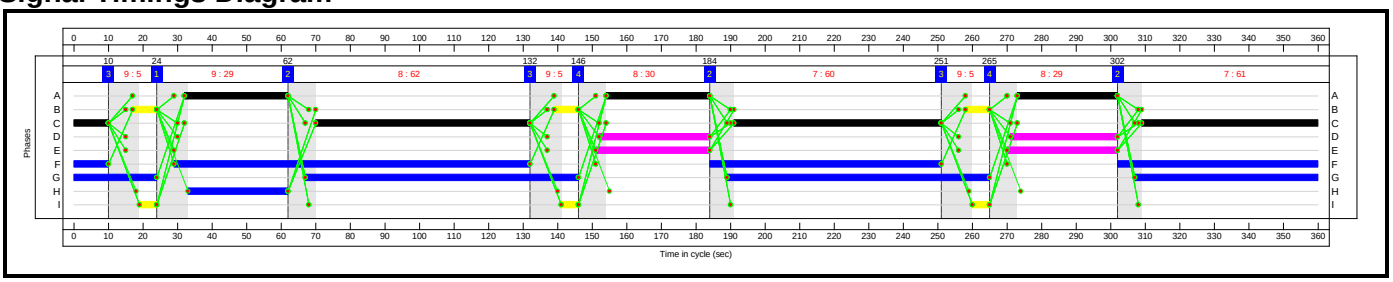
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	2	3	4	2	3
Duration	29	62	5	30	60	5	29	61	5
Change Point	24	62	132	146	184	251	265	302	10

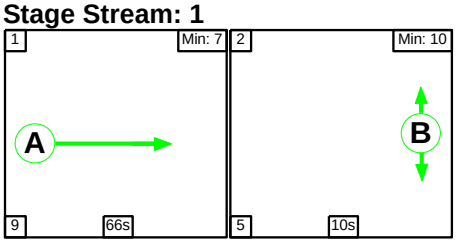
Signal Timings Diagram



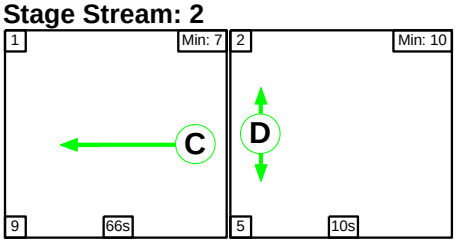
C2 - Ped West of Floodgate

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

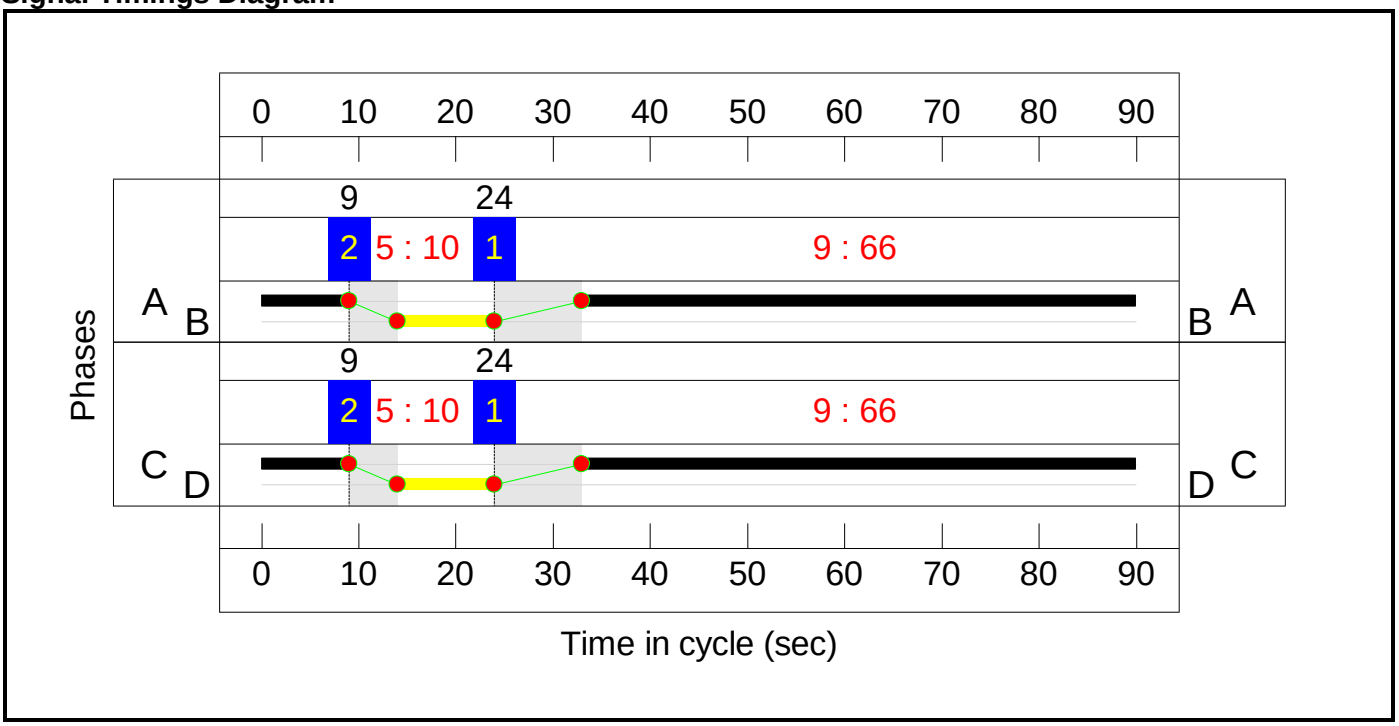
Stage Stream: 1

Stage	1	2
Duration	66	10
Change Point	24	9

Stage Stream: 2

Stage	1	2
Duration	66	10
Change Point	24	9

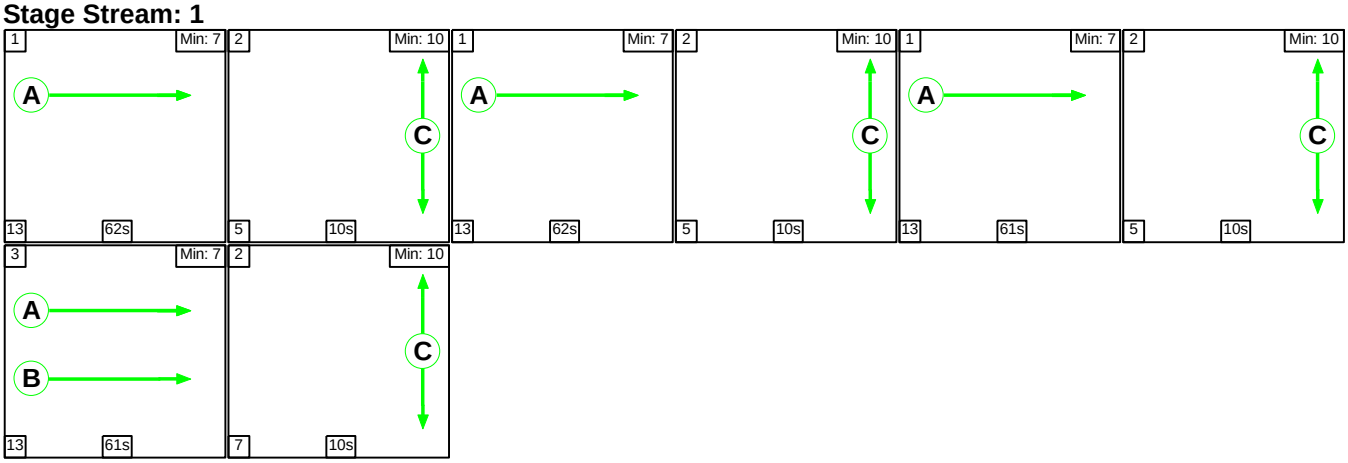
Signal Timings Diagram



C3 - Ped East of Floodgate

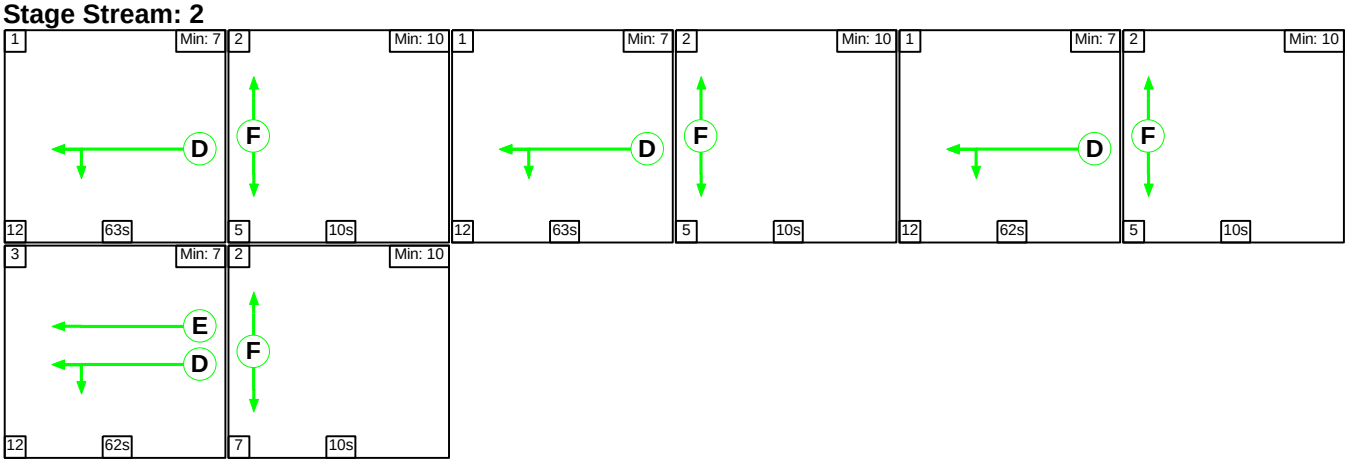
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

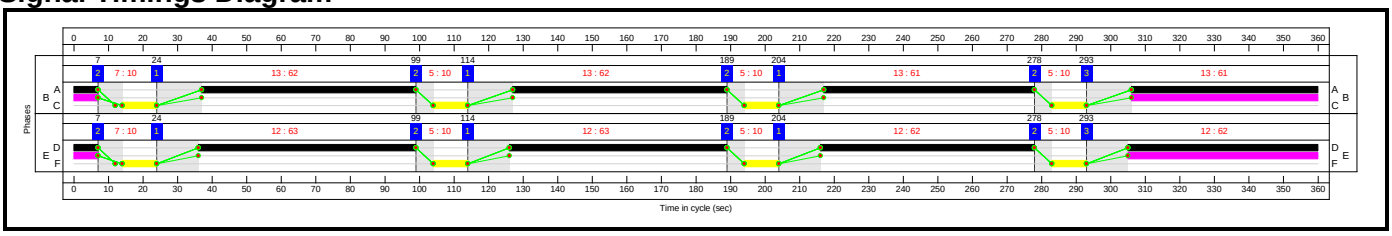
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	62	10	62	10	61	10	61	10
Change Point	24	99	114	189	204	278	293	7

Stage Stream: 2

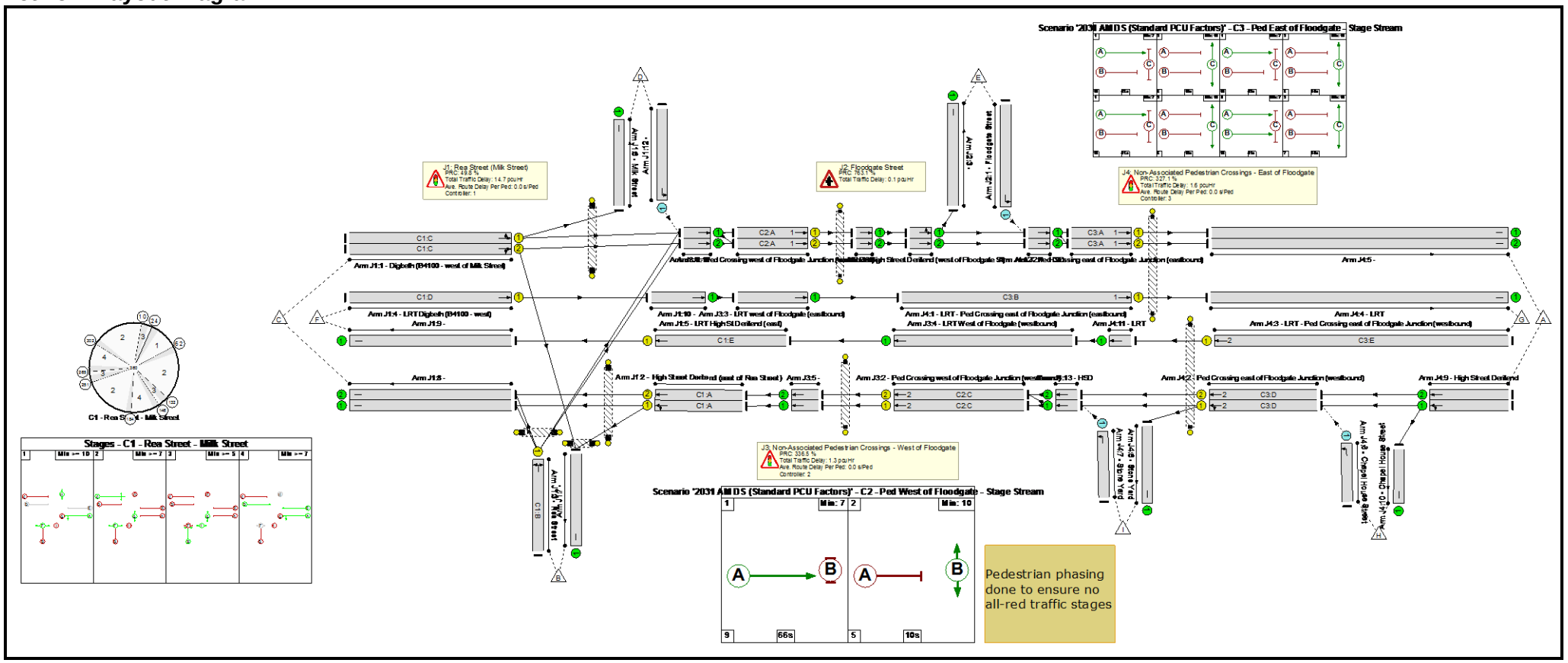
Stage	1	2	1	2	1	2	3	2
Duration	63	10	63	10	62	10	62	10
Change Point	24	99	114	189	204	278	293	7

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**60.1%**
J1: Rea Street (Milk Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**60.1%**
1/1	Digbeth (B4100 - west of Milk Street) Left Ahead	U	N/A	N/A	C1:C		3	183	-	392	1859	960	40.8%
1/2	Digbeth (B4100 - west of Milk Street) Right Ahead	U	N/A	N/A	C1:C		3	183	-	551	1780	920	59.9%
2/1	High Street Deritend (east of Rea Street) Left Ahead	U	N/A	N/A	C1:A		3	89	-	252	1758	449	56.1%
2/2	High Street Deritend (east of Rea Street) Ahead	U	N/A	N/A	C1:A		3	89	-	317	2065	528	60.1%
3/1	Rea Street Left Right	U	N/A	N/A	C1:B		3	21	-	45	1807	120	37.4%
4/1	LRT Digbeth (B4100 - west) Ahead	U	N/A	N/A	C1:D		2	63	-	0	2015	364	0.0%
5/1	LRT High St Deritend (east) Ahead	U	N/A	N/A	C1:E		2	65	-	0	2015	375	0.0%
6/1	Milk Street	U	N/A	N/A	-		-	-	-	102	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	729	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	84	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	382	Inf	Inf	0.0%

Full Input Data And Results

11/2	Ahead	U	N/A	N/A	-		-	-	-	13	Inf	Inf	0.0%
12/1	Left	O	N/A	N/A	-		-	-	-	92	1618	1130	8.1%
Ped Link: P1	H	-	N/A	-	C1:H		1	29	-	0	-	0	0.0%
Ped Link: P2	E	-	N/A	-	C1:F		3	238	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:G		3	232	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:I		3	15	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**10.4%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	71	1799	681	10.4%
2/1	High Street Deritend (west of Floodgate St) Left Ahead	U	N/A	N/A	-		-	-	-	239	Inf	Inf	0.0%
2/2	High Street Deritend (west of Floodgate St) Ahead	U	N/A	N/A	-		-	-	-	156	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	84	Inf	Inf	0.0%
4/1	HSD Ahead	U	N/A	N/A	-		-	-	-	226	Inf	Inf	0.0%
4/2	HSD Ahead	U	N/A	N/A	-		-	-	-	156	Inf	Inf	0.0%
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**20.6%**
1/1	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	239	1915	1426	16.8%
1/2	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	156	1965	1463	10.7%
2/1	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	252	1925	1433	17.6%
2/2	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	317	2065	1537	20.6%

Full Input Data And Results

3/1	LRT west of Floodgate (eastbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
4/1	LRT West of Floodgate (westbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	317	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	239	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	156	Inf	Inf	0.0%
Ped Link: P1	Ped West of Floodgate	-	2:2	-	C2:D		1	10	-	0	-	0	0.0%
Ped Link: P2	Ped West of Floodgate	-	2:1	-	C2:B		1	10	-	0	-	0	0.0%
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**21.1%**
1/1	LRT - Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:B		1	61	-	0	2015	347	0.0%
2/1	Ped Crossing east of Floodgate Junction (westbound) Left Ahead	U	3:2	N/A	C3:D		4	250	-	258	1925	1358	19.0%
2/2	Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:D		4	250	-	307	2065	1457	21.1%
3/1	LRT - Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:E		1	62	-	0	2015	353	0.0%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	158	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
6/1	Stone Yard	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Stone Yard Left	O	N/A	N/A	-		-	-	-	4	1670	658	0.6%

Full Input Data And Results

8/1	Chapel House Street Left	O	N/A	N/A	-		-	-	-	7	1641	660	1.1%
9/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	258	Inf	Inf	0.0%
9/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	307	Inf	Inf	0.0%
10/1	Chapel House Street	U	N/A	N/A	-		-	-	-	7	Inf	Inf	0.0%
11/1	LRT Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
12/1	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	158	1930	1340	11.8%
12/2	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	224	2070	1438	15.6%
13/1	HSD Ahead	U	N/A	N/A	-		-	-	-	262	Inf	Inf	0.0%
13/2	HSD Ahead	U	N/A	N/A	-		-	-	-	307	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:C		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:2	-	C3:F		4	40	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**134**	**40**	**0**	**14.0**	**3.7**	**0.0**	**17.7**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street)	**-**	**-**	**54**	**38**	**0**	**11.9**	**2.8**	**0.0**	**14.7**	**-**	**-**	**-**	**-**
1/1	392	392	-	-	-	1.9	0.3	-	2.3	20.9	8.1	0.3	8.4
1/2	551	551	-	-	-	3.1	0.7	-	3.9	25.2	13.0	0.7	13.8
2/1	252	252	-	-	-	2.7	0.6	-	3.4	47.9	7.4	0.6	8.1
2/2	317	317	-	-	-	3.5	0.7	-	4.2	47.8	9.4	0.7	10.2
3/1	45	45	-	-	-	0.7	0.3	-	1.0	77.3	1.4	0.3	1.7
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	102	102	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	729	729	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	84	84	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	339	339	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	382	382	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	13	13	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	92	92	54	38	0	0.0	0.0	-	0.1	2.8	0.4	0.0	0.5
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**71**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	71	71	71	0	0	0.0	0.1	-	0.1	3.0	0.0	0.1	0.1

2/1	239	239	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	156	156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	84	84	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	226	226	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	156	156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**0**	**0**	**0**	**0.9**	**0.4**	**0.0**	**1.3**	**-**	**-**	**-**	**-**
1/1	239	239	-	-	-	0.2	0.1	-	0.3	4.9	1.7	0.1	1.8
1/2	156	156	-	-	-	0.1	0.1	-	0.2	4.6	1.0	0.1	1.1
2/1	252	252	-	-	-	0.2	0.1	-	0.3	4.9	1.8	0.1	1.9
2/2	317	317	-	-	-	0.3	0.1	-	0.4	5.0	2.4	0.1	2.5
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	317	317	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	239	239	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	156	156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**10**	**1**	**0**	**1.2**	**0.4**	**0.0**	**1.6**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	258	258	-	-	-	0.3	0.1	-	0.4	6.1	2.3	0.1	2.4
2/2	307	307	-	-	-	0.4	0.1	-	0.5	6.2	2.7	0.1	2.9
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	158	158	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	4	4	3	1	0	0.0	0.0	-	0.0	2.8	0.0	0.0	0.0

Full Input Data And Results

8/1	7	7	7	0	0	0.0	0.0	-	0.0	2.8	0.0	0.0	0.0
9/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	307	307	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	7	7	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	158	158	-	-	-	0.2	0.1	-	0.3	6.1	1.4	0.1	1.4
12/2	224	224	-	-	-	0.3	0.1	-	0.4	6.2	2.0	0.1	2.1
13/1	262	262	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	307	307	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

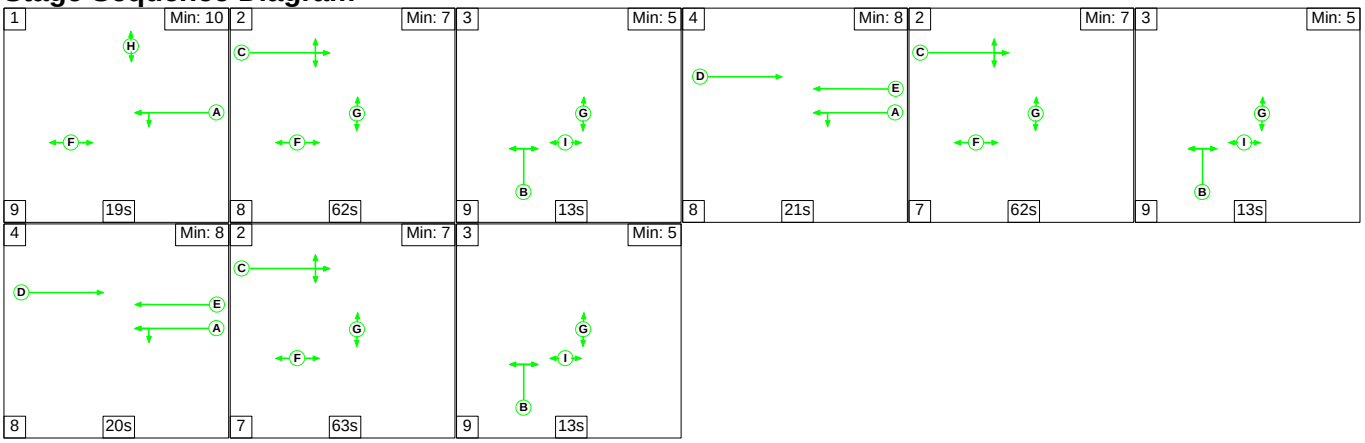
C1 - Rea Street - Milk Street	PRC for Signalled Lanes (%):	49.8	Total Delay for Signalled Lanes (pcuHr):	14.66	Cycle Time (s): 360
C2 - Ped West of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	436.8	Total Delay for Signalled Lanes (pcuHr):	0.52	Cycle Time (s): 90
C2 - Ped West of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	336.5	Total Delay for Signalled Lanes (pcuHr):	0.78	Cycle Time (s): 90
C3 - Ped East of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	477.6	Total Delay for Signalled Lanes (pcuHr):	0.65	Cycle Time (s): 360
C3 - Ped East of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	327.1	Total Delay for Signalled Lanes (pcuHr):	0.97	Cycle Time (s): 360
	PRC Over All Lanes (%):	49.8	Total Delay Over All Lanes(pcuHr):	17.72	

Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

C1 - Rea Street - Milk Street

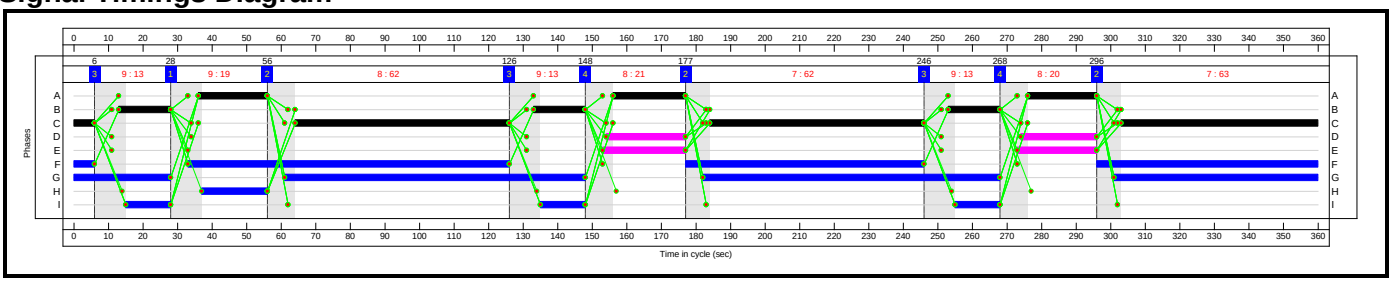
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	2	3	4	2	3
Duration	19	62	13	21	62	13	20	63	13
Change Point	28	56	126	148	177	246	268	296	6

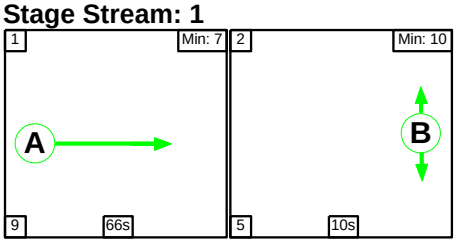
Signal Timings Diagram



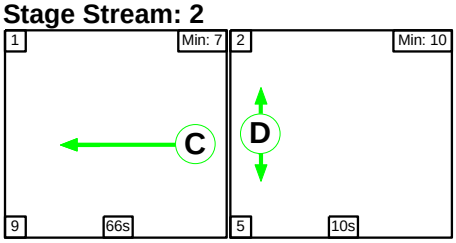
C2 - Ped West of Floodgate

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

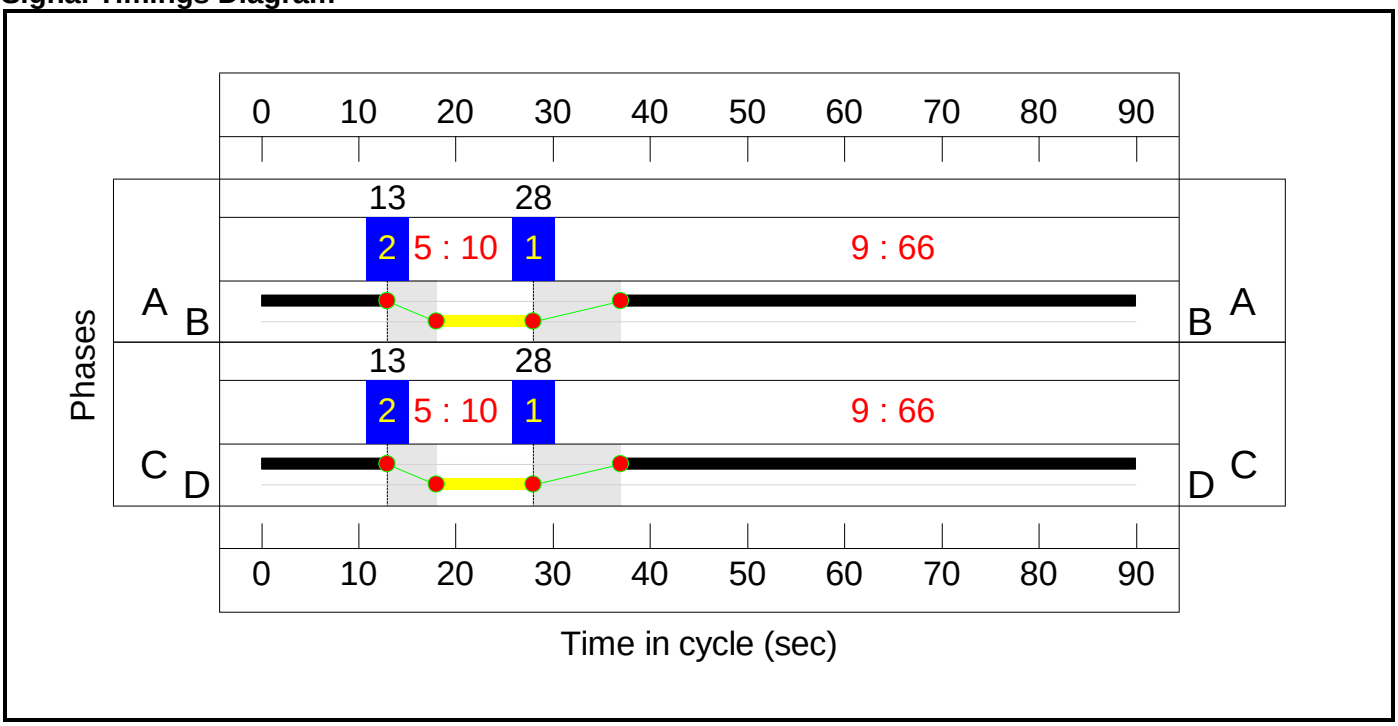
Stage Stream: 1

Stage	1	2
Duration	66	10
Change Point	28	13

Stage Stream: 2

Stage	1	2
Duration	66	10
Change Point	28	13

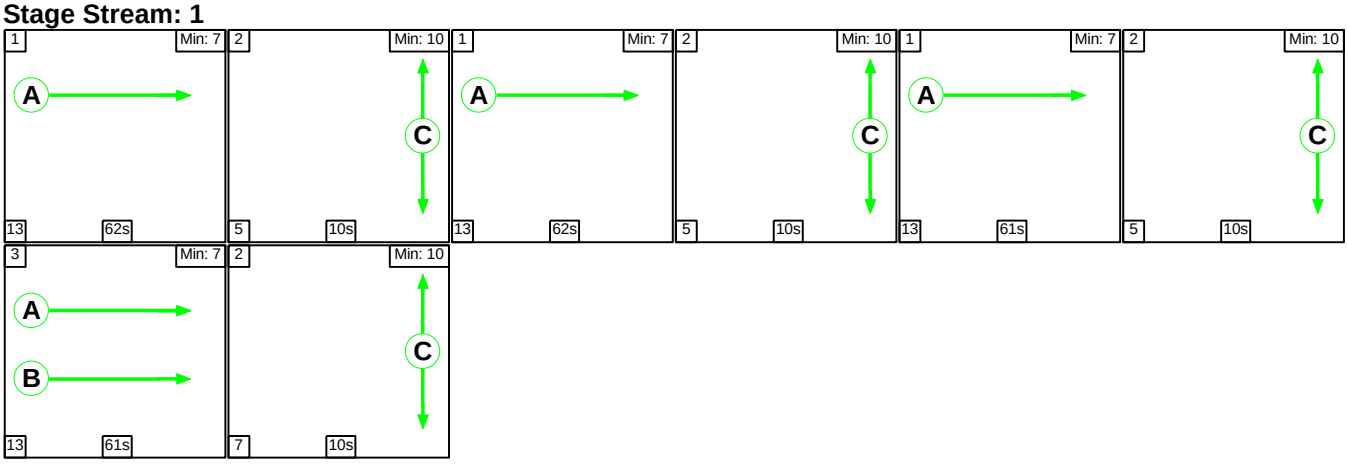
Signal Timings Diagram



C3 - Ped East of Floodgate

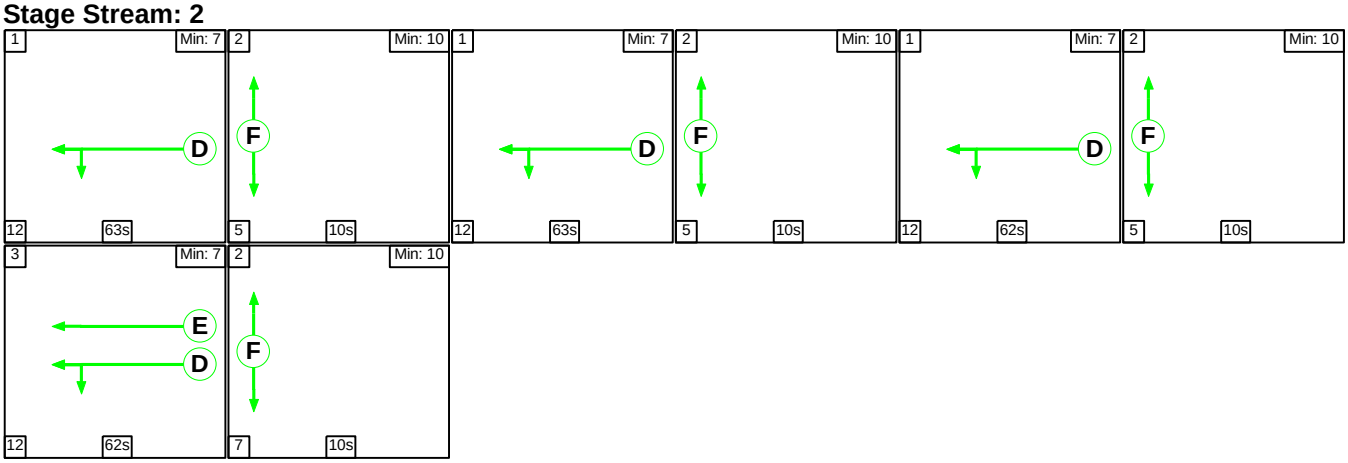
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

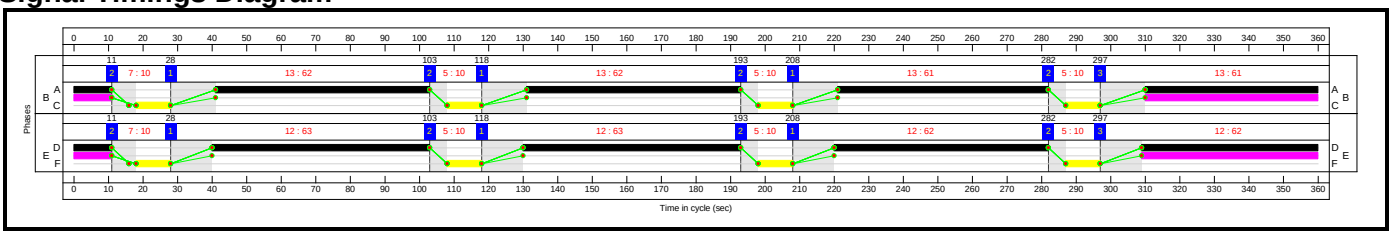
Stage Stream: 1

Stage	1	2	1	2	1	2	3	2
Duration	62	10	62	10	61	10	61	10
Change Point	28	103	118	193	208	282	297	11

Stage Stream: 2

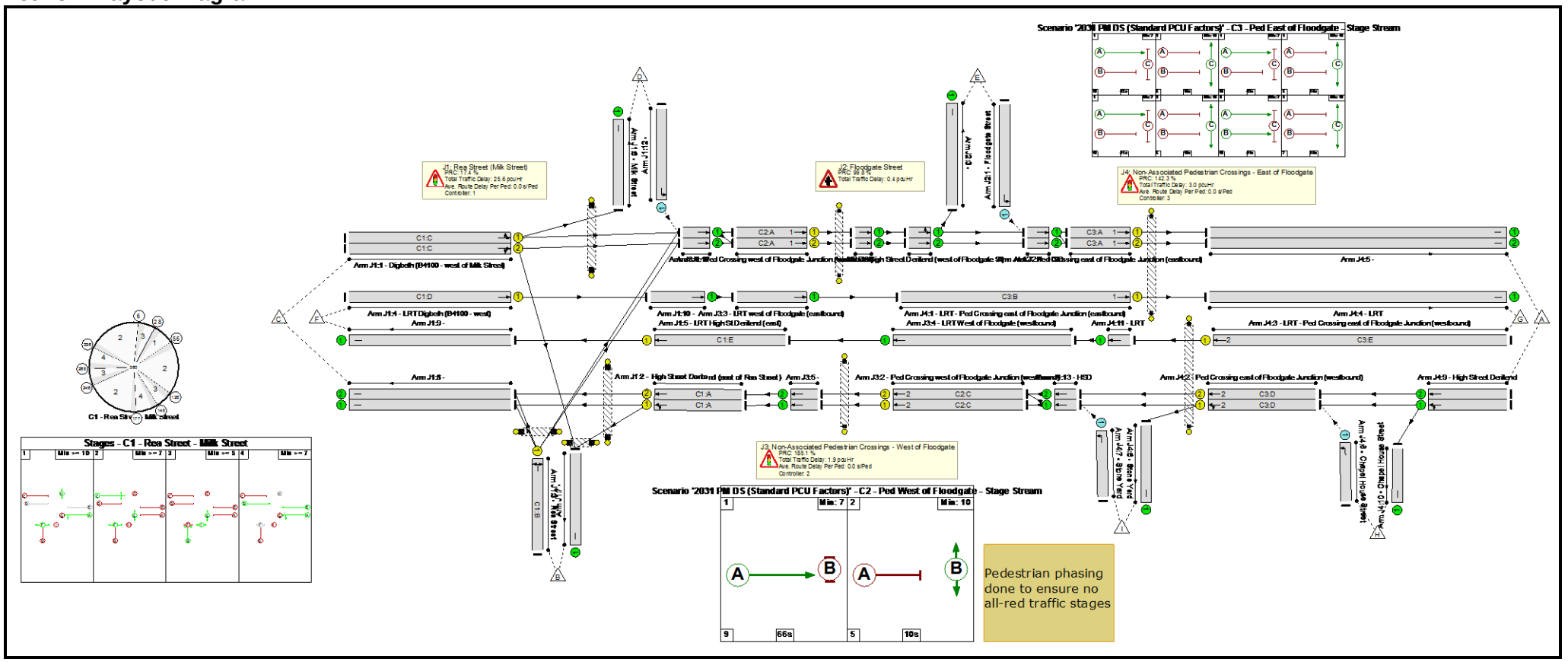
Stage	1	2	1	2	1	2	3	2
Duration	63	10	63	10	62	10	62	10
Change Point	28	103	118	193	208	282	297	11

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.6%**
J1: Rea Street (Milk Street)	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.6%**
1/1	Digbeth (B4100 - west of Milk Street) Left Ahead	U	N/A	N/A	C1:C		3	187	-	712	1894	1000	71.2%
1/2	Digbeth (B4100 - west of Milk Street) Right Ahead	U	N/A	N/A	C1:C		3	187	-	722	1785	942	76.6%
2/1	High Street Deritend (east of Rea Street) Left Ahead	U	N/A	N/A	C1:A		3	61	-	238	1823	324	73.4%
2/2	High Street Deritend (east of Rea Street) Ahead	U	N/A	N/A	C1:A		3	61	-	281	2065	367	76.5%
3/1	Rea Street Left Right	U	N/A	N/A	C1:B		3	45	-	183	1807	241	76.0%
4/1	LRT Digbeth (B4100 - west) Ahead	U	N/A	N/A	C1:D		2	45	-	0	2015	263	0.0%
5/1	LRT High St Deritend (east) Ahead	U	N/A	N/A	C1:E		2	47	-	0	2015	274	0.0%
6/1	Milk Street	U	N/A	N/A	-		-	-	-	86	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	784	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	224	Inf	Inf	0.0%
8/2		U	N/A	N/A	-		-	-	-	372	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	755	Inf	Inf	0.0%

Full Input Data And Results

11/2	Ahead	U	N/A	N/A	-		-	-	-	44	Inf	Inf	0.0%
12/1	Left	O	N/A	N/A	-		-	-	-	129	1618	862	15.0%
Ped Link: P1	H	-	N/A	-	C1:H		1	19	-	0	-	0	0.0%
Ped Link: P2	E	-	N/A	-	C1:F		3	232	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:G		3	260	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:I		3	39	-	0	-	0	0.0%
J2: Floodgate Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**45.0%**
1/1	Floodgate Street Left	O	N/A	N/A	-		-	-	-	286	1799	635	45.0%
2/1	High Street Deritend (west of Floodgate St) Left Ahead	U	N/A	N/A	-		-	-	-	450	Inf	Inf	0.0%
2/2	High Street Deritend (west of Floodgate St) Ahead	U	N/A	N/A	-		-	-	-	349	Inf	Inf	0.0%
3/1		U	N/A	N/A	-		-	-	-	86	Inf	Inf	0.0%
4/1	HSD Ahead	U	N/A	N/A	-		-	-	-	650	Inf	Inf	0.0%
4/2	HSD Ahead	U	N/A	N/A	-		-	-	-	349	Inf	Inf	0.0%
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**31.6%**
1/1	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	450	1915	1426	31.6%
1/2	Ped Crossing west of Floodgate Junction (easttbound) Ahead	U	2:1	N/A	C2:A		1	66	-	349	1965	1463	23.9%
2/1	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	238	1925	1433	16.6%
2/2	Ped Crossing west of Floodgate Junction (westbound) Ahead	U	2:2	N/A	C2:C		1	66	-	281	2065	1537	18.3%

Full Input Data And Results

3/1	LRT west of Floodgate (eastbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
4/1	LRT West of Floodgate (westbound) Ahead	U	N/A	N/A	-		-	-	-	0	2015	2015	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	238	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	281	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	450	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	349	Inf	Inf	0.0%
Ped Link: P1	Ped West of Floodgate	-	2:2	-	C2:D		1	10	-	0	-	0	0.0%
Ped Link: P2	Ped West of Floodgate	-	2:1	-	C2:B		1	10	-	0	-	0	0.0%
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**37.1%**
1/1	LRT - Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:B		1	61	-	0	2015	347	0.0%
2/1	Ped Crossing east of Floodgate Junction (westbound) Left Ahead	U	3:2	N/A	C3:D		4	250	-	260	1925	1358	19.1%
2/2	Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:D		4	250	-	241	2065	1457	16.5%
3/1	LRT - Ped Crossing east of Floodgate Junction (westbound) Ahead	U	3:2	N/A	C3:E		1	62	-	0	2015	353	0.0%
4/1	LRT	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	465	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	534	Inf	Inf	0.0%
6/1	Stone Yard	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
7/1	Stone Yard Left	O	N/A	N/A	-		-	-	-	18	1670	658	2.7%

Full Input Data And Results

8/1	Chapel House Street Left	O	N/A	N/A	-		-	-	-	56	1641	670	8.4%
9/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	293	Inf	Inf	0.0%
9/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	241	Inf	Inf	0.0%
10/1	Chapel House Street	U	N/A	N/A	-		-	-	-	89	Inf	Inf	0.0%
11/1	LRT Ahead	U	N/A	N/A	-		-	-	-	0	Inf	Inf	0.0%
12/1	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	465	1930	1340	34.7%
12/2	Ped Crossing east of Floodgate Junction (eastbound) Ahead	U	3:1	N/A	C3:A		4	246	-	534	2070	1438	37.1%
13/1	HSD Ahead	U	N/A	N/A	-		-	-	-	278	Inf	Inf	0.0%
13/2	HSD Ahead	U	N/A	N/A	-		-	-	-	241	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	3:1	-	C3:C		4	40	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	3:2	-	C3:F		4	40	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend / Rea Street (including Milk Street and Floodgate Street)	**-**	**-**	**440**	**49**	**0**	**21.8**	**9.2**	**0.0**	**30.9**	**-**	**-**	**-**	**-**
J1: Rea Street (Milk Street)	**-**	**-**	**85**	**44**	**0**	**18.3**	**7.3**	**0.0**	**25.6**	**-**	**-**	**-**	**-**
1/1	712	712	-	-	-	4.2	1.2	-	5.5	27.6	18.0	1.2	19.2
1/2	722	722	-	-	-	4.5	1.6	-	6.1	30.5	19.1	1.6	20.7
2/1	238	238	-	-	-	3.1	1.3	-	4.4	66.9	7.5	1.3	8.8
2/2	281	281	-	-	-	3.7	1.6	-	5.2	67.1	8.9	1.6	10.5
3/1	183	183	-	-	-	2.5	1.5	-	4.1	79.7	5.8	1.5	7.3
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	86	86	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	784	784	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	224	224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	372	372	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	755	755	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	44	44	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	129	129	85	44	0	0.2	0.1	-	0.3	8.4	1.5	0.1	1.6
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: Floodgate Street	**-**	**-**	**286**	**0**	**0**	**0.0**	**0.4**	**0.0**	**0.4**	**-**	**-**	**-**	**-**
1/1	286	286	286	0	0	0.0	0.4	-	0.4	5.1	0.0	0.4	0.4

2/1	450	450	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	349	349	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	86	86	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	650	650	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	349	349	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Non-Associated Pedestrian Crossings - West of Floodgate	**-**	**-**	**0**	**0**	**0**	**1.3**	**0.6**	**0.0**	**1.9**	**-**	**-**	**-**	**-**
1/1	450	450	-	-	-	0.5	0.2	-	0.7	5.7	3.8	0.2	4.0
1/2	349	349	-	-	-	0.3	0.2	-	0.5	5.2	2.6	0.2	2.8
2/1	238	238	-	-	-	0.2	0.1	-	0.3	4.9	1.7	0.1	1.8
2/2	281	281	-	-	-	0.3	0.1	-	0.4	4.8	2.0	0.1	2.1
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	238	238	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	281	281	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	450	450	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	349	349	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J4: Non-Associated Pedestrian Crossings - East of Floodgate	**-**	**-**	**69**	**5**	**0**	**2.2**	**0.8**	**0.0**	**3.0**	**-**	**-**	**-**	**-**
1/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/1	260	260	-	-	-	0.3	0.1	-	0.4	6.2	2.3	0.1	2.4
2/2	241	241	-	-	-	0.3	0.1	-	0.4	5.9	2.1	0.1	2.2
3/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	465	465	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	534	534	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	18	18	13	5	0	0.0	0.0	-	0.0	2.8	0.0	0.0	0.0

Full Input Data And Results

8/1	56	56	56	0	0	0.0	0.0	-	0.0	2.9	0.0	0.0	0.0
9/1	293	293	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	241	241	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	89	89	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	465	465	-	-	-	0.7	0.3	-	1.0	7.6	4.9	0.3	5.2
12/2	534	534	-	-	-	0.8	0.3	-	1.1	7.7	5.8	0.3	6.1
13/1	278	278	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	241	241	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

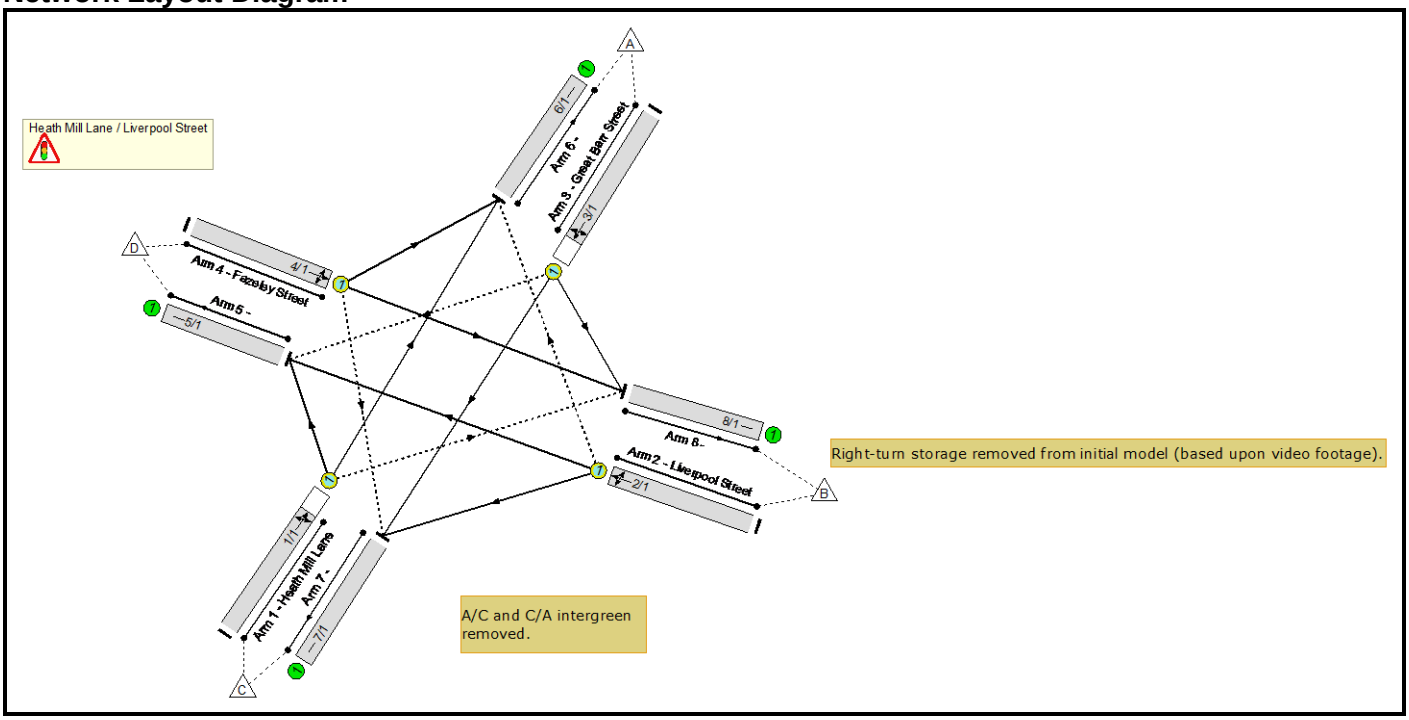
C1 - Rea Street - Milk Street	PRC for Signalled Lanes (%):	17.4	Total Delay for Signalled Lanes (pcuHr):	25.31	Cycle Time (s): 360
C2 - Ped West of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	185.1	Total Delay for Signalled Lanes (pcuHr):	1.21	Cycle Time (s): 90
C2 - Ped West of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	392.4	Total Delay for Signalled Lanes (pcuHr):	0.70	Cycle Time (s): 90
C3 - Ped East of Floodgate	Stream: 1 PRC for Signalled Lanes (%):	142.3	Total Delay for Signalled Lanes (pcuHr):	2.12	Cycle Time (s): 360
C3 - Ped East of Floodgate	Stream: 2 PRC for Signalled Lanes (%):	370.1	Total Delay for Signalled Lanes (pcuHr):	0.84	Cycle Time (s): 360
	PRC Over All Lanes (%):	17.4	Total Delay Over All Lanes(pcuHr):	30.95	

Full Input Data And Results

User and Project Details

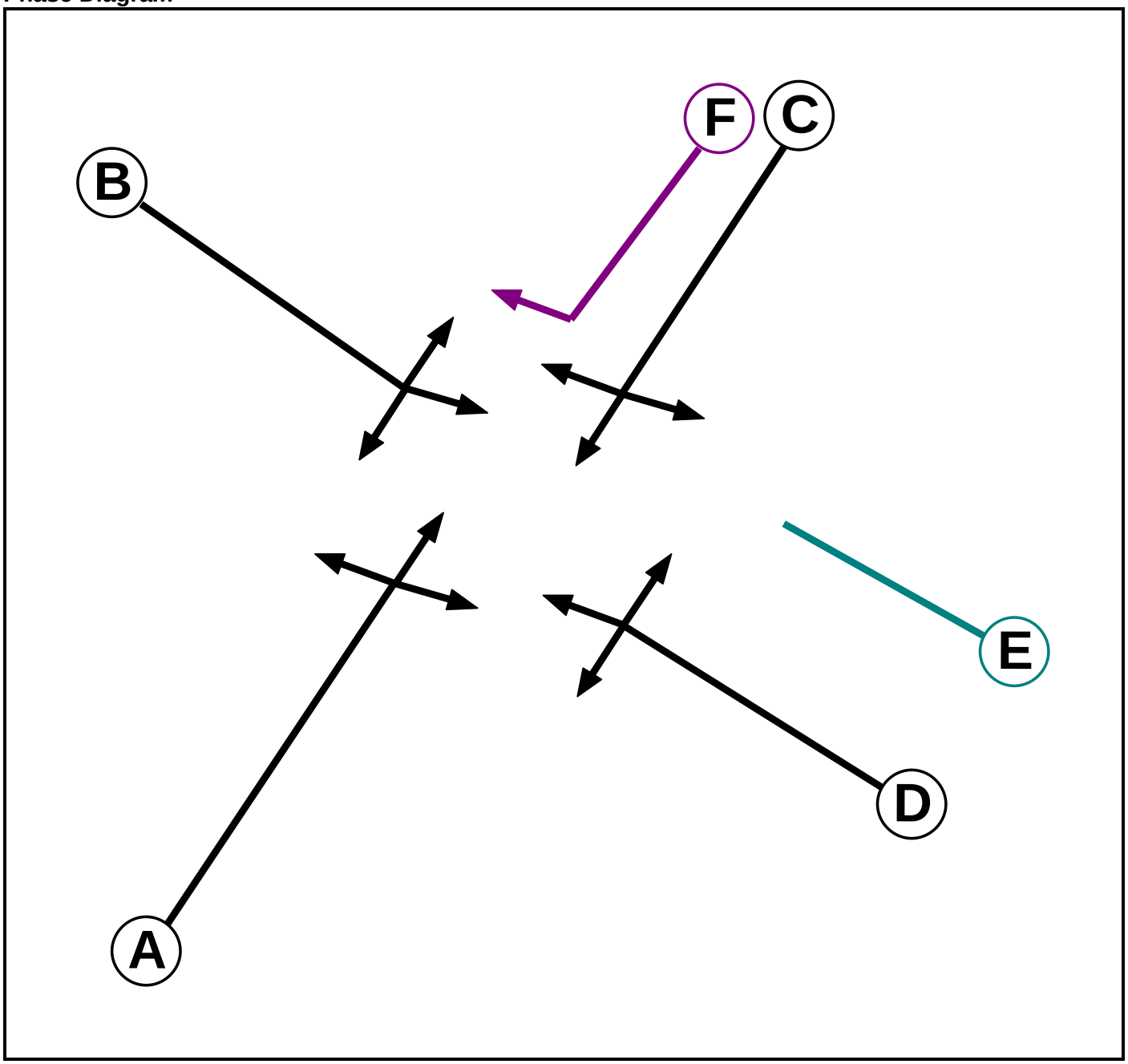
Project:	**Birmingham Eastside Extension**
Title:	**Heath Mill Lane/Liverpool Street Junction**
Location:	Heath Mill Lane/Liverpool Street, Digbeth
File name:	Heath Mill Lane - Liverpool Street (mitigation options).lsg3x
Author:	Ben Cooke
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU
Notes:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Dummy		2	2
F	Ind. Arrow	C	4	4

Full Input Data And Results

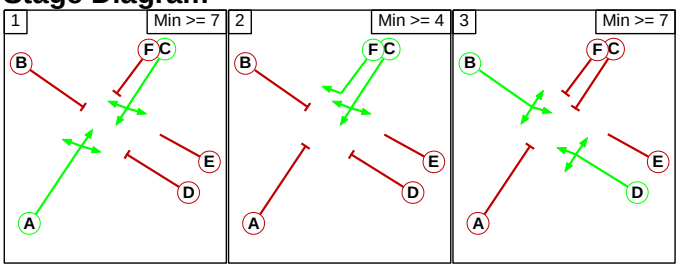
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F
A		5	-	5	3	5
B	5		5	-	3	5
C	-	5		5	3	-
D	5	-	5		3	5
E	2	2	2	2		2
F	5	5	-	5	3	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	C F
3	B D

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage \ To Stage	1	2	3
1		5	5
2	5		5
3	5	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Heath Mill Lane / Liverpool Street											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
1/1 (Heath Mill Lane)	8/1 (Right)	1439	0	3/1	1.09	To 7/1 (Ahead) To 8/1 (Left)	2.00	-	0.50	2	2.00
2/1 (Liverpool Street)	6/1 (Right)	1439	0	4/1	1.09	To 6/1 (Left) To 8/1 (Ahead)	-	-	-	-	-
3/1 (Great Barr Street)	5/1 (Right)	1439	0	1/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00
4/1 (Fazeley Street)	7/1 (Right)	1439	0	2/1	1.09	To 5/1 (Ahead) To 7/1 (Left)	-	-	-	-	-

Full Input Data And Results

Lane Input Data

Junction: Heath Mill Lane / Liverpool Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Heath Mill Lane)	O	A	2	3	60.0	Geom	-	3.95	0.00	Y	Arm 5 Left	5.00
											Arm 6 Ahead	Inf
											Arm 8 Right	14.00
2/1 (Liverpool Street)	O	D	2	3	60.0	Geom	-	3.05	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Right	9.00
											Arm 7 Left	7.00
3/1 (Great Barr Street)	O	C F	2	3	60.0	Geom	-	4.20	0.00	Y	Arm 5 Right	12.00
											Arm 7 Ahead	Inf
											Arm 8 Left	6.00
4/1 (Fazeley Street)	O	B	2	3	60.0	Geom	-	4.40	0.00	Y	Arm 6 Left	5.00
											Arm 7 Right	10.00
											Arm 8 Ahead	Inf
5/1	U		2	3	60.0	Geom	-	4.65	0.00	Y		
6/1	U		2	3	60.0	Geom	-	3.90	0.00	Y		
7/1	U		2	3	60.0	Geom	-	4.25	0.00	Y		
8/1	U		2	3	60.0	Geom	-	3.15	0.00	Y		

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 DS AM (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	138	461	599
	B	0	0	163	385	548
	C	140	0	0	125	265
	D	281	19	0	0	300
	Tot.	421	19	301	971	1712

Traffic Lane Flows

Lane	Scenario 1: 2026 DS AM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	265
2/1	548
3/1	599
4/1	300
5/1	971
6/1	421
7/1	301
8/1	19

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	47.2 %	1761	1761
				Arm 6 Ahead	Inf	52.8 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	70.3 %	1805	1805
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	29.7 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	77.0 %	1856	1856
				Arm 7 Ahead	Inf	23.0 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	93.7 %	1604	1604
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	6.3 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 2: '2026 DS PM (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	139	374	513
	B	0	0	99	363	462
	C	320	0	0	83	403
	D	525	108	0	0	633
	Tot.	845	108	238	820	2011

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 DS PM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	403
2/1	462
3/1	513
4/1	633
5/1	820
6/1	845
7/1	238
8/1	108

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.6 %	1893	1893
				Arm 6 Ahead	Inf	79.4 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	78.6 %	1836	1836
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	21.4 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	72.9 %	1865	1865
				Arm 7 Ahead	Inf	27.1 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	82.9 %	1646	1646
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	17.1 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 3: '2031 DS AM (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	151	463	614
	B	0	0	176	397	573
	C	145	0	0	125	270
	D	291	23	0	0	314
	Tot.	436	23	327	985	1771

Traffic Lane Flows

Lane	Scenario 3: 2031 DS AM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	270
2/1	573
3/1	614
4/1	314
5/1	985
6/1	436
7/1	327
8/1	23

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	46.3 %	1765	1765
				Arm 6 Ahead	Inf	53.7 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	69.3 %	1801	1801
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	30.7 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	75.4 %	1860	1860
				Arm 7 Ahead	Inf	24.6 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	92.7 %	1608	1608
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	7.3 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 4: '2031 DS PM (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	141	465	606
	B	0	0	110	372	482
	C	329	0	0	84	413
	D	533	109	0	0	642
	Tot.	862	109	251	921	2143

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 DS PM (Standard PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	413
2/1	482
3/1	606
4/1	642
5/1	921
6/1	862
7/1	251
8/1	109

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.3 %	1894	1894
				Arm 6 Ahead	Inf	79.7 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	77.2 %	1830	1830
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	22.8 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	76.7 %	1857	1857
				Arm 7 Ahead	Inf	23.3 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	83.0 %	1645	1645
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	17.0 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 5: '2026 DS AM (Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	140	486	626
	B	0	0	166	391	557
	C	143	0	0	127	270
	D	303	20	0	0	323
	Tot.	446	20	306	1004	1776

Traffic Lane Flows

Lane	Scenario 5: 2026 DS AM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	270
2/1	557
3/1	626
4/1	323
5/1	1004
6/1	446
7/1	306
8/1	20

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	47.0 %	1761	1761
				Arm 6 Ahead	Inf	53.0 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	70.2 %	1805	1805
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	29.8 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	77.6 %	1855	1855
				Arm 7 Ahead	Inf	22.4 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	93.8 %	1604	1604
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	6.2 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 6: '2026 DS PM (Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	140	395	535
	B	0	0	99	365	464
	C	321	0	0	83	404
	D	546	109	0	0	655
	Tot.	867	109	239	843	2058

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 DS PM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	404
2/1	464
3/1	535
4/1	655
5/1	843
6/1	867
7/1	239
8/1	109

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.5 %	1893	1893
				Arm 6 Ahead	Inf	79.5 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	78.7 %	1836	1836
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	21.3 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	73.8 %	1863	1863
				Arm 7 Ahead	Inf	26.2 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	83.4 %	1644	1644
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	16.6 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Full Input Data And Results

Scenario 7: '2031 DS AM (Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	0	153	488	641
	B	0	0	179	403	582
	C	147	0	0	127	274
	D	313	24	0	0	337
	Tot.	460	24	332	1018	1834

Traffic Lane Flows

Lane	Scenario 7: 2031 DS AM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	274
2/1	582
3/1	641
4/1	337
5/1	1018
6/1	460
7/1	332
8/1	24

Full Input Data And Results

Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	46.4 %	1765	1765
				Arm 6 Ahead	Inf	53.6 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	69.2 %	1801	1801
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	30.8 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	76.1 %	1858	1858
				Arm 7 Ahead	Inf	23.9 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	92.9 %	1607	1607
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	7.1 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 8: '2031 DS PM (Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	0	141	491	632
	B	0	0	110	374	484
	C	330	0	0	84	414
	D	554	109	0	0	663
	Tot.	884	109	251	949	2193

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 DS PM (Saturn PCU Factors)
Junction: Heath Mill Lane / Liverpool Street	
1/1	414
2/1	484
3/1	632
4/1	663
5/1	949
6/1	884
7/1	251
8/1	109

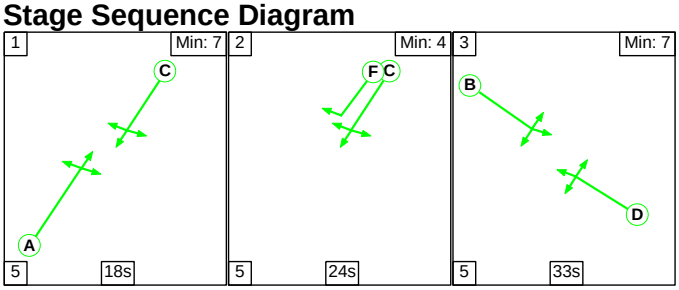
Lane Saturation Flows

Junction: Heath Mill Lane / Liverpool Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Heath Mill Lane)	3.95	0.00	Y	Arm 5 Left	5.00	20.3 %	1895	1895
				Arm 6 Ahead	Inf	79.7 %		
				Arm 8 Right	14.00	0.0 %		
2/1 (Liverpool Street)	3.05	0.00	Y	Arm 5 Ahead	Inf	77.3 %	1831	1831
				Arm 6 Right	9.00	0.0 %		
				Arm 7 Left	7.00	22.7 %		
3/1 (Great Barr Street)	4.20	0.00	Y	Arm 5 Right	12.00	77.7 %	1855	1855
				Arm 7 Ahead	Inf	22.3 %		
				Arm 8 Left	6.00	0.0 %		
4/1 (Fazeley Street)	4.40	0.00	Y	Arm 6 Left	5.00	83.6 %	1643	1643
				Arm 7 Right	10.00	0.0 %		
				Arm 8 Ahead	Inf	16.4 %		
5/1	4.65	0.00	Y				2080	2080
6/1	3.90	0.00	Y				2005	2005
7/1	4.25	0.00	Y				2040	2040
8/1	3.15	0.00	Y				1930	1930

Scenario 1: '2026 DS AM (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

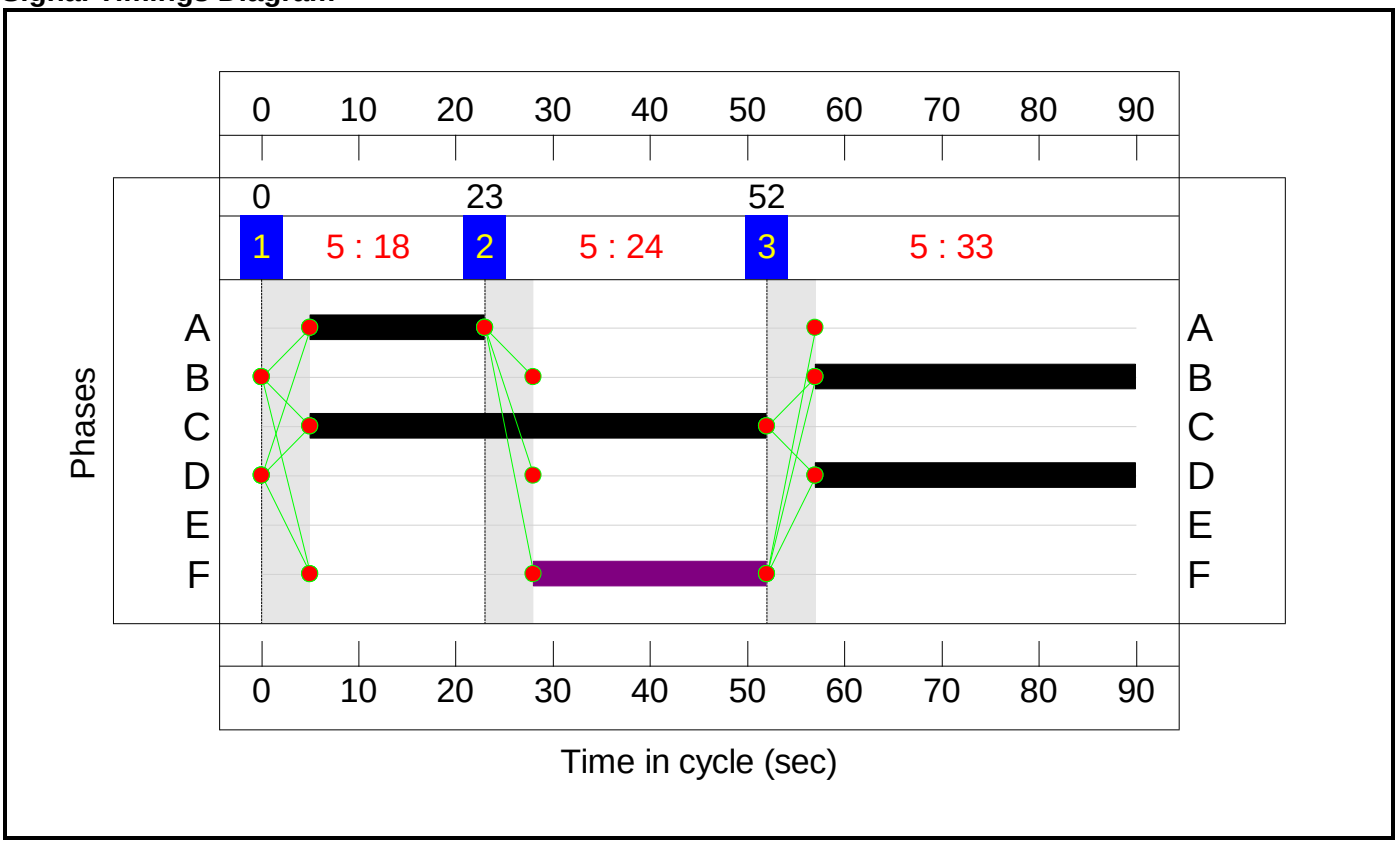


Full Input Data And Results

Stage Timings

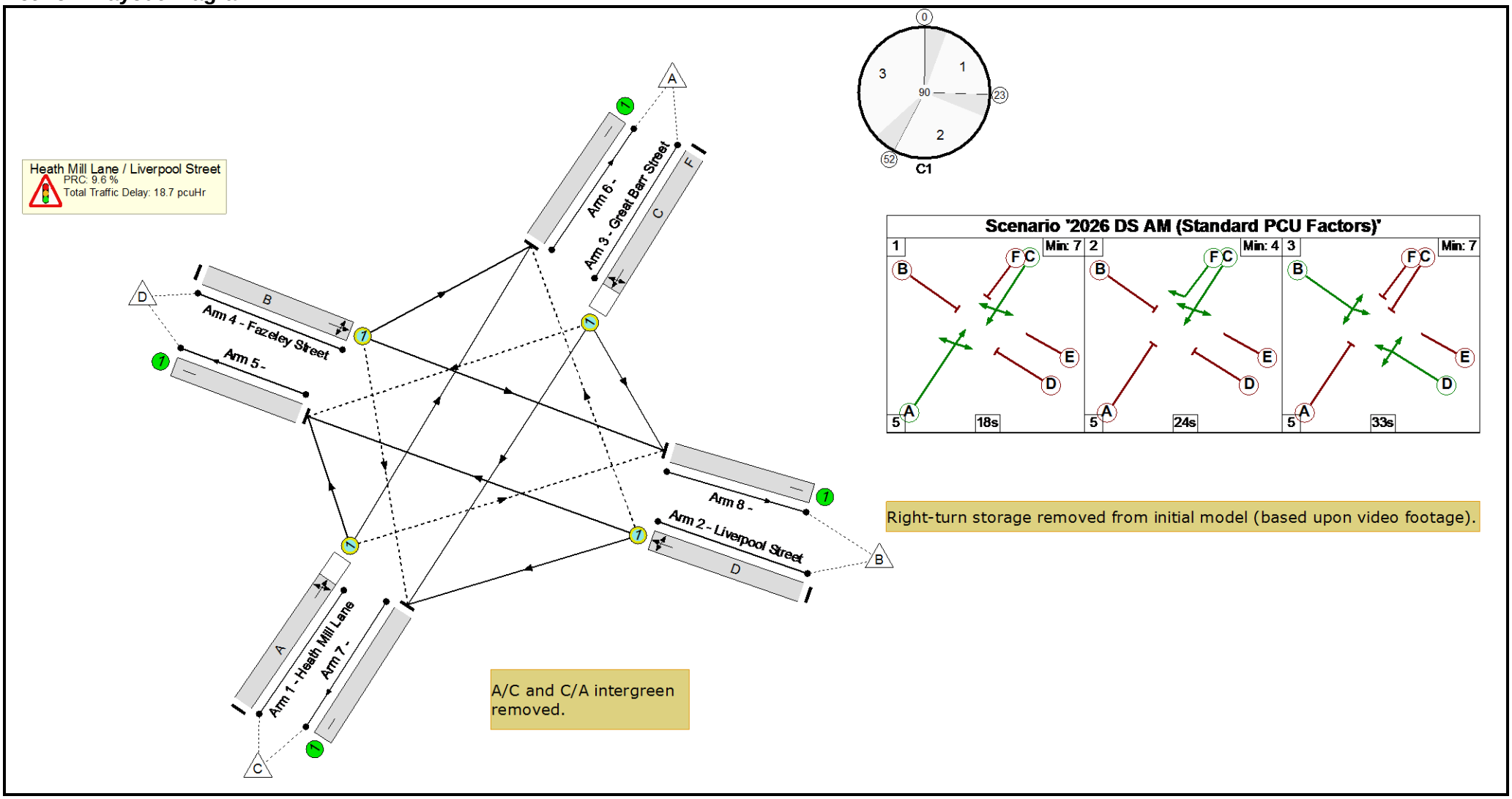
Stage	1	2	3
Duration	18	24	33
Change Point	0	23	52

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.1%**
Heath Mill Lane / Liverpool Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.1%**
1/1	Heath Mill Lane Left Ahead Right	O	N/A	N/A	A		1	18	-	265	1761	372	71.3%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	33	-	548	1805	682	80.4%
3/1	Great Barr Street Right Ahead Left	O	N/A	N/A	C	F	1	47	24	599	1856	729	82.1%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	33	-	300	1604	606	49.5%
5/1		U	N/A	N/A	-		-	-	-	971	2080	2080	46.7%
6/1		U	N/A	N/A	-		-	-	-	421	2005	2005	21.0%
7/1		U	N/A	N/A	-		-	-	-	301	2040	2040	14.8%
8/1		U	N/A	N/A	-		-	-	-	19	1930	1930	1.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**71**	**379**	**10**	**11.7**	**6.6**	**0.4**	**18.7**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**71**	**379**	**10**	**11.7**	**6.6**	**0.4**	**18.7**	**-**	**-**	**-**	**-**
1/1	265	265	0	0	0	2.4	1.2	0.0	3.6	49.5	6.1	1.2	7.3
2/1	548	548	0	0	0	3.8	2.0	-	5.8	38.1	12.2	2.0	14.2
3/1	599	599	71	379	10	3.7	2.2	0.4	6.3	37.9	13.3	2.2	15.5
4/1	300	300	0	0	0	1.8	0.5	-	2.3	27.3	5.7	0.5	6.2
5/1	971	971	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
6/1	421	421	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
7/1	301	301	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	19	19	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 9.6
PRC Over All Lanes (%): 9.6

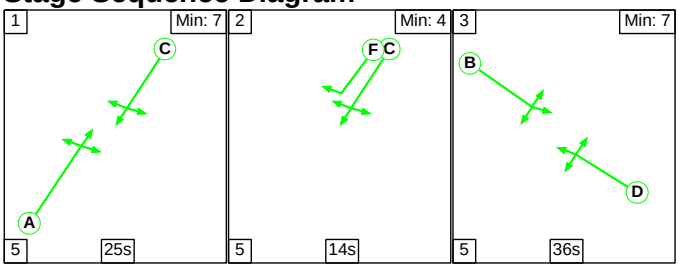
Total Delay for Signalled Lanes (pcuHr): 18.02
Total Delay Over All Lanes(pcuHr): 18.68

Cycle Time (s): 90

Full Input Data And Results

Scenario 2: '2026 DS PM (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

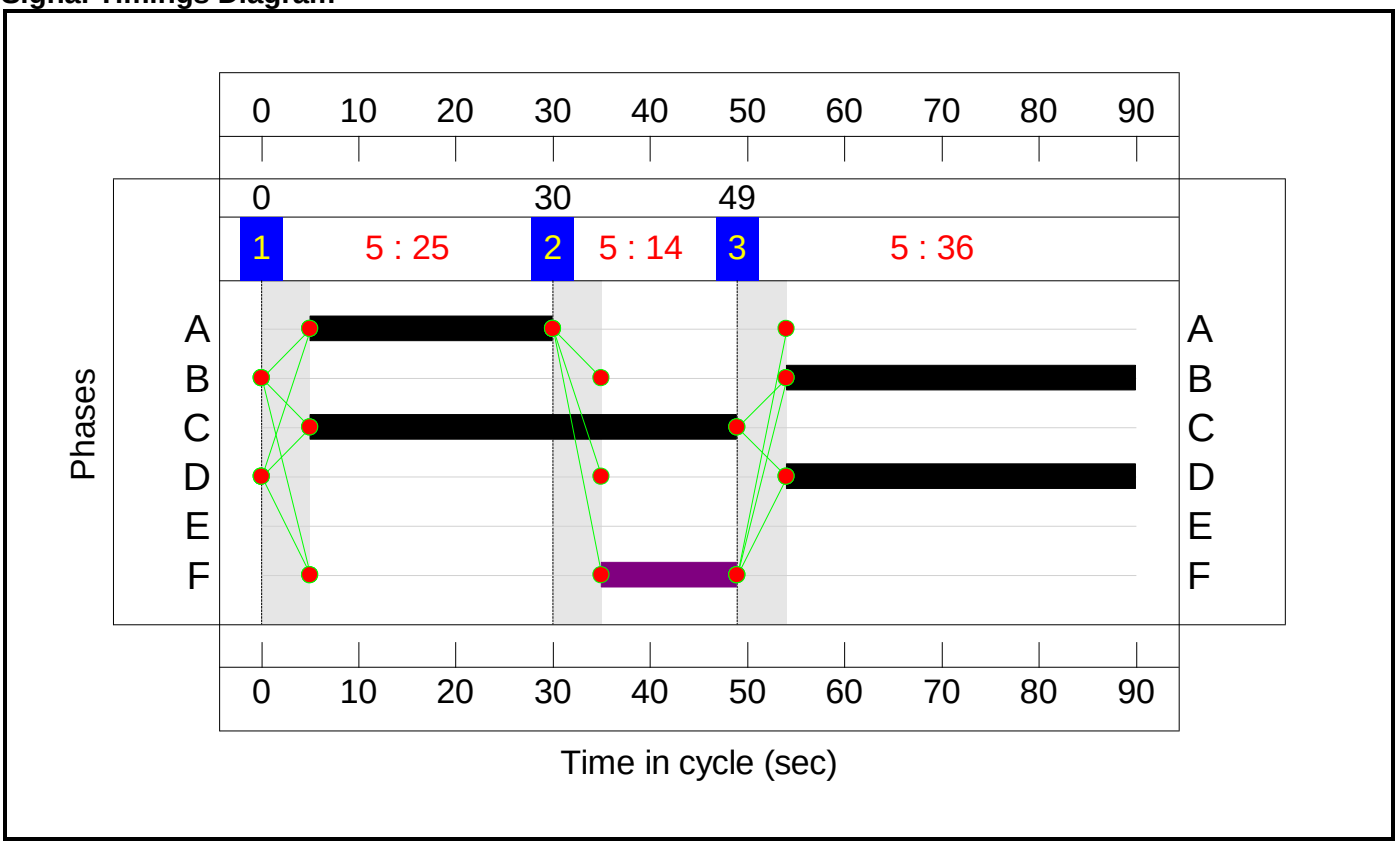
Stage Sequence Diagram



Stage Timings

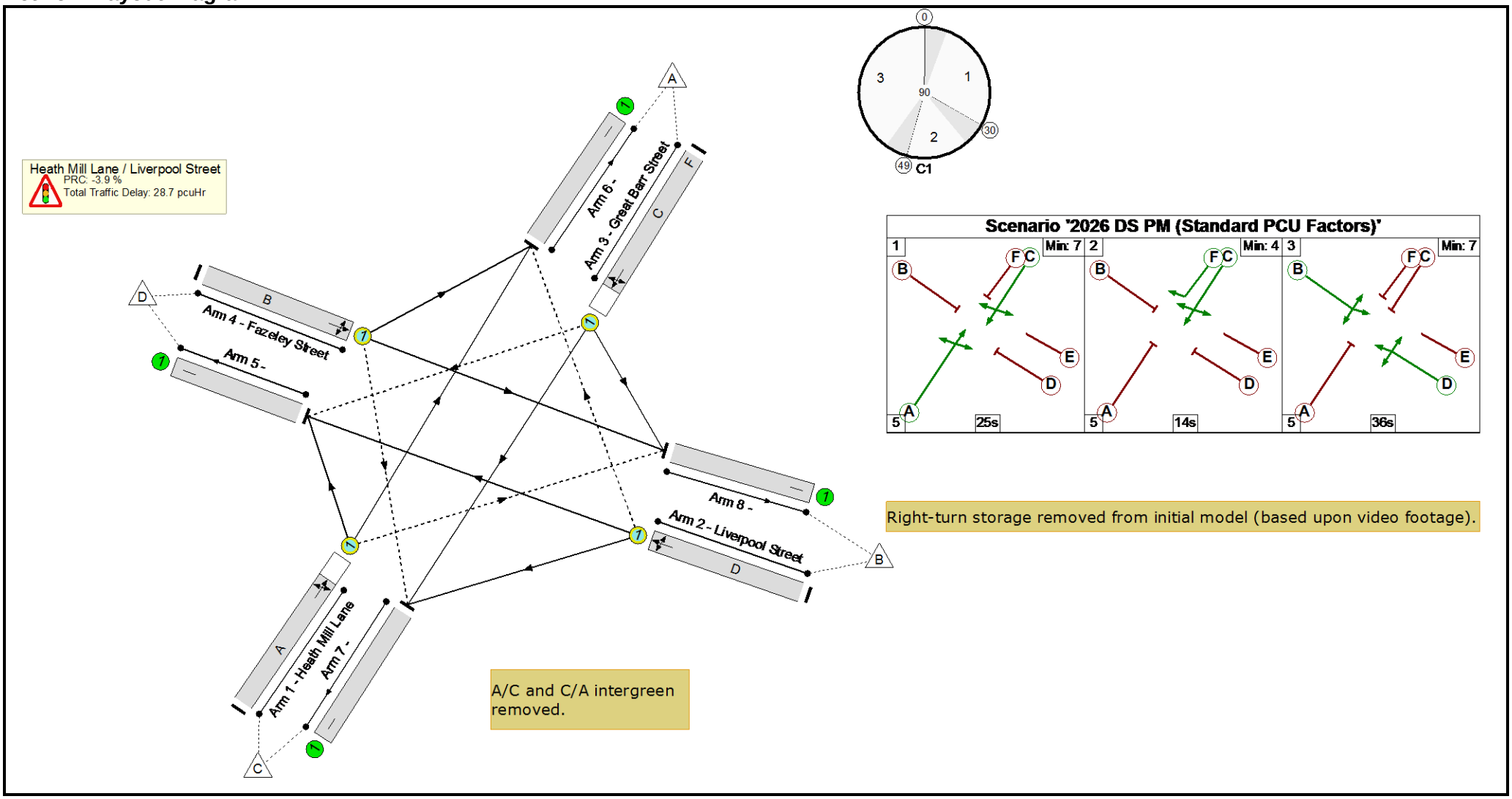
Stage	1	2	3
Duration	25	14	36
Change Point	0	30	49

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**93.5%**
Heath Mill Lane / Liverpool Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**93.5%**
1/1	Heath Mill Lane Left Ahead Right	O	N/A	N/A	A		1	25	-	403	1893	547	73.7%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	36	-	462	1836	755	61.2%
3/1	Great Barr Street Right Ahead Left	O	N/A	N/A	C	F	1	44	14	513	1865	549	93.4%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	36	-	633	1646	677	93.5%
5/1		U	N/A	N/A	-		-	-	-	820	2080	2080	39.4%
6/1		U	N/A	N/A	-		-	-	-	845	2005	2005	42.1%
7/1		U	N/A	N/A	-		-	-	-	238	2040	2040	11.7%
8/1		U	N/A	N/A	-		-	-	-	108	1930	1930	5.6%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**85**	**257**	**32**	**14.2**	**14.1**	**0.5**	**28.7**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**85**	**257**	**32**	**14.2**	**14.1**	**0.5**	**28.7**	**-**	**-**	**-**	**-**
1/1	403	403	0	0	0	3.2	1.4	0.0	4.6	41.2	9.1	1.4	10.4
2/1	462	462	0	0	0	2.7	0.8	-	3.5	27.0	9.0	0.8	9.8
3/1	513	513	85	257	32	3.8	5.4	0.5	9.7	68.0	12.4	5.4	17.8
4/1	633	633	0	0	0	4.5	5.7	-	10.2	58.0	15.1	5.7	20.9
5/1	820	820	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
6/1	845	845	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
7/1	238	238	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	108	108	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

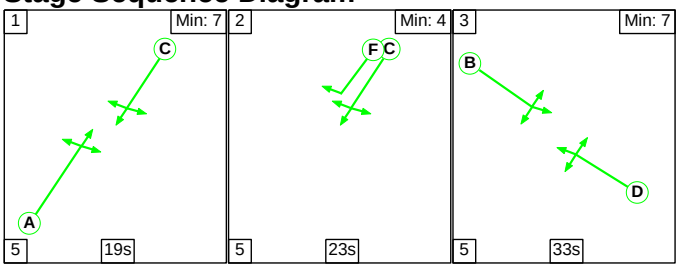
C1 PRC for Signalled Lanes (%): -3.9 Total Delay for Signalled Lanes (pcuHr): 27.96 Cycle Time (s): 90

PRC Over All Lanes (%): -3.9 Total Delay Over All Lanes(pcuHr): 28.74

Full Input Data And Results

Scenario 3: '2031 DS AM (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

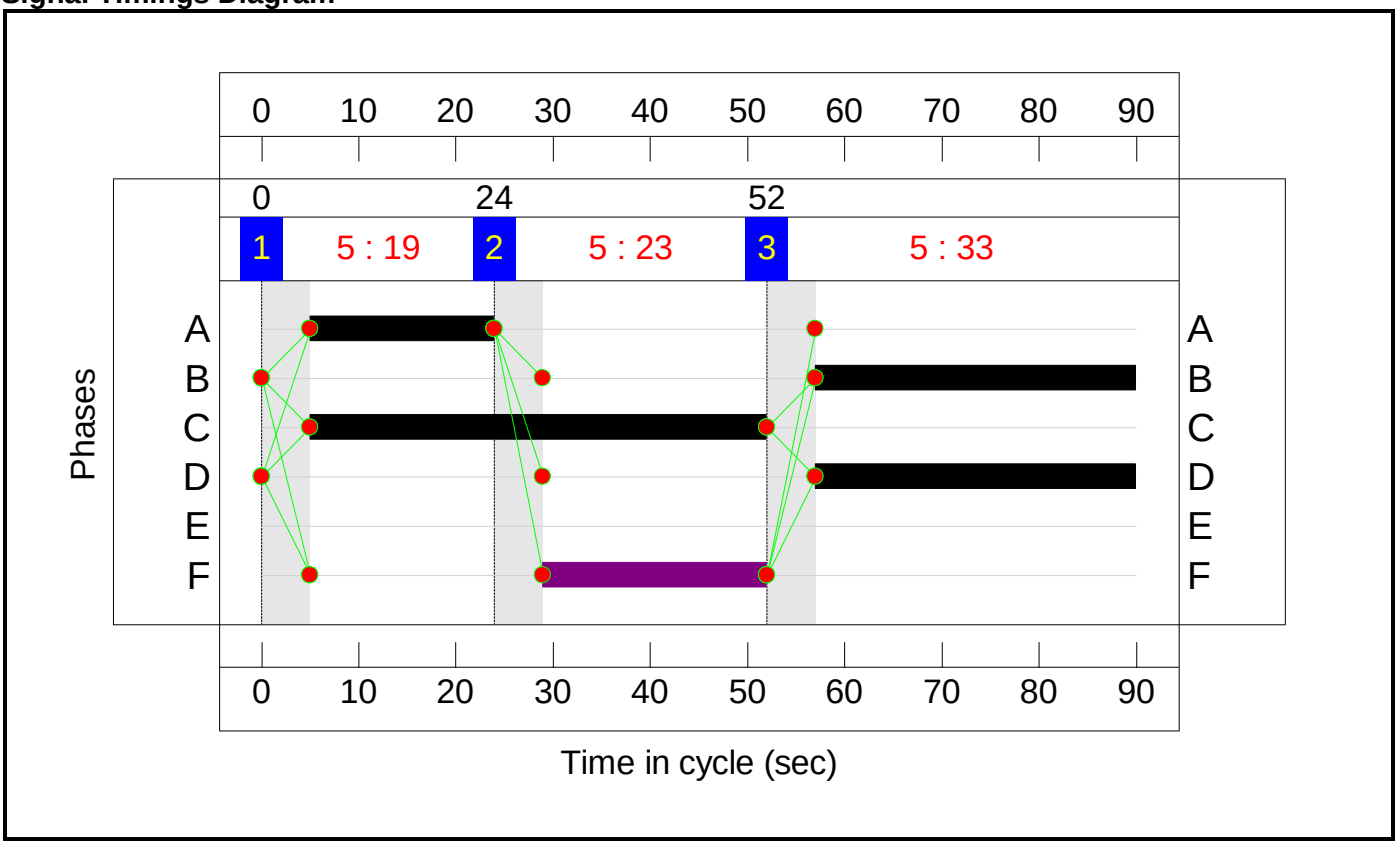
Stage Sequence Diagram



Stage Timings

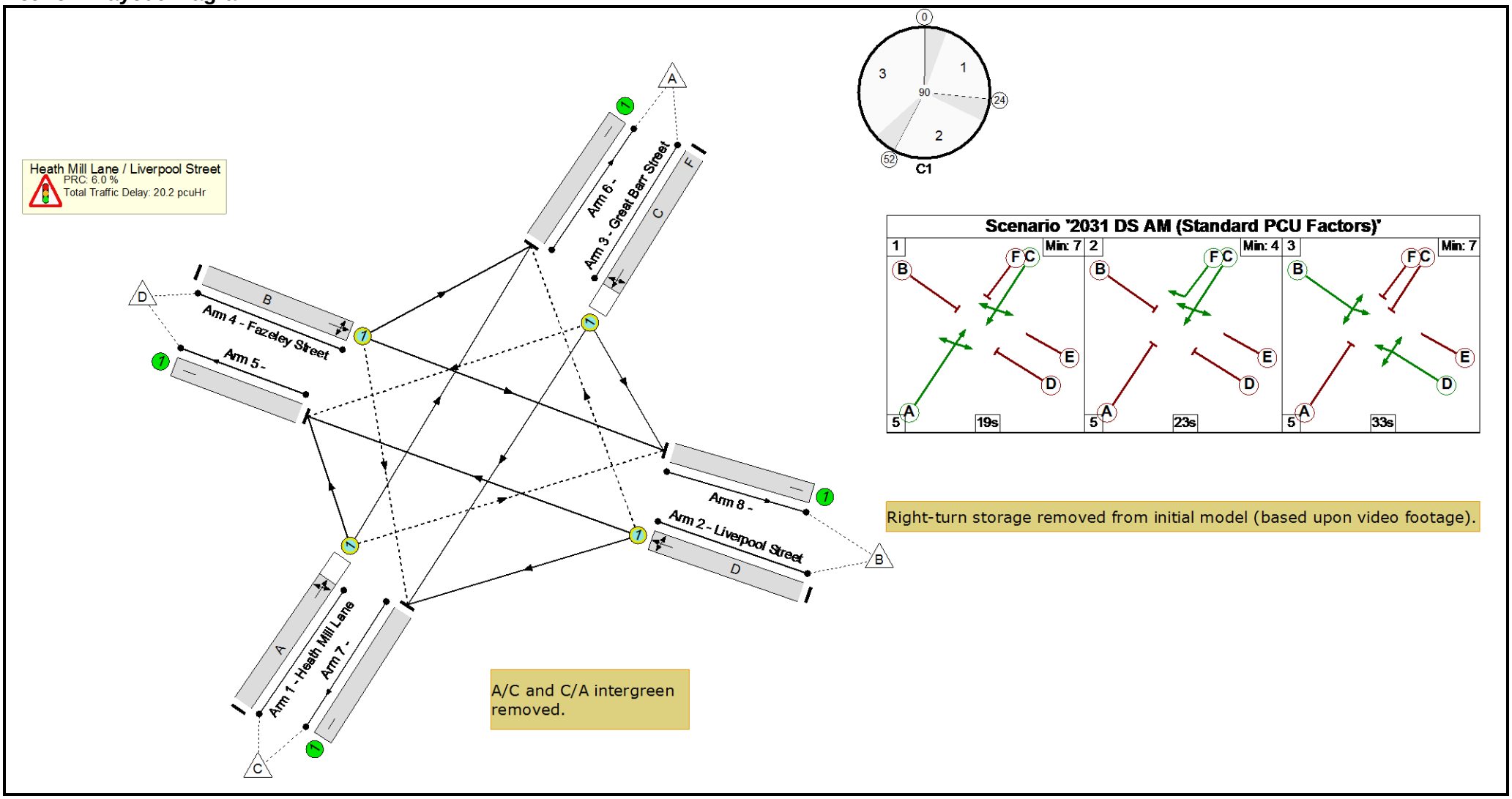
Stage	1	2	3
Duration	19	23	33
Change Point	0	24	52

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.9%**
Heath Mill Lane / Liverpool Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.9%**
1/1	Heath Mill Lane Left Ahead Right	O	N/A	N/A	A		1	19	-	270	1765	392	68.8%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	33	-	573	1801	680	84.2%
3/1	Great Barr Street Right Ahead Left	O	N/A	N/A	C	F	1	47	23	614	1860	723	84.9%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	33	-	314	1608	607	51.7%
5/1		U	N/A	N/A	-		-	-	-	985	2080	2080	47.4%
6/1		U	N/A	N/A	-		-	-	-	436	2005	2005	21.7%
7/1		U	N/A	N/A	-		-	-	-	327	2040	2040	16.0%
8/1		U	N/A	N/A	-		-	-	-	23	1930	1930	1.2%

Full Input Data And Results

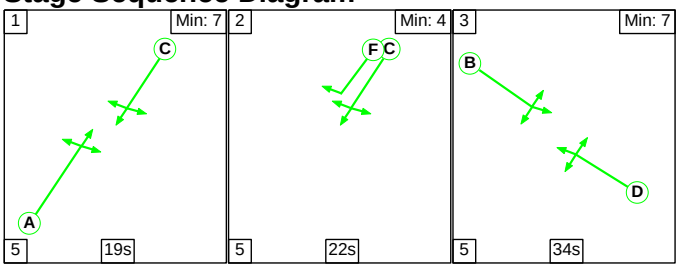
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**80**	**373**	**10**	**12.2**	**7.5**	**0.4**	**20.2**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**80**	**373**	**10**	**12.2**	**7.5**	**0.4**	**20.2**	**-**	**-**	**-**	**-**
1/1	270	270	0	0	0	2.4	1.1	0.0	3.5	46.6	6.2	1.1	7.2
2/1	573	573	0	0	0	4.1	2.5	-	6.6	41.6	13.1	2.5	15.6
3/1	614	614	80	373	10	3.9	2.7	0.4	7.0	40.9	14.0	2.7	16.7
4/1	314	314	0	0	0	1.9	0.5	-	2.4	27.8	6.0	0.5	6.6
5/1	985	985	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
6/1	436	436	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
7/1	327	327	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1	23	23	-	-	-	0.0	0.0	-	0.0	0.9	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 6.0 Total Delay for Signalled Lanes (pcuHr): 19.51 Cycle Time (s): 90
PRC Over All Lanes (%): 6.0 Total Delay Over All Lanes(pcuHr): 20.20

Full Input Data And Results

Scenario 4: '2031 DS PM (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: 'Network Control Plan 1')

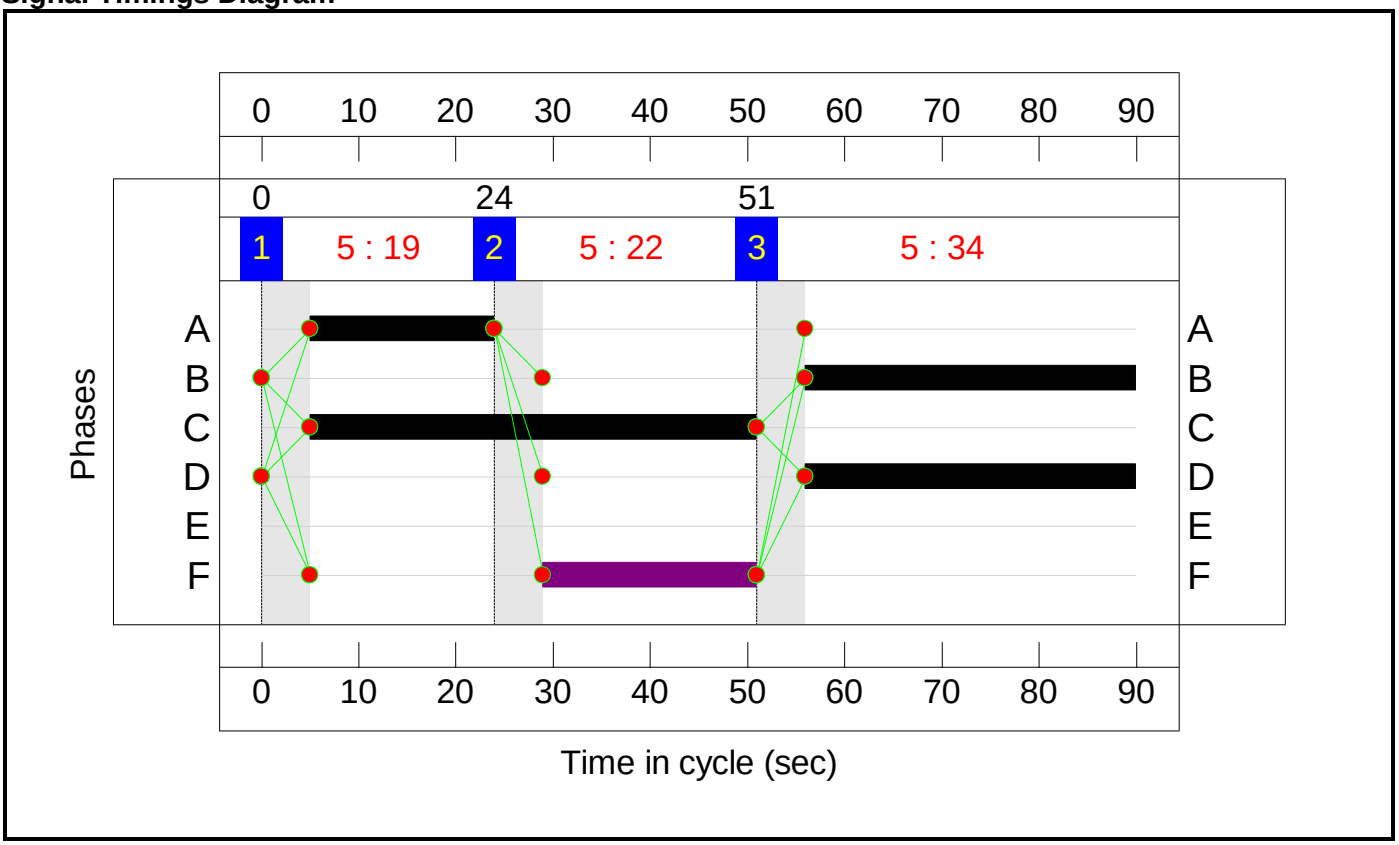
Stage Sequence Diagram



Stage Timings

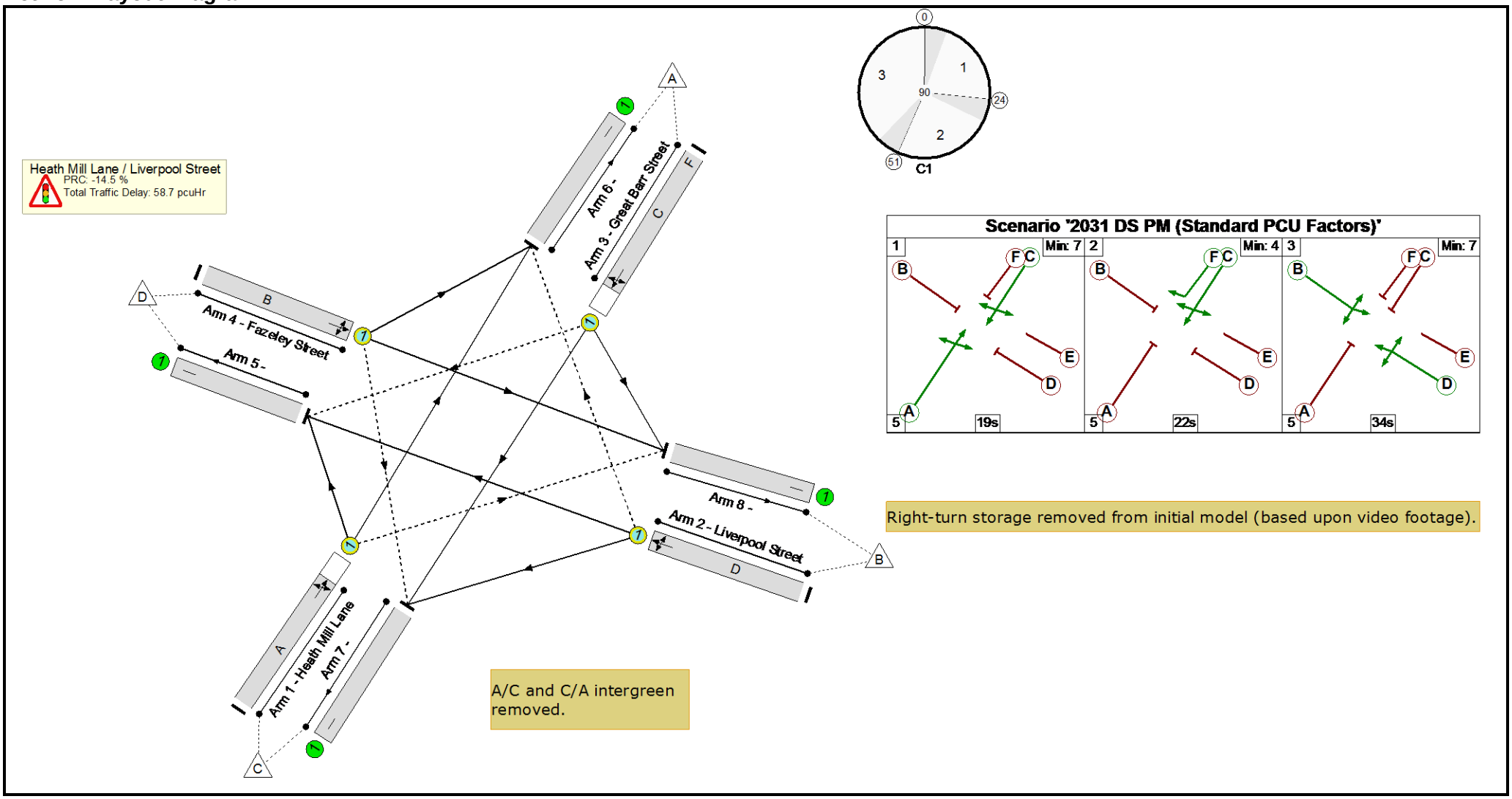
Stage	1	2	3
Duration	19	22	34
Change Point	0	24	51

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Heath Mill Lane/Liverpool Street Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**103.0%**
Heath Mill Lane / Liverpool Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**103.0%**
1/1	Heath Mill Lane Left Ahead Right	O	N/A	N/A	A		1	19	-	413	1894	421	98.1%
2/1	Liverpool Street Ahead Right Left	O	N/A	N/A	D		1	34	-	482	1830	712	67.7%
3/1	Great Barr Street Right Ahead Left	O	N/A	N/A	C	F	1	46	22	606	1857	588	103.0%
4/1	Fazeley Street Left Right Ahead	O	N/A	N/A	B		1	34	-	642	1645	640	100.4%
5/1		U	N/A	N/A	-		-	-	-	921	2080	2080	43.6%
6/1		U	N/A	N/A	-		-	-	-	862	2005	2005	42.9%
7/1		U	N/A	N/A	-		-	-	-	251	2040	2040	12.1%
8/1		U	N/A	N/A	-		-	-	-	109	1930	1930	5.6%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Heath Mill Lane/Liverpool Street Junction	**-**	**-**	**26**	**394**	**32**	**17.4**	**41.0**	**0.3**	**58.7**	**-**	**-**	**-**	**-**
Heath Mill Lane / Liverpool Street	**-**	**-**	**26**	**394**	**32**	**17.4**	**41.0**	**0.3**	**58.7**	**-**	**-**	**-**	**-**
1/1	413	413	0	0	0	4.0	8.4	0.0	12.4	107.9	10.2	8.4	18.6
2/1	482	482	0	0	0	3.1	1.0	-	4.1	30.6	9.9	1.0	10.9
3/1	606	588	26	394	32	5.3	17.5	0.3	23.1	137.2	15.6	17.5	33.1
4/1	642	640	0	0	0	5.0	13.3	-	18.3	102.5	16.1	13.3	29.4
5/1	907	907	-	-	-	0.0	0.4	-	0.4	1.5	0.0	0.4	0.4
6/1	860	860	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
7/1	247	247	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1
8/1	109	109	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -14.5 Total Delay for Signalled Lanes (pcuHr): 57.85 Cycle Time (s): 90

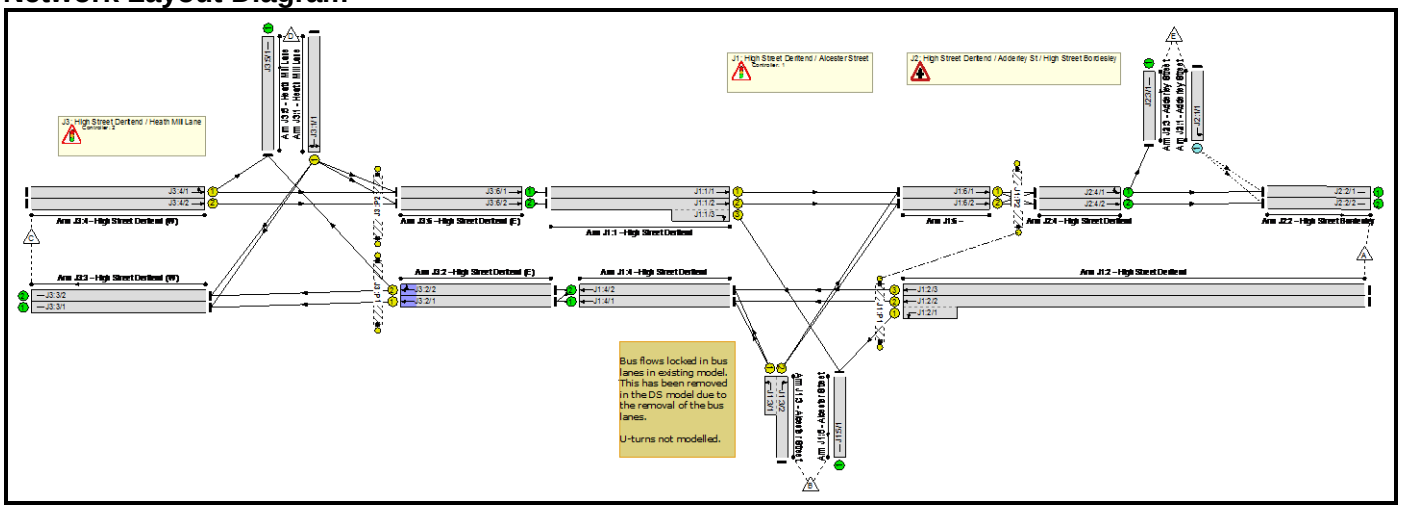
PRC Over All Lanes (%): -14.5 Total Delay Over All Lanes(pcuHr): 58.71

Full Input Data And Results

User and Project Details

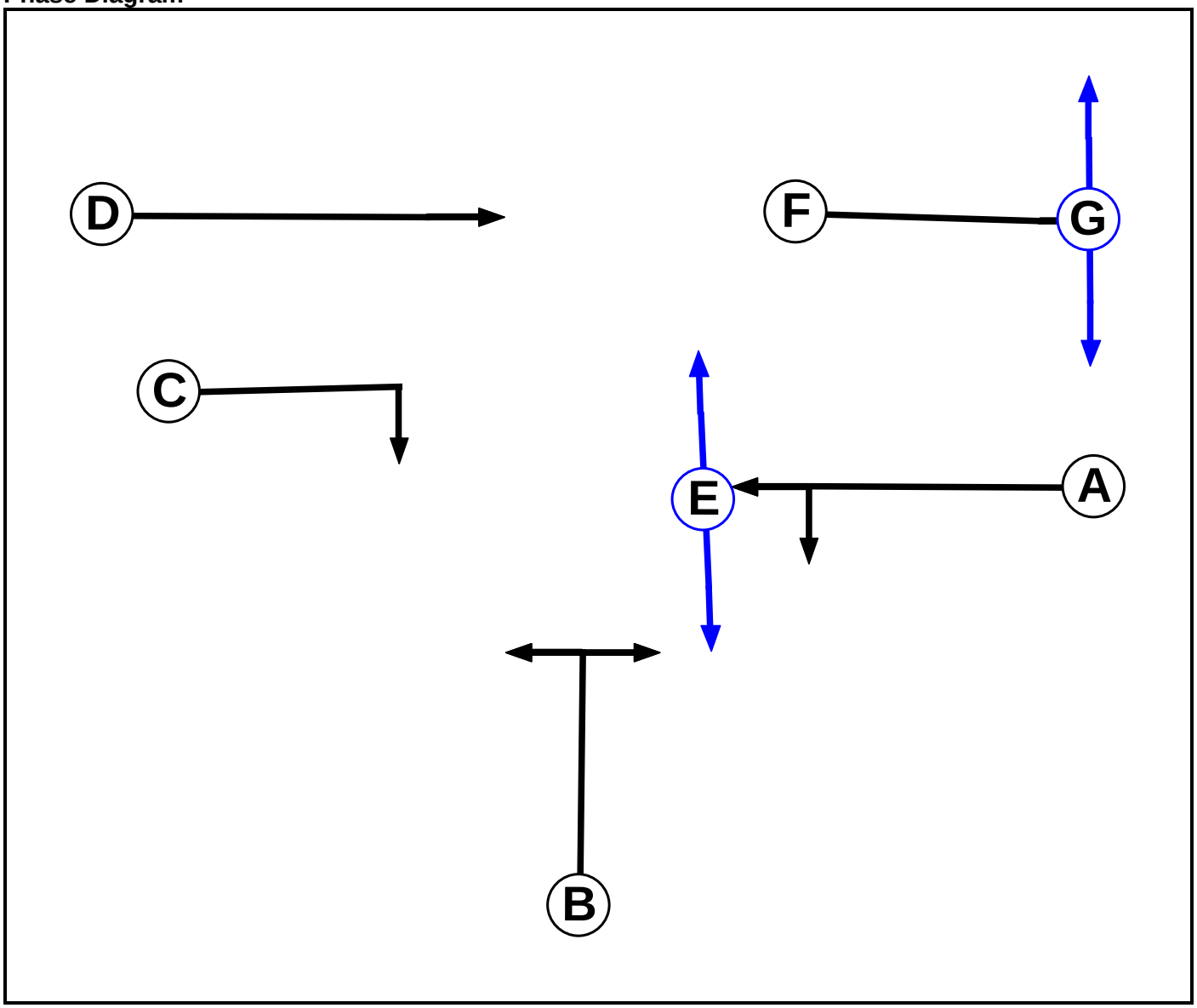
Project:	**Eastside Extension**
Title:	**High Street Deritend - Alcester Street**
Location:	High Street Deritend - Alcester Street
File name:	High Street Deritend - Alcester Street (revised) -Test 01.lsg3x
Author:	W. Hodgson
Company:	Mott MacDonald
Address:	35 Newhall Street, Birmingham, B3 3PU
Notes:	Do Something

Network Layout Diagram



C1 - Alcester Street

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		5	5
F	Traffic	2		5	5
G	Pedestrian	2		7	7

Full Input Data And Results

Phase Intergreens Matrix

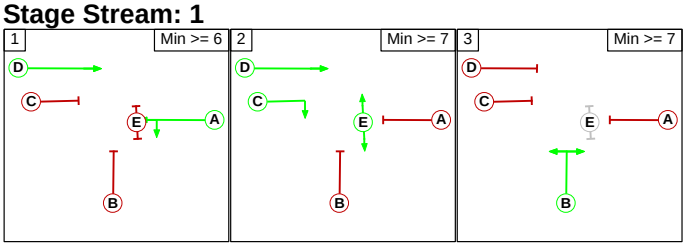
Terminating Phase	Starting Phase							
		A	B	C	D	E	F	G
	A		7	5	-	5	-	-
	B	5		6	6	-	-	-
	C	6	5		-	-	-	-
	D	-	5	-		-	-	-
	E	10	-	-	-		-	-
	F	-	-	-	-	-		5
	G	-	-	-	-	-	8	

Phases in Stage

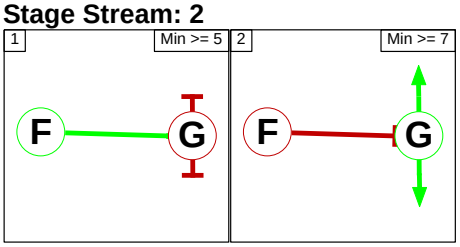
Stream	Stage No.	Phases in Stage
1	1	A D
1	2	C D E
1	3	B
2	1	F
2	2	G

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	D	Losing	2	2
2	1	C	Losing	4	4
3	1	A	Gaining absolute	6	6
3	1	B	Losing	1	1

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Full Input Data And Results

Prohibited Stage Change

Stage Stream: 1

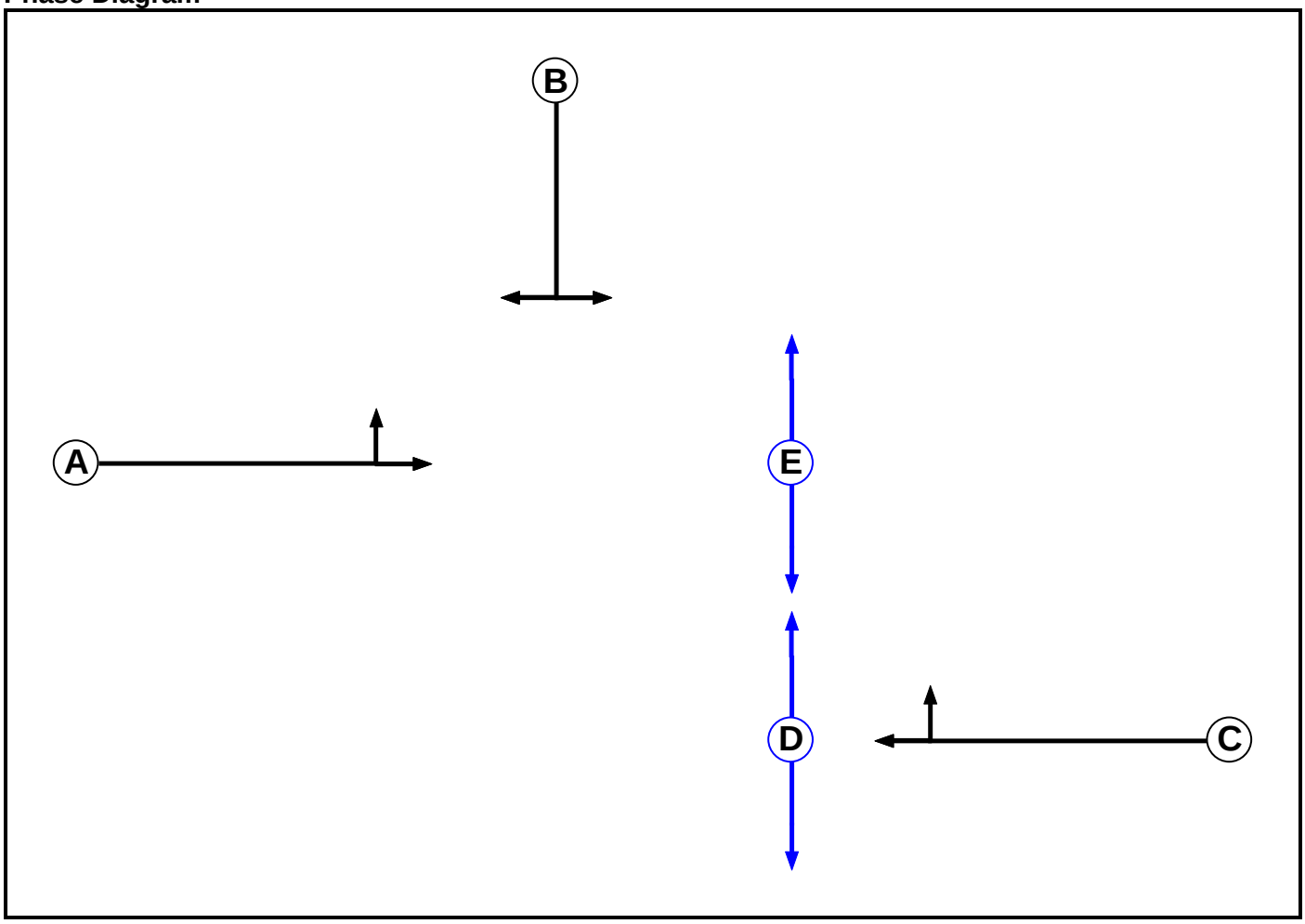
From Stage \ To Stage	1	2	3
1		5	7
2	10		5
3	7	6	

Stage Stream: 2

From Stage \ To Stage	1	2
1		5
2	8	

C2 - Heath Mill Lane

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		5	5
E	Pedestrian		5	5

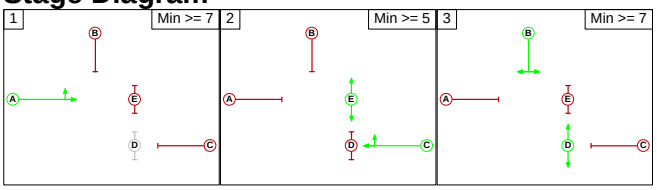
Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		5	5	-	8
	B	5		6	-	7
	C	7	5		5	-
	D	-	-	8		-
	E	8	8	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A
2	C E
3	B D

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		8	5
	2	8		8
	3	5	8	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: High Street Deritend / Alcester Street
There are no Opposed Lanes in this Junction

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/1 (Adderley Street)	J2:2/1 (Left)	715	0	J2:4/1	0.22	To J2:2/1 (Ahead)	-	-	-	-	-
				J2:4/2	0.22	To J2:2/2 (Ahead)					
	J2:2/2 (Left)	715	0	J2:4/1	0.22	To J2:2/1 (Ahead)					
				J2:4/2	0.22	To J2:2/2 (Ahead)					

Junction: J3: High Street Deritend / Heath Mill Lane
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: J1: High Street Deritend / Alcester Street												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (High Street Deritend)	U	D	2	3	15.7	Geom	-	3.10	0.00	Y	Arm J1:6 Ahead	Inf
J1:1/2 (High Street Deritend)	U	D	2	3	15.7	Geom	-	3.10	0.00	Y	Arm J1:6 Ahead	Inf
J1:1/3 (High Street Deritend)	U	C	2	3	7.5	Geom	-	3.10	0.00	Y	Arm J1:5 Right	18.00
J1:2/1 (High Street Deritend)	U	A	2	3	7.0	Geom	-	3.15	0.00	Y	Arm J1:5 Left	14.00
J1:2/2 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.16	0.00	N	Arm J1:4 Ahead	Inf
J1:2/3 (High Street Deritend)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm J1:4 Ahead	Inf
J1:3/1 (Alcester Street)	U	B	2	3	5.0	Geom	-	2.43	0.00	Y	Arm J1:4 Left	16.00
J1:3/2 (Alcester Street)	U	B	2	3	60.0	Geom	-	3.03	0.00	Y	Arm J1:6 Right	23.00
J1:4/1 (High Street Deritend)	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:4/2 (High Street Deritend)	U		2	3	0.2	Inf	-	-	-	-	-	-
J1:5/1 (Alcester Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1	U	F	2	3	7.8	Geom	-	3.10	0.00	Y	Arm J2:4 Ahead	Inf
J1:6/2	U	F	2	3	7.8	Geom	-	3.10	0.00	N	Arm J2:4 Ahead	Inf

Full Input Data And Results

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J2:1/1 (Adderley Street)	O		2	3	60.0	Geom	-	3.90	0.00	Y	Arm J2:2 Left	14.13
J2:2/1 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:2/2 (High Street Bordesley)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:3/1 (Adderley Street)	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:4/1 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-
J2:4/2 (High Street Deritend)	U		2	3	14.4	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
J3:1/1 (Heath Mill Lane)	U	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm J3:3 Right	21.00
											Arm J3:6 Left	Inf
J3:2/1 (High Street Deritend (E))	U	C	2	3	15.7	Geom	-	3.00	0.00	Y	Arm J3:3 Ahead	Inf
J3:2/2 (High Street Deritend (E))	U	C	2	3	15.7	Geom	-	3.00	0.00	Y	Arm J3:3 Ahead	Inf
											Arm J3:5 Right	23.00
J3:3/1 (High Street Deritend (W))	U		2	3	19.1	Inf	-	-	-	-	-	-
J3:3/2 (High Street Deritend (W))	U		2	3	19.1	Inf	-	-	-	-	-	-
J3:4/1 (High Street Deritend (W))	U	A	2	3	20.9	Geom	-	2.50	0.00	Y	Arm J3:5 Left	13.00
											Arm J3:6 Ahead	Inf
J3:4/2 (High Street Deritend (W))	U	A	2	3	20.9	Geom	-	2.50	0.00	N	Arm J3:6 Ahead	Inf
J3:5/1 (Heath Mill Lane)	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/1 (High Street Deritend (E))	U		2	3	0.2	Inf	-	-	-	-	-	-
J3:6/2 (High Street Deritend (E))	U		2	3	0.2	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2026 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
2: '2026 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
3: '2031 AM DS (Standard PCU Factors)'	08:45	09:45	01:00	
4: '2031 PM DS (Standard PCU Factors)'	16:15	17:15	01:00	
5: '2026 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
6: '2026 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	
7: '2031 AM DS (Saturn PCU Factors)'	08:45	09:45	01:00	
8: '2031 PM DS (Saturn PCU Factors)'	16:15	17:15	01:00	

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	158	404	319	0	881
	B	275	0	33	23	150	481
	C	156	5	0	72	82	315
	D	78	1	121	0	39	239
	E	89	0	0	0	0	89
	Tot.	598	164	558	414	271	2005

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2026 AM DS (Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	152
J1:1/2 (with short)	209(In) 203(Out)
J1:1/3 (short)	6
J1:2/1 (short)	158
J1:2/2 (with short)	521(In) 363(Out)
J1:2/3	360
J1:3/1 (short)	56
J1:3/2 (with short)	481(In) 425(Out)
J1:4/1	375
J1:4/2	404
J1:5/1	164
J1:6/1	343
J1:6/2	437
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	89
J2:2/1	343
J2:2/2	255
J2:3/1	271
J2:4/1	525
J2:4/2	255
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	239
J3:2/1	410
J3:2/2	369
J3:3/1	471
J3:3/2	87
J3:4/1	146
J3:4/2	169
J3:5/1	414
J3:6/1	152
J3:6/2	209

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	50.6 %	1872	1872
				Arm J3:6 Left	Inf	49.4 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	7.3 %	1806	1806
				Arm J3:5 Right	23.00	92.7 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	49.3 %	1765	1765
				Arm J3:6 Ahead	Inf	50.7 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	197	283	303	0	783
	B	338	0	59	65	71	533
	C	515	155	0	181	138	989
	D	110	17	159	0	24	310
	E	166	0	0	0	0	166
	Tot.	1129	369	501	549	233	2781

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2026 PM DS (Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	451
J1:1/2 (with short)	508(In) 336(Out)
J1:1/3 (short)	172
J1:2/1 (short)	197
J1:2/2 (with short)	478(In) 281(Out)
J1:2/3	305
J1:3/1 (short)	124
J1:3/2 (with short)	533(In) 409(Out)
J1:4/1	340
J1:4/2	370
J1:5/1	369
J1:6/1	574
J1:6/2	622
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	166
J2:2/1	647
J2:2/2	482
J2:3/1	233
J2:4/1	714
J2:4/2	482
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	310
J3:2/1	342
J3:2/2	368
J3:3/1	422
J3:3/2	79
J3:4/1	500
J3:4/2	489
J3:5/1	549
J3:6/1	451
J3:6/2	508

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	51.3 %	1871	1871
				Arm J3:6 Left	Inf	48.7 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1798	1798
				Arm J3:5 Right	23.00	100.0 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	36.2 %	1790	1790
				Arm J3:6 Ahead	Inf	63.8 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	175	402	323	0	900
	B	285	0	37	26	146	494
	C	191	6	0	83	96	376
	D	80	1	122	0	38	241
	E	95	0	0	0	0	95
	Tot.	651	182	561	432	280	2106

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 AM DS (Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	166
J1:1/2 (with short)	246(In) 239(Out)
J1:1/3 (short)	7
J1:2/1 (short)	175
J1:2/2 (with short)	533(In) 358(Out)
J1:2/3	367
J1:3/1 (short)	63
J1:3/2 (with short)	494(In) 431(Out)
J1:4/1	368
J1:4/2	420
J1:5/1	182
J1:6/1	365
J1:6/2	471
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	95
J2:2/1	374
J2:2/2	277
J2:3/1	280
J2:4/1	559
J2:4/2	277
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	241
J3:2/1	408
J3:2/2	380
J3:3/1	469
J3:3/2	92
J3:4/1	170
J3:4/2	206
J3:5/1	432
J3:6/1	166
J3:6/2	246

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	50.6 %	1872	1872
				Arm J3:6 Left	Inf	49.4 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	8.2 %	1807	1807
				Arm J3:5 Right	23.00	91.8 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	48.8 %	1766	1766
				Arm J3:6 Ahead	Inf	51.2 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	204	305	310	0	819
	B	337	0	62	64	75	538
	C	502	155	0	186	141	984
	D	109	18	155	0	25	307
	E	166	0	0	0	0	166
	Tot.	1114	377	522	560	241	2814

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2031 PM DS (Standard PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	461
J1:1/2 (with short)	489(In) 316(Out)
J1:1/3 (short)	173
J1:2/1 (short)	204
J1:2/2 (with short)	501(In) 297(Out)
J1:2/3	318
J1:3/1 (short)	126
J1:3/2 (with short)	538(In) 412(Out)
J1:4/1	359
J1:4/2	382
J1:5/1	377
J1:6/1	581
J1:6/2	608
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	166
J2:2/1	641
J2:2/2	473
J2:3/1	241
J2:4/1	716
J2:4/2	473
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	307
J3:2/1	367
J3:2/2	374
J3:3/1	445
J3:3/2	77
J3:4/1	516
J3:4/2	468
J3:5/1	560
J3:6/1	461
J3:6/2	489

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	50.5 %	1872	1872
				Arm J3:6 Left	Inf	49.5 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	0.0 %	1798	1798
				Arm J3:5 Right	23.00	100.0 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	36.0 %	1791	1791
				Arm J3:6 Ahead	Inf	64.0 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 AM DS (Saturn PCU Factors)' (FG5: '2026 AM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	161	473	322	0	956
	B	289	0	38	21	137	485
	C	206	5	0	93	97	401
	D	92	1	125	0	41	259
	E	90	0	0	0	0	90
	Tot.	677	167	636	436	275	2191

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 AM DS (Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	181
J1:1/2 (with short)	261(In) 255(Out)
J1:1/3 (short)	6
J1:2/1 (short)	161
J1:2/2 (with short)	554(In) 393(Out)
J1:2/3	402
J1:3/1 (short)	59
J1:3/2 (with short)	485(In) 426(Out)
J1:4/1	408
J1:4/2	446
J1:5/1	167
J1:6/1	372
J1:6/2	490
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	90
J2:2/1	384
J2:2/2	293
J2:3/1	275
J2:4/1	569
J2:4/2	293
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	259
J3:2/1	448
J3:2/2	406
J3:3/1	511
J3:3/2	125
J3:4/1	188
J3:4/2	213
J3:5/1	436
J3:6/1	181
J3:6/2	261

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	48.3 %	1875	1875
				Arm J3:6 Left	Inf	51.7 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	15.5 %	1815	1815
				Arm J3:5 Right	23.00	84.5 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	49.5 %	1764	1764
				Arm J3:6 Ahead	Inf	50.5 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 PM DS (Saturn PCU Factors)' (FG6: '2026 PM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	196	345	309	0	850
	B	342	0	67	58	65	532
	C	571	158	0	202	143	1074
	D	125	18	160	0	26	329
	E	165	0	0	0	0	165
	Tot.	1203	372	572	569	234	2950

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: 2026 PM DS (Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	474
J1:1/2 (with short)	567(In) 391(Out)
J1:1/3 (short)	176
J1:2/1 (short)	196
J1:2/2 (with short)	518(In) 322(Out)
J1:2/3	332
J1:3/1 (short)	125
J1:3/2 (with short)	532(In) 407(Out)
J1:4/1	389
J1:4/2	390
J1:5/1	372
J1:6/1	600
J1:6/2	672
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	165
J2:2/1	684
J2:2/2	519
J2:3/1	234
J2:4/1	753
J2:4/2	519
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	329
J3:2/1	403
J3:2/2	376
J3:3/1	483
J3:3/2	89
J3:4/1	527
J3:4/2	547
J3:5/1	569
J3:6/1	474
J3:6/2	567

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	48.6 %	1875	1875
				Arm J3:6 Left	Inf	51.4 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	2.4 %	1800	1800
				Arm J3:5 Right	23.00	97.6 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	38.3 %	1786	1786
				Arm J3:6 Ahead	Inf	61.7 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 7: '2031 AM DS (Saturn PCU Factors)' (FG7: '2031 AM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	178	470	328	0	976
	B	298	0	42	24	134	498
	C	241	6	0	105	110	462
	D	93	1	127	0	40	261
	E	97	0	0	0	0	97
	Tot.	729	185	639	457	284	2294

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 7: 2031 AM DS (Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	197
J1:1/2 (with short)	294(In) 287(Out)
J1:1/3 (short)	7
J1:2/1 (short)	178
J1:2/2 (with short)	569(In) 391(Out)
J1:2/3	407
J1:3/1 (short)	66
J1:3/2 (with short)	498(In) 432(Out)
J1:4/1	407
J1:4/2	457
J1:5/1	185
J1:6/1	406
J1:6/2	510
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	97
J2:2/1	414
J2:2/2	315
J2:3/1	284
J2:4/1	601
J2:4/2	315
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	261
J3:2/1	445
J3:2/2	419
J3:3/1	509
J3:3/2	130
J3:4/1	212
J3:4/2	250
J3:5/1	457
J3:6/1	197
J3:6/2	294

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	48.7 %	1875	1875
				Arm J3:6 Left	Inf	51.3 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	16.0 %	1816	1816
				Arm J3:5 Right	23.00	84.0 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	49.5 %	1764	1764
				Arm J3:6 Ahead	Inf	50.5 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 8: ' 2031 PM DS (Saturn PCU Factors)' (FG8: '2031 PM DS (Saturn PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	202	368	317	0	887
	B	341	0	70	57	68	536
	C	558	158	0	208	147	1071
	D	124	18	157	0	27	326
	E	165	0	0	0	0	165
	Tot.	1188	378	595	582	242	2985

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: 2031 PM DS (Saturn PCU Factors)
Junction: J1: High Street Deritend / Alcester Street	
J1:1/1	474
J1:1/2 (with short)	558(In) 382(Out)
J1:1/3 (short)	176
J1:2/1 (short)	202
J1:2/2 (with short)	529(In) 327(Out)
J1:2/3	358
J1:3/1 (short)	127
J1:3/2 (with short)	536(In) 409(Out)
J1:4/1	397
J1:4/2	415
J1:5/1	378
J1:6/1	611
J1:6/2	654
Junction: J2: High Street Deritend / Adderley St / High Street Bordesley	
J2:1/1	165
J2:2/1	677
J2:2/2	511
J2:3/1	242
J2:4/1	754
J2:4/2	511
Junction: J3: High Street Deritend / Heath Mill Lane	
J3:1/1	326
J3:2/1	419
J3:2/2	393
J3:3/1	498
J3:3/2	97
J3:4/1	538
J3:4/2	533
J3:5/1	582
J3:6/1	474
J3:6/2	558

Full Input Data And Results

Lane Saturation Flows

Junction: J1: High Street Deritend / Alcester Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/2 (High Street Deritend)	3.10	0.00	Y	Arm J1:6 Ahead	Inf	100.0 %	1925	1925
J1:1/3 (High Street Deritend)	3.10	0.00	Y	Arm J1:5 Right	18.00	100.0 %	1777	1777
J1:2/1 (High Street Deritend)	3.15	0.00	Y	Arm J1:5 Left	14.00	100.0 %	1743	1743
J1:2/2 (High Street Deritend)	3.16	0.00	N	Arm J1:4 Ahead	Inf	100.0 %	2071	2071
J1:2/3 (High Street Deritend)	3.25	0.00	Y	Arm J1:4 Ahead	Inf	100.0 %	1940	1940
J1:3/1 (Alcester Street)	2.43	0.00	Y	Arm J1:4 Left	16.00	100.0 %	1699	1699
J1:3/2 (Alcester Street)	3.03	0.00	Y	Arm J1:6 Right	23.00	100.0 %	1801	1801
J1:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Alcester Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1	3.10	0.00	Y	Arm J2:4 Ahead	Inf	100.0 %	1925	1925
J1:6/2	3.10	0.00	N	Arm J2:4 Ahead	Inf	100.0 %	2065	2065

Junction: J2: High Street Deritend / Adderley St / High Street Bordesley								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Adderley Street)	3.90	0.00	Y	Arm J2:2 Left	14.13	100.0 %	1813	1813
J2:2/1 (High Street Bordesley Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:2/2 (High Street Bordesley Lane 2)	Infinite Saturation Flow						Inf	Inf
J2:3/1 (Adderley Street Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/1 (High Street Deritend Lane 1)	Infinite Saturation Flow						Inf	Inf
J2:4/2 (High Street Deritend Lane 2)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

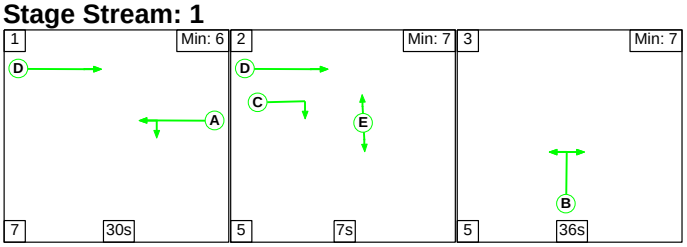
Junction: J3: High Street Deritend / Heath Mill Lane								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Heath Mill Lane)	3.25	0.00	Y	Arm J3:3 Right	21.00	48.2 %	1875	1875
				Arm J3:6 Left	Inf	51.8 %		
J3:2/1 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	100.0 %	1915	1915
J3:2/2 (High Street Deritend (E))	3.00	0.00	Y	Arm J3:3 Ahead	Inf	4.8 %	1803	1803
				Arm J3:5 Right	23.00	95.2 %		
J3:3/1 (High Street Deritend (W) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:3/2 (High Street Deritend (W) Lane 2)	Infinite Saturation Flow						Inf	Inf
J3:4/1 (High Street Deritend (W))	2.50	0.00	Y	Arm J3:5 Left	13.00	38.7 %	1785	1785
				Arm J3:6 Ahead	Inf	61.3 %		
J3:4/2 (High Street Deritend (W))	2.50	0.00	N	Arm J3:6 Ahead	Inf	100.0 %	2005	2005
J3:5/1 (Heath Mill Lane Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/1 (High Street Deritend (E) Lane 1)	Infinite Saturation Flow						Inf	Inf
J3:6/2 (High Street Deritend (E) Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2026 AM DS (Standard PCU Factors)' (FG1: '2026 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

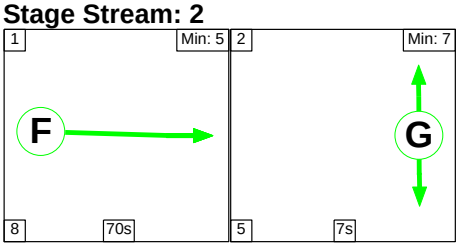
C1 - Alcester Street

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Full Input Data And Results

Stage Timings

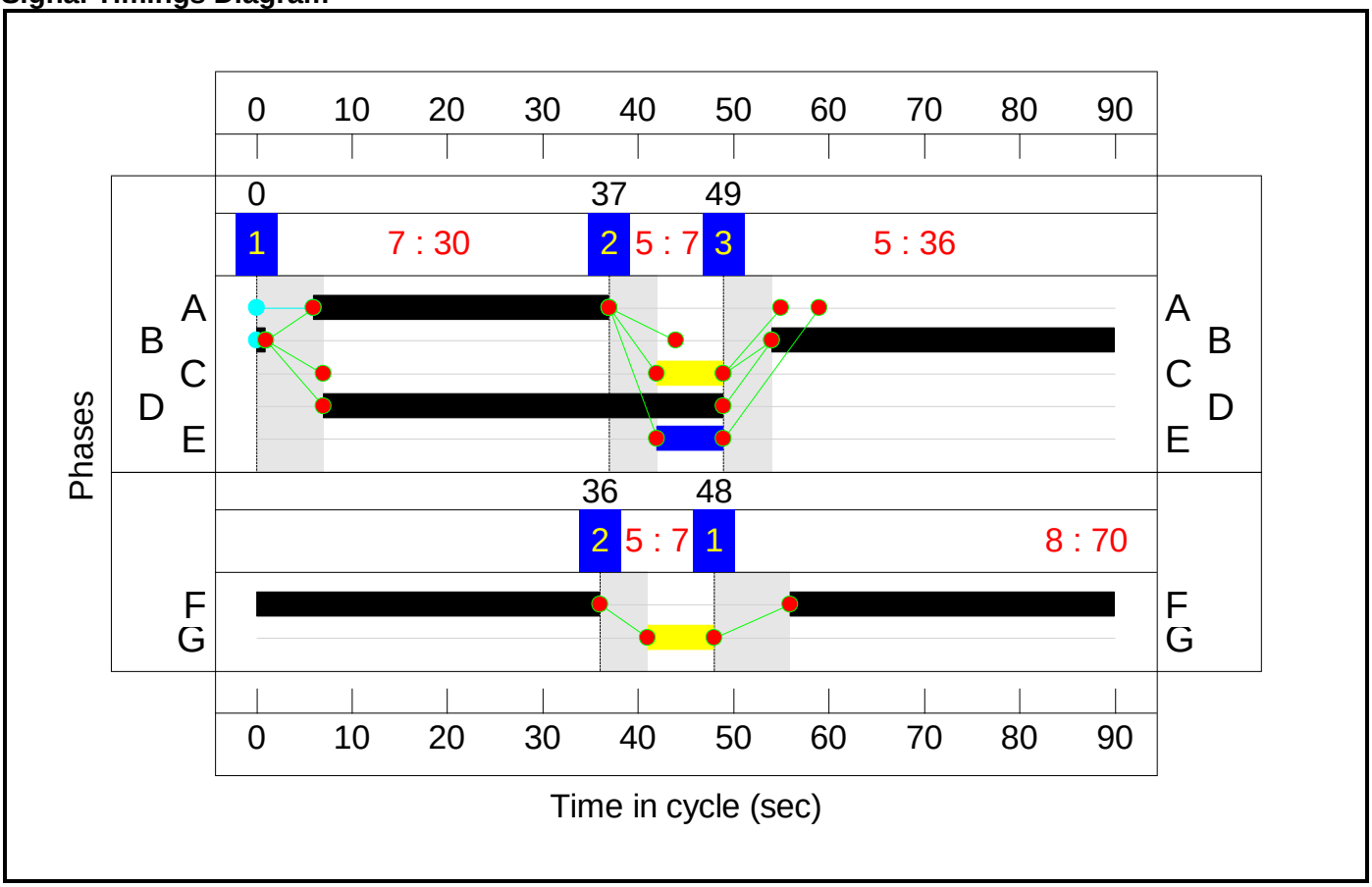
Stage Stream: 1

Stage	1	2	3
Duration	30	7	36
Change Point	0	37	49

Stage Stream: 2

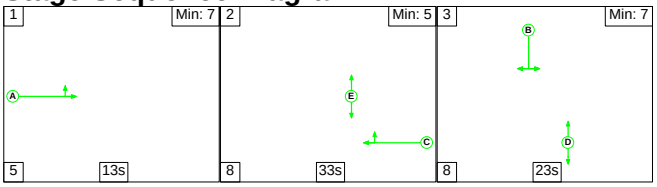
Stage	1	2
Duration	70	7
Change Point	48	36

Signal Timings Diagram



C2 - Heath Mill Lane

Stage Sequence Diagram

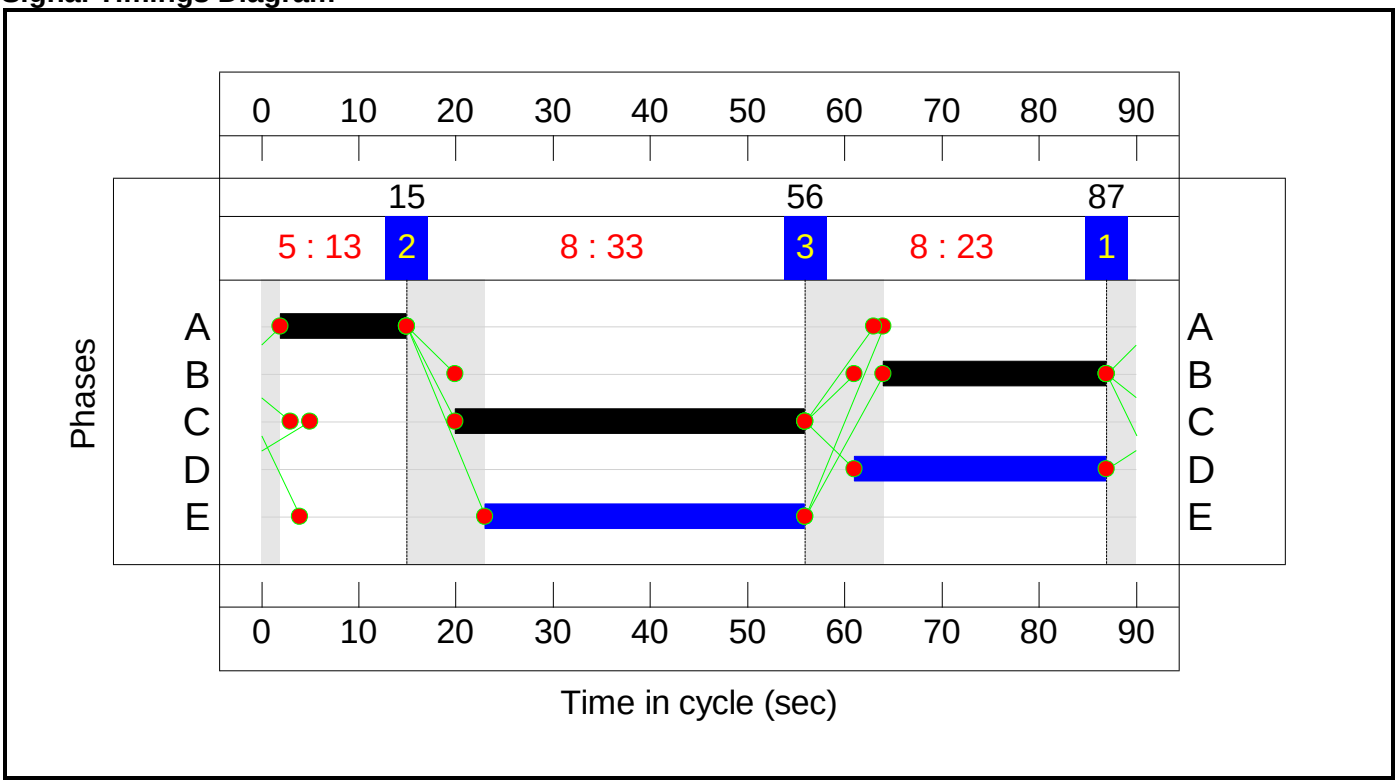


Stage Timings

Stage	1	2	3
Duration	13	33	23
Change Point	87	15	56

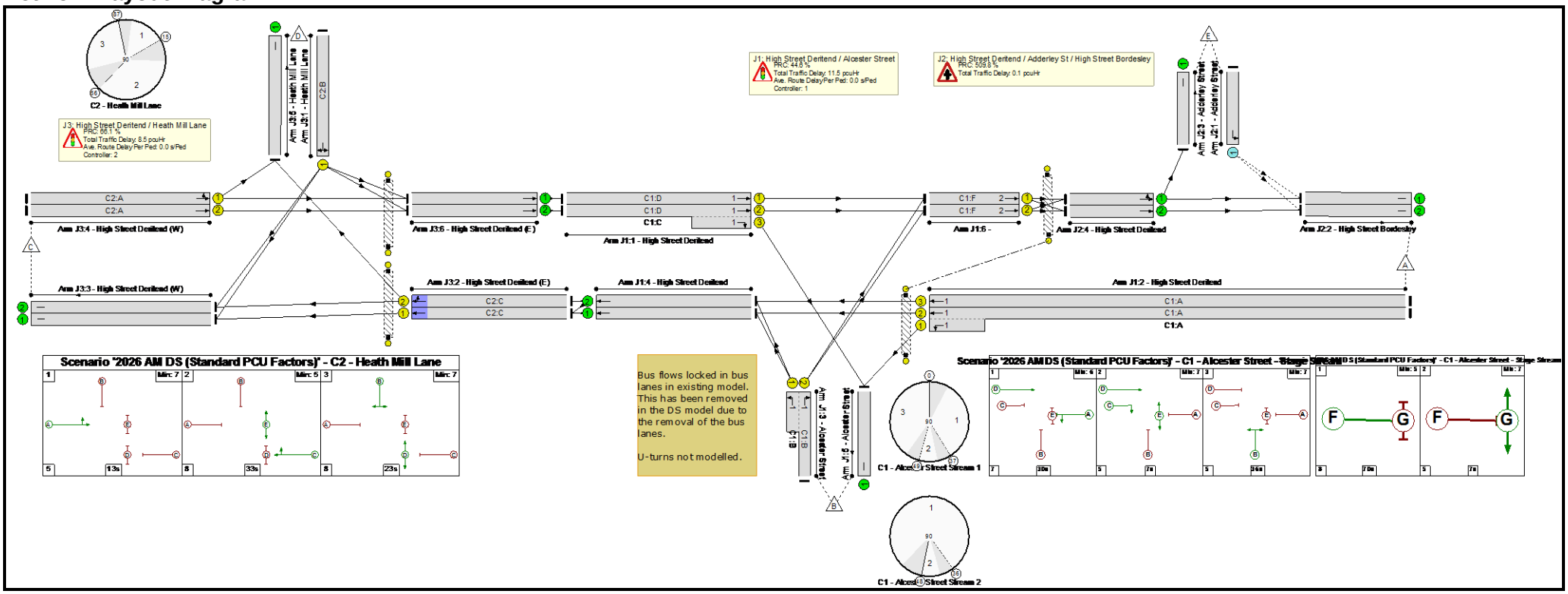
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**62.2%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**62.2%**
1/1	High Street Deritend Ahead	U	1:1	N/A	C1:D		1	42	-	152	1925	920	16.5%
1/2+1/3	High Street Deritend Right Ahead	U	1:1	N/A	C1:D C1:C		1	42:7	-	209	1925:1777	912+27	22.3 : 22.3%
2/2+2/1	High Street Deritend Ahead Left	U	1:1	N/A	C1:A		1	31	-	521	2071:1743	583+254	62.2 : 62.2%
2/3	High Street Deritend Ahead	U	1:1	N/A	C1:A		1	31	-	360	1940	690	52.2%
3/2+3/1	Alcester Street Left Right	U	1:1	N/A	C1:B		1	37	-	481	1801:1699	692+91	61.4 : 61.4%
4/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	375	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	404	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	164	Inf	Inf	0.0%
6/1	Ahead	U	1:2	N/A	C1:F		1	70	-	343	1925	1519	22.6%
6/2	Ahead	U	1:2	N/A	C1:F		1	70	-	437	2065	1629	26.8%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:E		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:G		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**14.8%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	89	1813	603	14.8%

Full Input Data And Results

2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	343	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	255	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	271	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	525	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	255	Inf	Inf	0.0%
J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**54.2%**
1/1	Heath Mill Lane Right Left	U	N/A	N/A	C2:B		1	23	-	239	1872	499	47.9%
2/1	High Street Deritend (E) Ahead	U	N/A	N/A	C2:C		1	36	-	410	1915	787	52.1%
2/2	High Street Deritend (E) Ahead Right	U	N/A	N/A	C2:C		1	36	-	369	1806	742	49.7%
3/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	471	Inf	Inf	0.0%
3/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	87	Inf	Inf	0.0%
4/1	High Street Deritend (W) Left Ahead	U	N/A	N/A	C2:A		1	13	-	146	1765	275	53.2%
4/2	High Street Deritend (W) Ahead	U	N/A	N/A	C2:A		1	13	-	169	2005	312	54.2%
5/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	414	Inf	Inf	0.0%
6/1	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	152	Inf	Inf	0.0%
6/2	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	209	Inf	Inf	0.0%

Full Input Data And Results

Ped Link: P1	Across High Street Deritend (westbound traffic)	-	N/A	-	C2:D		1	26	-	0	-	0	0.0%
Ped Link: P2	Across High Street Deritend (eastbound traffic)	-	N/A	-	C2:E		1	33	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**89**	**0**	**0**	**14.7**	**5.5**	**0.0**	**20.2**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**8.8**	**2.7**	**0.0**	**11.5**	**-**	**-**	**-**	**-**
1/1	152	152	-	-	-	0.4	0.1	-	0.5	12.7	2.3	0.1	2.4
1/2+1/3	209	209	-	-	-	0.3	0.1	-	0.4 (0.4+0.1)	7.2 (6.3:36.1)	9.2	0.1	9.3
2/2+2/1	521	521	-	-	-	3.2	0.8	-	4.0 (2.9+1.2)	27.7 (28.3:26.2)	7.1	0.8	8.0
2/3	360	360	-	-	-	2.3	0.5	-	2.8	28.4	7.1	0.5	7.6
3/2+3/1	481	481	-	-	-	2.6	0.8	-	3.4 (3.0+0.4)	25.5 (25.7:23.9)	8.6	0.8	9.4
4/1	375	375	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	404	404	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	164	164	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	343	343	-	-	-	0.0	0.1	-	0.1	1.5	0.0	0.1	0.1
6/2	437	437	-	-	-	0.0	0.2	-	0.2	1.5	0.0	0.2	0.2
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**89**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	89	89	89	0	0	0.0	0.1	-	0.1	3.5	0.0	0.1	0.1
2/1	343	343	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	255	255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	525	525	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	255	255	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**5.9**	**2.6**	**0.0**	**8.5**	**-**	**-**	**-**	**-**
1/1	239	239	-	-	-	1.8	0.5	-	2.3	34.6	5.0	0.5	5.4
2/1	410	410	-	-	-	0.5	0.5	-	1.1	9.4	8.1	0.5	8.7
2/2	369	369	-	-	-	0.4	0.5	-	0.9	9.2	6.8	0.5	7.3
3/1	471	471	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	87	87	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	146	146	-	-	-	1.4	0.6	-	2.0	48.9	3.3	0.6	3.9
4/2	169	169	-	-	-	1.6	0.6	-	2.2	47.5	3.8	0.6	4.4
5/1	414	414	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	152	152	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	209	209	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Alcester Street	Stream: 1	PRC for Signalled Lanes (%):	44.6	Total Delay for Signalled Lanes (pcuHr):	11.21	Cycle Time (s): 90
C1 - Alcester Street	Stream: 2	PRC for Signalled Lanes (%):	235.5	Total Delay for Signalled Lanes (pcuHr):	0.33	Cycle Time (s): 90
C2 - Heath Mill Lane		PRC for Signalled Lanes (%):	66.1	Total Delay for Signalled Lanes (pcuHr):	8.53	Cycle Time (s): 90
		PRC Over All Lanes (%):	44.6	Total Delay Over All Lanes(pcuHr):	20.16	

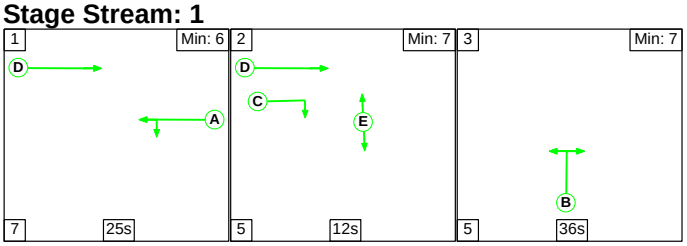
Full Input Data And Results

Scenario 2: '2026 PM DS (Standard PCU Factors)' (FG2: '2026 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

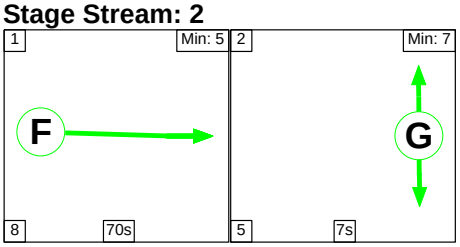
C1 - Alcester Street

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

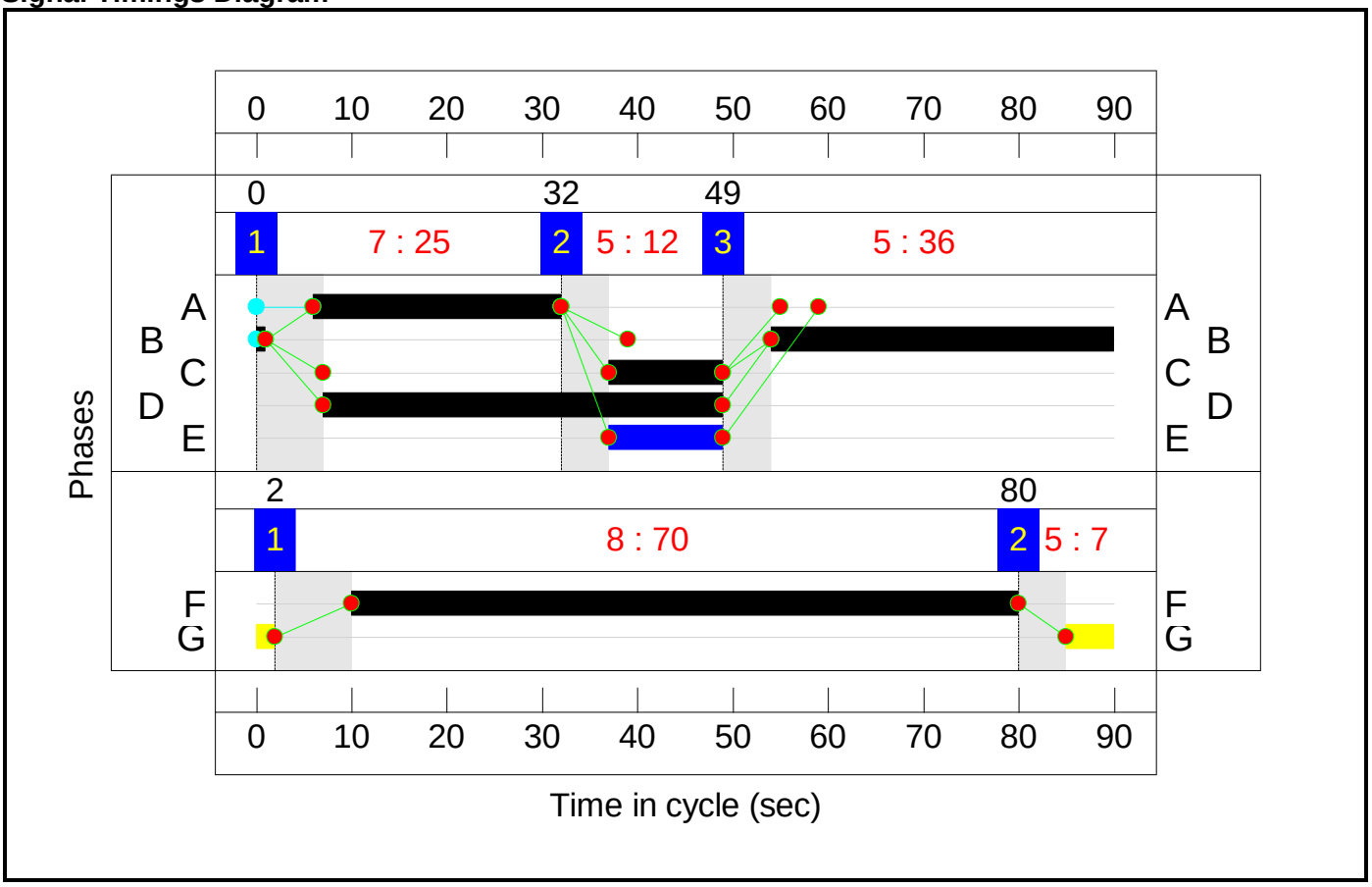
Stage	1	2	3
Duration	25	12	36
Change Point	0	32	49

Stage Stream: 2

Stage	1	2
Duration	70	7
Change Point	2	80

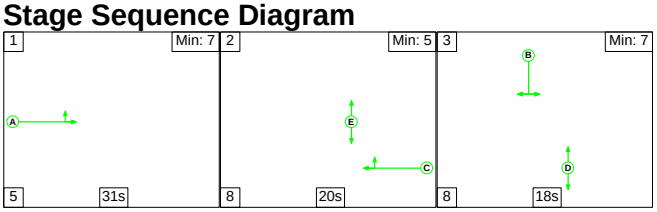
Full Input Data And Results

Signal Timings Diagram



C2 - Heath Mill Lane

Stage Sequence Diagram

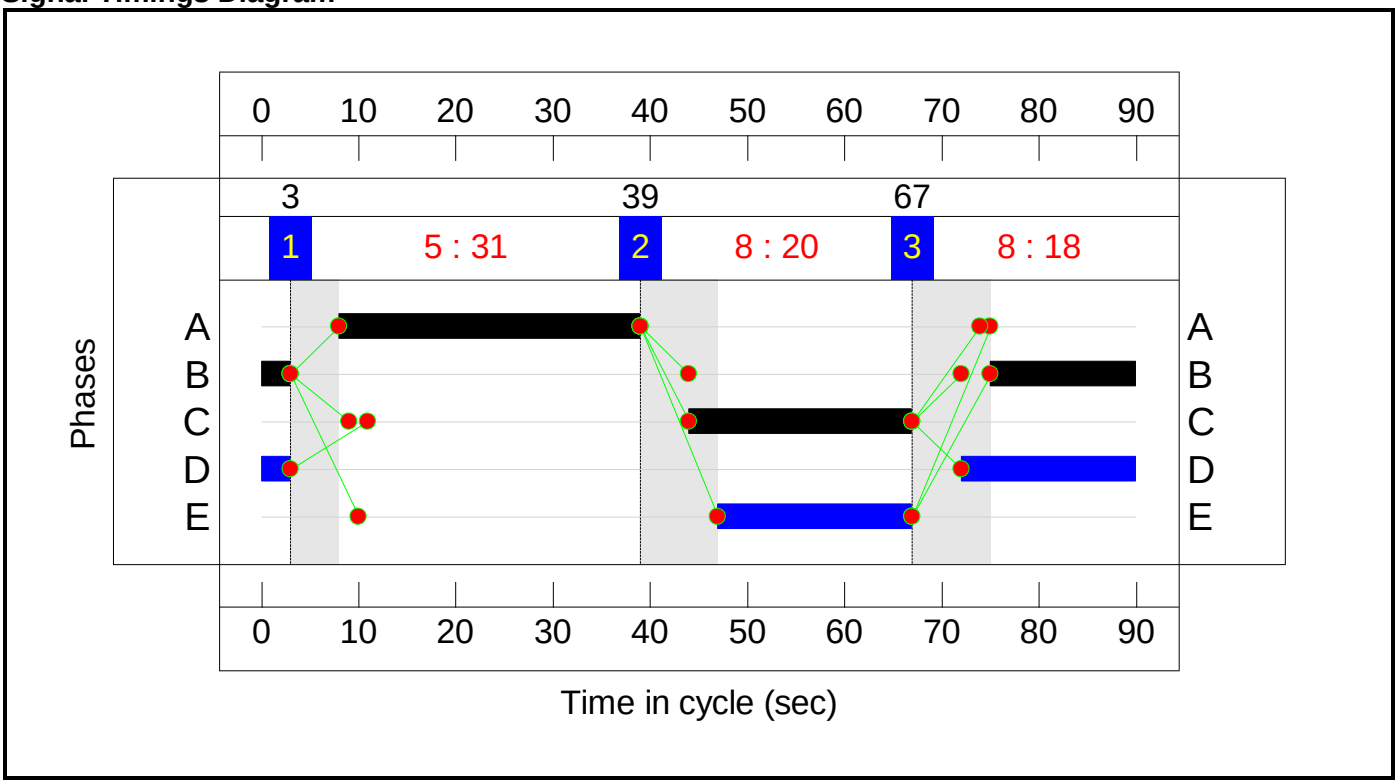


Stage Timings

Stage	1	2	3
Duration	31	20	18
Change Point	3	39	67

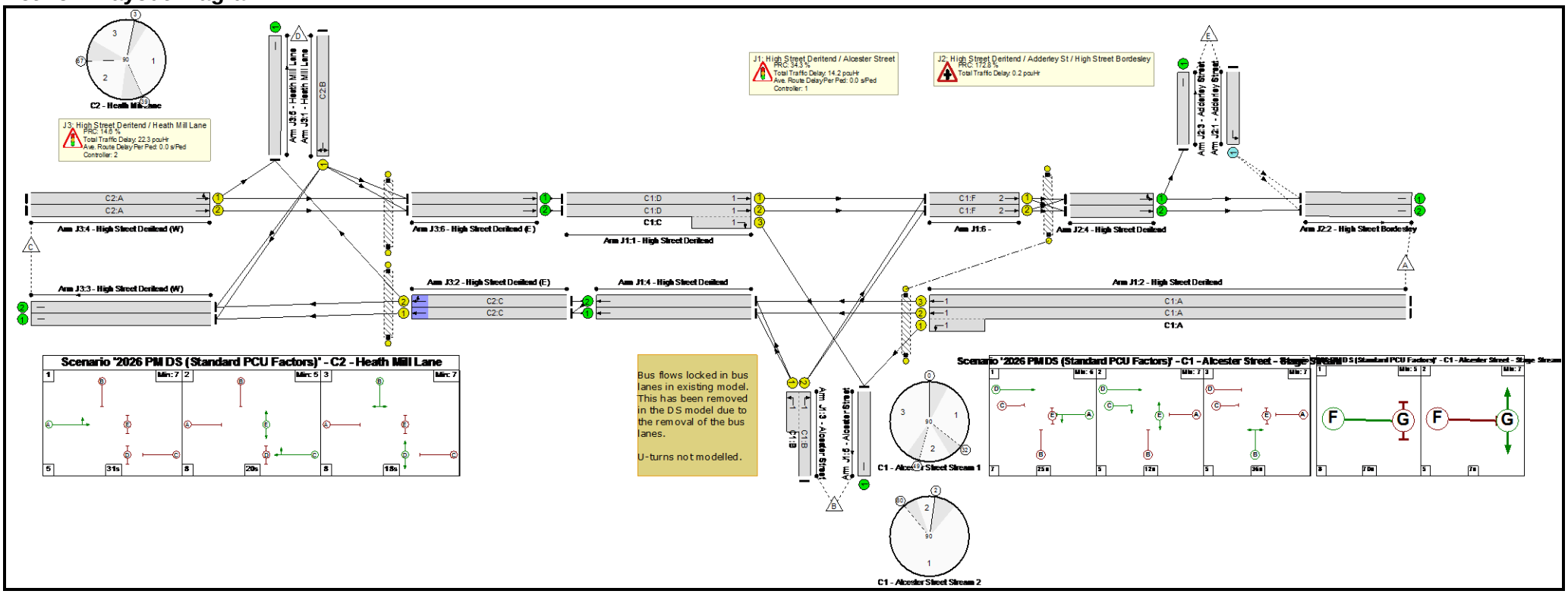
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.6%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.0%**
1/1	High Street Deritend Ahead	U	1:1	N/A	C1:D		1	42	-	451	1925	920	49.0%
1/2+1/3	High Street Deritend Right Ahead	U	1:1	N/A	C1:D C1:C		1	42:12	-	508	1925:1777	501+257	67.0 : 67.0%
2/2+2/1	High Street Deritend Ahead Left	U	1:1	N/A	C1:A		1	26	-	478	2071:1743	468+328	60.0 : 60.0%
2/3	High Street Deritend Ahead	U	1:1	N/A	C1:A		1	26	-	305	1940	582	52.4%
3/2+3/1	Alcester Street Left Right	U	1:1	N/A	C1:B		1	37	-	533	1801:1699	624+189	65.5 : 65.5%
4/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	340	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	370	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
6/1	Ahead	U	1:2	N/A	C1:F		1	70	-	574	1925	1519	37.8%
6/2	Ahead	U	1:2	N/A	C1:F		1	70	-	622	2065	1629	38.2%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:E		1	12	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:G		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**33.0%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	166	1813	503	33.0%

Full Input Data And Results

2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	647	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	233	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	714	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	482	Inf	Inf	0.0%
J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**78.6%**
1/1	Heath Mill Lane Right Left	U	N/A	N/A	C2:B		1	18	-	310	1871	395	78.5%
2/1	High Street Deritend (E) Ahead	U	N/A	N/A	C2:C		1	23	-	342	1915	511	67.0%
2/2	High Street Deritend (E) Ahead Right	U	N/A	N/A	C2:C		1	23	-	368	1798	479	76.8%
3/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
3/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	79	Inf	Inf	0.0%
4/1	High Street Deritend (W) Left Ahead	U	N/A	N/A	C2:A		1	31	-	500	1790	636	78.6%
4/2	High Street Deritend (W) Ahead	U	N/A	N/A	C2:A		1	31	-	489	2005	713	68.6%
5/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	549	Inf	Inf	0.0%
6/1	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	451	Inf	Inf	0.0%
6/2	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	508	Inf	Inf	0.0%

Full Input Data And Results

Ped Link: P1	Across High Street Deritend (westbound traffic)	-	N/A	-	C2:D		1	21	-	0	-	0	0.0%
Ped Link: P2	Across High Street Deritend (eastbound traffic)	-	N/A	-	C2:E		1	20	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**166**	**0**	**0**	**25.0**	**11.8**	**0.0**	**36.8**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**9.9**	**4.3**	**0.0**	**14.2**	**-**	**-**	**-**	**-**
1/1	451	451	-	-	-	0.4	0.5	-	0.9	6.8	3.3	0.5	3.8
1/2+1/3	508	508	-	-	-	0.9	1.0	-	1.9 (0.7+1.2)	13.3 (7.6:24.5)	17.5	1.0	18.5
2/2+2/1	478	478	-	-	-	3.4	0.7	-	4.1 (2.4+1.7)	30.9 (31.1:30.5)	5.6	0.7	6.4
2/3	305	305	-	-	-	2.2	0.5	-	2.8	32.6	6.3	0.5	6.8
3/2+3/1	533	533	-	-	-	2.9	0.9	-	3.8 (3.0+0.8)	25.7 (26.1:24.5)	8.7	0.9	9.6
4/1	340	340	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	370	370	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	574	574	-	-	-	0.1	0.3	-	0.4	2.3	0.5	0.3	0.8
6/2	622	622	-	-	-	0.2	0.3	-	0.5	2.7	1.1	0.3	1.4
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**166**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	166	166	166	0	0	0.0	0.2	-	0.2	5.3	0.0	0.2	0.2
2/1	647	647	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	233	233	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	714	714	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	482	482	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**15.1**	**7.2**	**0.0**	**22.3**	**-**	**-**	**-**	**-**
1/1	310	310	-	-	-	2.9	1.8	-	4.6	53.9	7.3	1.8	9.1
2/1	342	342	-	-	-	2.4	1.0	-	3.4	36.2	7.9	1.0	8.9
2/2	368	368	-	-	-	2.8	1.6	-	4.4	42.8	8.6	1.6	10.2
3/1	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	79	79	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	500	500	-	-	-	3.6	1.8	-	5.4	38.8	11.1	1.8	12.9
4/2	489	489	-	-	-	3.4	1.1	-	4.4	32.7	10.3	1.1	11.4
5/1	549	549	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	451	451	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	508	508	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Alcester Street	Stream: 1	PRC for Signalled Lanes (%):	34.3	Total Delay for Signalled Lanes (pcuHr):	13.40	Cycle Time (s): 90
C1 - Alcester Street	Stream: 2	PRC for Signalled Lanes (%):	135.7	Total Delay for Signalled Lanes (pcuHr):	0.84	Cycle Time (s): 90
C2 - Heath Mill Lane		PRC for Signalled Lanes (%):	14.6	Total Delay for Signalled Lanes (pcuHr):	22.28	Cycle Time (s): 90
		PRC Over All Lanes (%):	14.6	Total Delay Over All Lanes(pcuHr):	36.77	

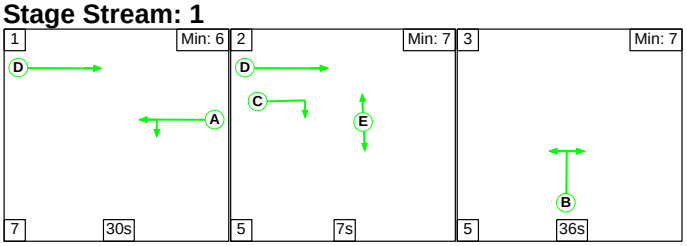
Full Input Data And Results

Scenario 3: '2031 AM DS (Standard PCU Factors)' (FG3: '2031 AM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

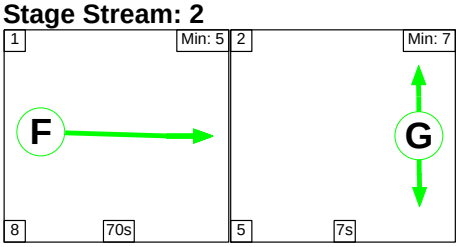
C1 - Alcester Street

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

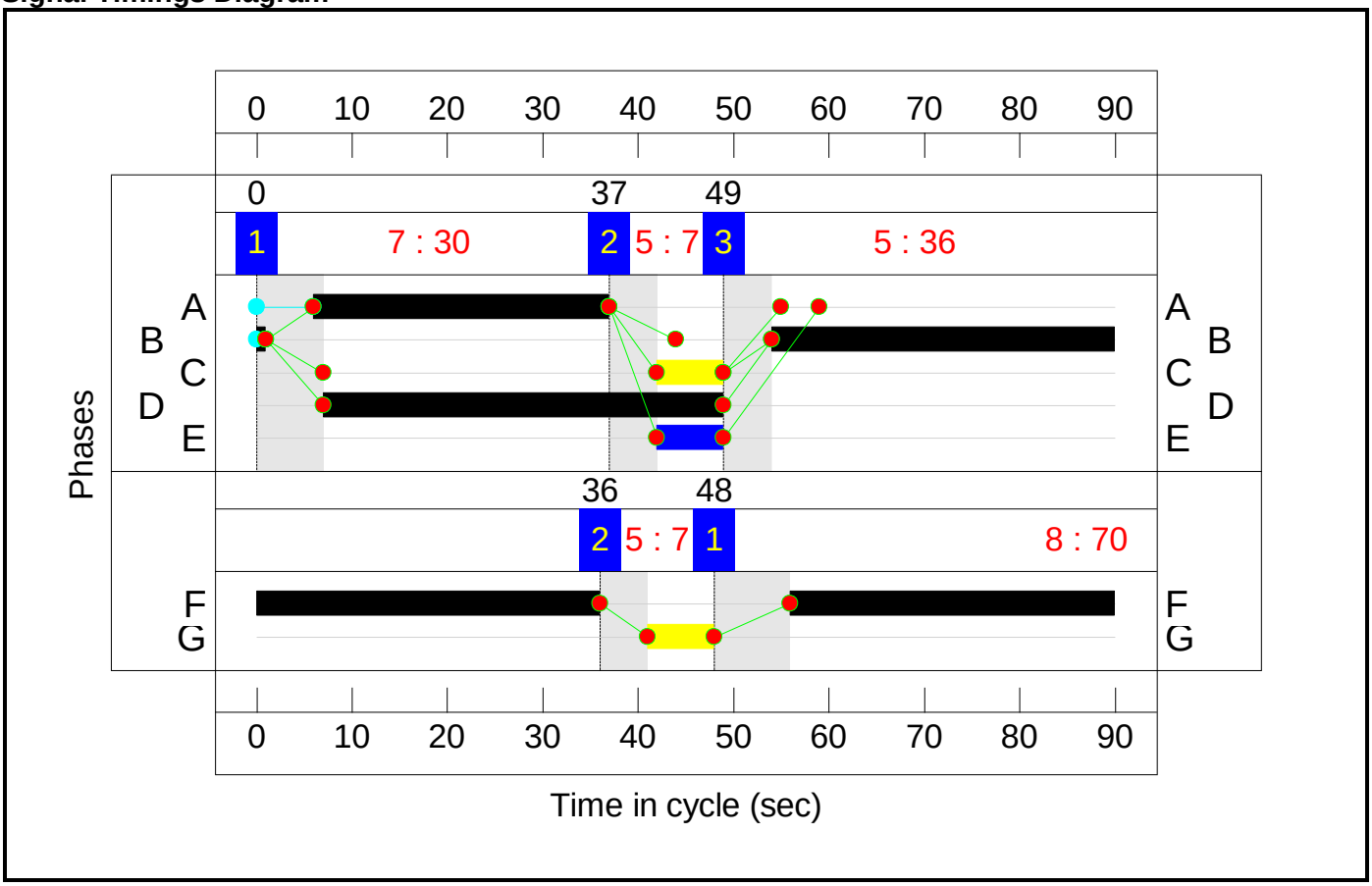
Stage	1	2	3
Duration	30	7	36
Change Point	0	37	49

Stage Stream: 2

Stage	1	2
Duration	70	7
Change Point	48	36

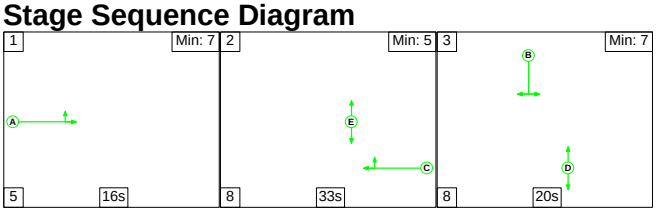
Full Input Data And Results

Signal Timings Diagram



C2 - Heath Mill Lane

Stage Sequence Diagram

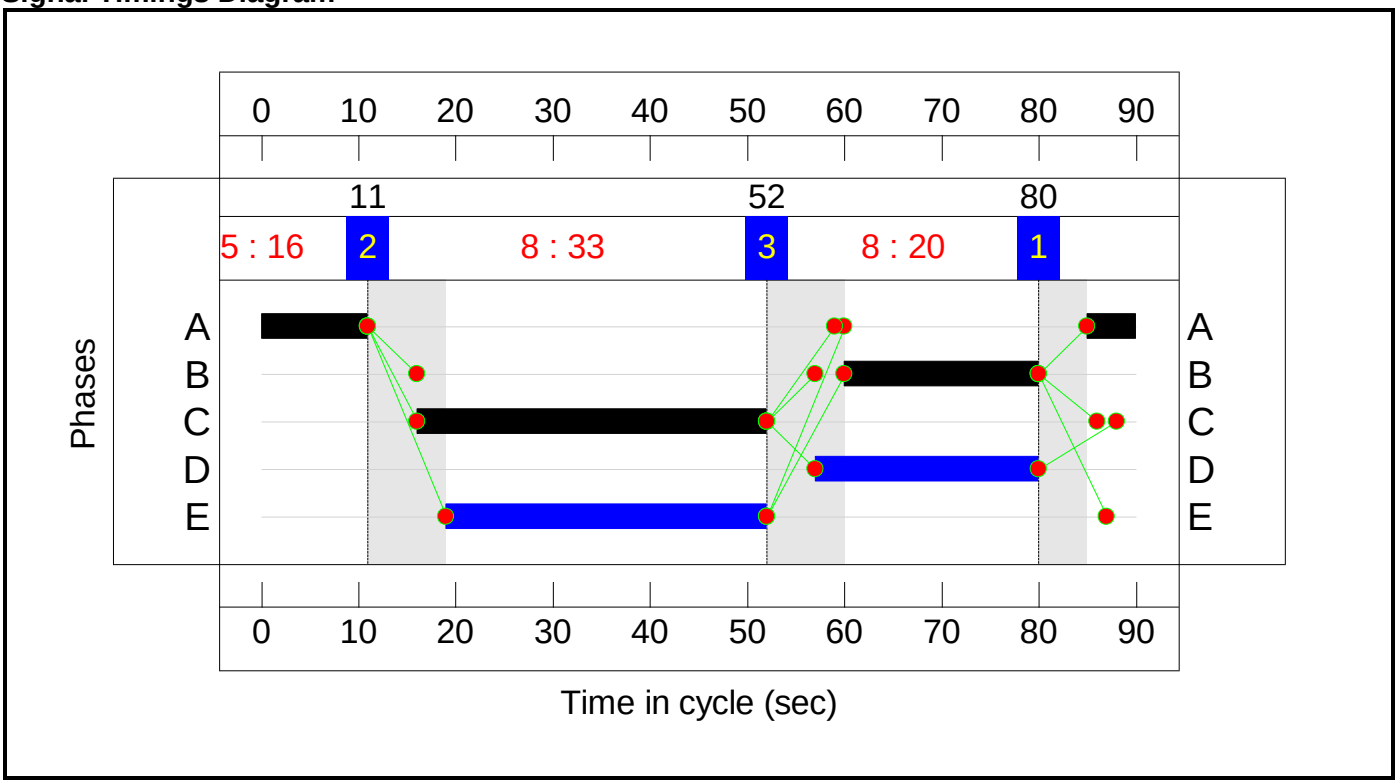


Stage Timings

Stage	1	2	3
Duration	16	33	20
Change Point	80	11	52

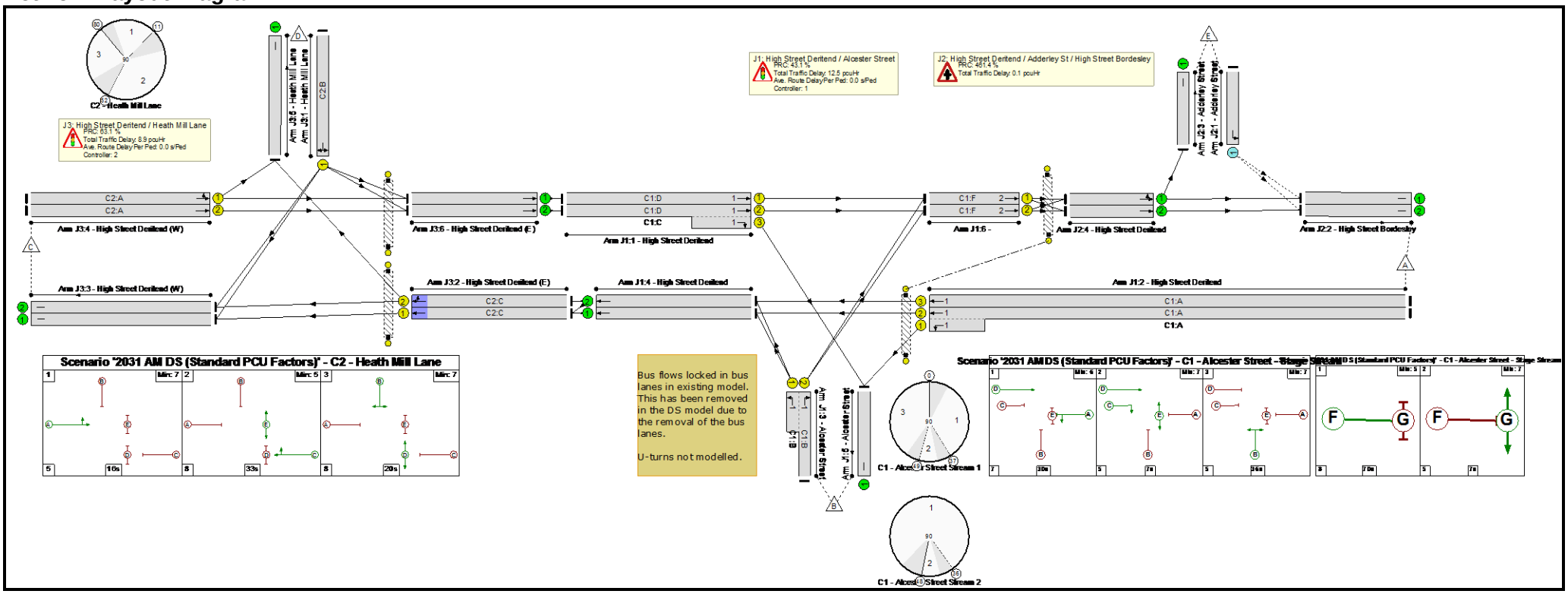
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**62.9%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**62.9%**
1/1	High Street Deritend Ahead	U	1:1	N/A	C1:D		1	42	-	166	1925	920	18.0%
1/2+1/3	High Street Deritend Right Ahead	U	1:1	N/A	C1:D C1:C		1	42:7	-	246	1925:1777	912+27	26.2 : 26.2%
2/2+2/1	High Street Deritend Ahead Left	U	1:1	N/A	C1:A		1	31	-	533	2071:1743	571+279	62.7 : 62.7%
2/3	High Street Deritend Ahead	U	1:1	N/A	C1:A		1	31	-	367	1940	690	53.2%
3/2+3/1	Alcester Street Left Right	U	1:1	N/A	C1:B		1	37	-	494	1801:1699	685+100	62.9 : 62.9%
4/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	368	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	420	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	182	Inf	Inf	0.0%
6/1	Ahead	U	1:2	N/A	C1:F		1	70	-	365	1925	1519	24.0%
6/2	Ahead	U	1:2	N/A	C1:F		1	70	-	471	2065	1629	28.9%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:E		1	7	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:G		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**16.0%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	95	1813	593	16.0%

Full Input Data And Results

2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	374	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	280	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	559	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**55.2%**
1/1	Heath Mill Lane Right Left	U	N/A	N/A	C2:B		1	20	-	241	1872	437	55.2%
2/1	High Street Deritend (E) Ahead	U	N/A	N/A	C2:C		1	36	-	408	1915	787	51.8%
2/2	High Street Deritend (E) Ahead Right	U	N/A	N/A	C2:C		1	36	-	380	1807	743	51.2%
3/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	469	Inf	Inf	0.0%
3/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	92	Inf	Inf	0.0%
4/1	High Street Deritend (W) Left Ahead	U	N/A	N/A	C2:A		1	16	-	170	1766	334	51.0%
4/2	High Street Deritend (W) Ahead	U	N/A	N/A	C2:A		1	16	-	206	2005	379	54.4%
5/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	432	Inf	Inf	0.0%
6/1	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	166	Inf	Inf	0.0%
6/2	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	246	Inf	Inf	0.0%

Full Input Data And Results

Ped Link: P1	Across High Street Deritend (westbound traffic)	-	N/A	-	C2:D		1	23	-	0	-	0	0.0%
Ped Link: P2	Across High Street Deritend (eastbound traffic)	-	N/A	-	C2:E		1	33	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**95**	**0**	**0**	**15.8**	**5.8**	**0.0**	**21.5**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**9.6**	**2.9**	**0.0**	**12.5**	**-**	**-**	**-**	**-**
1/1	166	166	-	-	-	0.7	0.1	-	0.8	16.7	3.9	0.1	4.1
1/2+1/3	246	246	-	-	-	0.7	0.2	-	0.9 (0.8+0.1)	12.5 (11.7:41.5)	7.6	0.2	7.8
2/2+2/1	533	533	-	-	-	3.3	0.8	-	4.1 (2.8+1.3)	27.6 (28.2:26.4)	7.0	0.8	7.8
2/3	367	367	-	-	-	2.4	0.6	-	2.9	28.6	7.2	0.6	7.8
3/2+3/1	494	494	-	-	-	2.7	0.8	-	3.5 (3.1+0.4)	25.8 (26.0:24.3)	8.7	0.8	9.6
4/1	368	368	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	420	420	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	182	182	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	365	365	-	-	-	0.0	0.2	-	0.2	1.6	0.0	0.2	0.2
6/2	471	471	-	-	-	0.0	0.2	-	0.2	1.6	0.0	0.2	0.2
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**95**	**0**	**0**	**0.0**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**	**-**
1/1	95	95	95	0	0	0.0	0.1	-	0.1	3.6	0.0	0.1	0.1
2/1	374	374	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	280	280	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	559	559	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**6.1**	**2.8**	**0.0**	**8.9**	**-**	**-**	**-**	**-**
1/1	241	241	-	-	-	2.0	0.6	-	2.6	39.5	5.3	0.6	5.9
2/1	408	408	-	-	-	0.4	0.5	-	0.9	7.9	0.9	0.5	1.5
2/2	380	380	-	-	-	0.3	0.5	-	0.8	7.6	0.8	0.5	1.3
3/1	469	469	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	92	92	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	170	170	-	-	-	1.5	0.5	-	2.1	43.7	3.8	0.5	4.3
4/2	206	206	-	-	-	1.9	0.6	-	2.5	43.4	4.6	0.6	5.2
5/1	432	432	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	166	166	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	246	246	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Alcester Street	Stream: 1	PRC for Signalled Lanes (%):	43.1	Total Delay for Signalled Lanes (pcuHr):	12.18	Cycle Time (s): 90
C1 - Alcester Street	Stream: 2	PRC for Signalled Lanes (%):	211.3	Total Delay for Signalled Lanes (pcuHr):	0.36	Cycle Time (s): 90
C2 - Heath Mill Lane		PRC for Signalled Lanes (%):	63.1	Total Delay for Signalled Lanes (pcuHr):	8.89	Cycle Time (s): 90
		PRC Over All Lanes (%):	43.1	Total Delay Over All Lanes(pcuHr):	21.53	

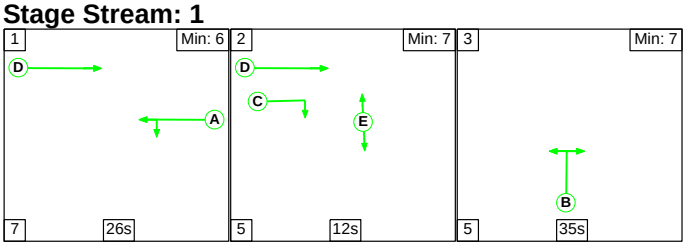
Full Input Data And Results

Scenario 4: '2031 PM DS (Standard PCU Factors)' (FG4: '2031 PM DS (Standard PCU Factors)', Plan 1: '2021 AM DS-2021 DS AM')

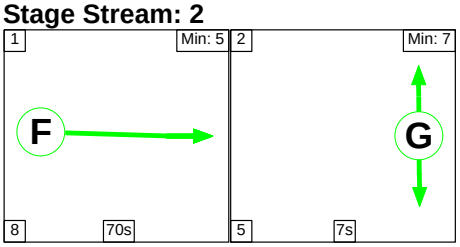
C1 - Alcester Street

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

Stage Stream: 1

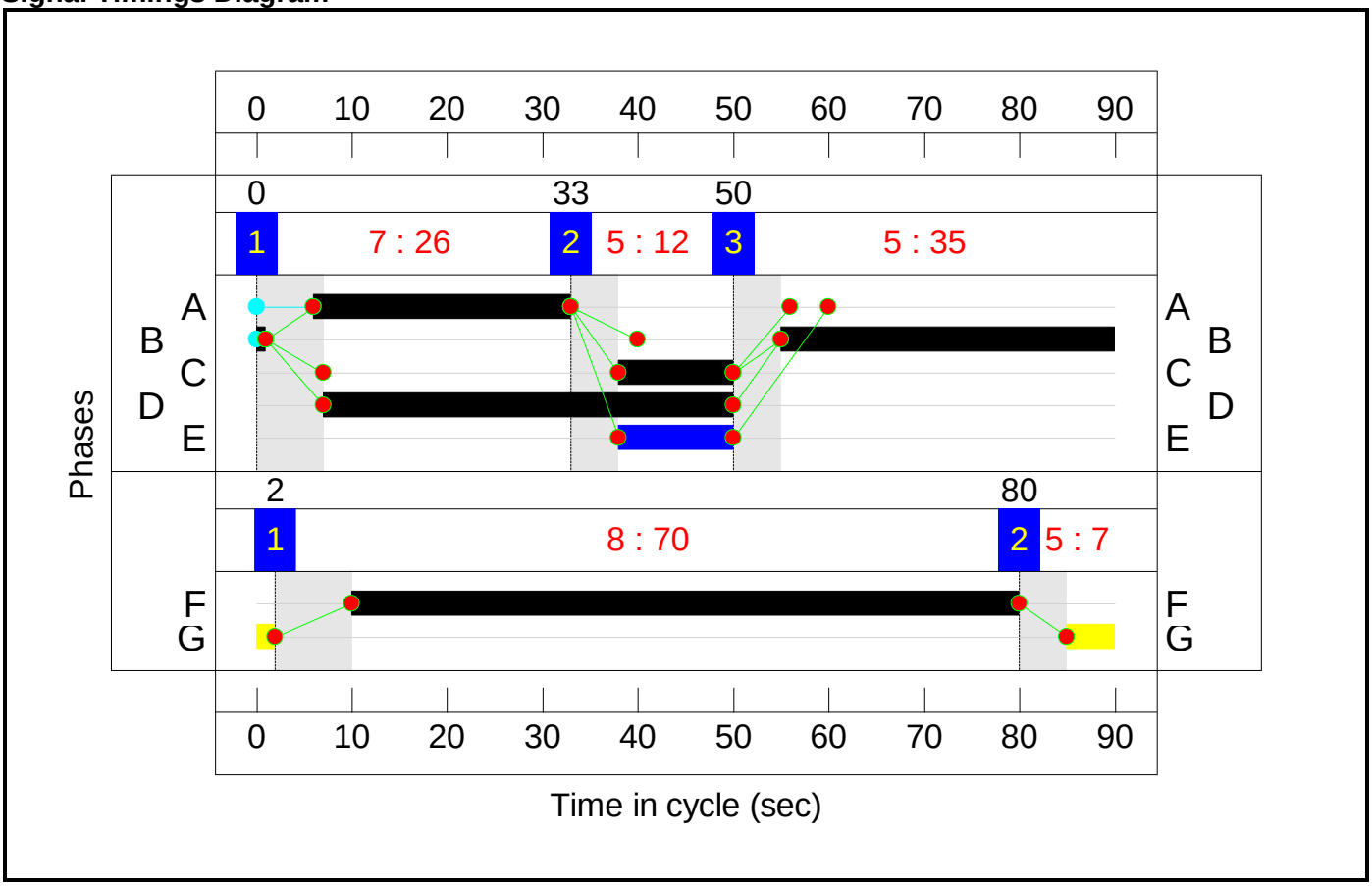
Stage	1	2	3
Duration	26	12	35
Change Point	0	33	50

Stage Stream: 2

Stage	1	2
Duration	70	7
Change Point	2	80

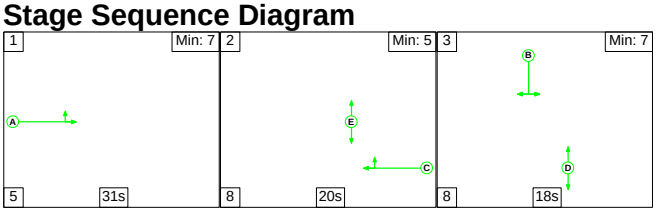
Full Input Data And Results

Signal Timings Diagram



C2 - Heath Mill Lane

Stage Sequence Diagram

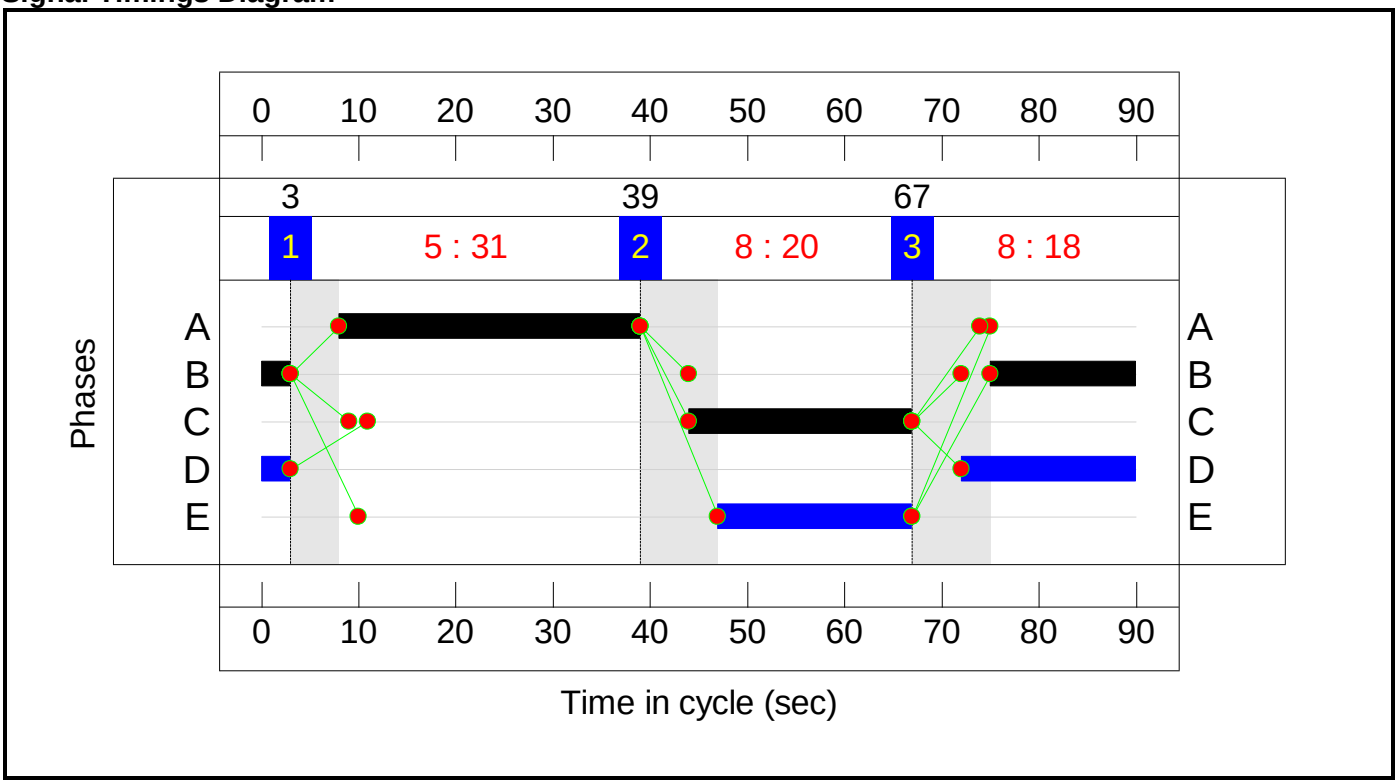


Stage Timings

Stage	1	2	3
Duration	31	20	18
Change Point	3	39	67

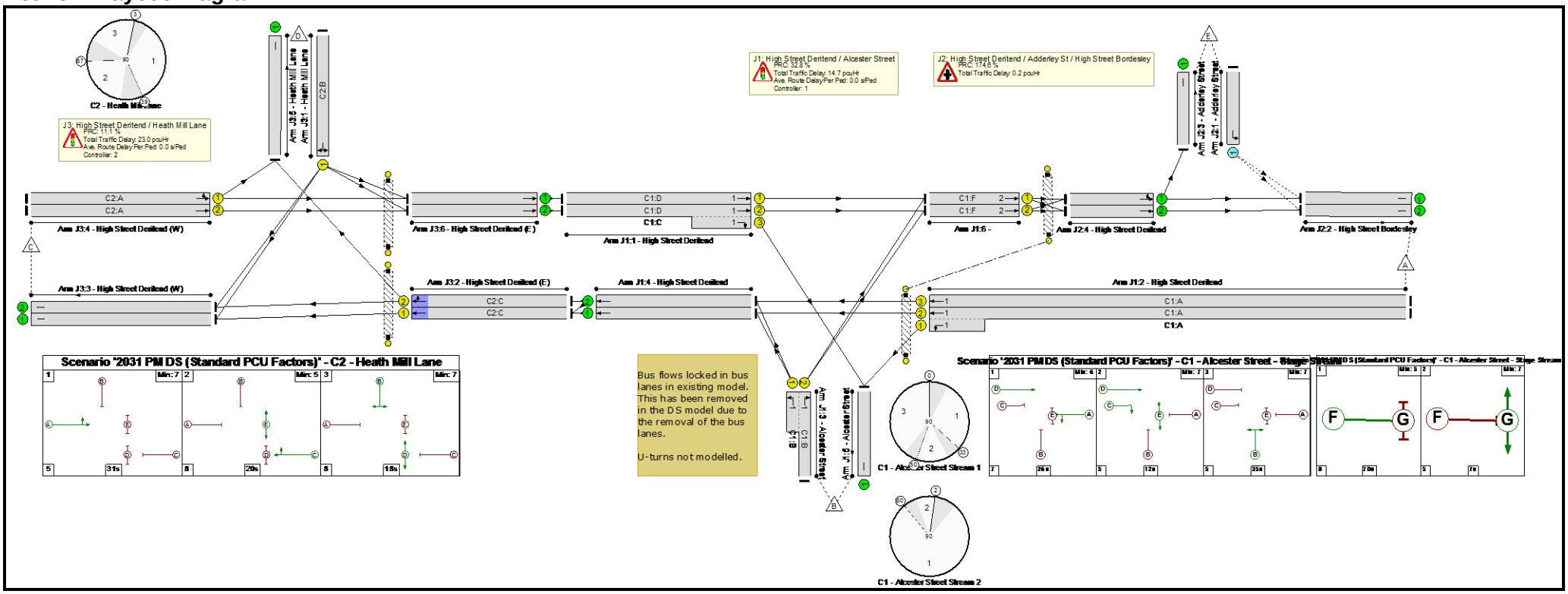
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: High Street Deritend - Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.0%**
J1: High Street Deritend / Alcester Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.8%**
1/1	High Street Deritend Ahead	U	1:1	N/A	C1:D		1	43	-	461	1925	941	49.0%
1/2+1/3	High Street Deritend Right Ahead	U	1:1	N/A	C1:D C1:C		1	43:12	-	489	1925:1777	469+257	67.4 : 67.4%
2/2+2/1	High Street Deritend Ahead Left	U	1:1	N/A	C1:A		1	27	-	501	2071:1743	483+332	61.5 : 61.5%
2/3	High Street Deritend Ahead	U	1:1	N/A	C1:A		1	27	-	318	1940	604	52.7%
3/2+3/1	Alcester Street Left Right	U	1:1	N/A	C1:B		1	36	-	538	1801:1699	608+186	67.8 : 67.8%
4/1	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	359	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	382	Inf	Inf	0.0%
5/1	Alcester Street	U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%
6/1	Ahead	U	1:2	N/A	C1:F		1	70	-	581	1925	1519	38.3%
6/2	Ahead	U	1:2	N/A	C1:F		1	70	-	608	2065	1629	37.3%
Ped Link: P1	Unnamed Ped Link	-	1:1	-	C1:E		1	12	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	1:2	-	C1:G		1	7	-	0	-	0	0.0%
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**32.8%**
1/1	Adderley Street Left	O	N/A	N/A	-		-	-	-	166	1813	506	32.8%

Full Input Data And Results

2/1	High Street Bordesley	U	N/A	N/A	-		-	-	-	641	Inf	Inf	0.0%
2/2	High Street Bordesley	U	N/A	N/A	-		-	-	-	473	Inf	Inf	0.0%
3/1	Adderley Street	U	N/A	N/A	-		-	-	-	241	Inf	Inf	0.0%
4/1	High Street Deritend Ahead Left	U	N/A	N/A	-		-	-	-	716	Inf	Inf	0.0%
4/2	High Street Deritend Ahead	U	N/A	N/A	-		-	-	-	473	Inf	Inf	0.0%
J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**81.0%**
1/1	Heath Mill Lane Right Left	U	N/A	N/A	C2:B		1	18	-	307	1872	395	77.7%
2/1	High Street Deritend (E) Ahead	U	N/A	N/A	C2:C		1	23	-	367	1915	511	71.9%
2/2	High Street Deritend (E) Ahead Right	U	N/A	N/A	C2:C		1	23	-	374	1798	479	78.0%
3/1	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	445	Inf	Inf	0.0%
3/2	High Street Deritend (W)	U	N/A	N/A	-		-	-	-	77	Inf	Inf	0.0%
4/1	High Street Deritend (W) Left Ahead	U	N/A	N/A	C2:A		1	31	-	516	1791	637	81.0%
4/2	High Street Deritend (W) Ahead	U	N/A	N/A	C2:A		1	31	-	468	2005	713	65.6%
5/1	Heath Mill Lane	U	N/A	N/A	-		-	-	-	560	Inf	Inf	0.0%
6/1	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	461	Inf	Inf	0.0%
6/2	High Street Deritend (E) Ahead	U	N/A	N/A	-		-	-	-	489	Inf	Inf	0.0%

Full Input Data And Results

Ped Link: P1	Across High Street Deritend (westbound traffic)	-	N/A	-	C2:D		1	21	-	0	-	0	0.0%
Ped Link: P2	Across High Street Deritend (eastbound traffic)	-	N/A	-	C2:E		1	20	-	0	-	0	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: High Street Deritend - Alcester Street	**-**	**-**	**166**	**0**	**0**	**25.5**	**12.4**	**0.0**	**38.0**	**-**	**-**	**-**	**-**
J1: High Street Deritend / Alcester Street	**-**	**-**	**0**	**0**	**0**	**10.2**	**4.5**	**0.0**	**14.7**	**-**	**-**	**-**	**-**
1/1	461	461	-	-	-	0.4	0.5	-	0.8	6.6	3.3	0.5	3.7
1/2+1/3	489	489	-	-	-	0.9	1.0	-	2.0 (0.7+1.3)	14.5 (8.0:26.3)	16.7	1.0	17.7
2/2+2/1	501	501	-	-	-	3.4	0.8	-	4.2 (2.5+1.7)	30.4 (30.7:29.9)	5.9	0.8	6.7
2/3	318	318	-	-	-	2.3	0.6	-	2.8	31.8	6.5	0.6	7.1
3/2+3/1	538	538	-	-	-	3.0	1.0	-	4.1 (3.1+0.9)	27.2 (27.5:26.0)	9.1	1.0	10.1
4/1	359	359	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	382	382	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	377	377	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	581	581	-	-	-	0.1	0.3	-	0.4	2.3	0.5	0.3	0.8
6/2	608	608	-	-	-	0.2	0.3	-	0.5	2.7	1.1	0.3	1.4
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
J2: High Street Deritend / Adderley St / High Street Bordesley	**-**	**-**	**166**	**0**	**0**	**0.0**	**0.2**	**0.0**	**0.2**	**-**	**-**	**-**	**-**
1/1	166	166	166	0	0	0.0	0.2	-	0.2	5.3	0.0	0.2	0.2
2/1	641	641	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	473	473	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	241	241	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	716	716	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	473	473	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

J3: High Street Deritend / Heath Mill Lane	**-**	**-**	**0**	**0**	**0**	**15.3**	**7.7**	**0.0**	**23.0**	**-**	**-**	**-**	**-**
1/1	307	307	-	-	-	2.9	1.7	-	4.5	53.2	7.2	1.7	8.8
2/1	367	367	-	-	-	2.7	1.3	-	3.9	38.4	8.5	1.3	9.7
2/2	374	374	-	-	-	2.9	1.7	-	4.6	44.1	8.8	1.7	10.5
3/1	445	445	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/2	77	77	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/1	516	516	-	-	-	3.8	2.1	-	5.8	40.7	11.6	2.1	13.7
4/2	468	468	-	-	-	3.2	0.9	-	4.1	31.7	9.8	0.9	10.7
5/1	560	560	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	461	461	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	489	489	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-

C1 - Alcester Street	Stream: 1	PRC for Signalled Lanes (%):	32.8	Total Delay for Signalled Lanes (pcuHr):	13.91	Cycle Time (s): 90
C1 - Alcester Street	Stream: 2	PRC for Signalled Lanes (%):	135.2	Total Delay for Signalled Lanes (pcuHr):	0.83	Cycle Time (s): 90
C2 - Heath Mill Lane		PRC for Signalled Lanes (%):	11.1	Total Delay for Signalled Lanes (pcuHr):	22.97	Cycle Time (s): 90
		PRC Over All Lanes (%):	11.1	Total Delay Over All Lanes(pcuHr):	37.95	

G. VISSIM Model Outputs

Birmingham Eastside Extension

VISSIM Local Model Validation Report

	Documentation Codification	Suitability	Revision	Pages
Identification	BEE-D02-TAT-RP-TT-0001	S2	P01	30

	Author	Checked by	Approved by
Name	Nick Young	Chris Wiles	Nawaz Malik
Job Title	Principal Transport Planner	Associate Transport Planner	Technical Director
Date	15th August 2017	30th August 2017	12th September 2017
Signature			

Issue and Revision Record

Revision	Amendment Description	Date
01	Final	12/09/2017
02		
03		
04		

Reference

	Reference Document		Date
Name			
Job Title			
Date			
Signature			

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1 Introduction

1.1 Background

This document provides details of base year VISSIM model validation process and outcome of micro-simulation modelling for the Birmingham Eastside Extension (BEE) Midland Metro scheme.

Midland Metro Alliance (MMA) has built a validated micro-simulation model which has been used as part of the BEE scheme development. The base model reflects 2016 traffic flow and network conditions for the weekday morning and evening peak periods.

The micro-simulation model has been developed in addition to isolated junction capacity assessment models as there are areas of congestion through neighbouring junctions that cannot be assessed in detail using other modelling packages, such as LinSig. The base VISSIM model will be used to test the impact of BEE, which will comprise network and signalling changes, on the network including full tram priority, which also cannot be accurately modelled using capacity assessment software.

The BEE micro-simulation base model has been developed using VISSIM version 5.40-13 and has been prepared in accordance with WebTAG guidelines for model development, calibration and validation.

This Local Model Validation Report (LMVR) concerns the development, calibration and validation of the BEE 2016 base VISSIM model only.

1.2 Model Extents

The model extents are shown in Figure 1.1 and Figure 1.2, and reflects that of the BEE Transport Assessment (MMD-300207-HS25-DOC-000-0001), except for Heath Mill Lane / Liverpool Street, which is not included in the VISSIM model as it does not directly interact with the Metro scheme.

In the City Centre the model begins where BEE meets the Birmingham City Centre Extension (BCCE) at the Bull Street / Corporation Street junction. The proposed line runs down Bull Street and then cuts through to New Canal Street and onto High Street Deritend.

The following junctions have been modelled in VISSIM:

Signal controlled:

- Bull Street / Corporation Street;
- Moor Street Queensway / Albert Street;
- Moor Street Queensway / The Priory Queensway;
- Moor Street Queensway / Chapel Street / Jennens Road;
- Moor Street Queensway / Swan Passage;
- Moor Street / Moor Street Car Park;
- New Canal Street / Fazeley Street;
- Moat Lane Gyratory (Park Street, Upper Dean Street & Digbeth);
- Digbeth / Meriden Street;
- High Street Deritend / Rea Street;

- High Street Deritend / Milk Street;
- High Street Deritend / Alcester Street; and,
- High Street Deritend / Heath Mill Lane.

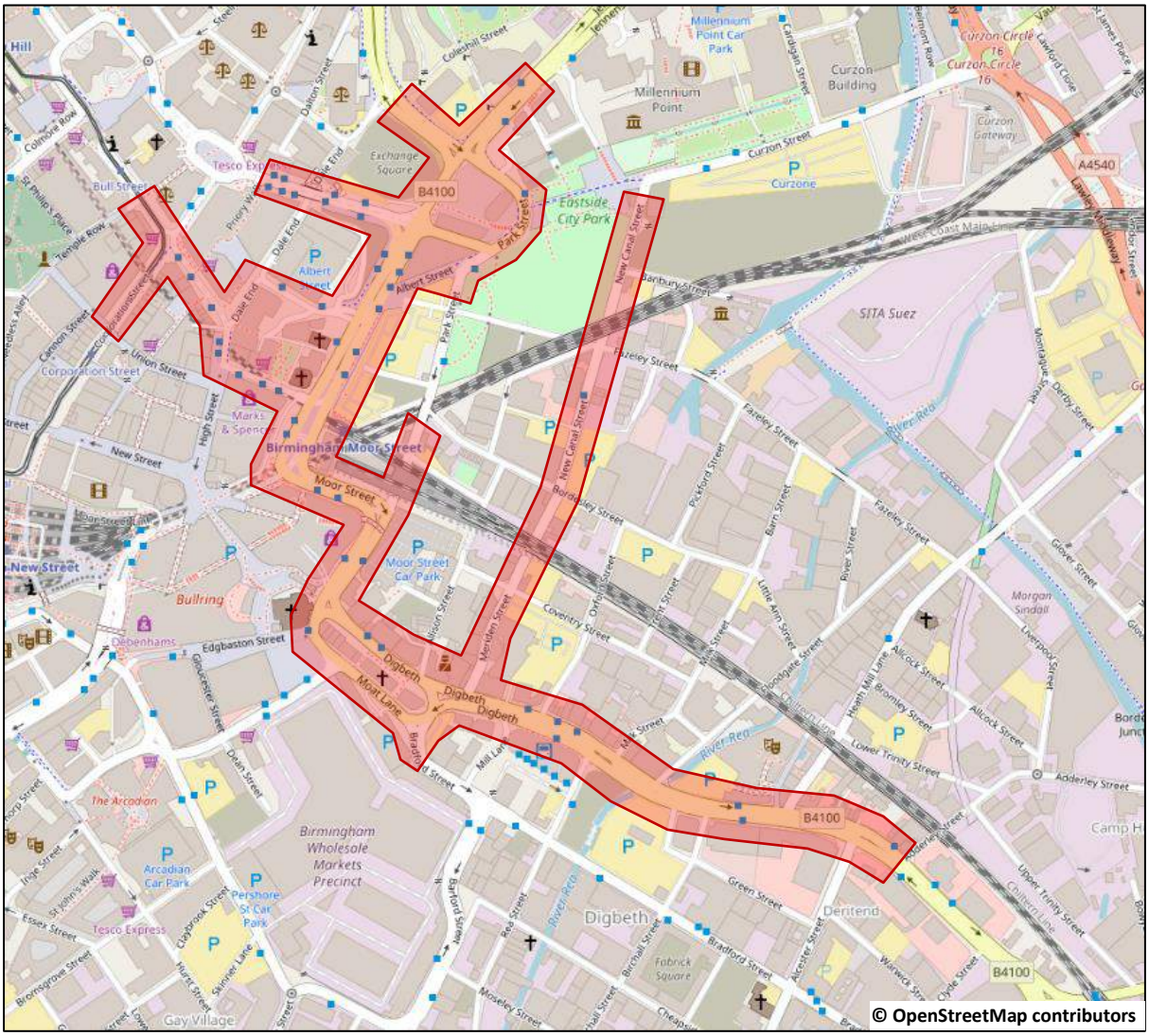


Figure 1.1 Metro Eastside Extension Model Extents

Priority controlled:

- Bull Street / Dale End;
- Park Street / Masshouse Lane;
- Albert Street / New Meeting Street;
- New Canal Street / Bordesley Street;
- Moat Lane Gyratory (Allison Street & Bradford Street);
- Meriden Street / Coventry Street;
- Digbeth / Mill Lane;
- Digbeth / Oxford Street;
- High Street Deritend / Floodgate Street;
- High Street Deritend / Stone Yard;
- High Street Deritend / Chapel House Street; and,
- High Street Deritend / Adderley Street.

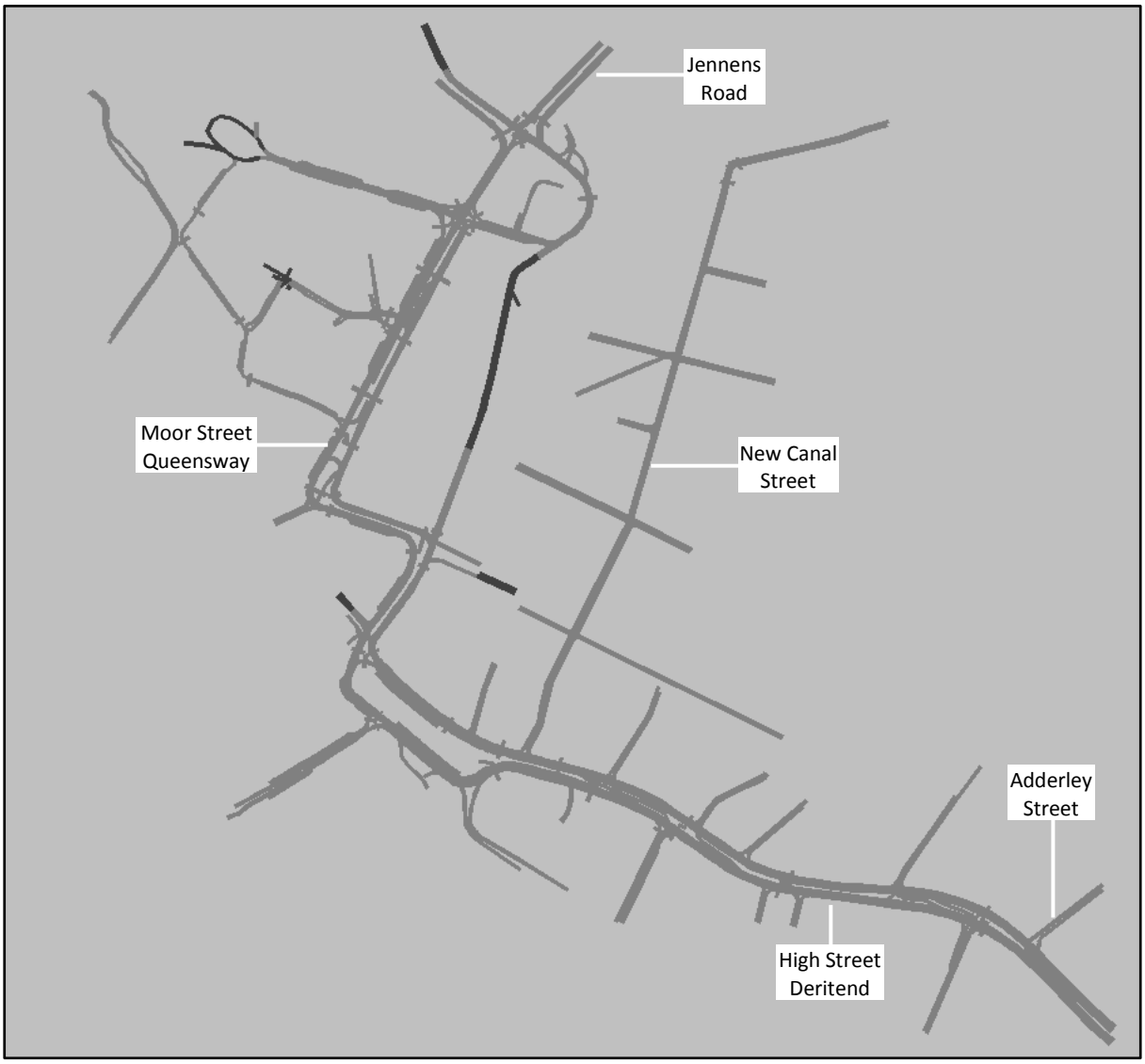


Figure 1.2 Metro Eastside Extension VISSIM Model

1.3 Base Model Methodology Overview

The network layout was coded using Ordnance Survey mapping, online sources and site visits. Traffic and pedestrian surveys were carried out in December 2016. Whilst this is a non-neutral month, it has been modelled to reflect the worst-case traffic conditions. Forecast models based on the December 2016 traffic conditions will also represent worst-case conditions. The traffic turning counts have been used to develop balanced flows, whereby the number of vehicles leaving one junction is equal to the number of vehicles arriving at the next junction. The model has been coded using static assignment as there is no route choice within the network.

The peak hours were calculated from the traffic survey data. Two time periods have been modelled, with traffic input in 15-minute intervals:

- AM Peak 08:45 – 09:45
- PM Peak 16:15 – 17:15

A 15-minute warm-up period has been modelled before each peak hour to enable the correct amount of traffic to enter the network before the analysis begins. A 15-minute cool down period has been modelled after each peak hour to monitor network recovery.

The model has been validated against Traffic Master journey times and, for buses, journey times provided by National Express. The journey time validation sections are along High Street Deritend and New Canal Street.

1.4 Report Structure

The report structure is as follows:

- Section 2 Calibration and Validation Data
- Section 3 Calibration
- Section 4 Validation
- Section 5 Junction & Network Performance
- Section 6 Summary and Conclusions

Supporting information is included in the appendices as follows:

- Appendix A Traffic Flows
- Appendix B Turning Count Calibration
- Appendix C Journey Time Validation

2 Calibration and Validation Data

2.1 Introduction

The purpose of this section is to summarise the data that has been used to construct and validate the base model.

2.2 Traffic

Traffic surveys were carried out on Wednesday 7th December 2016. These were carried out at the 28 main junctions on the BEE scheme route as well as some key offline junctions near the route, as shown in below.

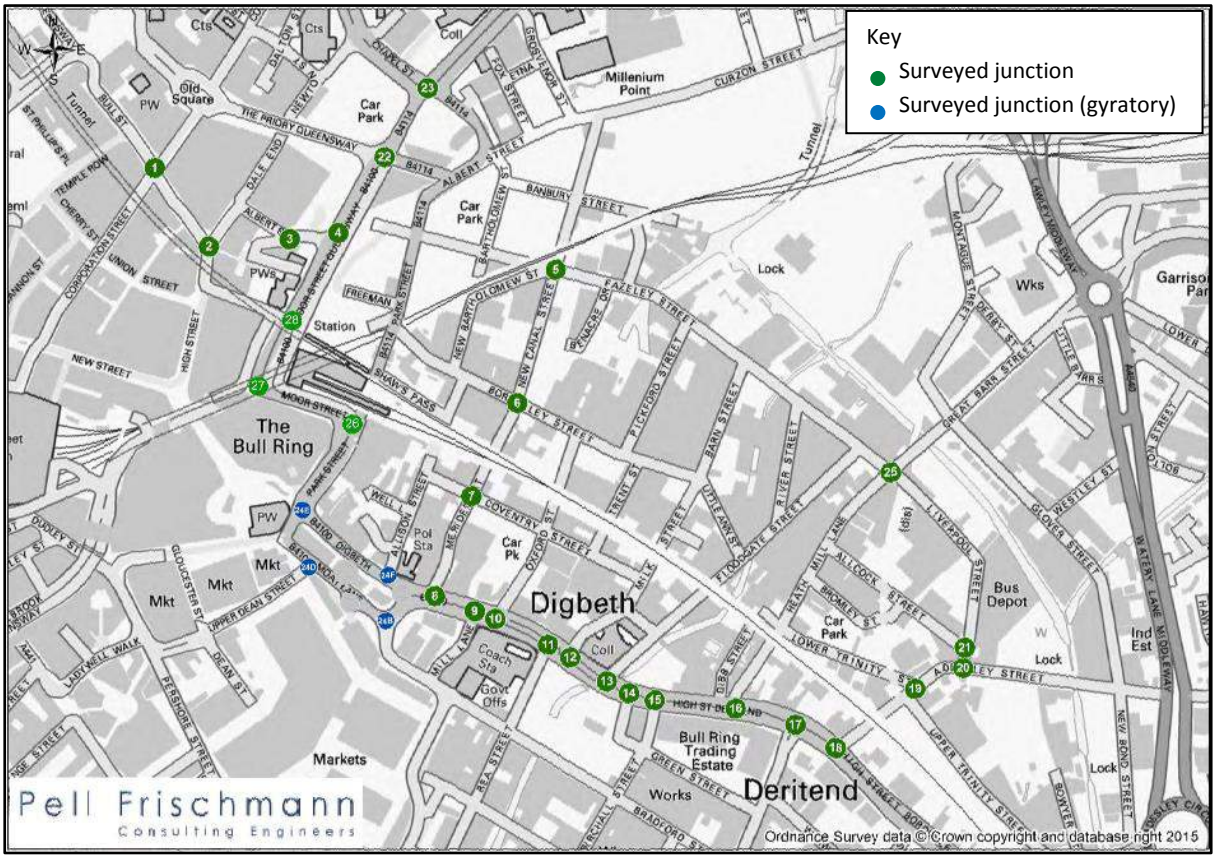


Figure 2.1 Traffic Survey Location - December 2016

The surveys were carried out during the following time periods:

- Weekday AM (07:00-10:00); and,
- Weekday PM (15:00-19:00).

The full classified turning count surveys included nine vehicle categories, with data provided in 15-minute intervals. The vehicle categories are:

- Car
- Taxi
- Private Hire

- Light Goods Vehicles (LGV)
- Other Goods Vehicles Type 1 (OGV1)
- Other Goods Vehicles Type 2 (OGV2)
- Bus
- Motorcycles
- Pedal Cycles

Queue length data was collected simultaneously with the classified turning counts.

Automatic Traffic Counts were carried out over a two-week period from 3rd to 16th December on:

- High Street Deritend (between Mill Lane and Meriden Street); and
- Park Street (between Selfridges car park and Moor Street car park).

Figure 2.2 demonstrates that the classified turning count survey, highlighted with red points, was conducted on a typical day. There were two pneumatic tube failures during the survey, one on Park Street (southbound) and one on High Street Deritend (eastbound). Data from these days has been excluded from the graphical analysis.

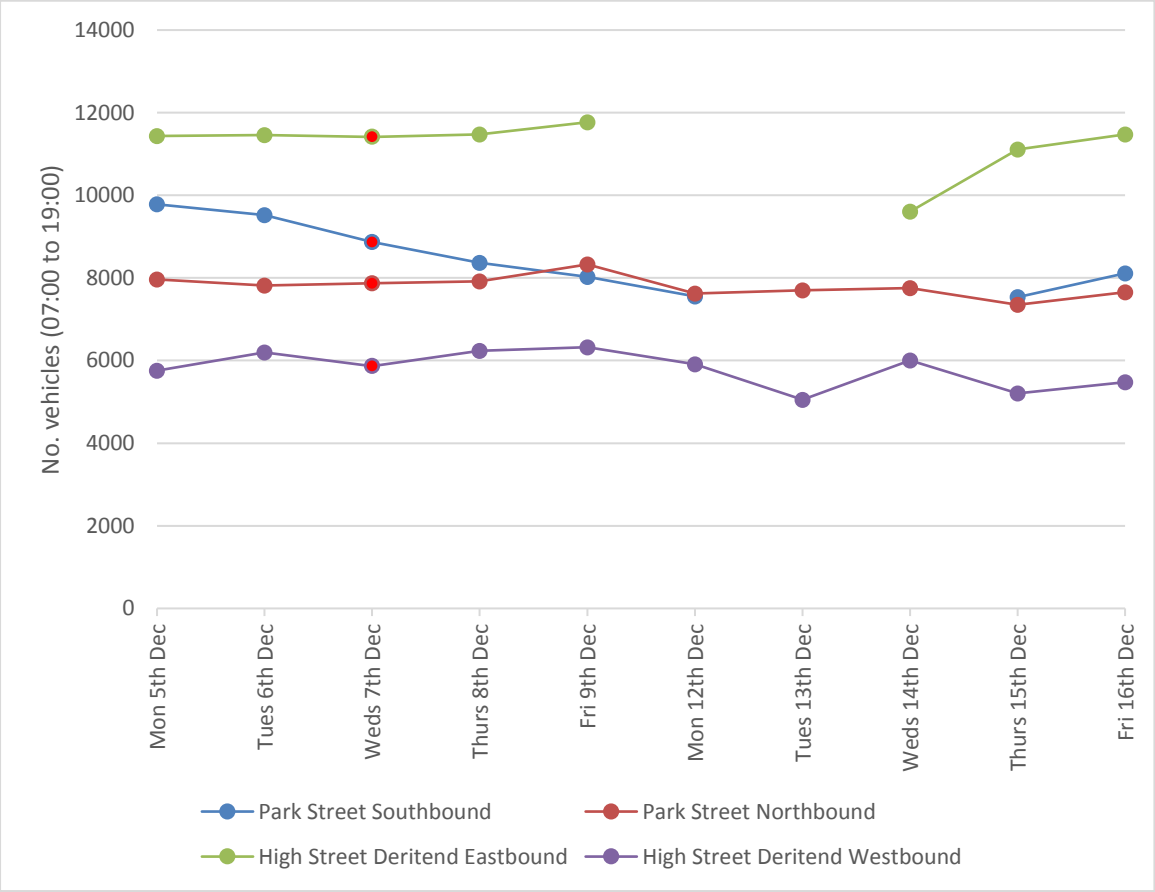


Figure 2.2 Automatic Traffic Count 12-hour Weekday Summary

2.3 Pedestrian

Pedestrian surveys were also carried out at each of the crossings within the study area along Bull Street, Moor Street Queensway and High Street Deritend.

Pedestrian flows have been coded into the model wherever there is a signal controlled crossing with some adjustments to reflect the pedestrian phase call frequency at certain junctions, as discussed Section 3.4.6.

2.4 Traffic Signal Data

The signalised junctions have been coded using VisVAP, which is an add-on to VISSIM. VisVAP enables demand dependent stages to be modelled. The stage times reflect the timings gathered on-street. Signal timings were provided by BCC in ASTRID format but due to the data being incomplete and potentially unreliable this was not used.

2.5 Public Transport Data

A combination of sources has been used to obtain information on the bus services operating within the study area. The location and type of the bus stops were identified using aerial mapping, the Network West Midlands mobile app and site visits. Bus services, routes and timetables were gathered from the Network West Midlands website in conjunction with the National Express West Midlands website during February 2016.

Dwell times for certain stop along Moor Street Queensway and Lower Bull Street have been provided by National Express, who operate the majority of timetabled bus services in the area.

2.6 Journey Time Data

Traffic Master journey time data has been gathered for High Street Deritend and New Canal Street for the period spanning from October to December 2016, excluding School Holiday periods. In October 2016 a new scheme was implemented, which closed the eastern end of the Moat Lane gyratory to all traffic to improve bus journey times. Therefore, journey times prior to October 2016 would be for different network conditions and as such have not been used in the model validation.

Other calibration inputs used to assist journey time validation included gap times at priority junctions, desired speeds, reduced speed areas and driving behaviour modifications.

3 Calibration

3.1 Introduction

The calibration process involves coding the network set-up and behavioural characteristics of vehicles and pedestrians to achieve a match between observed and modelled data.

The VISSIM model comprises five basic components:

- Highway network (links and connectors);
- Traffic control systems (signals, stop signs and give-way control);
- Traffic and pedestrians;
- Vehicle routes; and,
- Driver behaviour.

The model has largely been coded using default VISSIM parameters. However, during the process of calibration, some parameters were reviewed and adjusted to better fit observed driver behaviour, as outlined in this report.

3.2 Highway Network

The VISSIM model for the AM peak was developed based upon the Birmingham Bus Mall VISSIM model, which was provided by Birmingham City Council. This was refined using Ordnance Survey and aerial mapping as well as a series of site visits. The PM peak models was created using the validated AM peak model network. Any subsequent network changes made to the PM peak model were also retrospectively reflected in the AM peak model.

3.3 Traffic Control Systems

Priority rules were coded at all give-way locations, and have been used at signalised junctions to replicate yellow box operation. No ‘stop’ signs exist within the network.

3.3.1 Traffic Signal Data

All signalised junctions and crossings have been set up using VisVAP based upon the traffic signal specifications, regardless of the control type. On-site observations determined that all signalised junctions could be modelled as operating on fixed time, apart from the Moat Lane / Park Street signalised junction which has been modelled with vehicle actuation.

The following junctions have been coded to operate on fixed time only, with BCC’s actual Signal Controller Number (SCN) shown in brackets:

- Moor Street Queensway / Priory Queensway (E0532);
- James Watt Queensway / Jennens Row / Moor Street Queensway (E0533);
- Moor Street Queensway / Swan Passage (E0600);
- Moor Street / Moor Street Car Park (E0609);
- Moor Street Queensway / Albert Street (E0540);
- Fazeley Street / New Canal Street (E0612);
- Moat Lane / Upper Dean Street (E0615);

- Digbeth / Smithfield Street / Meriden Street (E0621);
- Digbeth / Rea Street / Milk Street (E0622/3);
- Digbeth / Heath Mill Lane (E0625); and,
- Digbeth / Alcester Street (E0626).

The following junctions have been coded to operate with vehicle actuation:

- Digbeth / Park Street / St Martins Lane (E0603);

3.3.2 Priority Rules

Locations where drivers give-way to others were generally coded using priority rules rather than conflict areas to give more flexibility in managing vehicle interaction. In most instances a gap acceptance time of 3.5 seconds has been modelled. The only exception to this is the Moat Lane / Allison Street, where vehicles crossing all three lanes of Moat Lane are permitted to edge out into the first two lanes if the gap time is 5s for both lanes. They then block traffic travelling ahead on Moat Lane before entering the offside lane to continue around the gyratory. This is based on site observations.

3.4 Traffic and Pedestrians

3.4.1 Vehicle Types and Classes

VISSIM uses individual vehicle models that are grouped into vehicle types which are then grouped into vehicle classes. Separate vehicle classes for car, LGV, OGV1, OGV2, bus and motorcycle have been modelled. Whilst pedal cycles were counted in the traffic survey, they have not been modelled as the flows are considered to be insignificant and the ability to model vehicles overtaking pedal cycles in a single lane is limited in VISSIM 5.40.

3.4.2 Vehicle Inputs and Composition

Vehicles are assigned to the network at the entry points based on the compositions calculated directly from the traffic surveys. Compositions are the split of traffic entering the network in terms of vehicle class.

3.4.3 Traffic Demand

Two methods have been used to populate the network with traffic. On the Moor Street Queensway, Bull Street and New Canal Street sections the traffic has been inputted into the network via the links on the edge of the network, with flows determined from the turning count data. This traffic is then distributed at each junction according to the turning proportions in the survey. In this sense, the journey of an individual vehicle is not pre-determined and will continue to be distributed in this manner at each junction it encounters until it arrives on a link that exits the network.

The second method effectively uses an origin-destination (OD) matrix and has been implemented on the Moat Lane gyratory and High Street Deritend. Where junctions are close together and there are multiple lanes to choose from on a link, drivers will get in the correct lane to reach their destination several junctions prior to turning. It is not, therefore, appropriate to inform a vehicle of its next routing decision immediately before it has to turn as it may have to move over by one or more lanes. This method defines each journey that a vehicle could take through the entire section of the

network, potentially passing through several junctions, allowing simulated vehicles a realistic amount of time to make the necessary lane change movements to reach their destination.

The OD matrix has been created by inputting the traffic survey data into a basic LinSig model and applying the Matrix Estimation feature to generate the VISSIM routing inputs. As there are no alternate route choices within the network, the comparison between the surveyed flows and the flows generated from the estimated matrices had a maximum GEH of 0.8 in the AM peak and 0.2 in the PM peak. The maximum permissible GEH value is 5, which demonstrates that this is an appropriate methodology. The GEH statistic is described in more detail in Section 3.7.

In the surveyed traffic flows, there were consistent flow imbalances on Albert Street and on New Canal Street before the Fazeley Street junction, implying that traffic was exiting and entering the network in these areas. This is not unexpected due to the NCP car park on Albert Street and the numerous car parks on New Canal Street. To ensure the surveyed flows were modelled as observed, two junctions were introduced into the VISSIM model at these points to act at sinks and sources, allowing the correct number of vehicles to enter and exit the network.

3.4.4 Bus Routes

Buses have been coded in the model as public transport lines. For each service the time of entry into the network has been estimated by the timetable at the stop nearest the entry point. All further stop times are then determined by the time spent travelling through the network and by dwell times at each stop. Buses have been coded to stop at each of their designated stops; skipping stops is not allowed.

3.4.5 Bus Dwell Times

Dwell times at bus stops (from vehicle stop to departure) have been provided by National Express for some stops along Moor Street Queensway and Lower Bull Street. Where data has not been provided, if a stop has similar characteristics to those where data is available, the same dwell times have been applied. Otherwise, the dwell times are based on the default profile in VISSIM or have been adjusted to reflect the observed bus journey times along a route.

3.4.6 Pedestrians

At the sites where pedestrian data has been collected, these have been coded into the model in 15-minute intervals.

In some cases, notably at Park Street, the pedestrian flow rate has been artificially decreased as the video and site surveys demonstrated that the majority of people did not use the push buttons and instead crossed when there was a gap in the traffic.

Elsewhere, for controlled pedestrian crossings or signalised junctions that are affected by pedestrian demand, assumptions have been made as to the likely call rate. The assumptions have been made to realistically represent how frequently the pedestrian signals are called and have been made using site observations.

The junctions where this has been necessary are:

- Moat Lane Gyratory / Park Street;

- Moat Lane Gyratory / Upper Dean Street (left turn onto Upper Dean Street);
- High Street Deritend (pedestrian crossing before Stone Yard); and,
- High Street Deritend / Rea Street (pedestrian crossing across Rea Street).

3.5 Vehicle Routes

As described in Section 3.4.3, along High St Deritend and the Moat Lane Gyratory vehicles have been statically assigned based on origin-destination movements from a calculated matrix. This has been carried out for the AM and PM peaks in 15-minute intervals.

For the rest of the network, vehicles are statically assigned through each junction determined by the surveyed turning counts.

3.6 Driver Behaviour

3.6.1 Speed Distributions

Speed distributions define the free-flow speeds at which vehicles will travel through the network. In the absence of speed survey data, the following linear distributions have been applied:

- Moor Street Queensway region: 20mph speed limit modelled with distribution between 17.5 and 22.5mph.
- High Street Deritend: 30mph speed limit modelled with distribution between 23 and 30mph.
- New Canal Street: 30mph speed limit but modelled with distribution between 23 and 27.5mph.

The speed limits have been calibrated to best match the Traffic Master travel times.

Reduced speed areas have been placed on turning connectors throughout the network. A northbound reduced speed area has also been applied to vehicles travelling northeast bound between Swan Passage and Carrs Lane to reflect site observations, where it was seen that drivers are cautious due to the high number of pedestrian movements across Moor Street Queensway between Moor Street station and the city centre.

In the PM peak, there is observed delay to vehicles exiting the network northbound along New Canal Street towards Curzon Circle. As the delay occurs due to external factors, a reduced speed area has been coded on the exit to the network. Also, a dummy traffic signal has been coded to mimic the junction of New Canal Street and Curzon Street.

The default distance for drivers to begin to move into the correct lane to reach their destination was adjusted in the model to reflect the location where these lane changes were typically observed to occur.

3.6.2 Vehicle Following Behaviour and Link Types

The BEE model is built largely using default values, as discussed below:

- Urban Left-Side Rule link type has been utilised on the majority of the network and utilises a slightly lower multiplicative part of the safety distance of 2 (default is 3).

- Urban Free Lane selection is identical to the above but uses a free lane selection.

The average standstill distance for all of the above has been reduced to 1.5m from the default of 2m to reflect observed conditions.

The link on Moor Street Queensway heading north directly before the Albert Street junction has a modified driving behaviour called Weaving, which is to allow for merging and lane change within a short distance. Weaving is the same behaviour as Urban Left-Side Rule but with a higher average standstill of 3.5m.

3.6.3 Acceleration and Deceleration

Default values were assumed for rates of vehicle acceleration and deceleration and weight distributions.

3.7 Traffic Flow Calibration Analysis

Once the traffic flows had been coded, the model parameters were adjusted until the modelled flows matched with balanced surveyed flows. A comparison was then carried out using the Geoffrey E. Havers (GEH) statistic, which is an industry standard method of comparing observed and modelled flows, as defined in WebTAG Unit M3.1 Table 2.

The GEH statistic is used to remove the bias that exists when comparing flows of different magnitudes using percentages. For example, an absolute difference of 10 in a flow of 100 vehicles per hour (vph) is less significant (GEH = 3.0) than a difference of 100 in a 1000vph flow (GEH = 11.5), even though they both show a percentage difference of 10%.

The GEH statistic is calculated as follows:

$$GEH = \sqrt{\frac{(M-C)^2}{(M+C)/2}}$$

Where:

M is the modelled flow; and,
C is the observed flow.

The accuracy of the modelled flows can also be assessed by comparing observed and modelled flows on an x-y plot and performing a linear regression analysis to calculate R^2, and the slope of the regression line through the origin. A value of $R^2 = 1$ implies a perfect match while $R^2 = 0$ an imperfect match between the observed and modelled flows. Typically, a value of $R^2 \geq 0.95$, and slope within the range 0.90 and 1.10 would imply that the modelled flows are a good fit within the observed flows. A slope exceeding unity implies that the model is over-predicting flows, while a slope less that unity suggests that the model is under-predicting observed flows.

In summary, the following set of acceptable ranges and limits have been used to assess model calibration based upon all turning movements within the study area where a direct comparison to count data exists:

- GEH value: ≤ 2.0 in at least 85% of cases;
- R^2 value: greater than or equal to 0.95; and,
- Slope of linear regression: within the range 0.90 to 1.10.

The GEH statistic assessments have been conducted on all turning movements at all junctions in the modelled network where an observed count was available. The analysis has been carried out on total vehicular flow, excluding buses.

3.7.1 AM Peak

A cumulative frequency plot of the AM peak GEH values is shown in Figure 3.1**.** The plot indicates that the model meets the first criteria with 91% of cases are less than or equal to a GEH of 2.

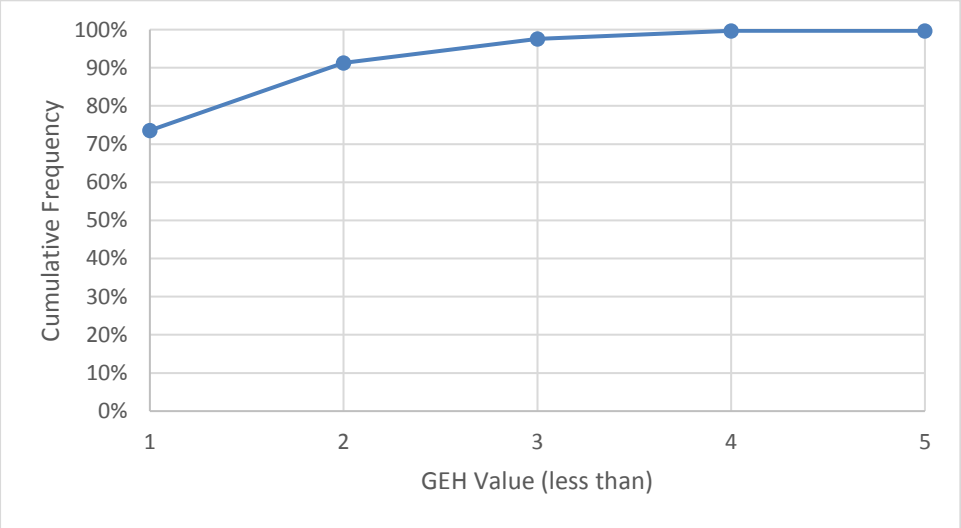


Figure 3.1 2016 AM Peak Cumulative Frequency of GEH Values

The linear regression of the modelled total flows and observed total flows was also analysed. A high co-efficient correlation (R^2) was achieved with the results shown in Figure 3.2**.**

Regression of the AM peak observed versus modelled flows showed an R^2 value of 0.9935 and a slope of 1.0527 demonstrating that the model also meets the second and third calibration criteria.

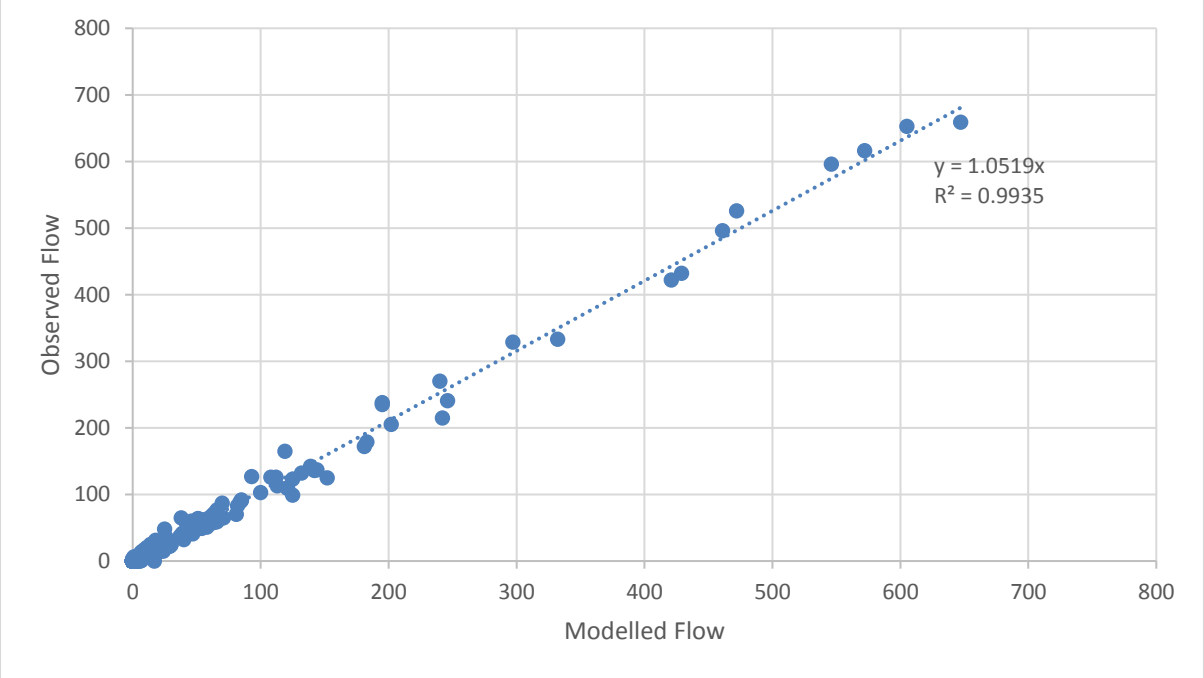


Figure 3.2 2016 AM Peak Linear Regression of Traffic Flows

In summary, the AM peak meets all three GEH calibration criteria and is calibrated well to the surveyed traffic flows.

3.7.2 PM Peak

A cumulative frequency plot of the PM peak GEH values is shown in Figure 3.3. The plot indicates that the model meets the first criteria with 98% of cases are less than or equal to a GEH of 2.

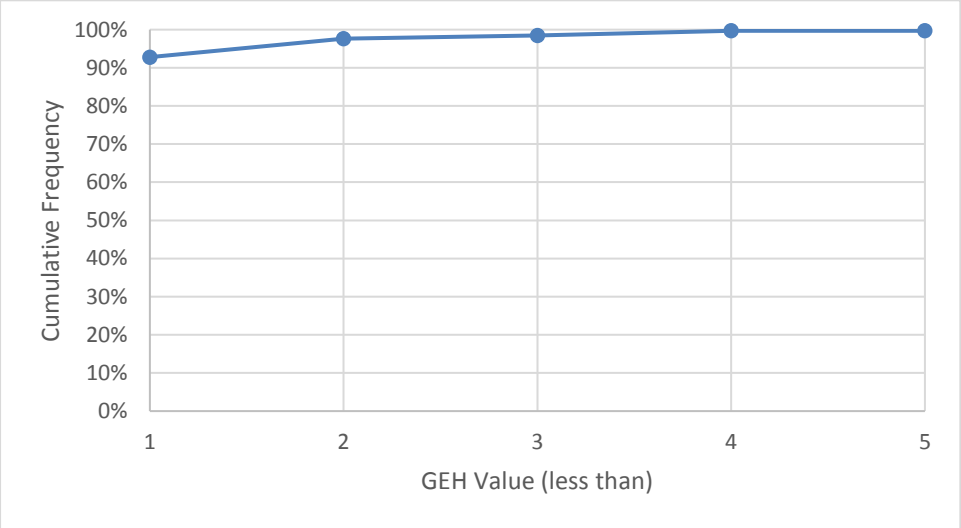


Figure 3.3 2016 PM Peak Cumulative Frequency of GEH Values

The linear regression of the modelled total flows and observed total flows was also analysed. A high co-efficient correlation (R^2) was achieved with the results shown in Figure 3.4**.**

Regression of the PM peak observed versus modelled flows showed an R^2 value of 0.9985 and a slope of 0.9769 demonstrating that the model also meets the second and third calibration criteria.

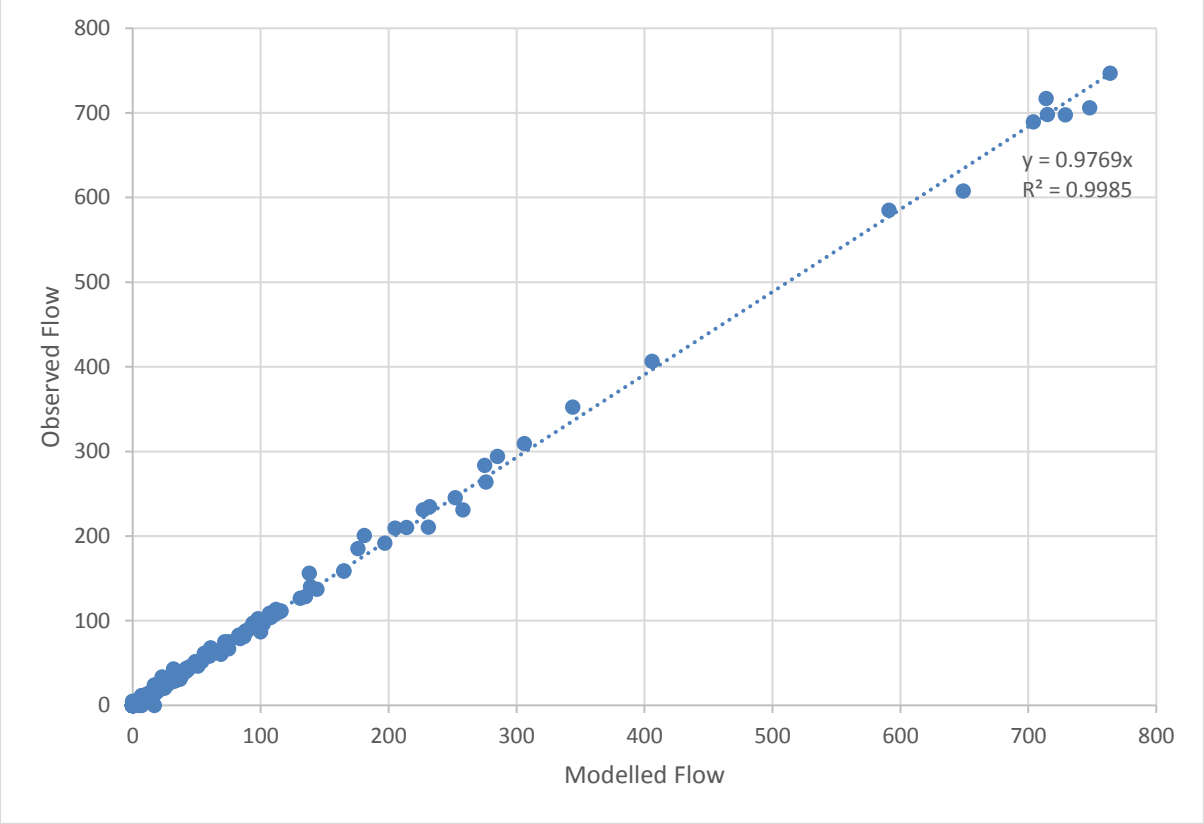


Figure 3.4 2016 PM Peak Linear Regression of Traffic Flows

In summary, the PM peak meets all three GEH calibration criteria and is calibrated well to the surveyed traffic flows.

3.7.3 Traffic Flow Calibration Summary

For each of the AM and PM peak models, the analysis shows that the modelled flows are consistent with the balanced surveyed flows, meeting all of the comparison criteria.

4 Validation

4.1 Criteria

4.1.1 Parameters to validate this model

To confirm that the model is suitable for purpose of the evaluation of the BEE Metro scheme and to provide credibility to the results, the model has been validated against observed journey times.

Model validation assesses the accuracy of the model by comparing data from the model with independent data not used to calibrate the model. Validation is directly linked to the calibration process as adjustments in calibration are needed to improve the models accuracy against observations.

DfT's WebTAG Unit M3.1 Table 3 sets out the criteria for journey time validation, as shown in Table 4.1.

Table 4.1: Journey Time Validation Criterion and Acceptability Guideline

Criteria	Acceptability Guideline
Modelled times along routes should be within 15% of surveyed times (or 1 minute, if higher than 15%)*	> 85% of routes

As discussed in Section 2.6, Traffic Master journey time data has been gathered for the period spanning from October to December 2016, excluding school holiday periods.

Four travel time sections have been analysed, as shown in Figure 4.1. In the analysis, these have been divided into shorter subsections.

Journey times along New Canal Street, along which there are no timetabled bus services, have been validated for all vehicle types combined. National Express provided observed bus journey times for October to December 2016 along High Street Deritend. The journey time validation has been disaggregated into buses and all vehicles except buses. As only end-to-end average journey times were available for buses, the graphs show only a single point at the end of the journey time section for buses, along with the corresponding 15% threshold.

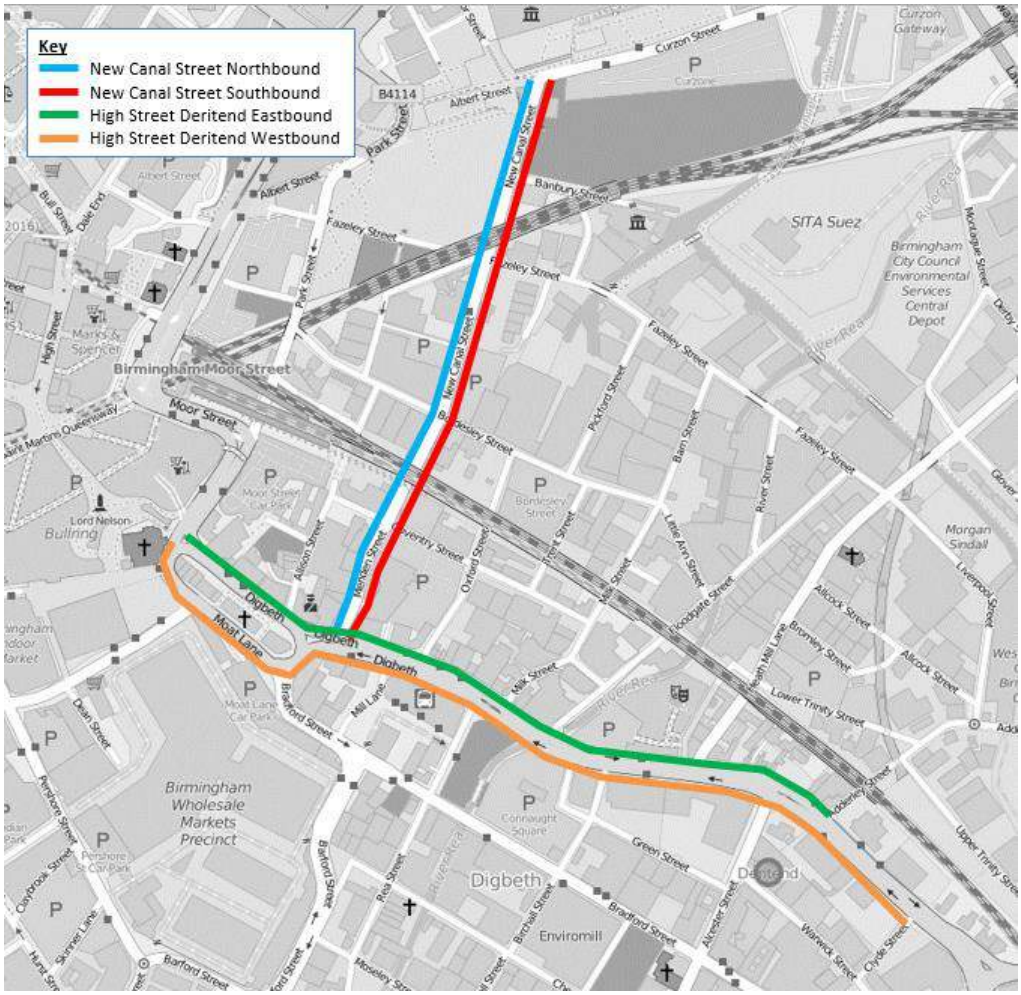


Figure 4.1: Metro Eastside Extension VISSIM Model Extents

Figure 4.2 to Figure 4.13 show the travel time performances for the cumulative travel time routes by hour with the modelled times in blue, the observed in red and the 15% thresholds shown in black brackets. A tabulated comparison of modelled and observed travel times is included in **Appendix C**.

4.1.2 Random Seeds

As VISSIM is a stochastic model the results differ slightly depending on the random seed assigned to each simulation run. Therefore, to obtain statistically significant results the existing conditions peak hour models were simulated ten times with different random seeds. Random seeds can be thought of as different days and therefore account for daily variation. The results presented are an average of the ten random seed runs.

4.2 AM Peak Travel Time Validation

Figure 4.2 to Figure 4.5 show the travel time validation for general traffic. Figure 4.6 and Figure 4.7 show the travel time validation for buses along High Street Deritend.

The figures demonstrate that for each of the overall journey time sections, the validation criteria has been met in the AM peak.

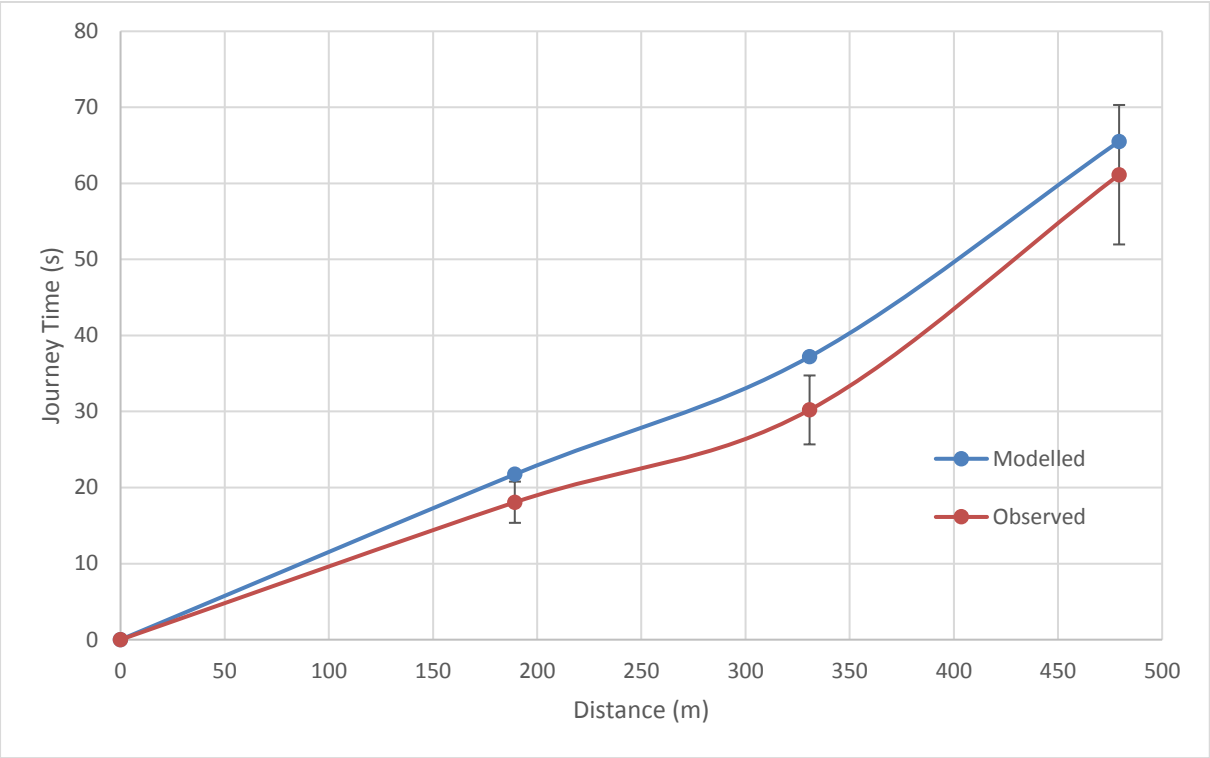


Figure 4.2: AM Peak: New Canal Street (southbound) Journey Time Validation

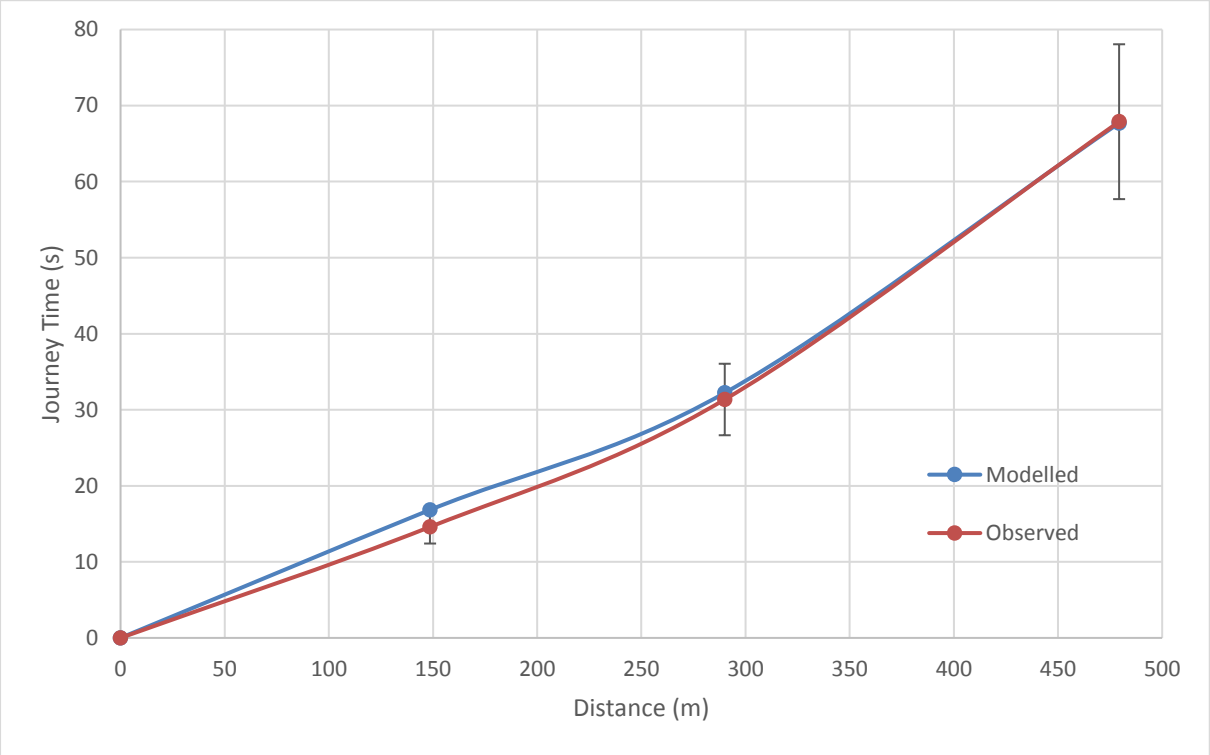


Figure 4.3: AM Peak: New Canal Street (northbound) Journey Time Validation

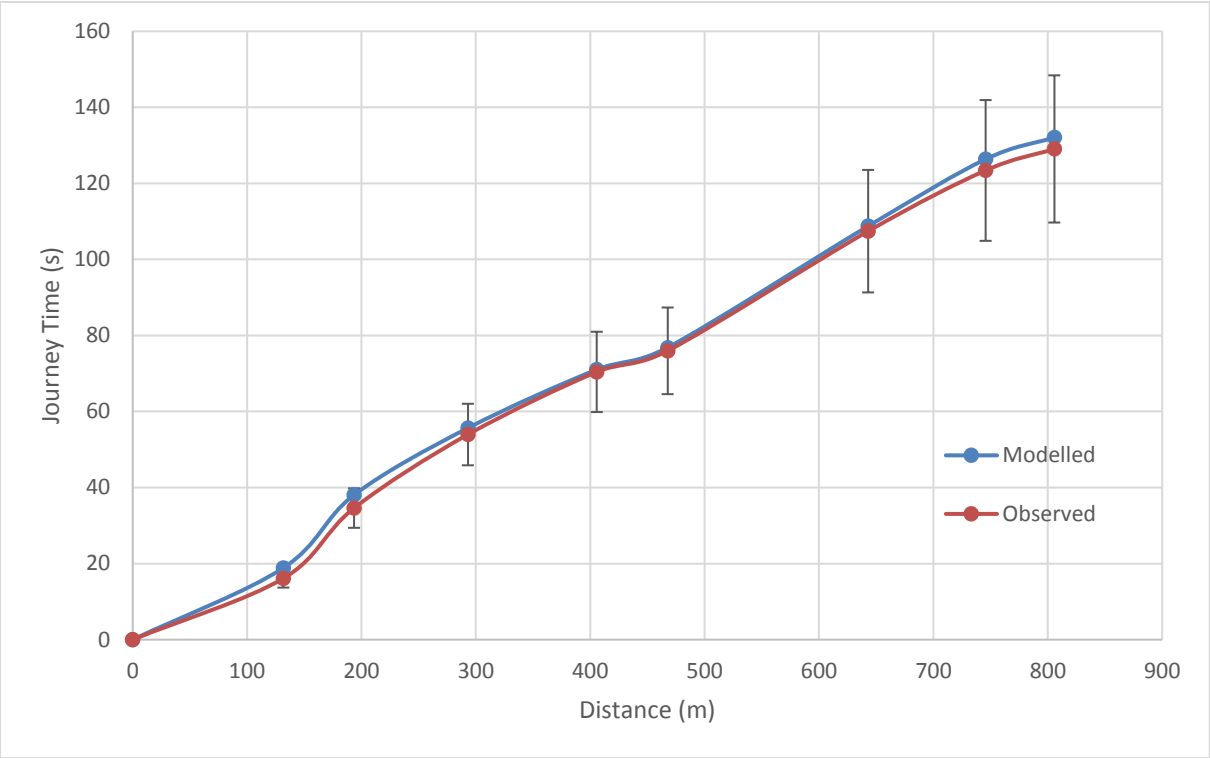


Figure 4.4: AM Peak: High Street Deritend (eastbound) Journey Time Validation (General traffic)

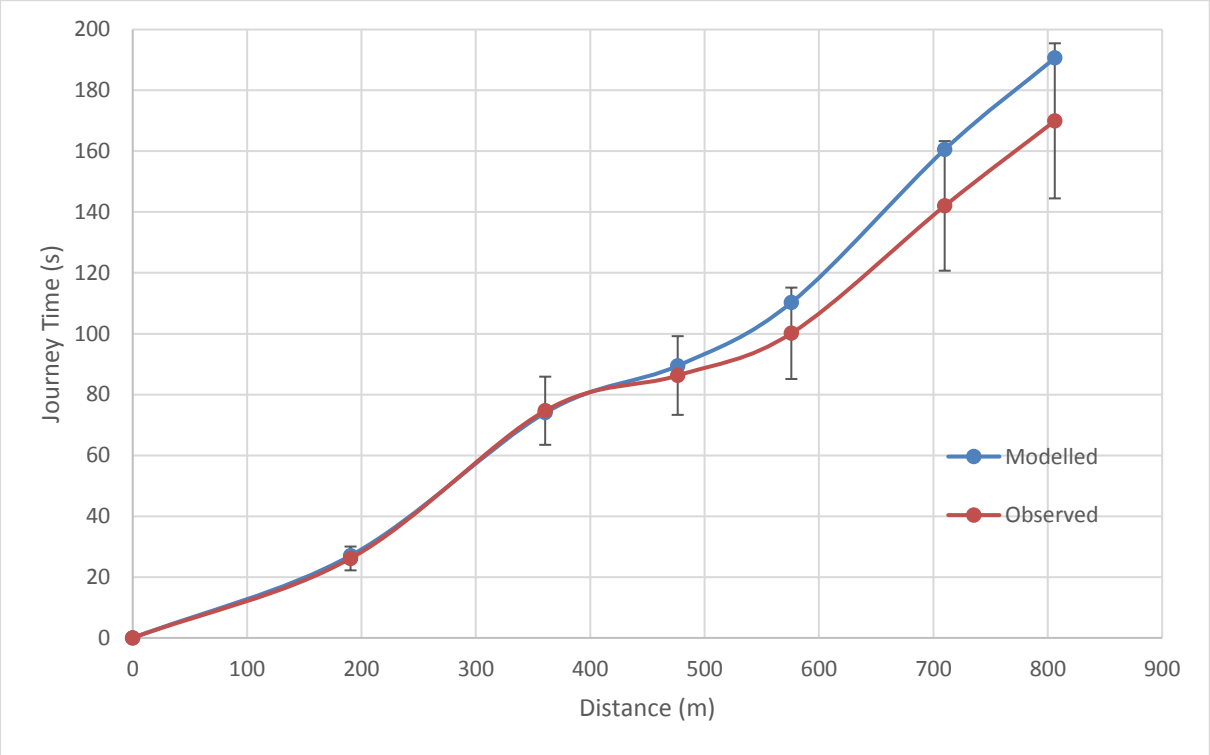


Figure 4.5: AM Peak: High Street Deritend (westbound) Journey Time Validation (General traffic)

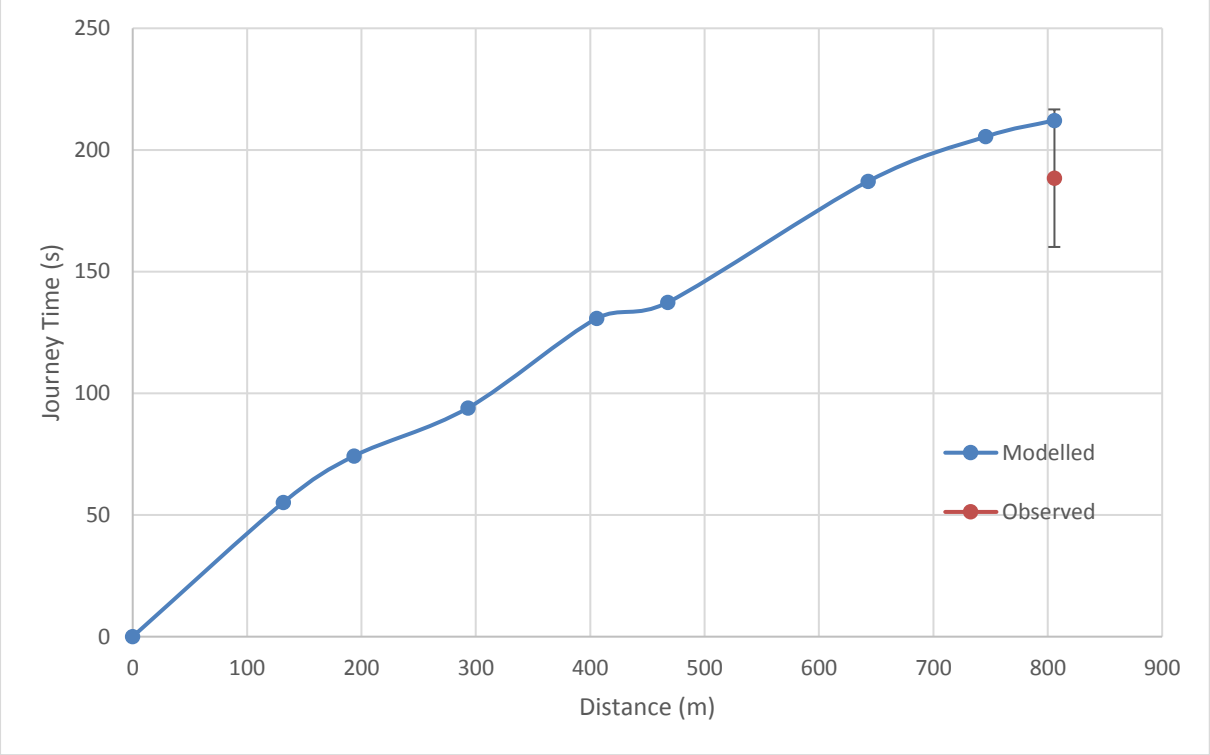


Figure 4.6: AM Peak: High Street Deritend (eastbound) Journey Time Validation (Buses)

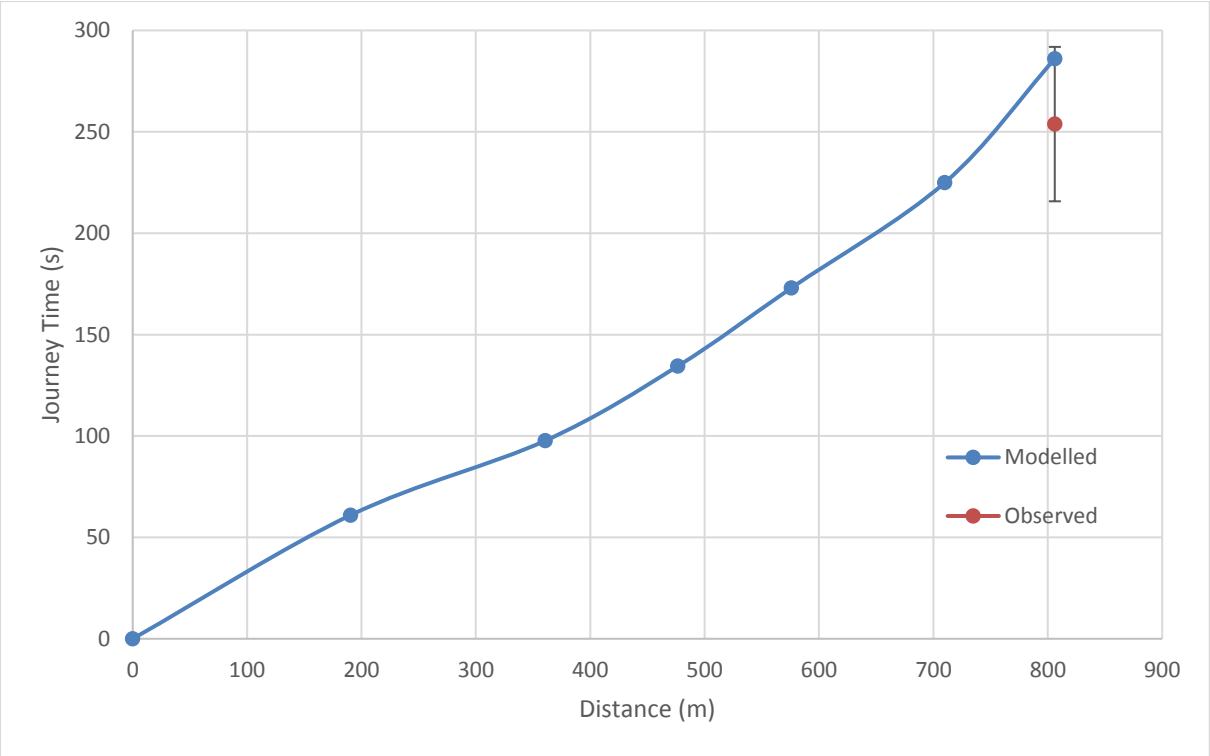


Figure 4.7: AM Peak: High Street Deritend (westbound) Journey Time Validation (Buses)

4.3 PM Peak Travel Time Validation

Figure 4.8 to Figure 4.11 show the travel time validation for general traffic along New Canal Street and High Street Deritend. Figure 4.12 and Figure 4.13 show the travel time validation for buses along High Street Deritend.

The figures demonstrate that for each of the overall journey time sections, the validation criteria has been met in the PM peak.

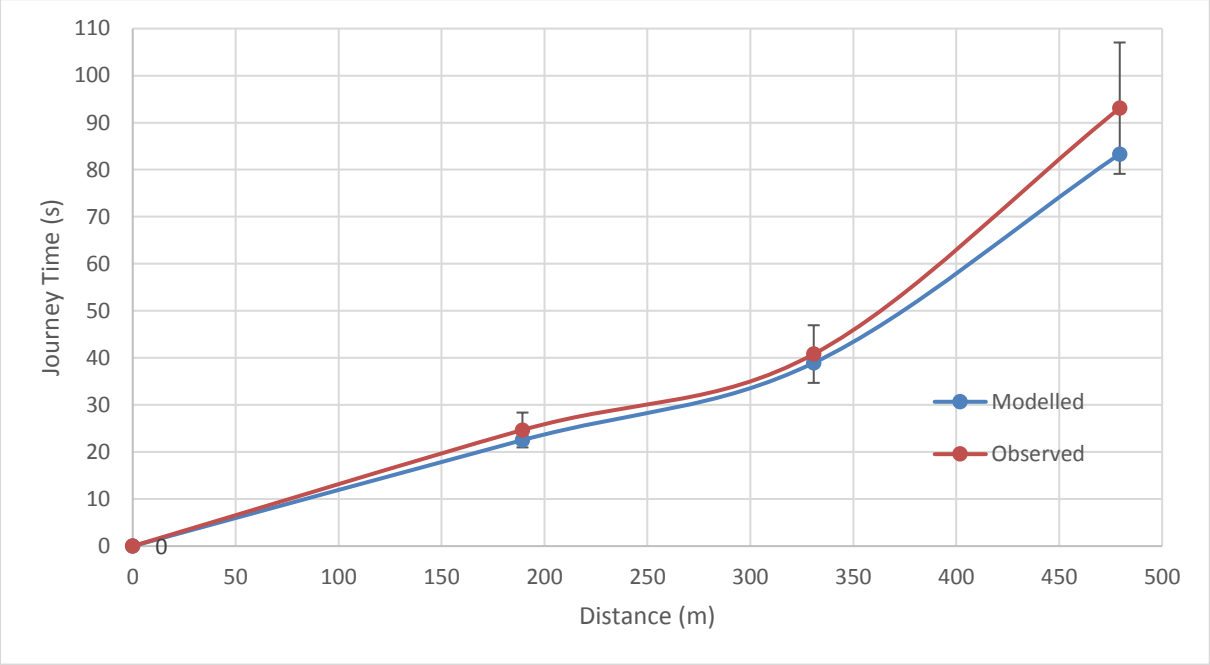


Figure 4.8: PM Peak: New Canal Street (southbound) Journey Time Validation

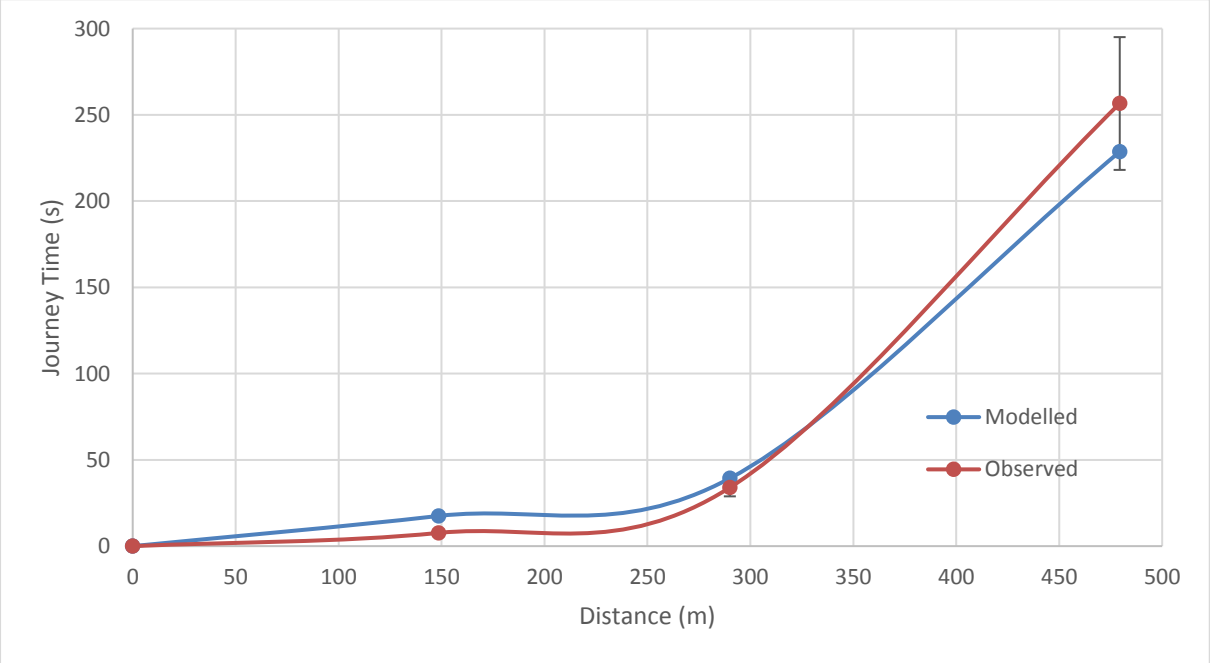


Figure 4.9: PM Peak: New Canal Street (northbound) Journey Time Validation

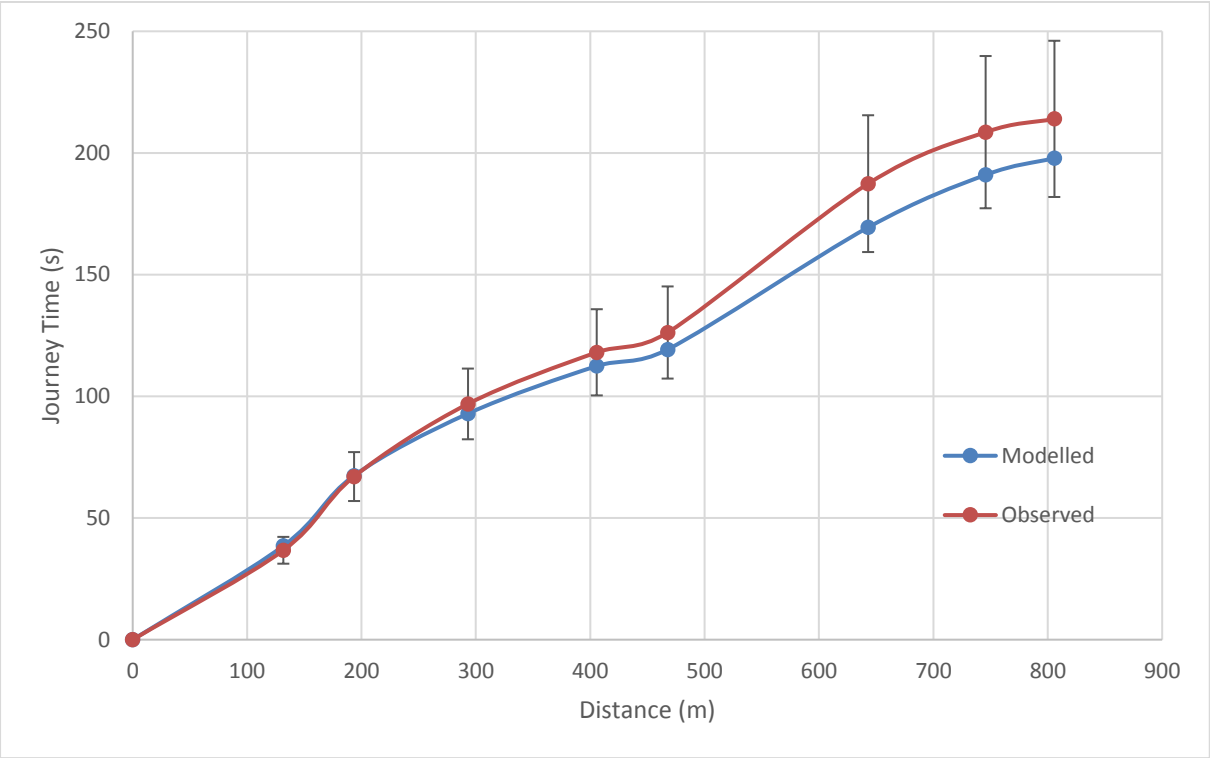


Figure 4.10: PM Peak: High Street Deritend (eastbound) Journey Time Validation (General traffic)

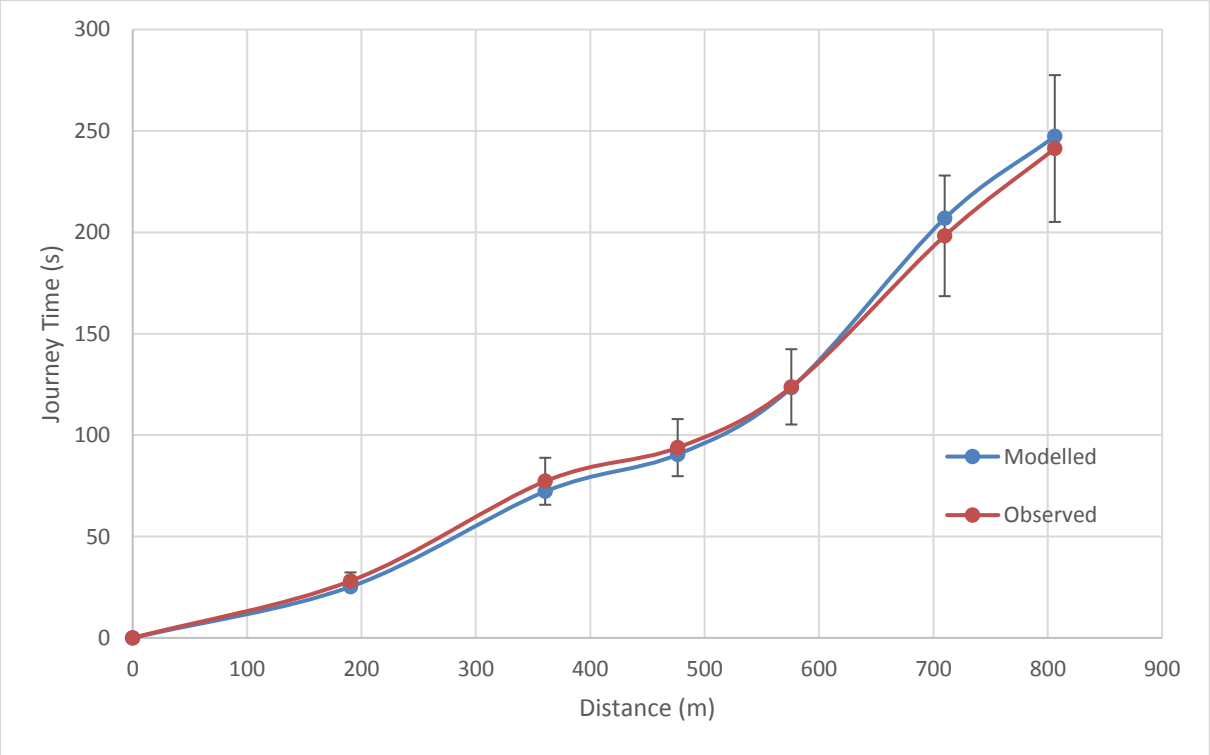


Figure 4.11: PM Peak: High Street Deritend (westbound) Journey Time Validation (General traffic)

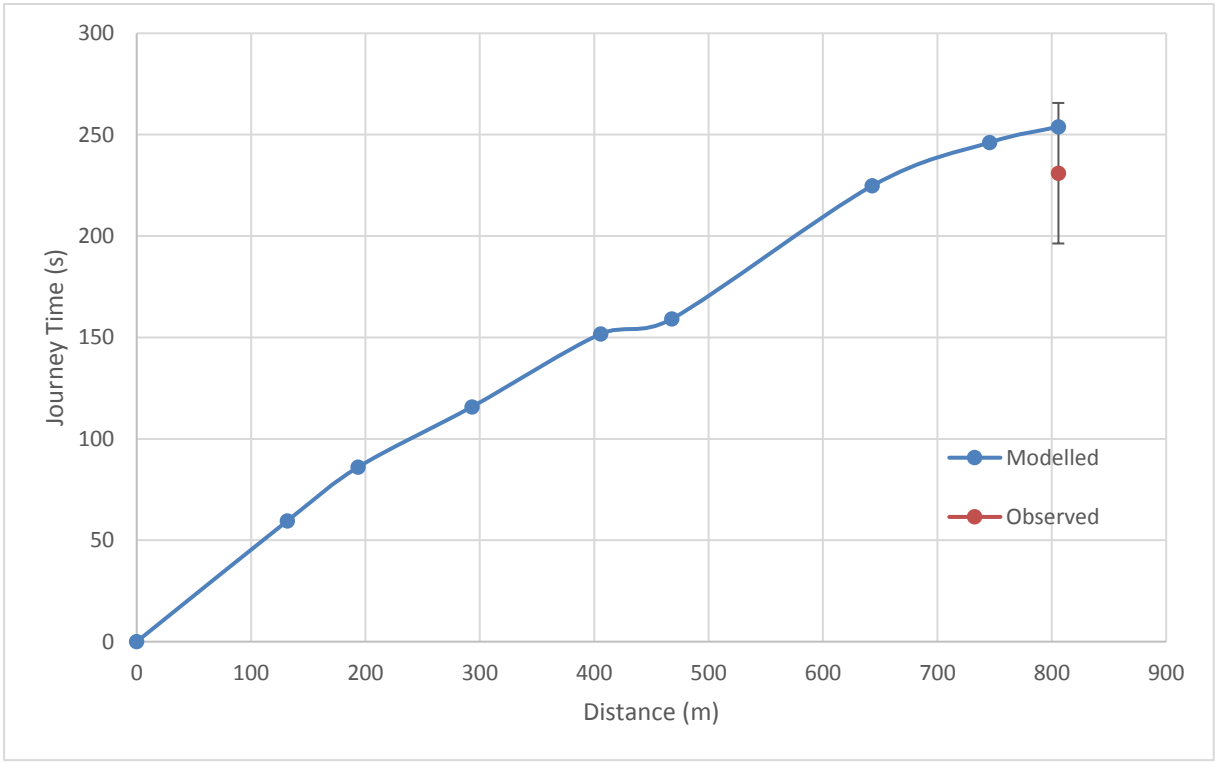


Figure 4.12: PM Peak: High Street Deritend (eastbound) Journey Time Validation (Buses)

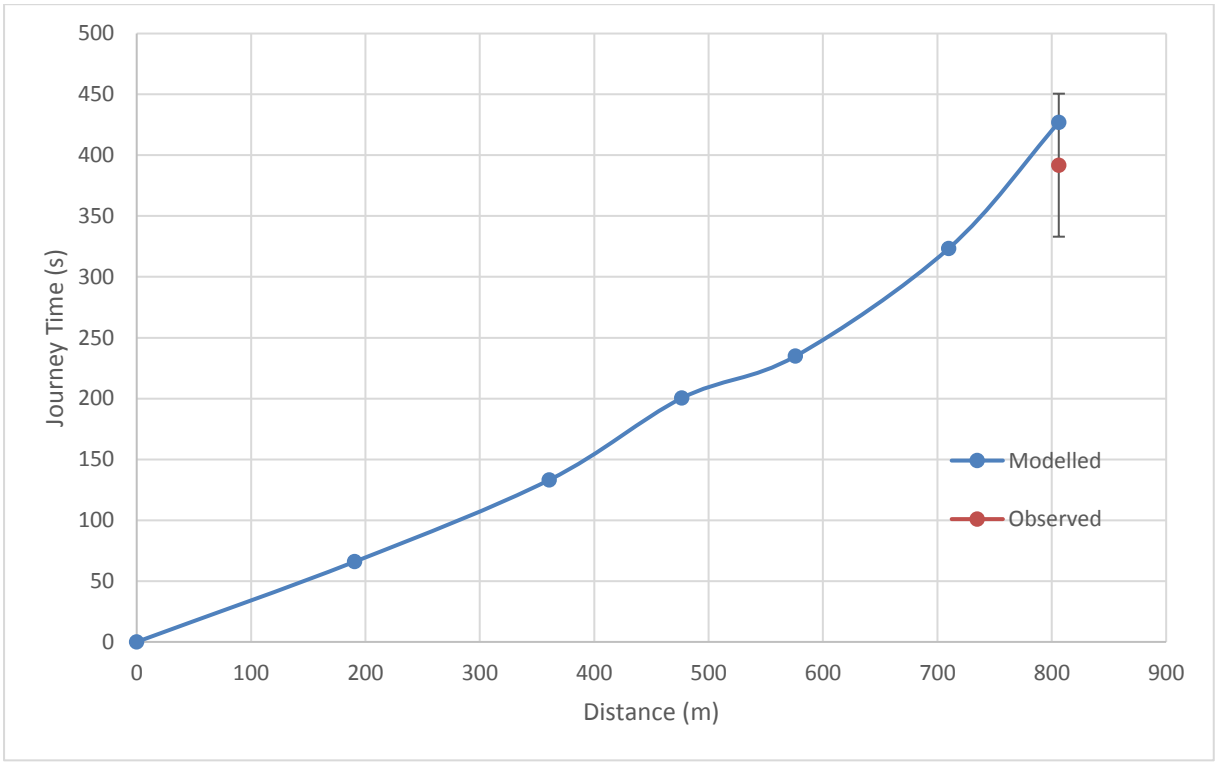


Figure 4.13: PM Peak: High Street Deritend (westbound) Journey Time Validation (Buses)

5 Network Performance

5.1 Network Performance

The average and standard deviation values for various network performance indicators across the ten random seeds is shown in Table 5.1 for the AM peak and Table 5.2 for the PM peak. The values shown exclude buses.

The relative standard deviation gives a comparison of the standard deviation relative to the actual value. In both the AM and PM peaks, the relative standard deviations are low, which demonstrates that there is little variance between modelled runs and that therefore the models are stable.

The description of most of the network performance indicators is self-explanatory. For clarification, latent demand is the total number of vehicles unable to enter the network during the simulation period. Latent delay time is the total delay experienced by the vehicles that could not enter the network at their original start time. Latent delay can include vehicles that did manage to enter the network but only after queuing outside of the network before entering.

The number of stops is the total number of instances when a vehicles speed became zero within the network, generally when in a queue of traffic. It can be seen as a measure of congestion. The total stopped delay is the total time that vehicles were stationary for. Average delay is the average delay encountered by each vehicle passing through the network.

Table 5.1: AM Peak Network Performance

Network Performance Indicator	Value	Standard Deviation	Relative Standard Deviation
Latent demand	1	4	2.68
Number of vehicles in the network	201	15	0.08
Number of vehicles that have left the network	5370	90	0.02
Total Distance Travelled (km)	3583	71	0.02
Total travel time (h)	208	8	0.04
Total delay time (h)	105	6	0.06
Latent delay time (h)	0	0	1.09
Average delay time per vehicle (s)	68	3	0.04
Total stopped delay (h)	70	4	0.06
Average stopped delay per vehicle (s)	45	2	0.04
Number of Stops	12160	853	0.07
Average number of stops per vehicles	2	0	0.06
Average speed (mph)	11	0	0.02

Table 5.2: PM Peak Network Performance

Network Performance Indicator	Value	Standard Deviation	Relative Standard Deviation
Latent demand	25	23	0.95
Number of vehicles in the network	390	44	0.11
Number of vehicles that have left the network	6593	87	0.01
Total Distance Travelled (km)	4523	47	0.01
Total travel time (h)	363	18	0.05
Total delay time (h)	215	17	0.08
Latent delay time (h)	1	1	0.81
Average delay time per vehicle (s)	111	8	0.07
Total stopped delay (h)	149	12	0.08
Average stopped delay per vehicle (s)	77	6	0.08
Number of Stops	25110	1935	0.08
Average number of stops per vehicles	4	0	0.07
Average speed (mph)	8	0	0.05

6 Summary and Conclusions

6.1 Summary of Model Development

The base model has been developed using the Birmingham Bus Mall VISSIM model as a starting point. This model was reduced significantly in size to cover the area immediately affected by the proposed Midland Metro Eastside Extension, including the Moat Lane gyratory.

Two models have been built, representing the 2016 AM and PM peak hours, each with a 15-minute warm-up and cool down period.

Traffic count surveys were undertaken in December 2016. The model has been validated against observed journey time data.

6.2 Model Calibration

The model has been calibrated using data from a variety of sources, including traffic and pedestrian surveys, bus timetables, traffic signal specifications and site observations.

The model is built largely with default values but does contain some bespoke driving behaviour sets. These have been applied to reflect observed driver behaviour at certain locations.

A comparison of the flows input into the model and those passing through the model shows a good correlation at a turning movement level, whereby observed balanced flows meet all three of the acceptance criteria for each model.

Pedestrian surveys were carried out at key locations and the flows input into the model. In some instances, site observations showed that many pedestrians did not wait for a green man at a signal controlled crossing. In these cases, the pedestrian flow was reduced to give a representative pedestrian signal call frequency.

The traffic signal operation has been coded using VisVAP and is generally fixed time with some demand dependency. The coding reflects site recorded timings.

Bus routes and service frequencies have been taken from timetables. Dwell times at bus stops have been provided by National Express for some stops along Moor Street Queensway and Lower Bull Street. Where data has not been provided, if a stop has similar characteristics to those where data is available, the same dwell times have been applied. Otherwise, the dwell times are based on the default profile in VISSIM or have been adjusted to reflect the observed bus journey times along a route.

6.3 Model Validation

Traffic Master journey time data has been gathered from Traffic Master for the period spanning from October to December 2016, excluding school holiday periods.

Four journey time sections have been validated along New Canal Street and High Street Deritend. Bus journey times have been validated separately along High Street Deritend. Observed bus journey times were provided by National Express.

In both the AM and PM peak models, the comparison between observed and modelled journey times for general traffic and buses meets the criteria set out in WebTAG Unit M3.1, which requires the modelled times to be within 15% of the observed times for at least 85% of the routes.

6.4 Conclusion

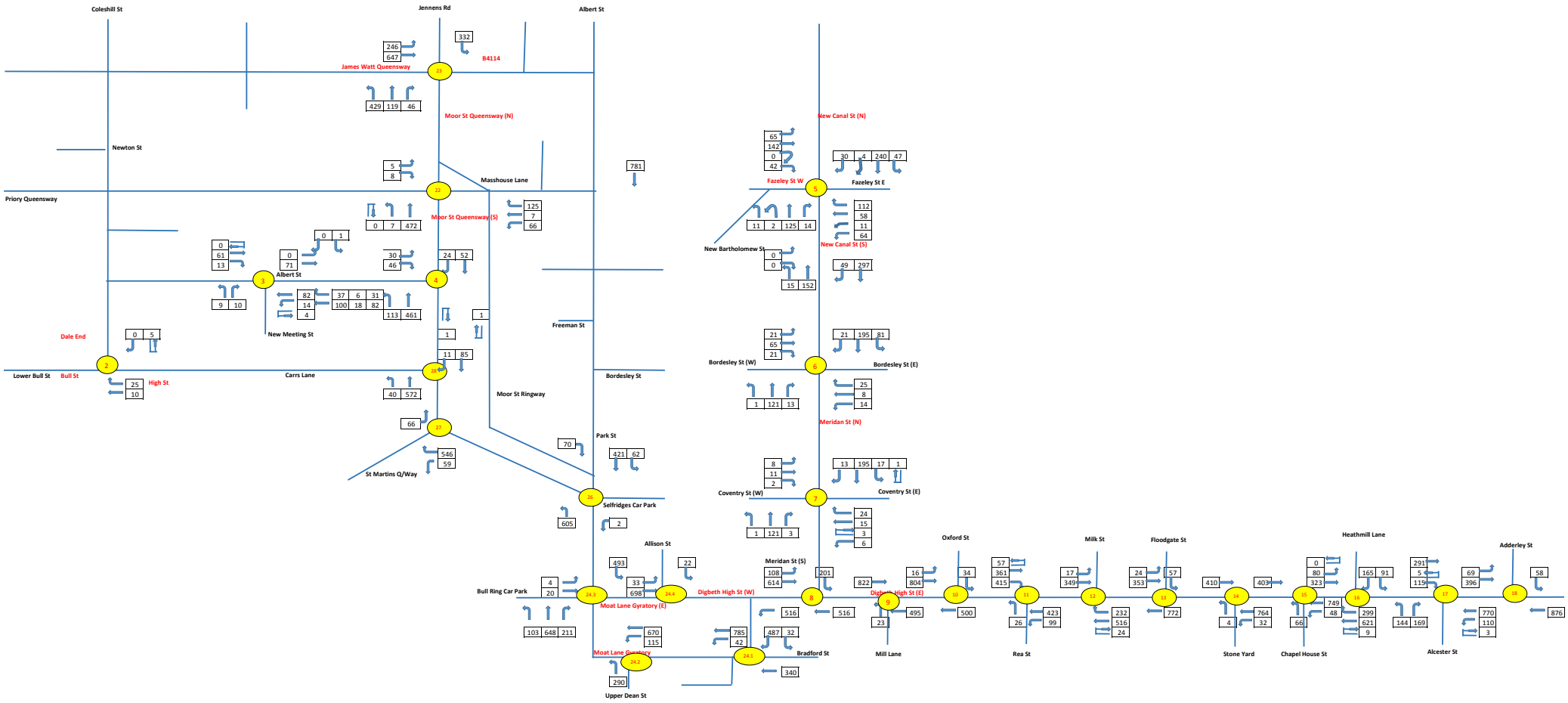
The model has been developed to represent 2016 conditions for the AM and PM peaks. Each model has been validated against journey times to the criteria set out in the WebTAG Highway Appraisal Guidelines.

In conclusion, the model is considered suitable for assessing the impact of the Midland Metro Eastside Extension scheme.

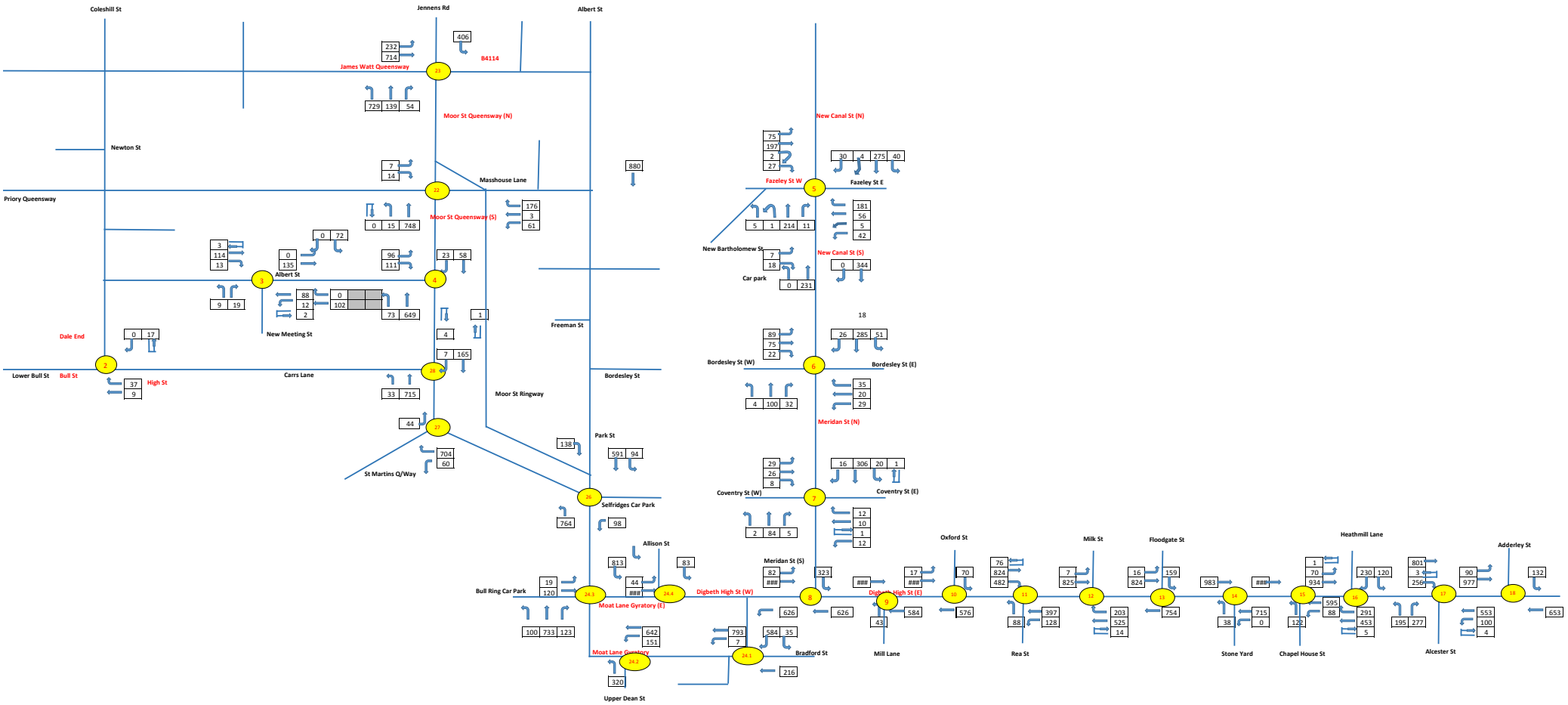
APPENDIX A

Traffic Flows

AM Peak Base Traffic Turning Counts (excluding buses)



PM Peak Base Traffic Turning Counts (excluding buses) (vehicles)



APPENDIX B

Turning Count Calibration

AM Peak Base Turning Count Calibration

Node No.	Node Name	From Link No.	From Link Name	To Link No.	To Link Name	Unique ID	Observed Flows	Modelled Flows	Absolute Difference	Relative Difference	GEH	Accept
100	James Watt Queensway/ Moor Street Queensway/ Jennens Road	4704	James Watt Queensway	2100103	Jennens Road	10047042100103	246	241	-5	-2%	0.3	Accept
100		4704	James Watt Queensway	4041	B4114	10047044041	647	659	12	2%	0.5	Accept
100		2100046	Jennens Road	4041	B4114	10021000464041	332	333	1	0%	0.1	Accept
100		4029	Moor Street Queensway (S)	2100103	Jennens Road	10040292100103	119	165	46	39%	3.9	Accept
100		4029	Moor Street Queensway (S)	2100149	James Watt Queensway	10040292100149	429	432	3	1%	0.1	Accept
100		4029	Moor Street Queensway (S)	4041	B4114	10040294041	46	60	14	30%	1.9	Accept
101	Moor Street Queensway/ The Priory Queensway/ Masshouse Lane	4043	Masshouse Lane	4029	Moor Street Queensway (N)	10140434029	125	123	-2	-2%	0.2	Accept
101		2100051	Masshouse Lane	4033	The Priory Queensway	10121000514033	7	14	7	100%	2.2	Accept
101		646	Masshouse Lane	2100104	Moor Street Queensway (S)	1016462100104	66	77	11	17%	1.3	Accept
101		2100082	The Priory Queensway	4029	Moor Street Queensway (N)	10121000824029	5	3	-2	-40%	1.0	Accept
101		2100175	The Priory Queensway	2100104	Moor Street Queensway (S)	10121001752100104	8	11	3	38%	1.0	Accept
101		265	Moor Street Queensway (S)	4029	Moor Street Queensway (N)	1012654029	472	526	54	11%	2.4	Accept
101		4698	Moor Street Queensway (S)	4033	The Priory Queensway	10146984033	7	9	2	29%	0.7	Accept
102	Moor Street Queensway/ Albert St	654	Moor Street Queensway (N)	1268	Albert Street	1026541268	24	27	3	13%	0.6	Accept
102		2100104	Moor Street Queensway (N)	2100104	Moor Street Queensway (S)	10221001042100104	52	63	11	21%	1.5	Accept
102		1269	Albert Street	265	Moor Street Queensway (N)	1021269265	30	25	-5	-17%	1.0	Accept
102		1269	Albert Street	2100104	Moor Street Queensway (S)	10212692100104	46	46	0	0%	0.0	Accept
102		4705	Moor Street Queensway (S)	4698	Moor Street Queensway (N)	10247054698	7	8	1	14%	0.4	Accept
102		4705	Moor Street Queensway (S)	265	Moor Street Queensway (N)	1024705265	461	496	35	8%	1.6	Accept
102		4705	Moor Street Queensway (S)	1268	Albert Street	10247051268	113	113	0	0%	0.0	Accept
103	Albert St/Dingleys Passage	360	Albert Street Car Park	1269	Albert Street (E)	1033601269	1	6	5	500%	2.7	Accept
103		360	Albert Street Car Park	1268	Albert Street	1033601268	0	0	0	0%	0.0	Accept
103		1268	Albert Street (E)	361	Albert Street Car Park	1031268361	37	37	0	0%	0.0	Accept
103		1268	Albert Street (E)	1268	Albert Street	10312681268	100	103	3	3%	0.3	Accept
103		1270	Albert Street (W)	361	Albert Street Car Park	1031270361	0	3	3	0%	2.4	Accept
103		1270	Albert Street (W)	1269	Albert Street (E)	10312701269	71	65	-6	-8%	0.7	Accept
104	Albert St/New Meeting St	362	New Meeting Street	1270	Albert Street (E)	1043621270	10	12	2	20%	0.6	Accept
104		362	New Meeting Street	1268	Albert Street	1043621268	9	12	3	33%	0.9	Accept
104		1268	Albert Street (E)	365	New Meeting Street	1041268365	14	20	6	43%	1.5	Accept
104		1268	Albert Street (E)	1268	Albert Street	10412681268	82	83	1	1%	0.1	Accept
104		1270	Albert Street (W)	365	New Meeting Street	1041270365	13	17	4	31%	1.0	Accept
104		1270	Albert Street (W)	1270	Albert Street (E)	10412701270	61	56	-5	-8%	0.7	Accept
105	High Street/Bull Street/ Dale End	4673	Dale End	659	High Street	1054673659	5	0	-5	-100%	3.2	Accept
105		659	Bull Street	659	High Street	105659659	10	8	-2	-20%	0.7	Accept
105		659	Bull Street	4671	Dale End	1056594671	25	48	23	92%	3.8	Accept
106	Moor St Queensway/ Selfridges Car Park	20	Moor Street Car Park	961	Park Street (S)	10620961	2	1	-1	-50%	0.8	Accept
106		6	Park Street (N)	55	Moor Street Car Park	106655	62	68	6	10%	0.7	Accept
106		6	Park Street (N)	961	Park Street (S)	1066961	421	422	1	0%	0.0	Accept
106		4	Moor Street	55	Moor Street Car Park	106455	0	0	0	0%	0.0	Accept
106		4	Moor Street	961	Park Street (S)	1064961	70	87	17	24%	1.9	Accept
106		150	Park Street (S)	1	Moor Street	1061501	605	653	48	8%	1.9	Accept
108	Moor Street Queensway/ St Martin's Queensway	37	Swan Passage	56	Moor Street Queensway (N)	1083756	66	59	-7	-11%	0.9	Accept
108		1	Moor Street	38	Swan Passage	108138	59	64	5	8%	0.6	Accept
108		1	Moor Street	56	Moor Street Queensway (N)	108156	546	596	50	9%	2.1	Accept
108		39	Bus Gate	38	Swan Passage	1083938	0	0	0	0%	0.0	Accept
108		4	Moor Street	4	Moor Steet	10844	85	91	6	7%	0.6	Accept
200	Fazeley St/New Canal St	152	New Canal Street (N)	2425	New Bartholemew Street	2001522425	4	6	2	50%	0.9	Accept
200		152	New Canal Street (N)	2443	Fazeley Street (E)	2001522443	47	41	-6	-13%	0.9	Accept
200		152	New Canal Street (N)	2444	Fazeley Street (W)	2001522444	30	24	-6	-20%	1.2	Accept
200		152	New Canal Street (N)	2429	New Canal Street	2001522429	240	270	30	13%	1.9	Accept
200		2412	Fazeley Street (W)	151	New Canal Street (N)	2002412151	65	66	1	2%	0.1	Accept
200		2412	Fazeley Street (W)	2425	New Bartholemew Street	20024122425	0	0	0	0%	0.0	Accept
200		2412	Fazeley Street (W)	2443	Fazeley Street (E)	20024122443	142	136	-6	-4%	0.5	Accept
200		2412	Fazeley Street (W)	2429	New Canal Street	20024122429	42	57	15	36%	2.1	Accept
200		2444	Fazeley Street (E)	151	New Canal Street (N)	2002444151	112	126	14	13%	1.3	Accept
200		2444	Fazeley Street (E)	2425	New Bartholemew Street	20024442425	11	20	9	82%	2.3	Accept
200		2444	Fazeley Street (E)	2444	Fazeley Street (W)	20024442444	58	51	-7	-12%	0.9	Accept
200		2444	Fazeley Street (E)	2429	New Canal Street	20024442429	64	58	-6	-9%	0.8	Accept
200		2430	New Canal Street (S)	151	New Canal Street (N)	2002430151	125	99	-26	-21%	2.5	Accept
200		2430	New Canal Street (S)	2425	New Bartholemew Street	20024302425	2	1	-1	-50%	0.8	Accept
200		2430	New Canal Street (S)	2443	Fazeley Street (E)	20024302443	14	11	-3	-21%	0.8	Accept
200		2430	New Canal Street (S)	2444	Fazeley Street (W)	20024302444	11	14	3	27%	0.8	Accept
201	New Canal Street Car Park	2436	Car Park (sink/source)	2430	New Canal Street	20124362430	0	0	0	0%	0.0	Accept
201		2436	Car Park (sink/source)	2429	New Canal Street	20124362429	0	0	0	0%	0.0	Accept
201		2429	New Canal Street	2435	Car Park (sink/source)	20124292435	49	55	6	12%	0.8	Accept
201		2429	New Canal Street	2429	New Canal Street	20124292429	297	329	32	11%	1.8	Accept
201		2430	New Canal Street (S)	2435	Car Park (sink/source)	20124302435	15	18	3	20%	0.7	Accept
201		2430	New Canal Street (S)	2430	New Canal Street	20124302430	152	125	-27	-18%	2.3	Accept
202	Bordesley St/New Canal St	2472	Bordesley Street (E)	1007707	Bordesley Street (W)	20224721007707	8	6	-2	-25%	0.8	Accept
202		2472	Bordesley Street (E)	2430	New Canal Street	20224722430	25	19	-6	-24%	1.3	Accept
202		2472	Bordesley Street (E)	2467	New Canal Street (S)	20224722467	14	15	1	7%	0.3	Accept
202		1007704	Bordesley Street (W)	2471	Bordesley Street (E)	20210077042471	65	69	4	6%	0.5	Accept
202		1007704	Bordesley Street (W)	2430	New Canal Street	20210077042430	21	14	-7	-33%	1.7	Accept
202		1007704	Bordesley Street (W)	2467	New Canal Street (S)	20210077042467	21	19	-2	-10%	0.4	Accept
202		2429	New Canal Street	2471	Bordesley Street (E)	20224292471	81	70	-11	-14%	1.3	Accept
202		2429	New Canal Street	1007707	Bordesley Street (W)	20224291007707	21	24	3	14%	0.6	Accept
202		2429	New Canal Street	2467	New Canal Street (S)	20224292467	195	235	40	21%	2.7	Accept
202		2468	New Canal Street (S)	2471	Bordesley Street (E)	20224682471	13	14	1	8%	0.3	Accept
202		2468	New Canal Street (S)	1007707	Bordesley Street (W)	20224681007707	1	3	2	200%	1.4	Accept
202		2468	New Canal Street (S)	2430	New Canal Street	20224682430	121	110	-11	-9%	1.0	Accept
203	Coventry St/New Canal St	2495	Coventry Street (E)	2500	Coventry Street (W)	20324952500	15	17	2	13%	0.5	Accept
203		2495	Coventry Street (E)	2468	New Canal Street (N)	20324952468	24	15	-9	-38%	2.0	Accept
203		2495	Coventry Street (E)	4710	Merriden Street	20324954710	6	4	-2	-33%	0.9	Accept
203		2499	Coventry Street (W)	2496	Coventry Street (E)	20324992496	11	16	5	45%	1.4	Accept
203		2499	Coventry Street (W)	2468	New Canal Street (N)	20324992468	8	6	-2	-25%	0.8	Accept
203		2499	Coventry Street (W)	4710	Merriden Street	20324994710	2	0	-2	-100%	2.0	Accept
203		2467	New Canal Street (N)	2496	Coventry Street (E)	20324672496	17	21	4	24%	0.9	Accept
203		2467	New Canal Street (N)	2500	Coventry Street (W)	20324672500	13	10	-3	-23%	0.9	Accept
203		2467	New Canal Street (N)	4710	Merriden Street	20324674710	195	238	43	22%	2.9	Accept
203		4711	Merriden Street	2496	Coventry Street (E)	20347112496	3	2	-1	-33%	0.6	Accept
203		4711	Merriden Street	2500	Coventry Street (W)	20347112500	1	2	1	100%	0.8	Accept
203		4711	Merriden Street	2468	New Canal Street (N)	20347112468	121	109	-12	-10%	1.1	Accept
207	Moor Street Queensway/ Carrs Lane	2100105	Moor Street Queensway (N)	653	Carrs Lane	2072100105653	11	16	5	45%	1.4	Accept
207		2100105	Moor Street Queensway (N)	3	Moor Street Queensway (S)	20721001053	85	92	7	8%	0.7	Accept
207		2	Moor Street Queensway (S)	4697	Moor Street Queensway (N)	20724697	572	616	44	8%	1.8	Accept
207		2	Moor Street Queensway (S)	653	Carrs Lane	2072653	40	39	-1	-3%	0.2	Accept
302		10	Chapel House Street	8	Stone Yard	302108	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	24	Rea Street	3021024	6	7	1	17%	0.4	Accept
302		10	Chapel House Street	30	Moat Lane Car Park	3021030	2	1	-1	-50%	0.8	Accept
302		10	Chapel House Street	147	Bull Ring Car Park	30210147	2	5	3	150%	1.6	Accept
302		10	Chapel House Street	267	Allison Street	30210267	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	269	Bradford Street	30210269	1	0	-1	-100%	1.4	Accept
302		10	Chapel House Street	272	Oxford Street	30210272	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	275	Milk Street	30210275	16	15	-1	-6%	0.3	Accept
302		10	Chapel House Street	276	Floodgate Street	30210276	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	280	Heath Mill Lane	30210280	1	1	0	0%	0.0	Accept
302		10	Chapel House Street	283	Alcester Street	30210283	4	0	-4	-100%	2.8	Accept
302		10	Chapel House Street	2649	Adderley Street	302102649	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	2050008	Upper Dean Street	302102050008	4	4	0	0%	0.0	Accept
302		10	Chapel House Street	2050032	Bordesley High Street	302102050032	7	8	1	14%	0.4	Accept
302		10	Chapel House Street	17	Park Street	3021017	19	22	3	16%	0.7	Accept
302		10	Chapel House Street	271	Merriden Street	30210271	0	0	0	0%	0.0	Accept
302		11	Stone Yard	24	Rea Street	3021124	0	0	0	0%	0.0	Accept

Node No.	Node Name	From Link No.	From Link Name	To Link No.	To Link Name	Unique ID	Observed Flows	Modelled Flows	Absolute Difference	Relative Difference	GEH	Accept
302		11	Stone Yard	30	Moat Lane Car Park	3021130	0	1	1	0%	1.4	Accept
302		11	Stone Yard	147	Bull Ring Car Park	30211147	0	1	1	0%	1.4	Accept
302		11	Stone Yard	267	Allison Street	30211267	0	0	0	0%	0.0	Accept
302		11	Stone Yard	269	Bradford Street	30211269	0	3	3	0%	2.4	Accept
302		11	Stone Yard	272	Oxford Street	30211272	0	0	0	0%	0.0	Accept
302		11	Stone Yard	275	Milk Street	30211275	0	0	0	0%	0.0	Accept
302		11	Stone Yard	276	Floodgate Street	30211276	0	0	0	0%	0.0	Accept
302		11	Stone Yard	280	Heath Mill Lane	30211280	0	0	0	0%	0.0	Accept
302		11	Stone Yard	283	Alcester Street	30211283	0	0	0	0%	0.0	Accept
302		11	Stone Yard	2649	Adderley Street	302112649	0	0	0	0%	0.0	Accept
302		11	Stone Yard	2050008	Upper Dean Street	302112050008	0	0	0	0%	0.0	Accept
302		11	Stone Yard	2050032	Bordesley High Street	302112050032	0	1	1	0%	1.4	Accept
302		11	Stone Yard	17	Park Street	3021117	0	0	0	0%	0.0	Accept
302		11	Stone Yard	271	Merriden Street	30211271	0	0	0	0%	0.0	Accept
302		26	Rea Street	24	Rea Street	3022624	0	0	0	0%	0.0	Accept
302		26	Rea Street	30	Moat Lane Car Park	3022630	0	0	0	0%	0.0	Accept
302		26	Rea Street	147	Bull Ring Car Park	30226147	2	1	-1	-50%	0.8	Accept
302		26	Rea Street	267	Allison Street	30226267	0	0	0	0%	0.0	Accept
302		26	Rea Street	269	Bradford Street	30226269	0	0	0	0%	0.0	Accept
302		26	Rea Street	272	Oxford Street	30226272	0	0	0	0%	0.0	Accept
302		26	Rea Street	275	Milk Street	30226275	0	0	0	0%	0.0	Accept
302		26	Rea Street	276	Floodgate Street	30226276	0	0	0	0%	0.0	Accept
302		26	Rea Street	280	Heath Mill Lane	30226280	0	0	0	0%	0.0	Accept
302		26	Rea Street	283	Alcester Street	30226283	0	0	0	0%	0.0	Accept
302		26	Rea Street	2649	Adderley Street	302262649	0	0	0	0%	0.0	Accept
302		26	Rea Street	2050008	Upper Dean Street	302262050008	3	2	-1	-33%	0.6	Accept
302		26	Rea Street	2050032	Bordesley High Street	302262050032	0	0	0	0%	0.0	Accept
302		26	Rea Street	17	Park Street	3022617	17	24	7	41%	1.5	Accept
302		26	Rea Street	271	Merriden Street	30226271	1	0	-1	-100%	1.4	Accept
302		29	Moat Lane Car Park	24	Rea Street	3022924	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	30	Moat Lane Car Park	3022930	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	147	Bull Ring Car Park	30229147	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	267	Allison Street	30229267	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	269	Bradford Street	30229269	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	272	Oxford Street	30229272	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	275	Milk Street	30229275	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	276	Floodgate Street	30229276	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	280	Heath Mill Lane	30229280	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	283	Alcester Street	30229283	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	2649	Adderley Street	302292649	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	2050008	Upper Dean Street	302292050008	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	2050032	Bordesley High Street	302292050032	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	17	Park Street	3022917	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	271	Merriden Street	30229271	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	24	Rea Street	30214924	10	16	6	60%	1.7	Accept
302		149	Bull Ring Car Park	30	Moat Lane Car Park	30214930	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	147	Bull Ring Car Park	302149147	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	267	Allison Street	302149267	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	269	Bradford Street	302149269	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	272	Oxford Street	302149272	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	275	Milk Street	302149275	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	276	Floodgate Street	302149276	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	280	Heath Mill Lane	302149280	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	283	Alcester Street	302149283	1	1	0	0%	0.0	Accept
302		149	Bull Ring Car Park	2649	Adderley Street	3021492649	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	2050008	Upper Dean Street	3021492050008	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	2050032	Bordesley High Street	3021492050032	4	5	1	25%	0.5	Accept
302		149	Bull Ring Car Park	17	Park Street	30214917	4	5	1	25%	0.5	Accept
302		149	Bull Ring Car Park	271	Merriden Street	302149271	0	0	0	0%	0.0	Accept
302		268	Bradford Street	24	Rea Street	30226824	39	42	3	8%	0.5	Accept
302		268	Bradford Street	30	Moat Lane Car Park	30226830	10	12	2	20%	0.6	Accept
302		268	Bradford Street	147	Bull Ring Car Park	302268147	26	22	-4	-15%	0.8	Accept
302		268	Bradford Street	267	Allison Street	302268267	4	5	1	25%	0.5	Accept
302		268	Bradford Street	269	Bradford Street	302268269	0	0	0	0%	0.0	Accept
302		268	Bradford Street	272	Oxford Street	302268272	1	1	0	0%	0.0	Accept
302		268	Bradford Street	275	Milk Street	302268275	0	0	0	0%	0.0	Accept
302		268	Bradford Street	276	Floodgate Street	302268276	1	1	0	0%	0.0	Accept
302		268	Bradford Street	280	Heath Mill Lane	302268280	5	2	-3	-60%	1.6	Accept
302		268	Bradford Street	283	Alcester Street	302268283	7	10	3	43%	1.0	Accept
302		268	Bradford Street	2649	Adderley Street	3022682649	3	2	-1	-33%	0.6	Accept
302		268	Bradford Street	2050008	Upper Dean Street	3022682050008	29	22	-7	-24%	1.4	Accept
302		268	Bradford Street	2050032	Bordesley High Street	3022682050032	13	11	-2	-15%	0.6	Accept
302		268	Bradford Street	17	Park Street	30226817	183	179	-4	-2%	0.3	Accept
302		268	Bradford Street	271	Merriden Street	302268271	14	25	11	79%	2.5	Accept
302		273	Oxford Street	24	Rea Street	30227324	16	19	3	19%	0.7	Accept
302		273	Oxford Street	30	Moat Lane Car Park	30227330	0	0	0	0%	0.0	Accept
302		273	Oxford Street	147	Bull Ring Car Park	302273147	0	0	0	0%	0.0	Accept
302		273	Oxford Street	267	Allison Street	302273267	0	0	0	0%	0.0	Accept
302		273	Oxford Street	269	Bradford Street	302273269	0	0	0	0%	0.0	Accept
302		273	Oxford Street	272	Oxford Street	302273272	0	0	0	0%	0.0	Accept
302		273	Oxford Street	275	Milk Street	302273275	0	0	0	0%	0.0	Accept
302		273	Oxford Street	276	Floodgate Street	302273276	0	0	0	0%	0.0	Accept
302		273	Oxford Street	280	Heath Mill Lane	302273280	1	2	1	100%	0.8	Accept
302		273	Oxford Street	283	Alcester Street	302273283	2	2	0	0%	0.0	Accept
302		273	Oxford Street	2649	Adderley Street	3022732649	0	0	0	0%	0.0	Accept
302		273	Oxford Street	2050008	Upper Dean Street	3022732050008	0	0	0	0%	0.0	Accept
302		273	Oxford Street	2050032	Bordesley High Street	3022732050032	6	11	5	83%	1.7	Accept
302		273	Oxford Street	17	Park Street	30227317	3	0	-3	-100%	2.4	Accept
302		273	Oxford Street	271	Merriden Street	302273271	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	8	Stone Yard	3022818	4	1	-3	-75%	1.9	Accept
302		281	Heath Mill Lane	9	Chapel House Street	3022819	4	6	2	50%	0.9	Accept
302		281	Heath Mill Lane	24	Rea Street	30228124	20	21	1	5%	0.2	Accept
302		281	Heath Mill Lane	30	Moat Lane Car Park	30228130	5	7	2	40%	0.8	Accept
302		281	Heath Mill Lane	147	Bull Ring Car Park	302281147	9	6	-3	-33%	1.1	Accept
302		281	Heath Mill Lane	267	Allison Street	302281267	2	1	-1	-50%	0.8	Accept
302		281	Heath Mill Lane	269	Bradford Street	302281269	5	5	0	0%	0.0	Accept
302		281	Heath Mill Lane	272	Oxford Street	302281272	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	275	Milk Street	302281275	45	47	2	4%	0.3	Accept
302		281	Heath Mill Lane	276	Floodgate Street	302281276	1	2	1	100%	0.8	Accept
302		281	Heath Mill Lane	280	Heath Mill Lane	302281280	0	0	0	0%	0.0	Accept
302	Moat Lane Gyratory	281	Heath Mill Lane	283	Alcester Street	302281283	24	25	1	4%	0.2	Accept
302	& High Street	281	Heath Mill Lane	2649	Adderley Street	3022812649	7	5	-2	-29%	0.8	Accept
302	Deritend	281	Heath Mill Lane	2050008	Upper Dean Street	3022812050008	14	9	-5	-36%	1.5	Accept
302		281	Heath Mill Lane	2050032	Bordesley High Street	3022812050032	54	49	-5	-9%	0.7	Accept
302		281	Heath Mill Lane	17	Park Street	30228117	51	64	13	25%	1.7	Accept
302		281	Heath Mill Lane	271	Merriden Street	302281271	2	1	-1	-50%	0.8	Accept
302		282	Alcester Street	8	Stone Yard	3022828	3	1	-2	-67%	1.4	Accept
302		282	Alcester Street	9	Chapel House Street	3022829	3	3	0	0%	0.0	Accept
302		282	Alcester Street	24	Rea Street	30228224	10	8	-2	-20%	0.7	Accept
302		282	Alcester Street	30	Moat Lane Car Park	30228230	3	5	2	67%	1.0	Accept
302		282	Alcester Street	147	Bull Ring Car Park	302282147	4	3	-1	-25%	0.5	Accept
302		282	Alcester Street	267	Allison Street	302282267	0	0	0	0%	0.0	Accept
302		282	Alcester Street	269	Bradford Street	302282269	3	2	-1	-33%	0.6	Accept
302		282	Alcester Street	272	Oxford Street	302282272	0	0	0	0%	0.0	Accept
302		282	Alcester Street	275	Milk Street	302282275	27	31	4	15%	0.7	Accept

Node No.	Node Name	From Link No.	From Link Name	To Link No.	To Link Name	Unique ID	Observed Flows	Modelled Flows	Absolute Difference	Relative Difference	GEH	Accept
302		282	Alcester Street	276	Floodgate Street	302282276	1	0	-1	-100%	1.4	Accept
302		282	Alcester Street	280	Heath Mill Lane	302282280	54	62	8	15%	1.1	Accept
302		282	Alcester Street	283	Alcester Street	302282283	0	0	0	0%	0.0	Accept
302		282	Alcester Street	2649	Adderley Street	3022822649	24	32	8	33%	1.5	Accept
302		282	Alcester Street	2050008	Upper Dean Street	3022822050008	6	4	-2	-33%	0.9	Accept
302		282	Alcester Street	2050032	Bordesley High Street	3022822050032	139	142	3	2%	0.3	Accept
302		282	Alcester Street	17	Park Street	30228217	29	30	1	3%	0.2	Accept
302		282	Alcester Street	271	Merriden Street	302282271	3	4	1	33%	0.5	Accept
302		286	Allison Street	24	Rea Street	30228624	10	10	0	0%	0.0	Accept
302		286	Allison Street	30	Moat Lane Car Park	30228630	0	0	0	0%	0.0	Accept
302		286	Allison Street	147	Bull Ring Car Park	302286147	0	0	0	0%	0.0	Accept
302		286	Allison Street	267	Allison Street	302286267	0	0	0	0%	0.0	Accept
302		286	Allison Street	269	Bradford Street	302286269	0	0	0	0%	0.0	Accept
302		286	Allison Street	272	Oxford Street	302286272	0	0	0	0%	0.0	Accept
302		286	Allison Street	275	Milk Street	302286275	0	0	0	0%	0.0	Accept
302		286	Allison Street	276	Floodgate Street	302286276	0	0	0	0%	0.0	Accept
302		286	Allison Street	280	Heath Mill Lane	302286280	0	0	0	0%	0.0	Accept
302		286	Allison Street	283	Alcester Street	302286283	2	3	1	50%	0.6	Accept
302		286	Allison Street	2649	Adderley Street	3022862649	0	0	0	0%	0.0	Accept
302		286	Allison Street	2050008	Upper Dean Street	3022862050008	0	0	0	0%	0.0	Accept
302		286	Allison Street	2050032	Bordesley High Street	3022862050032	4	1	-3	-75%	1.9	Accept
302		286	Allison Street	17	Park Street	30228617	1	0	-1	-100%	1.4	Accept
302		286	Allison Street	271	Merriden Street	302286271	1	0	-1	-100%	1.4	Accept
302		2642	Adderley Street	2050032	Bordesley High Street	30226422050032	63	59	-4	-6%	0.5	Accept
302		2050021	Mill Lane	24	Rea Street	302205002124	3	4	1	33%	0.5	Accept
302		2050021	Mill Lane	30	Moat Lane Car Park	302205002130	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	147	Bull Ring Car Park	3022050021147	2	3	1	50%	0.6	Accept
302		2050021	Mill Lane	267	Allison Street	3022050021267	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	269	Bradford Street	3022050021269	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	272	Oxford Street	3022050021272	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	275	Milk Street	3022050021275	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	276	Floodgate Street	3022050021276	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	280	Heath Mill Lane	3022050021280	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	283	Alcester Street	3022050021283	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	2649	Adderley Street	30220500212649	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	2050008	Upper Dean Street	302205002120500008	1	2	1	100%	0.8	Accept
302		2050021	Mill Lane	2050032	Bordesley High Street	302205002120500032	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	17	Park Street	302205002117	13	16	3	23%	0.8	Accept
302		2050021	Mill Lane	271	Merriden Street	3022050021271	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	24	Rea Street	302205002424	40	32	-8	-20%	1.3	Accept
302		2050024	Upper Dean Street	30	Moat Lane Car Park	302205002430	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	147	Bull Ring Car Park	3022050024147	24	21	-3	-13%	0.6	Accept
302		2050024	Upper Dean Street	267	Allison Street	3022050024267	3	4	1	33%	0.5	Accept
302		2050024	Upper Dean Street	269	Bradford Street	3022050024269	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	272	Oxford Street	3022050024272	1	0	-1	-100%	1.4	Accept
302		2050024	Upper Dean Street	275	Milk Street	3022050024275	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	276	Floodgate Street	3022050024276	1	0	-1	-100%	1.4	Accept
302		2050024	Upper Dean Street	280	Heath Mill Lane	3022050024280	4	1	-3	-75%	1.9	Accept
302		2050024	Upper Dean Street	283	Alcester Street	3022050024283	7	7	0	0%	0.0	Accept
302		2050024	Upper Dean Street	2649	Adderley Street	30220500242649	2	2	0	0%	0.0	Accept
302		2050024	Upper Dean Street	2050008	Upper Dean Street	302205002420500008	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	2050032	Bordesley High Street	302205002420500032	13	20	7	54%	1.7	Accept
302		2050024	Upper Dean Street	17	Park Street	302205002417	181	172	-9	-5%	0.7	Accept
302		2050024	Upper Dean Street	271	Merriden Street	3022050024271	10	6	-4	-40%	1.4	Accept
302		2050033	Bordesley High Street	8	Stone Yard	30220500338	24	21	-3	-13%	0.6	Accept
302		2050033	Bordesley High Street	9	Chapel House Street	30220500339	38	39	1	3%	0.2	Accept
302		2050033	Bordesley High Street	24	Rea Street	302205003324	64	72	8	13%	1.0	Accept
302		2050033	Bordesley High Street	30	Moat Lane Car Park	302205003330	16	14	-2	-13%	0.5	Accept
302		2050033	Bordesley High Street	147	Bull Ring Car Park	3022050033147	23	28	5	22%	1.0	Accept
302		2050033	Bordesley High Street	267	Allison Street	3022050033267	6	2	-4	-67%	2.0	Accept
302		2050033	Bordesley High Street	269	Bradford Street	3022050033269	17	14	-3	-18%	0.8	Accept
302		2050033	Bordesley High Street	272	Oxford Street	3022050033272	1	1	0	0%	0.0	Accept
302		2050033	Bordesley High Street	275	Milk Street	3022050033275	144	137	-7	-5%	0.6	Accept
302		2050033	Bordesley High Street	276	Floodgate Street	3022050033276	6	0	-6	-100%	3.5	Accept
302		2050033	Bordesley High Street	280	Heath Mill Lane	3022050033280	242	215	-27	-11%	1.8	Accept
302		2050033	Bordesley High Street	283	Alcester Street	3022050033283	108	126	18	17%	1.7	Accept
302		2050033	Bordesley High Street	2649	Adderley Street	30220500332649	3	0	-3	-100%	2.4	Accept
302		2050033	Bordesley High Street	2050008	Upper Dean Street	302205003320500008	41	40	-1	-2%	0.2	Accept
302		2050033	Bordesley High Street	2050032	Bordesley High Street	302205003320500032	0	0	0	0%	0.0	Accept
302		2050033	Bordesley High Street	17	Park Street	302205003317	132	132	0	0%	0.0	Accept
302		2050033	Bordesley High Street	271	Merriden Street	3022050033271	13	17	4	31%	1.0	Accept
302		2050277	Floodgate Street	280	Heath Mill Lane	3022050277280	3	3	0	0%	0.0	Accept
302		2050277	Floodgate Street	283	Alcester Street	3022050277283	9	17	8	89%	2.2	Accept
302		2050277	Floodgate Street	2649	Adderley Street	30220502772649	2	3	1	50%	0.6	Accept
302		2050277	Floodgate Street	2050032	Bordesley High Street	302205027720500032	26	36	10	38%	1.8	Accept
302		2050001	Park Street	24	Rea Street	302205000124	202	205	3	1%	0.2	Accept
302		2050001	Park Street	30	Moat Lane Car Park	302205000130	3	2	-1	-33%	0.6	Accept
302		2050001	Park Street	147	Bull Ring Car Park	3022050001147	6	5	-1	-17%	0.4	Accept
302		2050001	Park Street	267	Allison Street	3022050001267	17	12	-5	-29%	1.3	Accept
302		2050001	Park Street	269	Bradford Street	3022050001269	2	2	0	0%	0.0	Accept
302		2050001	Park Street	272	Oxford Street	3022050001272	7	5	-2	-29%	0.8	Accept
302		2050001	Park Street	275	Milk Street	3022050001275	9	10	1	11%	0.3	Accept
302		2050001	Park Street	276	Floodgate Street	3022050001276	9	14	5	56%	1.5	Accept
302		2050001	Park Street	280	Heath Mill Lane	3022050001280	25	30	5	20%	1.0	Accept
302		2050001	Park Street	283	Alcester Street	3022050001283	43	43	0	0%	0.0	Accept
302		2050001	Park Street	2649	Adderley Street	30220500012649	15	18	3	20%	0.7	Accept
302		2050001	Park Street	2050008	Upper Dean Street	302205000012050008	8	10	2	25%	0.7	Accept
302		2050001	Park Street	2050032	Bordesley High Street	302205000012050032	84	89	5	6%	0.5	Accept
302		2050001	Park Street	17	Park Street	3022050000117	0	0	0	0%	0.0	Accept
302		2050001	Park Street	271	Merriden Street	3022050001271	58	58	0	0%	0.0	Accept
302		270	Merriden Street	24	Rea Street	30227024	93	127	34	37%	3.2	Accept
302		270	Merriden Street	30	Moat Lane Car Park	30227030	0	0	0	0%	0.0	Accept
302		270	Merriden Street	147	Bull Ring Car Park	3022270147	3	2	-1	-33%	0.6	Accept
302		270	Merriden Street	267	Allison Street	3022270267	0	0	0	0%	0.0	Accept
302		270	Merriden Street	269	Bradford Street	3022270269	0	0	0	0%	0.0	Accept
302		270	Merriden Street	272	Oxford Street	3022270272	1	1	0	0%	0.0	Accept
302		270	Merriden Street	275	Milk Street	3022270275	4	5	1	25%	0.5	Accept
302		270	Merriden Street	276	Floodgate Street	3022270276	4	8	4	100%	1.6	Accept
302		270	Merriden Street	280	Heath Mill Lane	3022270280	10	9	-1	-10%	0.3	Accept
302		270	Merriden Street	283	Alcester Street	3022270283	18	31	13	72%	2.6	Accept
302		270	Merriden Street	2649	Adderley Street	3022702649	7	1	-6	-86%	3.0	Accept
302		270	Merriden Street	2050008	Upper Dean Street	3022702050008	3	2	-1	-33%	0.6	Accept
302		270	Merriden Street	2050032	Bordesley High Street	3022702050032	38	65	27	71%	3.8	Accept
302		270	Merriden Street	17	Park Street	30227017	17	0	-17	-100%	5.8	Not Accept
302		270	Merriden Street	271	Merriden Street	3022702271	0	0	0	0%	0.0	Accept

Percentage meeting calibration criteria: 100%

PM Peak Base Turning Count Calibration

Node No.	Node Name	From Link No.	From Link Name	To Link No.	To Link Name	Unique ID	Observed Flows	Modelled Flows	Absolute Difference	Relative Difference	GEH	Accept
100	James Watt Queensway/ Moor Street Queensway/ Jennens Road	4704	James Watt Queensway	2100103	Jennens Road	10047042100103	232	234.8	3	1%	0.2	Accept
100		4704	James Watt Queensway	4041	B4114	10047044041	714	717	3	0%	0.1	Accept
100		2100046	Jennens Road	4041	B4114	10021000464041	406	406.6	1	0%	0.0	Accept
100		4029	Moor Street Queensway (S)	2100103	Jennens Road	10040292100103	139	140.3	1	1%	0.1	Accept
100		4029	Moor Street Queensway (S)	2100149	James Watt Queensway	10040292100149	729	697.6	-31	-4%	1.2	Accept
100		4029	Moor Street Queensway (S)	4041	B4114	10040294041	54	51.8	-2	-4%	0.3	Accept
101	Moor Street Queensway/ The Priory Queensway/ Masshouse Lane	4043	Masshouse Lane	4029	Moor Street Queensway (N)	10140434029	176	185.2	9	5%	0.7	Accept
101		2100051	Masshouse Lane	4033	The Priory Queensway	10121000514033	3	3.8	1	27%	0.4	Accept
101		646	Masshouse Lane	2100104	Moor Street Queensway (S)	1016462100104	61	68	7	11%	0.9	Accept
101		2100082	The Priory Queensway	4029	Moor Street Queensway (N)	10121000824029	7	7.2	0	3%	0.1	Accept
101		2100175	The Priory Queensway	2100104	Moor Street Queensway (S)	10121001752100104	14	15.5	2	11%	0.4	Accept
101		265	Moor Street Queensway (S)	4029	Moor Street Queensway (N)	1012654029	748	706	-42	-6%	1.6	Accept
101		4698	Moor Street Queensway (S)	4033	The Priory Queensway	10146984033	15	12.7	-2	-15%	0.6	Accept
102	Moor Street Queensway/ Albert St	654	Moor Street Queensway (N)	1268	Albert Street	1026541268	23	23.8	1	3%	0.2	Accept
102		2100104	Moor Street Queensway (N)	2100104	Moor Street Queensway (S)	1022100104 2100104	58	58.4	0	1%	0.1	Accept
102		1269	Albert Street	265	Moor Street Queensway (N)	1021269265	96	95.9	0	0%	0.0	Accept
102		1269	Albert Street	2100104	Moor Street Queensway (S)	10212692100104	111	107.4	-4	-3%	0.3	Accept
102		4705	Moor Street Queensway (S)	4698	Moor Street Queensway (N)	10247054698	15	12.7	-2	-15%	0.6	Accept
102		4705	Moor Street Queensway (S)	265	Moor Street Queensway (N)	1024705265	649	607.9	-41	-6%	1.6	Accept
102		4705	Moor Street Queensway (S)	1268	Albert Street	10247051268	73	73.1	0	0%	0.0	Accept
103	Albert St/Dingleys Passage	360	Albert Street Car Park	1269	Albert Street (E)	1033601269	72	75.1	3	4%	0.4	Accept
103		360	Albert Street Car Park	1268	Albert Street	1033601268	0	4.7	5	0%	3.1	Accept
103		1268	Albert Street (E)	361	Albert Street Car Park	1031268361	-6	0.8	7	-113%	0.0	Accept
103		1268	Albert Street (E)	1268	Albert Street	10312681268	102	96	-6	-6%	0.6	Accept
103		1270	Albert Street (W)	361	Albert Street Car Park	1031270361	0	0	0	0%	0.0	Accept
103		1270	Albert Street (W)	1269	Albert Street (E)	10312701269	135	128.5	-7	-5%	0.6	Accept
104	Albert St/New Meeting St	362	New Meeting Street	1270	Albert Street (E)	1043621270	19	18	-1	-5%	0.2	Accept
104		362	New Meeting Street	1268	Albert Street	1043621268	9	9	0	0%	0.0	Accept
104		1268	Albert Street (E)	365	New Meeting Street	1041268365	12	13.2	1	10%	0.3	Accept
104		1268	Albert Street (E)	1268	Albert Street	10412681268	88	87.6	0	0%	0.0	Accept
104		1270	Albert Street (W)	365	New Meeting Street	1041270365	13	13	0	0%	0.0	Accept
104		1270	Albert Street (W)	1270	Albert Street (E)	10412701270	114	109.8	-4	-4%	0.4	Accept
105	High Street/Bull Street/ Dale End	4673	Dale End	659	High Street	1054673659	17	0	-17	-100%	5.8	Not Accept
105		659	Bull Street	659	High Street	105659659	9	7.3	-2	-19%	0.6	Accept
105		659	Bull Street	4671	Dale End	1056594671	37	30.9	-6	-16%	1.0	Accept
106	Moor St Queensway/ Selfridges Car Park	20	Moor Street Car Park	961	Park Street (S)	10620961	98	102.4	4	4%	0.4	Accept
106		6	Park Street (N)	55	Moor Street Car Park	106655	94	97.1	3	3%	0.3	Accept
106		6	Park Street (N)	961	Park Street (S)	1066961	591	584.9	-6	-1%	0.3	Accept
106		4	Moor Street	55	Moor Street Car Park	106455	0	0	0	0%	0.0	Accept
106		4	Moor Street	961	Park Street (S)	1064961	138	156	18	13%	1.5	Accept
106		150	Park Street (S)	1	Moor Street	1061501	764	747	-17	-2%	0.6	Accept
108	Moor Street Queensway/ St Martin's Queensway	37	Swan Passage	56	Moor Street Queensway (N)	1083756	44	43.5	-1	-1%	0.1	Accept
108		1	Moor Street	38	Swan Passage	108138	60	60.9	1	2%	0.1	Accept
108		1	Moor Street	56	Moor Street Queensway (N)	108156	704	689.4	-15	-2%	0.6	Accept
108		39	Bus Gate	38	Swan Passage	1083938	0	0	0	0%	0.0	Accept
108		4	Moor Street	4	Moor Steet	10844	165	158.9	-6	-4%	0.5	Accept
200	Fazeley St/New Canal St	152	New Canal Street (N)	2425	New Bartholemew Street	2001522425	4	3.4	-1	-15%	0.3	Accept
200		152	New Canal Street (N)	2443	Fazeley Street (E)	2001522443	40	38.3	-2	-4%	0.3	Accept
200		152	New Canal Street (N)	2444	Fazeley Street (W)	2001522444	30	29	-1	-3%	0.2	Accept
200		152	New Canal Street (N)	2429	New Canal Street	2001522429	275	283.5	9	3%	0.5	Accept
200		2412	Fazeley Street (W)	151	New Canal Street (N)	2002412151	75	67	-8	-11%	0.9	Accept
200		2412	Fazeley Street (W)	2425	New Bartholemew Street	20024122425	2	2	0	0%	0.0	Accept
200		2412	Fazeley Street (W)	2443	Fazeley Street (E)	20024122443	197	191.7	-5	-3%	0.4	Accept
200		2412	Fazeley Street (W)	2429	New Canal Street	20024122429	27	25	-2	-7%	0.4	Accept
200		2444	Fazeley Street (E)	151	New Canal Street (N)	2002444151	181	200.8	20	11%	1.4	Accept
200		2444	Fazeley Street (E)	2425	New Bartholemew Street	20024442425	5	4.8	0	-4%	0.1	Accept
200		2444	Fazeley Street (E)	2444	Fazeley Street (W)	20024442444	56	61.5	6	10%	0.7	Accept
200		2444	Fazeley Street (E)	2429	New Canal Street	20024442429	42	43.9	2	5%	0.3	Accept
200		2430	New Canal Street (S)	151	New Canal Street (N)	2002430151	214	210.3	-4	-2%	0.3	Accept
200		2430	New Canal Street (S)	2425	New Bartholemew Street	20024302425	1	0.9	0	-10%	0.1	Accept
200		2430	New Canal Street (S)	2443	Fazeley Street (E)	20024302443	11	9.6	-1	-13%	0.4	Accept
200		2430	New Canal Street (S)	2444	Fazeley Street (W)	20024302444	5	4.8	0	-4%	0.1	Accept
201	New Canal Street Car Park	2436	Car Park (sink/source)	2430	New Canal Street	20124362430	7	11.8	5	69%	1.6	Accept
201		2436	Car Park (sink/source)	2429	New Canal Street	20124362429	18	20.9	3	16%	0.7	Accept
201		2429	New Canal Street	2435	Car Park (sink/source)	20124292435	0	0	0	0%	0.0	Accept
201		2429	New Canal Street	2429	New Canal Street	20124292429	344	352.5	9	2%	0.5	Accept
201		2430	New Canal Street (S)	2435	Car Park (sink/source)	20124302435	0	4.6	5	0%	3.0	Accept
201		2430	New Canal Street (S)	2430	New Canal Street	20124302430	231	210.5	-21	-9%	1.4	Accept
202	Bordesley St/New Canal St	2472	Bordesley Street (E)	1007707	Bordesley Street (W)	20224721007707	20	21.1	1	6%	0.2	Accept
202		2472	Bordesley Street (E)	2430	New Canal Street	20224722430	35	34.7	0	-1%	0.1	Accept
202		2472	Bordesley Street (E)	2467	New Canal Street (S)	20224722467	29	29.3	0	1%	0.1	Accept
202		1007704	Bordesley Street (W)	2471	Bordesley Street (E)	20210077042471	75	75.2	0	0%	0.0	Accept
202		1007704	Bordesley Street (W)	2430	New Canal Street	20210077042430	89	87.1	-2	-2%	0.2	Accept
202		1007704	Bordesley Street (W)	2467	New Canal Street (S)	20210077042467	22	24.2	2	10%	0.5	Accept
202		2429	New Canal Street	2471	Bordesley Street (E)	20224292471	51	50.3	-1	-1%	0.1	Accept
202		2429	New Canal Street	1007707	Bordesley Street (W)	20224291007707	26	28.6	3	10%	0.5	Accept
202		2429	New Canal Street	2467	New Canal Street (S)	20224292467	285	294.2	9	3%	0.5	Accept
202		2468	New Canal Street (S)	2471	Bordesley Street (E)	20224682471	32	28.3	-4	-12%	0.7	Accept
202		2468	New Canal Street (S)	1007707	Bordesley Street (W)	20224681007707	4	4.2	0	5%	0.1	Accept
202		2468	New Canal Street (S)	2430	New Canal Street	20224682430	100	87	-13	-13%	1.3	Accept
203	Coventry St/New Canal St	2495	Coventry Street (E)	2500	Coventry Street (W)	20324952500	10	8.5	-2	-15%	0.5	Accept
203		2495	Coventry Street (E)	2468	New Canal Street (N)	20324952468	12	12.6	1	5%	0.2	Accept
203		2495	Coventry Street (E)	4710	Merriden Street	20324954710	12	12.5	1	4%	0.1	Accept
203		2499	Coventry Street (W)	2496	Coventry Street (E)	20324992496	26	27.7	2	7%	0.3	Accept
203		2499	Coventry Street (W)	2468	New Canal Street (N)	20324992468	29	27	-2	-7%	0.4	Accept
203		2499	Coventry Street (W)	4710	Merriden Street	20324994710	8	9.7	2	21%	0.6	Accept
203		2467	New Canal Street (N)	2496	Coventry Street (E)	20324672496	20	18.3	-2	-9%	0.4	Accept
203		2467	New Canal Street (N)	2500	Coventry Street (W)	20324672500	16	18	2	13%	0.5	Accept
203		2467	New Canal Street (N)	4710	Merriden Street	20324674710	306	309.2	3	1%	0.2	Accept
203		4711	Merriden Street	2496	Coventry Street (E)	20347112496	5	4.6	0	-8%	0.2	Accept
203		4711	Merriden Street	2500	Coventry Street (W)	20347112500	2	1.9	0	-5%	0.1	Accept
203		4711	Merriden Street	2468	New Canal Street (N)	20347112468	84	78.8	-5	-6%	0.6	Accept
207	Moor Street Queensway/ Carrs Lane	2100105	Moor Street Queensway (N)	653	Carrs Lane	2072100105653	7	7.3	0	4%	0.1	Accept
207		2100105	Moor Street Queensway (N)	3	Moor Street Queensway (S)	20721001053	165	158.6	-6	-4%	0.5	Accept
207		2	Moor Street Queensway (S)	4697	Moor Street Queensway (N)	20724697	715	698.2	-17	-2%	0.6	Accept
207		2	Moor Street Queensway (S)	653	Carrs Lane	2072653	33	30.9	-2	-6%	0.4	Accept
302		10	Chapel House Street	8	Stone Yard	302108	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	24	Rea Street	3021024	17	15.6	-1	-8%	0.3	Accept
302		10	Chapel House Street	30	Moat Lane Car Park	3021030	0	0.2	0	0%	0.6	Accept
302		10	Chapel House Street	147	Bull Ring Car Park	30210147	5	4.3	-1	-14%	0.3	Accept
302		10	Chapel House Street	267	Allison Street	30210267	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	269	Bradford Street	30210269	4	3.8	0	-5%	0.1	Accept
302		10	Chapel House Street	272	Oxford Street	30210272	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	275	Milk Street	30210275	30	28.9	-1	-4%	0.2	Accept
302		10	Chapel House Street	276	Floodgate Street	30210276	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	280	Heath Mill Lane	30210280	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	283	Alcester Street	30210283	2	0	-2	-100%	2.0	Accept
302		10	Chapel House Street	2649	Adderley Street	302102649	0	0	0	0%	0.0	Accept
302		10	Chapel House Street	2050008	Upper Dean Street	302102050008	12	12.7	1	6%	0.2	Accept
302		10	Chapel House Street	2050032	Bordesley High Street	302102050032	10	12.3	2	23%	0.7	Accept
302		10	Chapel House Street	17	Park Street	3021017	42	40.9	-1	-3%	0.2	Accept
302		10	Chapel House Street	271	Merriden Street	30210271	0	0	0	0%	0.0	Accept
302		11	Stone Yard	24	Rea Street	3021124	5	5.2	0	4%	0.1	Accept

Node No.	Node Name	From Link No.	From Link Name	To Link No.	To Link Name	Unique ID	Observed Flows	Modelled Flows	Absolute Difference	Relative Difference	GEH	Accept
302		11	Stone Yard	30	Moat Lane Car Park	3021130	0	0	0	0%	0.0	Accept
302		11	Stone Yard	147	Bull Ring Car Park	30211147	2	1.2	-1	-40%	0.6	Accept
302		11	Stone Yard	267	Allison Street	30211267	0	0	0	0%	0.0	Accept
302		11	Stone Yard	269	Bradford Street	30211269	0	0	0	0%	0.0	Accept
302		11	Stone Yard	272	Oxford Street	30211272	0	0	0	0%	0.0	Accept
302		11	Stone Yard	275	Milk Street	30211275	8	8.2	0	2%	0.1	Accept
302		11	Stone Yard	276	Floodgate Street	30211276	0	0	0	0%	0.0	Accept
302		11	Stone Yard	280	Heath Mill Lane	30211280	0	0	0	0%	0.0	Accept
302		11	Stone Yard	283	Alcester Street	30211283	0	0	0	0%	0.0	Accept
302		11	Stone Yard	2649	Adderley Street	302112649	0	0	0	0%	0.0	Accept
302		11	Stone Yard	2050008	Upper Dean Street	302112050008	4	5.8	2	45%	0.8	Accept
302		11	Stone Yard	2050032	Bordesley High Street	302112050032	3	5	2	67%	1.0	Accept
302		11	Stone Yard	17	Park Street	3021117	14	13.5	-1	-4%	0.1	Accept
302		11	Stone Yard	271	Merriden Street	30211271	0	0	0	0%	0.0	Accept
302		26	Rea Street	24	Rea Street	3022624	0	0	0	0%	0.0	Accept
302		26	Rea Street	30	Moat Lane Car Park	3022630	0	0.4	0	0%	0.9	Accept
302		26	Rea Street	147	Bull Ring Car Park	30226147	8	8.7	1	9%	0.2	Accept
302		26	Rea Street	267	Allison Street	30226267	0	0	0	0%	0.0	Accept
302		26	Rea Street	269	Bradford Street	30226269	3	3.2	0	7%	0.1	Accept
302		26	Rea Street	272	Oxford Street	30226272	0	0	0	0%	0.0	Accept
302		26	Rea Street	275	Milk Street	30226275	0	0	0	0%	0.0	Accept
302		26	Rea Street	276	Floodgate Street	30226276	0	0	0	0%	0.0	Accept
302		26	Rea Street	280	Heath Mill Lane	30226280	0	0	0	0%	0.0	Accept
302		26	Rea Street	283	Alcester Street	30226283	0	0	0	0%	0.0	Accept
302		26	Rea Street	2649	Adderley Street	302262649	0	0	0	0%	0.0	Accept
302		26	Rea Street	2050008	Upper Dean Street	302262050008	15	14.6	0	-3%	0.1	Accept
302		26	Rea Street	2050032	Bordesley High Street	302262050032	0	0	0	0%	0.0	Accept
302		26	Rea Street	17	Park Street	3022617	69	60.6	-8	-12%	1.0	Accept
302		26	Rea Street	271	Merriden Street	30226271	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	24	Rea Street	3022924	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	30	Moat Lane Car Park	3022930	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	147	Bull Ring Car Park	30229147	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	267	Allison Street	30229267	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	269	Bradford Street	30229269	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	272	Oxford Street	30229272	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	275	Milk Street	30229275	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	276	Floodgate Street	30229276	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	280	Heath Mill Lane	30229280	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	283	Alcester Street	30229283	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	2649	Adderley Street	302292649	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	2050008	Upper Dean Street	302292050008	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	2050032	Bordesley High Street	302292050032	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	17	Park Street	3022917	0	0	0	0%	0.0	Accept
302		29	Moat Lane Car Park	271	Merriden Street	30229271	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	24	Rea Street	30214924	32	37.1	5	16%	0.9	Accept
302		149	Bull Ring Car Park	30	Moat Lane Car Park	30214930	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	147	Bull Ring Car Park	302149147	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	267	Allison Street	302149267	1	0.8	0	-20%	0.2	Accept
302		149	Bull Ring Car Park	269	Bradford Street	302149269	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	272	Oxford Street	302149272	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	275	Milk Street	302149275	0	0.1	0	0%	0.4	Accept
302		149	Bull Ring Car Park	276	Floodgate Street	302149276	1	0.7	0	-30%	0.3	Accept
302		149	Bull Ring Car Park	280	Heath Mill Lane	302149280	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	283	Alcester Street	302149283	12	13.7	2	14%	0.5	Accept
302		149	Bull Ring Car Park	2649	Adderley Street	3021492649	4	3.3	-1	-18%	0.4	Accept
302		149	Bull Ring Car Park	2050008	Upper Dean Street	3021492050008	0	0	0	0%	0.0	Accept
302		149	Bull Ring Car Park	2050032	Bordesley High Street	3021492050032	32	42.9	11	34%	1.8	Accept
302		149	Bull Ring Car Park	17	Park Street	30214917	31	34.4	3	11%	0.6	Accept
302		149	Bull Ring Car Park	271	Merriden Street	302149271	4	6	2	50%	0.9	Accept
302		268	Bradford Street	24	Rea Street	30226824	13	11.1	-2	-15%	0.5	Accept
302		268	Bradford Street	30	Moat Lane Car Park	30226830	2	1.4	-1	-30%	0.5	Accept
302		268	Bradford Street	147	Bull Ring Car Park	302268147	16	15.7	0	-2%	0.1	Accept
302		268	Bradford Street	267	Allison Street	302268267	0	0.3	0	0%	0.8	Accept
302		268	Bradford Street	269	Bradford Street	302268269	0	0	0	0%	0.0	Accept
302		268	Bradford Street	272	Oxford Street	302268272	0	0	0	0%	0.0	Accept
302		268	Bradford Street	275	Milk Street	302268275	0	0	0	0%	0.0	Accept
302		268	Bradford Street	276	Floodgate Street	302268276	0	0	0	0%	0.0	Accept
302		268	Bradford Street	280	Heath Mill Lane	302268280	0	0	0	0%	0.0	Accept
302		268	Bradford Street	283	Alcester Street	302268283	6	5.4	-1	-10%	0.3	Accept
302		268	Bradford Street	2649	Adderley Street	3022682649	2	2.4	0	20%	0.3	Accept
302		268	Bradford Street	2050008	Upper Dean Street	3022682050008	27	27.6	1	2%	0.1	Accept
302		268	Bradford Street	2050032	Bordesley High Street	3022682050032	12	12.9	1	8%	0.3	Accept
302		268	Bradford Street	17	Park Street	30226817	144	137.3	-7	-5%	0.6	Accept
302		268	Bradford Street	271	Merriden Street	302268271	3	3.7	1	23%	0.4	Accept
302		273	Oxford Street	24	Rea Street	30227324	17	24.1	7	42%	1.6	Accept
302		273	Oxford Street	30	Moat Lane Car Park	30227330	0	0	0	0%	0.0	Accept
302		273	Oxford Street	147	Bull Ring Car Park	302273147	0	0	0	0%	0.0	Accept
302		273	Oxford Street	267	Allison Street	302273267	0	0	0	0%	0.0	Accept
302		273	Oxford Street	269	Bradford Street	302273269	0	0	0	0%	0.0	Accept
302		273	Oxford Street	272	Oxford Street	302273272	0	0	0	0%	0.0	Accept
302		273	Oxford Street	275	Milk Street	302273275	0	0	0	0%	0.0	Accept
302		273	Oxford Street	276	Floodgate Street	302273276	0	0	0	0%	0.0	Accept
302		273	Oxford Street	280	Heath Mill Lane	302273280	1	1.1	0	10%	0.1	Accept
302		273	Oxford Street	283	Alcester Street	302273283	7	10.3	3	47%	1.1	Accept
302		273	Oxford Street	2649	Adderley Street	3022732649	2	2.5	1	25%	0.3	Accept
302		273	Oxford Street	2050008	Upper Dean Street	3022732050008	0	0	0	0%	0.0	Accept
302		273	Oxford Street	2050032	Bordesley High Street	3022732050032	23	33.7	11	47%	2.0	Accept
302		273	Oxford Street	17	Park Street	30227317	5	0	-5	-100%	3.2	Accept
302		273	Oxford Street	271	Merriden Street	302273271	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	8	Stone Yard	3022818	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	9	Chapel House Street	3022819	27	24.1	-3	-11%	0.6	Accept
302		281	Heath Mill Lane	24	Rea Street	30228124	36	36.3	0	1%	0.0	Accept
302		281	Heath Mill Lane	30	Moat Lane Car Park	30228130	2	2.4	0	20%	0.3	Accept
302		281	Heath Mill Lane	147	Bull Ring Car Park	302281147	11	10.8	0	-2%	0.1	Accept
302		281	Heath Mill Lane	267	Allison Street	302281267	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	269	Bradford Street	302281269	7	6.2	-1	-11%	0.3	Accept
302		281	Heath Mill Lane	272	Oxford Street	302281272	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	275	Milk Street	302281275	60	58.2	-2	-3%	0.2	Accept
302		281	Heath Mill Lane	276	Floodgate Street	302281276	0	0	0	0%	0.0	Accept
302		281	Heath Mill Lane	280	Heath Mill Lane	302281280	0	0	0	0%	0.0	Accept
302	Moat Lane Gyratory & High Street Deritend	281	Heath Mill Lane	283	Alcester Street	302281283	26	23.5	-3	-10%	0.5	Accept
302		281	Heath Mill Lane	2649	Adderley Street	3022812649	9	7.6	-1	-16%	0.5	Accept
302		281	Heath Mill Lane	2050008	Upper Dean Street	3022812050008	25	20.5	-5	-18%	0.9	Accept
302		281	Heath Mill Lane	2050032	Bordesley High Street	3022812050032	83	82.9	0	0%	0.0	Accept
302		281	Heath Mill Lane	17	Park Street	30228117	70	63.3	-7	-10%	0.8	Accept
302		281	Heath Mill Lane	271	Merriden Street	302281271	0	3.1	3	0%	2.5	Accept
302		282	Alcester Street	8	Stone Yard	3022828	0	0	0	0%	0.0	Accept
302		282	Alcester Street	9	Chapel House Street	3022829	13	10.5	-3	-19%	0.7	Accept
302		282	Alcester Street	24	Rea Street	30228224	18	15.3	-3	-15%	0.7	Accept
302		282	Alcester Street	30	Moat Lane Car Park	30228230	0	0.2	0	0%	0.6	Accept
302		282	Alcester Street	147	Bull Ring Car Park	302282147	7	6.4	-1	-9%	0.2	Accept
302		282	Alcester Street	267	Allison Street	302282267	0	0	0	0%	0.0	Accept
302		282	Alcester Street	269	Bradford Street	302282269	3	3.9	1	30%	0.5	Accept
302		282	Alcester Street	272	Oxford Street	302282272	0	0	0	0%	0.0	Accept
302		282	Alcester Street	275	Milk Street	302282275	30	31.1	1	4%	0.2	Accept

Node No.	Node Name	From Link No.	From Link Name	To Link No.	To Link Name	Unique ID	Observed Flows	Modelled Flows	Absolute Difference	Relative Difference	GEH	Accept
302		282	Alcester Street	276	Floodgate Street	302282276	0	0	0	0%	0.0	Accept
302		282	Alcester Street	280	Heath Mill Lane	302282280	87	81.1	-6	-7%	0.6	Accept
302		282	Alcester Street	283	Alcester Street	302282283	0	0	0	0%	0.0	Accept
302		282	Alcester Street	2649	Adderley Street	3022822649	42	40.3	-2	-4%	0.3	Accept
302		282	Alcester Street	2050008	Upper Dean Street	3022822050008	13	11.8	-1	-9%	0.3	Accept
302		282	Alcester Street	2050032	Bordesley High Street	3022822050032	258	230.9	-27	-11%	1.7	Accept
302		282	Alcester Street	17	Park Street	30228217	38	34	-4	-11%	0.7	Accept
302		282	Alcester Street	271	Merriden Street	302282271	0	0	0	0%	0.0	Accept
302		286	Allison Street	24	Rea Street	30228624	25	29.7	5	19%	0.9	Accept
302		286	Allison Street	30	Moat Lane Car Park	30228630	0	0	0	0%	0.0	Accept
302		286	Allison Street	147	Bull Ring Car Park	302286147	0	0	0	0%	0.0	Accept
302		286	Allison Street	267	Allison Street	302286267	0	0	0	0%	0.0	Accept
302		286	Allison Street	269	Bradford Street	302286269	0	0	0	0%	0.0	Accept
302		286	Allison Street	272	Oxford Street	302286272	0	0	0	0%	0.0	Accept
302		286	Allison Street	275	Milk Street	302286275	0	0	0	0%	0.0	Accept
302		286	Allison Street	276	Floodgate Street	302286276	0	0	0	0%	0.0	Accept
302		286	Allison Street	280	Heath Mill Lane	302286280	1	0.9	0	-10%	0.1	Accept
302		286	Allison Street	283	Alcester Street	302286283	9	10.9	2	21%	0.6	Accept
302		286	Allison Street	2649	Adderley Street	3022862649	3	2.6	0	-13%	0.2	Accept
302		286	Allison Street	2050008	Upper Dean Street	3022862050008	2	1.8	0	-10%	0.1	Accept
302		286	Allison Street	2050032	Bordesley High Street	3022862050032	28	33.1	5	18%	0.9	Accept
302		286	Allison Street	17	Park Street	30228617	7	0	-7	-100%	3.7	Accept
302		286	Allison Street	271	Merriden Street	302286271	2	1	-1	-50%	0.8	Accept
302		2642	Adderley Street	2050032	Bordesley High Street	30226422050032	131	126.6	-4	-3%	0.4	Accept
302		2050021	Mill Lane	24	Rea Street	302205002124	3	2.5	-1	-17%	0.3	Accept
302		2050021	Mill Lane	30	Moat Lane Car Park	302205002130	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	147	Bull Ring Car Park	3022050021147	4	4.5	1	13%	0.2	Accept
302		2050021	Mill Lane	267	Allison Street	3022050021267	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	269	Bradford Street	3022050021269	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	272	Oxford Street	3022050021272	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	275	Milk Street	3022050021275	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	276	Floodgate Street	3022050021276	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	280	Heath Mill Lane	3022050021280	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	283	Alcester Street	3022050021283	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	2649	Adderley Street	30220500212649	0	0	0	0%	0.0	Accept
302		2050021	Mill Lane	2050008	Upper Dean Street	302205002120 50008	4	3.6	0	-10%	0.2	Accept
302		2050021	Mill Lane	2050032	Bordesley High Street	30220500212050032	3	2.4	-1	-20%	0.4	Accept
302		2050021	Mill Lane	17	Park Street	302205002117	28	27.6	0	-1%	0.1	Accept
302		2050021	Mill Lane	271	Merriden Street	3022050021271	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	24	Rea Street	302205002424	20	17.2	-3	-14%	0.6	Accept
302		2050024	Upper Dean Street	30	Moat Lane Car Park	302205002430	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	147	Bull Ring Car Park	3022050024147	24	22.6	-1	-6%	0.3	Accept
302		2050024	Upper Dean Street	267	Allison Street	3022050024267	2	1.6	0	-20%	0.3	Accept
302		2050024	Upper Dean Street	269	Bradford Street	3022050024269	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	272	Oxford Street	3022050024272	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	275	Milk Street	3022050024275	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	276	Floodgate Street	3022050024276	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	280	Heath Mill Lane	3022050024280	1	0.8	0	-20%	0.2	Accept
302		2050024	Upper Dean Street	283	Alcester Street	3022050024283	8	6.4	-2	-20%	0.6	Accept
302		2050024	Upper Dean Street	2649	Adderley Street	30220500242649	4	3.9	0	-3%	0.1	Accept
302		2050024	Upper Dean Street	2050008	Upper Dean Street	302205002420 50008	0	0	0	0%	0.0	Accept
302		2050024	Upper Dean Street	2050032	Bordesley High Street	30220500242050032	19	22.1	3	16%	0.7	Accept
302		2050024	Upper Dean Street	17	Park Street	302205002417	227	231.1	4	2%	0.3	Accept
302		2050024	Upper Dean Street	271	Merriden Street	3022050024271	4	3.9	0	-3%	0.1	Accept
302		2050033	Bordesley High Street	8	Stone Yard	30220500338	0	0	0	0%	0.0	Accept
302		2050033	Bordesley High Street	9	Chapel House Street	30220500339	49	51.7	3	6%	0.4	Accept
302		2050033	Bordesley High Street	24	Rea Street	302205003324	51	46.3	-5	-9%	0.7	Accept
302		2050033	Bordesley High Street	30	Moat Lane Car Park	302205003330	2	1.3	-1	-35%	0.5	Accept
302		2050033	Bordesley High Street	147	Bull Ring Car Park	3022050033147	15	14.9	0	-1%	0.0	Accept
302		2050033	Bordesley High Street	267	Allison Street	3022050033267	1	0.4	-1	-60%	0.7	Accept
302		2050033	Bordesley High Street	269	Bradford Street	3022050033269	11	11.1	0	1%	0.0	Accept
302		2050033	Bordesley High Street	272	Oxford Street	3022050033272	0	0	0	0%	0.0	Accept
302		2050033	Bordesley High Street	275	Milk Street	3022050033275	83	82.6	0	0%	0.0	Accept
302		2050033	Bordesley High Street	276	Floodgate Street	3022050033276	0	0	0	0%	0.0	Accept
302		2050033	Bordesley High Street	280	Heath Mill Lane	3022050033280	205	209.3	4	2%	0.3	Accept
302		2050033	Bordesley High Street	283	Alcester Street	3022050033283	112	113.2	1	1%	0.1	Accept
302		2050033	Bordesley High Street	2649	Adderley Street	30220500332649	1	0	-1	-100%	1.4	Accept
302		2050033	Bordesley High Street	2050008	Upper Dean Street	302205003320 50008	32	35.3	3	10%	0.6	Accept
302		2050033	Bordesley High Street	2050032	Bordesley High Street	30220500332050032	0	0	0	0%	0.0	Accept
302		2050033	Bordesley High Street	17	Park Street	302205003317	91	90.2	-1	-1%	0.1	Accept
302		2050033	Bordesley High Street	271	Merriden Street	3022050033271	3	2.8	0	-7%	0.1	Accept
302		2050277	Floodgate Street	280	Heath Mill Lane	3022050277280	1	0.9	0	-10%	0.1	Accept
302		2050277	Floodgate Street	283	Alcester Street	3022050277283	30	31.5	2	5%	0.3	Accept
302		2050277	Floodgate Street	2649	Adderley Street	30220502772649	10	11.2	1	12%	0.4	Accept
302		2050277	Floodgate Street	2050032	Bordesley High Street	30220502772050032	116	111.4	-5	-4%	0.4	Accept
302		2050001	Park Street	24	Rea Street	302205000124	276	264.1	-12	-4%	0.7	Accept
302		2050001	Park Street	30	Moat Lane Car Park	302205000130	2	1.4	-1	-30%	0.5	Accept
302		2050001	Park Street	147	Bull Ring Car Park	3022050001147	8	7.7	0	-4%	0.1	Accept
302		2050001	Park Street	267	Allison Street	3022050001267	34	29.5	-5	-13%	0.8	Accept
302		2050001	Park Street	269	Bradford Street	3022050001269	7	6.5	-1	-7%	0.2	Accept
302		2050001	Park Street	272	Oxford Street	3022050001272	11	9	-2	-18%	0.6	Accept
302		2050001	Park Street	275	Milk Street	3022050001275	8	7.4	-1	-8%	0.2	Accept
302		2050001	Park Street	276	Floodgate Street	3022050001276	12	12.6	1	5%	0.2	Accept
302		2050001	Park Street	280	Heath Mill Lane	3022050001280	8	6.3	-2	-21%	0.6	Accept
302		2050001	Park Street	283	Alcester Street	3022050001283	108	103.8	-4	-4%	0.4	Accept
302		2050001	Park Street	2649	Adderley Street	30220500012649	40	41.3	1	3%	0.2	Accept
302		2050001	Park Street	2050008	Upper Dean Street	302205000120 50008	18	14.2	-4	-21%	0.9	Accept
302		2050001	Park Street	2050032	Bordesley High Street	30220500012050032	252	245.3	-7	-3%	0.4	Accept
302		2050001	Park Street	17	Park Street	302205000117	0	0	0	0%	0.0	Accept
302		2050001	Park Street	271	Merriden Street	3022050001271	64	65.1	1	2%	0.1	Accept
302		270	Merriden Street	24	Rea Street	30227024	107	108.9	2	2%	0.2	Accept
302		270	Merriden Street	30	Moat Lane Car Park	30227030	0	0	0	0%	0.0	Accept
302		270	Merriden Street	147	Bull Ring Car Park	3022270147	3	2.1	-1	-30%	0.6	Accept
302		270	Merriden Street	267	Allison Street	3022270267	0	0	0	0%	0.0	Accept
302		270	Merriden Street	269	Bradford Street	3022270269	3	2.9	0	-3%	0.1	Accept
302		270	Merriden Street	272	Oxford Street	3022270272	3	2.7	0	-10%	0.2	Accept
302		270	Merriden Street	275	Milk Street	3022270275	2	1.8	0	-10%	0.1	Accept
302		270	Merriden Street	276	Floodgate Street	3022270276	4	5.6	2	40%	0.7	Accept
302		270	Merriden Street	280	Heath Mill Lane	3022270280	3	2.4	-1	-20%	0.4	Accept
302		270	Merriden Street	283	Alcester Street	3022270283	45	46	1	2%	0.1	Accept
302		270	Merriden Street	2649	Adderley Street	3022702649	15	15.5	1	3%	0.1	Accept
302		270	Merriden Street	2050008	Upper Dean Street	3022702050008	6	5.8	0	-3%	0.1	Accept
302		270	Merriden Street	2050032	Bordesley High Street	3022702050032	115	111.2	-4	-3%	0.4	Accept
302		270	Merriden Street	17	Park Street	30227017	22	19.2	-3	-13%	0.6	Accept
302		270	Merriden Street	271	Merriden Street	3022702271	0	0	0	0%	0.0	Accept

Percentage meeting calibration criteria: 100%

APPENDIX C

Journey Time Validation

AM Peak Base Journey Time Validation

WebTAG Unit M3.1, requires the modelled times to be within 15% of the observed times for at least 85% of the routes

All vehicles (except buses)

Buses only

New Canal Street (southbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Fazeley St	0.0	0.0	0.00	0	0.0	0.00%
Bordesley St	189.3	189.3	21.75	18.07	3.7	20.37%
Coventry St	141.4	330.7	37.20	30.21	7.0	23.14%
Digbeth High St	148.6	479.3	65.52	61.14	4.4	7.16%
Total	**479.33**	**479.3**	**65.52**	**61.14**	**4.4**	**7.16%**

New Canal Street (northbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Digbeth High St	0.0	0.0	0	0	0.0	0.00%
Coventry St	148.6	148.6	16.84	14.60	2.2	15.34%
Bordesley St	141.4	290.0	32.22	31.35	0.9	2.78%
Fazeley St	189.3	479.3	67.70	67.88	-0.2	-0.27%
Total	**479.33**	**479.3**	**67.70**	**67.88**	**-0.2**	**-0.3%**

High Street Deritend (eastbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Park St	0.0	0.0	0	0	0.0	0.00%
Allison St	131.7	131.7	18.86	16.11	2.8	17.07%
Meriden St	61.8	193.5	38.06	34.61	3.5	9.97%
Oxford St	99.5	293.0	55.66	53.95	1.7	3.16%
Milk St	112.7	405.7	71.03	70.42	0.6	0.87%
Floodgate St	61.9	467.6	76.82	75.96	0.9	1.14%
Heath Mill Lane	175.3	642.9	108.75	107.43	1.3	1.23%
Alcester St	102.7	745.6	126.35	123.40	3.0	2.39%
Adderley St	60.1	805.7	132.08	129.06	3.0	2.34%
Total	**805.7**	**805.7**	**132.08**	**129.06**	**3.0**	**2.34%**

MODEL	NX Nov 16	Diff	%Diff
0			
55.16			
74.24			
94			
131			
137			
187			
205			
212	188.4	23.7	12.60%
212	188.40	23.74	12.60%

High Street Deritend (westbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Alcester St	0.0	0.0	0	0	0.0	0.00%
Birchall St	190.4	190.4	27.04	26.12	0.9	3.52%
Rea St	170.2	360.7	74.01	74.68	-0.7	-0.90%
Mill Lane	115.8	476.4	89.46	86.26	3.2	3.71%
Gyratory	99.4	575.9	110.26	100.14	10.1	10.11%
Upper Dean St	134.1	709.9	160.56	142.02	18.5	13.05%
Park St	96.3	806.2	190.62	169.98	20.6	12.14%
Total	**806.2**	**806.2**	**190.62**	**169.98**	**20.6**	**12.14%**

MODEL	NX Nov 16	Diff	%Diff
0			
60.94			
97.68			
134.42			
173.03			
224.87			
286.06	253.8	32.3	12.71%
286.06	253.80	32.26	12.71%

PM Peak Base Journey Time Validation

WebTAG Unit M3.1, requires the modelled times to be within 15% of the observed times for at least 85% of the routes

All vehicles (except buses)

Buses only

New Canal Street (southbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Fazeley St	0.0	0.0	0.00	0	0.0	0.00%
Bordesley St	189.3	189.3	22.53	24.68	-2.2	-8.71%
Coventry St	141.4	330.7	38.94	40.82	-1.9	-4.61%
Digbeth High St	148.6	479.3	83.32	93.08	-9.8	-10.49%
Total	**479.33**	**479.3**	**83.32**	**93.08**	**-9.8**	**-10.49%**

New Canal Street (northbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Digbeth High St	0.0	0.0	0	0.0	0.0	0.00%
Coventry St	148.6	148.6	17.50	7.7	9.8	128.25%
Bordesley St	141.4	290.0	39.30	33.9	5.4	15.80%
Fazeley St	189.3	479.3	228.60	256.6	-28.0	-10.90%
Total	**479.33**	**479.3**	**228.60**	**256.6**	**-28.0**	**-10.9%**

High Street Deritend (eastbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Park St	0.0	0.0	0	0	0.0	0.00%
Allison St	131.7	131.7	38.55	36.73	1.8	4.96%
Meriden St	61.8	193.5	67.42	67.02	0.4	0.60%
Oxford St	99.5	293.0	92.90	96.87	-4.0	-4.10%
Milk St	112.7	405.7	112.44	118.08	-5.6	-4.77%
Floodgate St	61.9	467.6	119.25	126.22	-7.0	-5.52%
Heath Mill Lane	175.3	642.9	169.41	187.39	-18.0	-9.59%
Alcester St	102.7	745.6	190.98	208.55	-17.6	-8.42%
Adderley St	60.1	805.7	197.89	214.01	-16.1	-7.53%
Total	**805.7**	**805.7**	**197.89**	**214.01**	**-16.1**	**-7.53%**

MODEL	NX Nov 16	Diff	%Diff
0			
59.57			
86.04			
116			
152			
159			
225			
246			
254	231.0	22.9	9.92%
254	231.00	22.91	9.92%

High Street Deritend (westbound)	Observed Distance	Cumulative Distance	Modelled Journey Time	Observed Journey Time	Absolute Difference	Percentage Difference
Alcester St	0.0	0.0	0	0	0.0	0.00%
Birchall St	190.4	190.4	25.23	28.1	-2.9	-10.15%
Rea St	170.2	360.7	72.20	77.2	-5.0	-6.51%
Mill Lane	115.8	476.4	90.48	93.8	-3.3	-3.57%
Gyratory	99.4	575.9	123.35	123.8	-0.4	-0.36%
Upper Dean St	134.1	709.9	206.85	198.3	8.6	4.33%
Park St	96.3	806.2	247.34	241.3	6.0	2.49%
Total	**806.2**	**806.2**	**247.34**	**241.3**	**6.0**	**2.50%**

MODEL	NX Nov 16	Diff	%Diff
0			
65.87			
133.09			
200.31			
234.8			
323.39			
427.02	391.8	35.2	8.99%
427.02	391.80	35.22	8.99%

GLOSSARY

ASTRID	Automatic SCOOT Traffic Information Database
BCC	Birmingham City Council
BCCE	Birmingham City Centre Extension
BEE	Birmingham Eastside Extension
DfT	Department for Transport
LGV	Light Goods Vehicle
LMVR	Local Model Validation Report
OD	Origin-Destination
OGV	Other Goods Vehicle
SCN	Signal Controller Number
SCOOT	Split, Cycle, Offset, Optimisation Technique
TfWM	Transport for West Midlands
VISSIM	Verkehr In Städten – SIMulationsmodell (German for "Traffic in cities - simulation model").
VisVAP	VISSIM Vehicle Actuated Programming
vph	Vehicles per Hour
WebTAG	Transport Analysis Guidance

Birmingham Eastside Extension

Forecast VISSIM Modelling Report

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1 Introduction

1.1 Background

Midland Metro Alliance (MMA) proposes to construct an extension to the existing Metro network from Birmingham city centre to Digbeth. To assist the development of the design and to support the Transport and Works Act Order (TWAO) application, MMA has developed validated base, 'Do Minimum' (future year without tram) and 'Do Something' (future year with tram) microsimulation models of the route and adjacent highway network.

In the city centre, the model begins where Birmingham Eastside Extension (BEE) meets the Birmingham City Centre Extension (BCCE) at the Bull Street / Corporation Street junction. The proposed line runs along Bull Street, crossing Moor Street Queensway before cutting through to New Canal Street and then onto High Street Deritend. The tram is proposed to run on street, shared with traffic, along Bull Street and New Canal Street. The tramway is then proposed to run along the centre of High Street Deritend, segregated from traffic, but interacting with traffic as it passes through each junction.

A Transport Assessment (ref. MMD-300207-HS25-DOC-000-0001) has been written to support the Birmingham Eastside Extension Transport and Works Act Order Submission. A further Update to the Transport Assessment has also been made (MMD-300207-HS42-DOC-0000-0002). The microsimulation modelling has been carried out to assist with the design development and to demonstrate that the scheme can be implemented without having a detrimental impact to other motorised road users.

This report details the assumptions made when developing the Do Minimum (DM) and Do Something (DS) VISSIM future year microsimulation models.

To assess the impact of BEE, a validated base model was built, representing 2016 traffic and highway conditions. Full details of the development of the base model can be found in the 'Birmingham Eastside Extension Local Model Validation Report (LMVR) (BEE-D02-TAT-RP-TT-0001). A summary of the LMVR is given in Section 2 of this report.

The base model was initially used to test the 2026 and 2031 'Do Minimum' (DM) network. The DM model included future year traffic volumes and committed developments, such as High Speed 2 (HS2) but did not include the proposed tram line. Subsequently, the BEE scheme proposals were coded into the DM model to form the DS model.

Extensive transport network changes are planned within Birmingham city centre in the future years, including upgrading sections of the ring road and High Speed 2 (HS2). As agreed with Birmingham City Council (BCC), the DM and DS models have been tested using traffic flows consistent with the regional strategic transport model, PRISM, which is being widely used to model modal shift and traffic assignment associated with proposed transport schemes across the West Midlands. The forecast years in PRISM are 2026 (HS2 opening year) and 2031 (ten years post-BEE opening).

Forecast traffic flows have been calculated using BCC's City Centre Strategic Transport Model, which has been developed in SATURN, taking outputs from PRISM, and also reflects 2026 and 2031 highway network conditions.

1.2 Report Structure

The report structure is as follows:

- Section 2 Base Modelling
- Section 3 Do Minimum Modelling
- Section 4 Do Something Modelling
- Section 5 Forecast Traffic Flows
- Section 6 Model Outputs
- Section 7 Sensitivity Test
- Section 8 Summary & Conclusion

Supporting information is included in the appendices as follows:

- Appendix A Forecast Traffic Flows
- Appendix B Traffic Signal Arrangements

2 Base Modelling

2.1 Model Extents

Full details of the base model development, summarised in this section, are given in the BEE LMVR.

The base model extents are shown Figure 2.1 and reflect the junctions included in the Transport Assessment, except for Heath Mill Lane / Liverpool Street, which is not included in the VISSIM model as it does not directly interact with BEE.

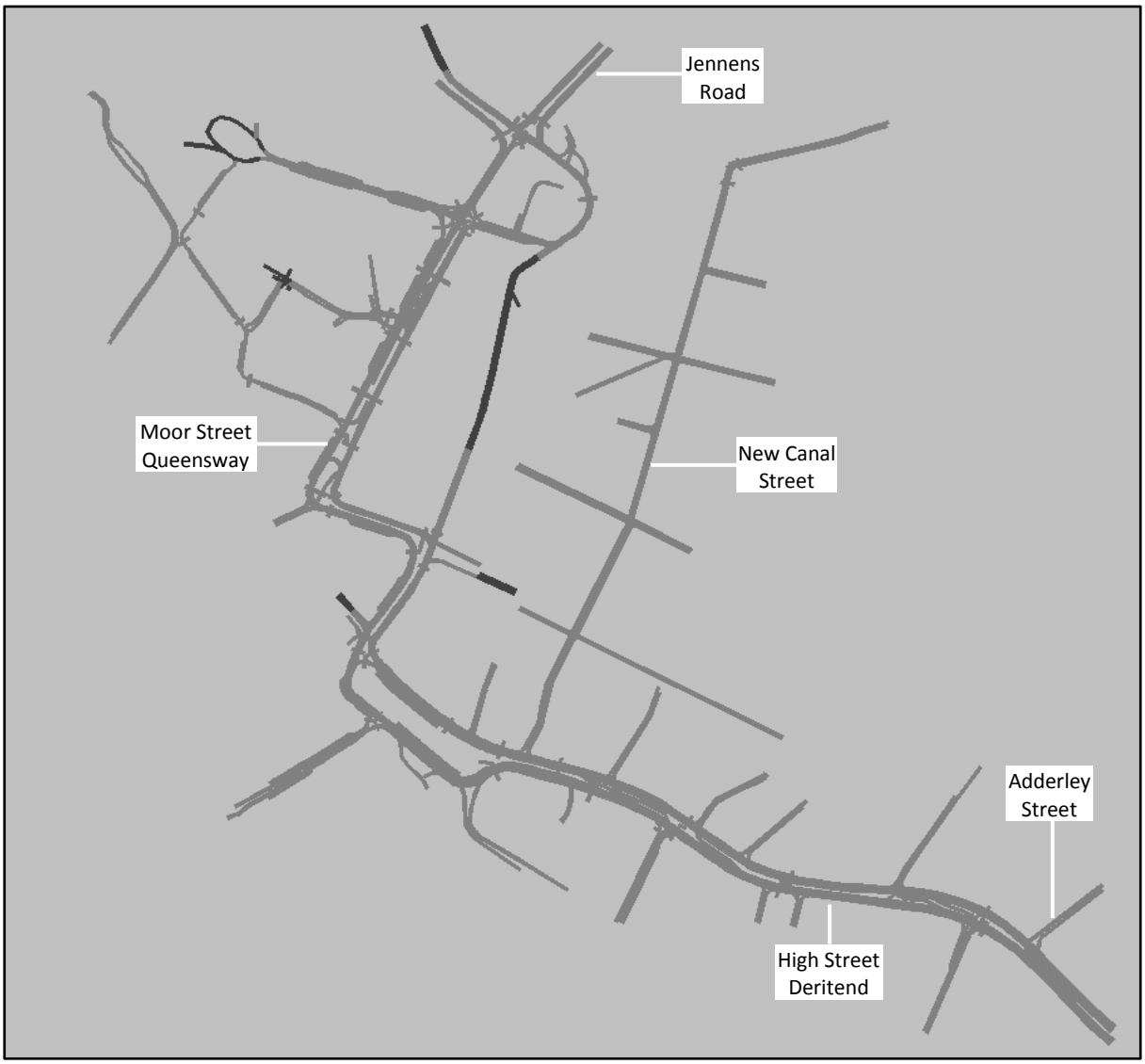


Figure 2.1 Metro Eastside Extension Base VISSIM Model Extents

The following junctions have been modelled in VISSIM:

Signal controlled:

- Bull Street / Corporation Street;
- Moor Street Queensway / Albert Street;
- Moor Street Queensway / The Priory Queensway;
- Moor Street Queensway / Chapel Street / Jennens Road;

- Moor Street Queensway / Swan Passage;
- Moor Street / Moor Street Car Park;
- New Canal Street / Fazeley Street;
- Moat Lane Gyratory (Park Street, Upper Dean Street & Digbeth);
- Digbeth / Meriden Street;
- High Street Deritend / Rea Street;
- High Street Deritend / Milk Street;
- High Street Deritend / Alcester Street; and,
- High Street Deritend / Heath Mill Lane.

Priority controlled:

- Bull Street / Dale End;
- Park Street / Masshouse Lane;
- Albert Street / New Meeting Street;
- New Canal Street / Bordesley Street;
- Moat Lane Gyratory (Allison Street & Bradford Street);
- Meriden Street / Coventry Street;
- Digbeth / Mill Lane;
- Digbeth / Oxford Street;
- High Street Deritend / Floodgate Street;
- High Street Deritend / Stone Yard;
- High Street Deritend / Chapel House Street; and,
- High Street Deritend / Adderley Street.

2.2 Calibration

The base model represents the 2016 traffic volumes, based on classified turning count surveys carried out on 7th December 2016 and the highway layout as of December 2016, which includes the closure on the eastern end of the Moat Lane gyratory. December flows have been used as they reflect a particularly busy time of the year in this area of the network. Using these flows in the forecasting gives a robust assessment of the impact of the scheme.

The traffic turning counts were used to develop balanced flows, whereby the number of vehicles leaving one junction is equal to the number of vehicles arriving at the next junction. The model was coded using static assignment, as there is no route choice within the network.

Two time periods were modelled, with traffic input in 15-minute intervals. The peak hours represent network peaks and were calculated from the traffic surveys.

- AM Peak 08:45 – 09:45
- PM Peak 16:15 – 17:15

A 15-minute ‘warm-up’ period was modelled before each peak hour to enable the correct amount of traffic to enter the network before the analysis begins. A 15-minute ‘cool down’ period was modelled after each peak hour to monitor network recovery.

The public transport routes and stops were coded into the model using data gathered from online sources. Dwell times at bus stops (from vehicle stop to departure) were provided by National Express for stops along Moor Street Queensway and some neighbouring roads.

The signal controlled junctions were coded using VisVAP, a VISSIM add-on module which enables demand dependent signal stages to be modelled. The signal stage times reflect the timings gathered on-street during the AM and PM peaks. The timings were recorded over several cycles and an average was taken for each stage length. Signal timings were provided by BCC in ASTRID format but due to the data being incomplete and potentially unreliable this was not used.

Other calibration inputs used to assist journey time validation include gap times at priority junctions, desired speeds, reduced speed areas and driver behaviour modifications.

Once the traffic flows had been coded, the model parameters were adjusted until the modelled flows matched the balanced surveyed flows.

A comparison of modelled and observed flows was then carried out against the criteria set out in WebTAG Unit M3.1. The comparison was carried out at the calibration stage as no independent turning count data was available. The analysis proved that the criteria was met for all turning movements at all junctions in the modelled network for all peaks.

2.3 Validation

The base model was validated against observed TrafficMaster journey times for High Street Deritend and New Canal Street only. TrafficMaster journey times are gathered on behalf of the Department for Transport and are made available to local transport authorities. The data gives average journey times, typically between junctions, for given time periods. TrafficMaster journey time data was gathered for the AM and PM peak during the period spanning from October to December 2016, excluding school holiday periods.

For a base model to be considered validated, WebTAG Unit M3.1 requires the modelled times to be within 15% of the observed times for at least 85% of the routes. In both the AM and PM peak models, the comparison between observed and modelled journey times met the criteria set out in WebTAG Unit M3.1 for all journey time sections. Therefore, in conclusion, the base model is considered suitable for the purpose of assessing the impact of the Midland Metro Eastside Extension scheme.

3 Do Minimum Modelling

The DM models represent the future year network if the tram scheme was not built and are used to compare the DS model against. Future year models have been developed for the AM and PM peaks for the years adopted in the strategic transport models, Birmingham City Centre Transport Model and PRISM. The forecast years are:

- 2026 (HS2 opening year); and,
- 2031 (future year).

Future year traffic flows have been calculated using a combination of the observed December 2016 traffic flows and the Birmingham City Centre Strategic Transport Model, as described in Section 5.

3.1 Birmingham City Centre Strategic Model

The strategic model has been built using SATURN (Simulation and Assignment of Traffic in Urban Road Networks). The base SATURN model covers the entire city centre and key arterial routes into the city, representing the 2016 highway network and traffic conditions. This model is widely used to forecast traffic reassignment related to transport schemes in Birmingham city centre.

The base SATURN model does not include the subsequent closure of the eastern end of the Moat Lane gyratory, or the prohibition of the ahead movement from Moor Street Car Park to Moor Street. Therefore, an adjusted base model was run by BCC that includes the latest traffic management scheme. For the purpose of the VISSIM modelling detailed in this report, the adjusted base was used in place of the base SATURN model.

Full details of the base and forecast SATURN models are given in Atkins' documents:

- Birmingham City Centre Local Model Validation Report, 8th May 2017 (Atkins).
- Birmingham City Centre Traffic Forecasting Report, 5th May 2017 (Atkins).

3.1.1 Forecast Network Developments

The forecast network developments listed in **Error! Reference source not found.**Table 3.1 have been coded into the strategic model and, whilst most of them have no physical impact on the highway arrangement within the VISSIM cordon, they are likely to impact on traffic assignment through the network. Only schemes that are near certain (NC) and more than likely (MTL) are included in the forecast SATURN modelling.

Table 3.1: DM Forecast Network Developments

Scheme ID	Name	Description	Uncertainty
1	Midland Metro (Centenary Square / Edgbaston)	Extension of the metro line from Grand Central to Centenary Square and Edgbaston (Hagley Road) via Broad Street with associated re-routing of private vehicles	NC
2	Bath Row / Cregoe St	Signalisation of junction to accommodate Midland Metro works	NC
3	Bath Row / Ring Road	Signalised right turn from Bath Row onto A4540 Ring Road.	MTL

Scheme ID	Name	Description	Uncertainty
4	Snow Hill Tranche 1	Closure or right turn from Livery Street to Colmore Row with changes to lane allocations, re-routing of bus services and reconfiguring junctions. Livery Street partially made 2-way and bus gate added on Lionel Street.	NC
5	Birmingham Cycle Revolution A38 Improvements	Changes to several junctions including addition of right turn from Bristol Road to Wellington Road and southbound lane reallocation at Lee Bank Middleway Junction. Conversion of Wrentham Street to a 1-way arrangement and Gooch Street to a 2-way arrangement.	NC
6	Birmingham Cycle Revolution A34 Improvements	Narrowing of Newtown Row northbound exit from Lancaster Circus junction. Majority of other scheme works are offline.	NC
7	Paradise Circus	Temporary construction traffic management arrangement re-coded to represent final arrangement, opening access up to Spring Hill and including new access points for underground car park. Broad Street re-opened to buses.	NC
8	Holloway Circus	Installation of a left slip road on the Holloway Head approach.	NC
9	Curzon Circle	Part of HS2 mitigation. Roundabout removed and replaced with signalised junction. Signal staging timings based on designs provided by HS2.	NC
10	Ashted Circus	Roundabout removed and replaced with signalised junction.	NC
11	Garrison Circus	Part of HS2 mitigation. Roundabout removed and replaced with signalised junction. Signal staging timings based on designs provided by HS2.	NC
12*	Midland Metro (Eastside Extension)	Metro line extended from Corporation Street, running across Moor Street, past proposed HS2 station and out along B4100 through Eastside. Highway coding includes alteration of signals and inclusion of a new bus link between Park Street and Moor Street. Removal of bus lanes and lane reductions along B4100 Digbeth Expressway to accommodate new metro line.	NC
13	Moor St Queensway	Bus, hackney, cycle and access only.	NC
14	Moor St Car Park Left Turn Only	Left turn only out of Moor St car park.	NC
15	Digbeth Gyratory SE Loop	Bus gate added on east side of circulatory.	NC
16	Barford St	Right turn into Barford Street removed.	MTL
17	HS2 Closures	Road closures associated with HS2 Curzon Street Station. Includes partial removal of Park Street, Fazeley Street, Banbury Street.	NC

*BEE is included in the DS model only
Source: Birmingham City Centre Traffic Forecasting Report, 5th May 2017 (Atkins)

3.2 Forecast Traffic Flows

The calculation of forecast traffic flows is described in Section 5.

Forecast traffic flows have been statically assigned to the network. Two methods have been used to populate the network with traffic. In both methods, traffic has been input into the network via the links on the edge of the network, with flows determined from the turning count data.

Firstly, on the Moor Street Queensway, Bull Street and New Canal Street sections the traffic has been input into the network via the external links, with flows determined from the turning count data. This traffic is then distributed at each junction in isolation according to the surveyed turning proportions.

The second method effectively uses an origin-destination (OD) matrix and has been implemented on the Moat Lane gyratory and High Street Deritend. Where junctions are close together and there are multiple lanes to choose from on a link, it was observed that drivers get in the correct lane to reach their destination several junctions prior to turning. It is not, therefore, appropriate to inform a vehicle of its next routing decision immediately before it must turn as it may have to move over by one or more lanes. This method defines each journey that a vehicle could take through the entire section of the network, potentially passing through several junctions, allowing simulated vehicles a realistic amount of time to make the necessary lane change movements to reach their destination.

3.3 Traffic Signals

Traffic signal timings have been calculated using LinSig models. Some models are of isolated junctions and others, particularly where junctions are close to one another, have two or more junctions in a network model.

As with the base models, the traffic signals have been coded as fixed time with demand dependent stages (where applicable) using VisVAP. The principal difference to the base model traffic signal coding are the stage times, which have been reoptimised using LinSig based on the forecast flows. Amendments have also been made where there are proposed network changes at New Canal Street / Fazeley Street with the construction of HS2. Here, the northern arm becomes one-way southbound and the western arm becomes one-way westbound.

3.4 Public Transport

The timetable used by buses remains the same as in the base model, as has the number and naming of bus services. However, there have been some changes to bus service routing due to the closure of Park Street. These changes have been made based on the memorandum titled ‘Birmingham Eastside Extension – Bus Interchange’ which was written by Mott MacDonald and agreed by TfWM. This document is appended to the Transport Assessment (MMD-300207-HS25-DOC-000-0001).

3.5 Model Running

Once the base model had been re-calibrated to reflect 2026 and 2031 conditions they were re-run. With increased traffic volumes in areas, this highlighted some locations that required minor amendments to prevent vehicles from crashing. One example is an amendment to the lane change distance for the left turn connector into Rea Street. In this example, the increased left turn flow had

resulted in collisions between buses and general traffic moving to the nearside lane immediately after the end of the bus lane on High Street Deritend.

4 Do Something Modelling

4.1 Network Layout

The Do Something model represents the 2026 and 2031 scenarios with the proposed BEE tram line implemented. The route is shown in Figure 4.1. The full preliminary design drawings are included in the BEE Environmental Statement Technical Appendix A.

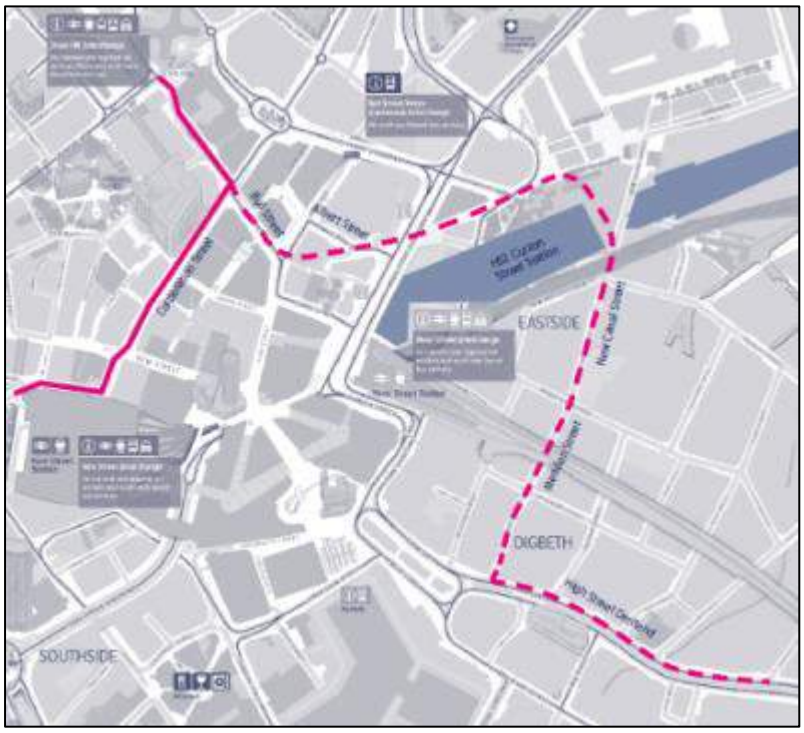


Figure 4.1 Metro Eastside Extension Route Overview

Two Do Something models have been developed:

- DS1 represents the proposed scheme.
- DS2 has been developed to address concerns raised by National Express regarding the removal of the bus lanes on High Street Deritend. DS2 is identical to DS1 but retains these bus lanes.

4.2 Traffic Flows

The traffic flows have been calculated using the 'hybrid' methodology described in Section 5. As with the base and DM models, traffic has been statically assigned to the DS model using the same methodology described in Section 3.2.

4.3 Public Transport

The bus frequency used in the DS models is the same as within the base model. However, there have been some changes to bus service routing around the proposed bus interchange on Moor Street Queensway. These changes have been made based on the Bus Interchange Memorandum referenced in section 3.4.

The supplementary information included within the memorandum details approximately where the buses will stop with respect to the bus interchange. It also details how the dwell time should be modelled and certain services whose frequency is increased.

It should be noted that at the time these values were provided by TfWM, in September 2016, they were provided as estimations to enable the modelling to take place with the understanding that they were likely to change as more information regarding planning and design became known.

Tram line speeds and dwell times were taken from the Run Time Assessment. Some minor amendments were made to the speeds on the curve onto the northern end of New Canal Street, as the proposed alignment differed from that in the run time assessment.

The modelled tram frequency, in trams per hour (tph) through the Corporation Street delta, is shown in Figure 4.2.

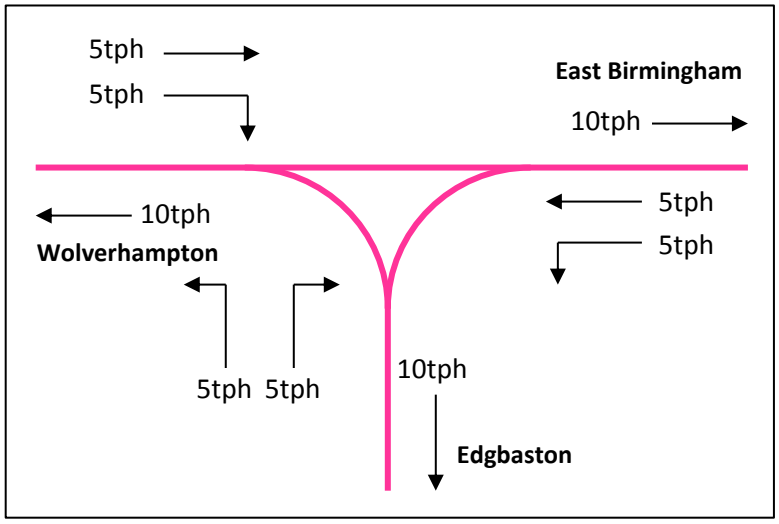


Figure 4.2 Tram Frequency

4.4 Traffic Signals

Where a tram passes through a signalised junction in the DS model, the traffic signal coding has been re-written to include full tram priority.

As with the DM models, the initial traffic signal timings have been calculated using LinSig. The LinSig models include the proposed scheme layout and staging but assume there is no tram demand, therefore giving optimum 'without tram' signal timings.

The optimum signal timings have been coded into VISSIM using VisVAP as maximum green times under Vehicle Actuation (VA) control. When there is no tram demand, each stage will continue to run for as long as there is demand up to the maximum green time.

Generally, a tram demand is detected by a 'prepare' loop, which is typically around 120m before the stopline. This loop instructs the controller to either hold on the 'prepare stage or move to the prepare stage as soon as possible. The controller is then permitted to truncate and/or skip stages. At this point the controller records which stage it has moved from so it can switch back to the next stage once the tram demand has been served. Trams are served on a first come first served basis.

As the tram progresses towards the junction, it passes over an 'advance' loop, which is typically around 40m from the stopline. The controller then switches to the advance stage, which is the stage that serves the tram demand.

Once a tram demand has been served, the controller serves any stages that were skipped before continuing to call each stage in order. The tram demand is cancelled by a 'clear' detector immediately downstream of each junction.

If an opposing tram demand is detected whilst the controller is already serving a tram and the two trams are not permitted through the junction simultaneously, the opposing tram must wait until it can be served. If a following tram is detected whilst the controller is already serving a tram, the controller will not allow the following tram through the junction until all other stages have been served. This minimises the build-up of queues.

In practice, where a prepare or advance loop position coincides with a tram stop, the loops may be a TRTS (Tram Ready to Start) demand, which is a button that is pushed by the tram driver to call the tram stage. However, it is not possible to model this in VISSIM so instead a detector is modelled immediately downstream of the stop. When the tram moves away from the stop the demand for the next junction is registered. In reality, a driver may be trained to push the button and wait at the stop for a few seconds. However, in VISSIM if the proceed signal does not appear in time, the tram will wait at the signals instead.

Staging diagrams for each junction are shown in Appendix B. Where the tram line passes through the junction. The advance and prepare stages are also shown.

5 Forecast Traffic Flows

The methodology for the calculation of forecast year traffic flows described in this section has also been applied for the junction capacity assessment modelling carried out for the BEE Transport Assessment. The forecast traffic flows are included in Appendix A.

5.1 SATURN Outputs

The SATURN data was provided for the AM and PM peak by BCC and includes:

- 2016 Base
- 2016 Adjusted Base
- 2026 Do Minimum
- 2031 Do Minimum
- 2026 Do Something
- 2031 Do Something

The SATURN model includes all of the junctions modelled in VISSIM, except for:

- High Street Deritend / Chapel House Street;
- High Street Deritend / Stone Yard; and
- High Street Deritend / Mill Lane.

These are all minor junctions, for which the forecast turning counts have been estimated.

5.2 Calculating Forecast Turning Counts

Four methods of calculating the forecast turning counts were developed, from which the preferred methodology was selected. The four methods set out in this section have been applied in the same for way for both the DM and DS scenarios. All methods perform calculations on total vehicles rather than total PCUs.

In all methods, the buses have been removed from the SATURN flows, as it was advised by TfWM to assume forecast bus flows will be as per the current timetables, which is coded in the base model. Timetabled bus flows have been added to the final flows.

5.2.1 Method 1: Absolute Difference

This method calculates the absolute difference between the adjusted base and future year SATURN turning counts, with the difference then applied to the observed turning counts. As there are discrepancies between the adjusted base and surveyed flows, this methodology results in some traffic flows that were unusually low or, in some cases, negative. Therefore, using this method alone has been discounted.

5.2.2 Method 2: Proportional Difference

This method calculates the proportional difference between the adjusted base and future year SATURN turning counts and then applies the percentage change to observed turning counts. Where flows are low in the SATURN model, small increases between the adjusted base and future year scenarios can give very large proportional increases. Where the surveyed turning flow is higher, this can result in very high, unrepresentative traffic flows. As with the absolute difference method, using this method alone has been discounted.

5.2.3 Method 3: Hybrid Approach

This method initially applies the Absolute Difference method. Where the Absolute Difference method results in a turning flow of less than 80% of the flow output from the future year SATURN model, then the proportional difference method is applied.

Using a hybrid approach between Methods 1 and 2 has the advantage of ensuring that the forecast turning flows at any future road closures and prohibited turning movements, such as where HS2 severs New Canal Street, are zero. The flows calculated using this hybrid approach reflect the changes between the adjusted base and forecast SATURN models, whilst retaining the integrity of the observed turning flows. This method has therefore been selected as the preferred method.

5.2.4 Method 4: Direct SATURN Outputs

Had no other suitable method been developed, the final, least preferred option would have been to use the SATURN outputs directly. Here, the integrity of the observed flows is lost. Similarly, the turning flows for the junctions not included in the SATURN model would remain zero. The key reason for not using SATURN outputs directly is that there is not a sufficient correlation between the surveyed turning flows and the adjusted base SATURN outputs.

5.3 Balancing

Using the Hybrid Approach results in unbalanced flows between adjacent junctions, whereby the flow leaving one junction is not equal to the flow arriving at the next. Therefore, a balancing exercise has been carried out before the traffic could be assigned to the VISSIM models. To maintain a robust approach, where a downstream flow is lower than the upstream flow, the downstream flow has been increased to equal the upstream flow. Where a downstream flow is higher than the upstream flow, flow has been added into the network from the upstream side road. This methodology ensures that traffic flows aren't manually reduced and therefore represent a worse case.

Further to this balancing, it is observed that in the SATURN models there is a high volume of traffic turning left into Alison Street, with low flows into Meriden Street, Milk Street, Oxford Street and Floodgate Street, which is unexpected. It appears that, for traffic making a U-turn at the eastern end of the gyratory, the first available turn to the north is Alison Street. It is therefore believed that the Saturn model is assigning this traffic onto the first available route, which is unrealistic given the constrained nature of Alison Street. To correct this, the left turn flow into Alison Street has been reassigned in equal proportions to the five side roads (Alison Street, Meriden Street, Milk Street, Oxford Street and Floodgate Street). This has given a more realistic trip assignment. The method of reassigning the traffic flow equally between each side road has been adopted as it is currently unclear what impact the HS2 network changes and the Digbeth Controlled Parking Zone will have on traffic behaviour. It was not deemed to be appropriate to base the reassignment on observed turning flows.

6 Model Outputs

6.1 Model Runs

The forecast models have been run for ten random seeds, with the average results analysed for journey time, junction performance and network performance. Capacity assessment models have been developed for the Transport Assessment. These have been built using LinSig and Junctions 9 and consider each junction in isolation. VISSIM allows the interaction between neighbouring junctions to be assessed. Whilst the capacity assessment and microsimulation models give the same conclusion, the detailed assessment differs in some locations.

6.2 Journey Time Performance

The journey time performance is based on the journey time outputs from the model along the four key routes in the network. Journey time data for different scenarios is plotted along with the distance travelled. The four routes are as follows:

1. Digbeth Eastbound – From Park St to Adderley St (All Vehicles and Buses)
2. High St Deritend Westbound – From Alcester St to Park St (All Vehicles and Buses)
3. Moor St Northbound – From Special St to Chapel St (Buses)
4. Moor St Southbound – From Chapel St to Special St (Buses)

6.2.1 Journey Time Analysis

6.2.1.1 High Street Deritend

The journey times for general traffic and buses travelling along High Street Deritend are shown in Figure 6.1 to Figure 6.8. The graphs show that journey times during the PM peak are longer compared to the AM peak due to the higher demand, which reflects the current situation. Travelling eastbound in the AM peak (Figure 6.1 and Figure 6.2), the journey time is slightly higher in DS1 compared with DM scenario for buses and general traffic. This is due to the added complexity of the traffic signals when BEE is introduced, where additional tram phases are required. However, some of the impact can be mitigated using advanced signal control, such as SCOOT, which cannot be modelled in VISSIM.

When retaining the bus lanes in DS2, the journey times are considerably higher for buses and general traffic as severe congestion is caused at the start of the bus lane, where traffic must merge into a single lane. This is exacerbated by the right turn into Rea Street immediately after the start of the bus lane. Here, unlike the DS1 scenario, traffic queuing to turn right into Rea Street blocks the ahead movement.

A similar pattern is observed in the PM peak (Figure 6.5 and Figure 6.6), although the negative impact on bus and general traffic journey times when retaining the bus lane in DS2 is magnified as the traffic flows are higher.

Travelling westbound in the AM peak (Figure 6.3 and Figure 6.4), the overall journey times for in DS1 are almost identical to the base situation, which is an improvement on the DM scenario. When retaining the inbound bus lane, journey times for buses are marginally improved. However, this is at the cost of general traffic journey times, which increase by around 40 seconds with added congestion.

In the PM peak (Figure 6.7 and Figure 6.8) the journey time for general traffic is similar for general traffic and slightly quicker for buses compared with the DM scenario. Due to increased congestion, when retaining the bus lane in DS2, the journey times for all vehicles is significantly longer. The journey time increases at faster rate between Bradford Street and Upper Dean Street in DS2. This is caused by traffic blocking back around the gyratory from the start of the eastbound bus lane before Rea Street.

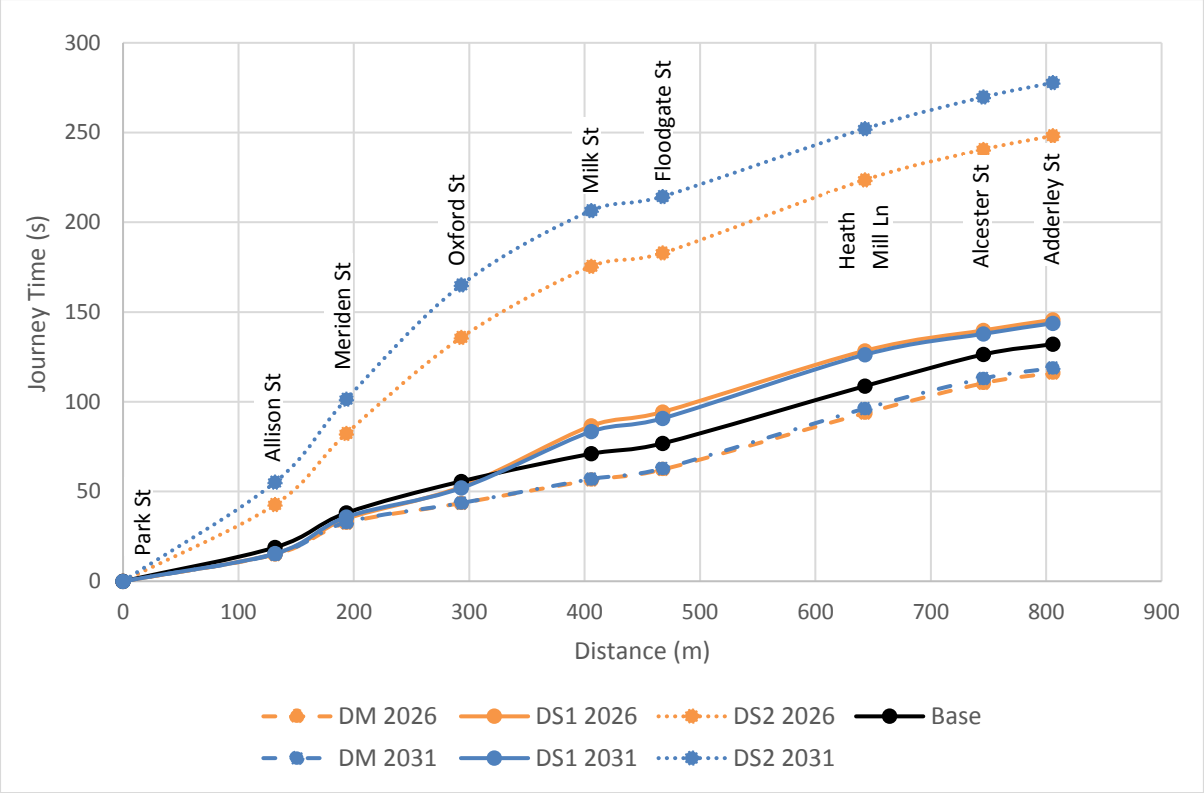


Figure 6.1 High Street Deritend (eastbound) – AM Peak (all vehicles except buses)

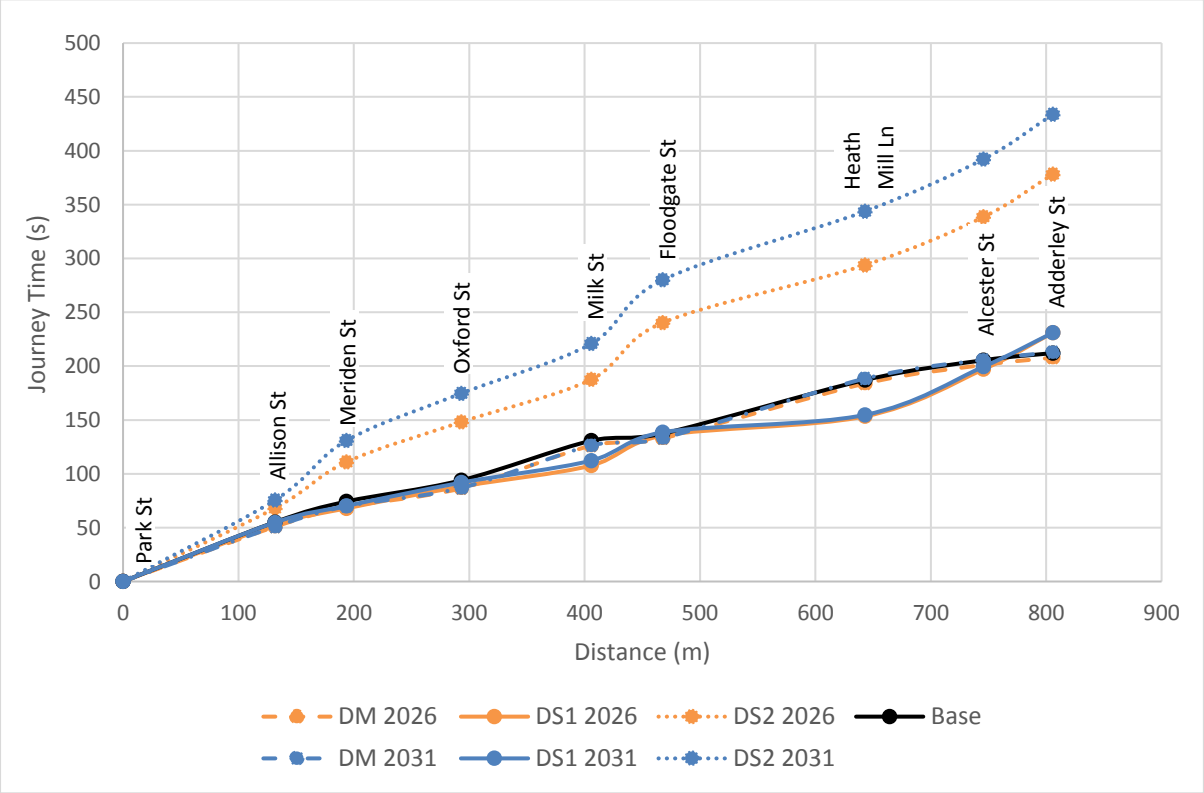


Figure 6.2 High Street Deritend (eastbound) – AM Peak (buses)

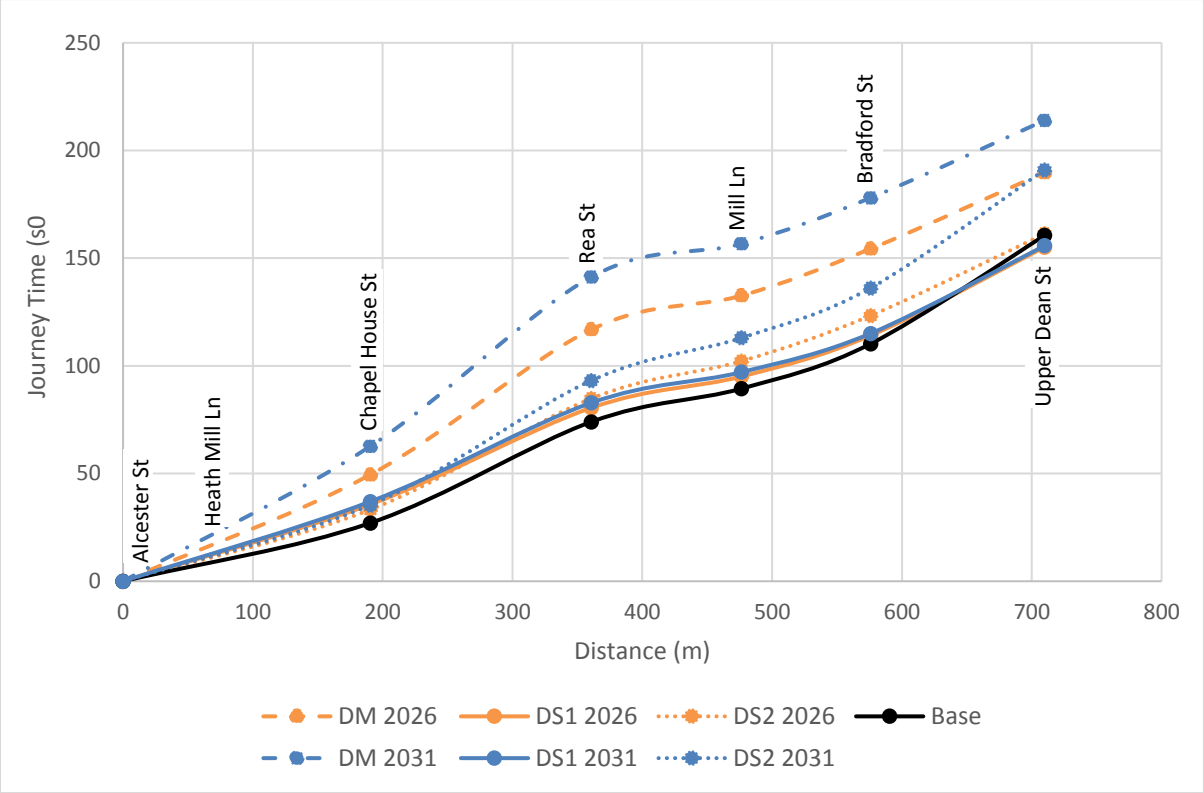


Figure 6.3 High Street Deritend (westbound) – AM Peak (all vehicles except buses)

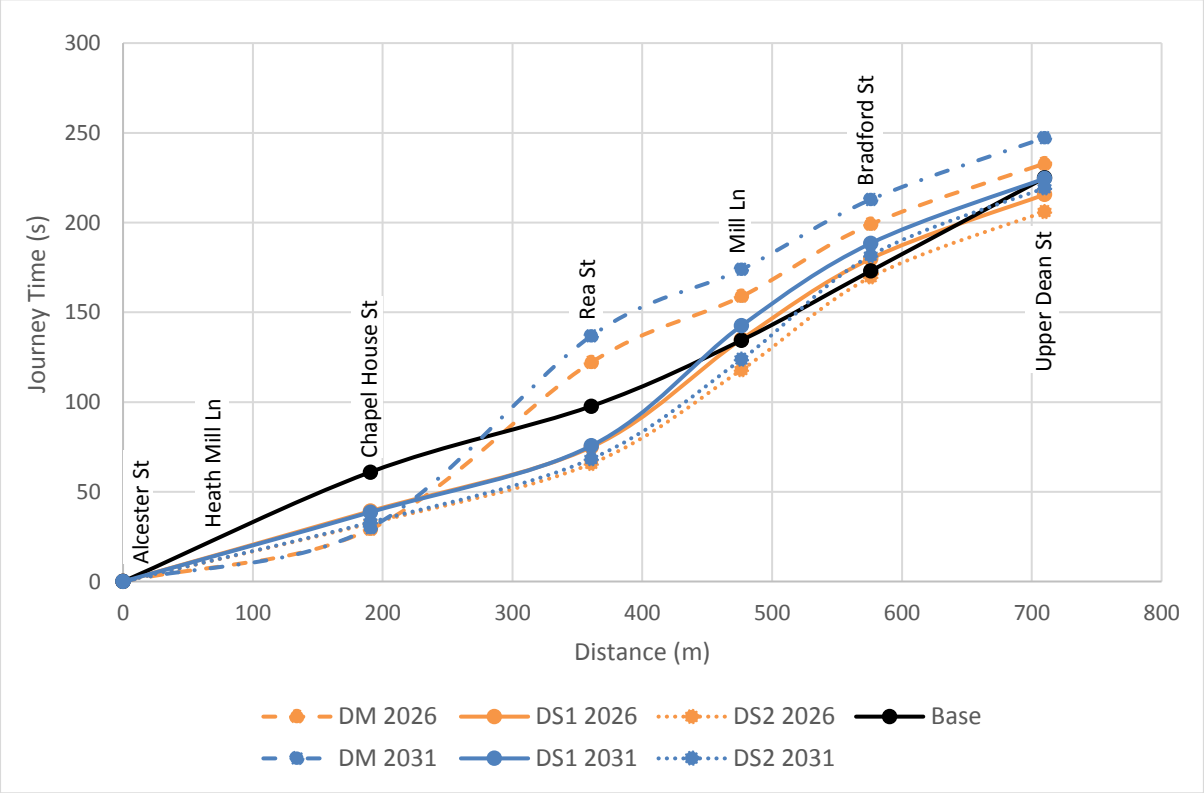


Figure 6.4 High Street Deritend (westbound) – AM Peak (buses)

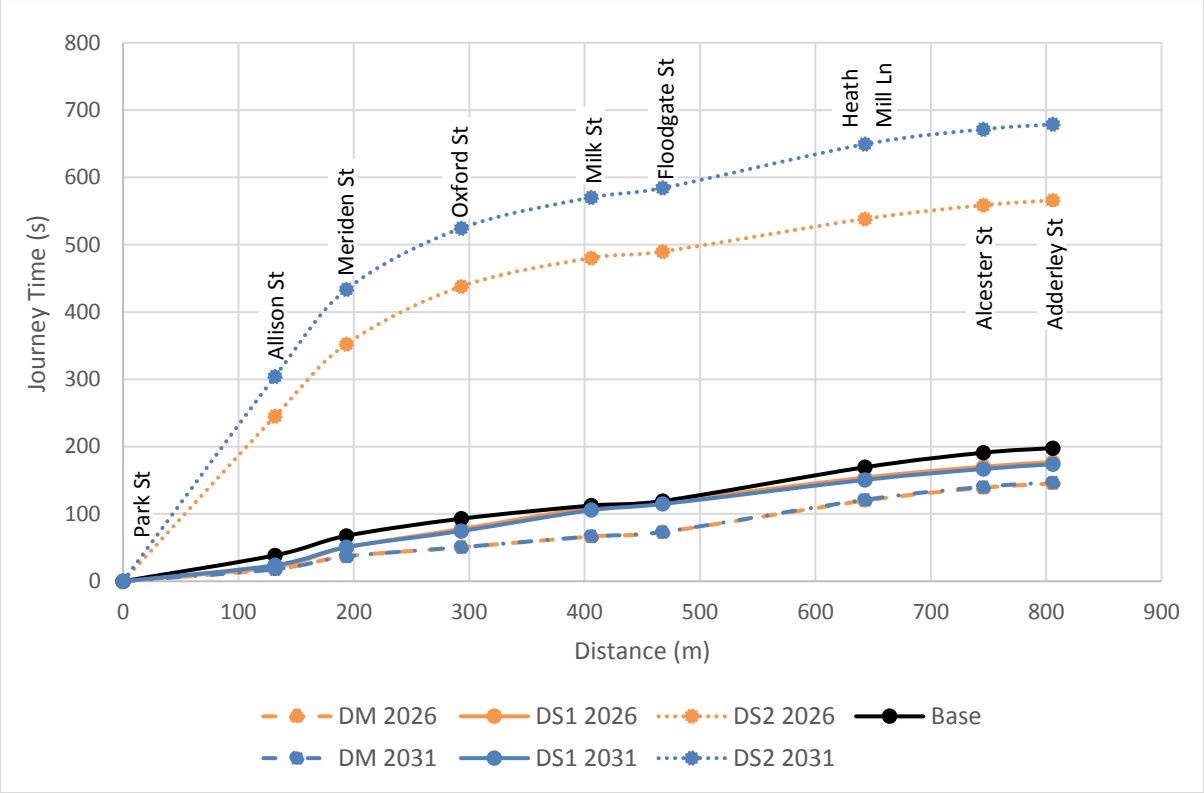


Figure 6.5 High Street Deritend (eastbound) – PM Peak (all vehicles except buses)

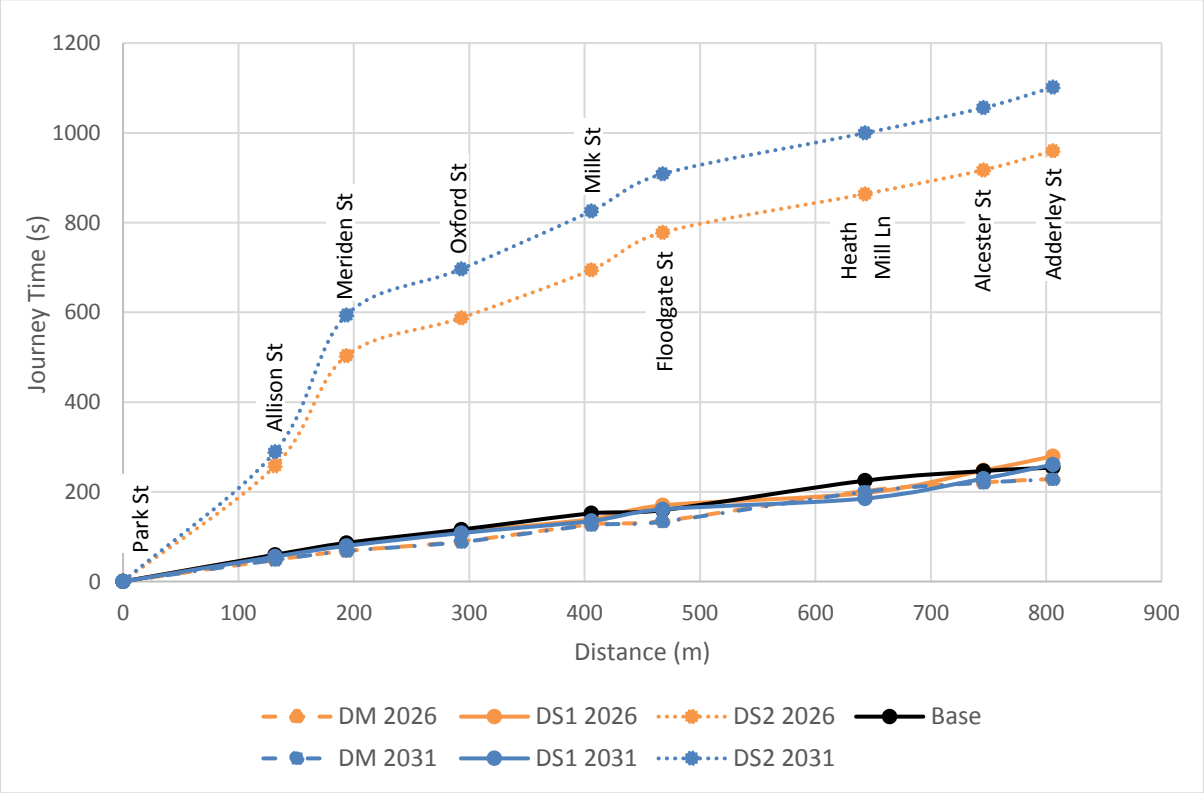


Figure 6.6 High Street Deritend (eastbound) – PM Peak (buses)

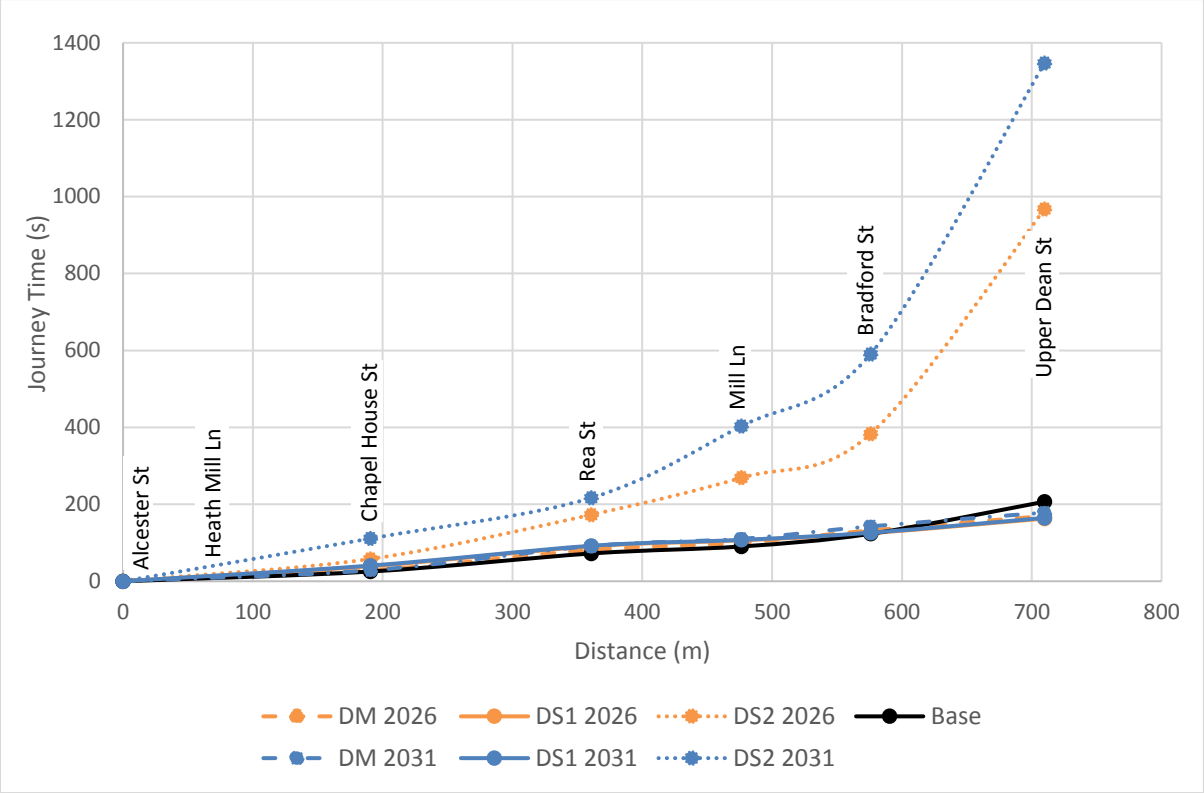


Figure 6.7 High Street Deritend (westbound) – PM Peak (all vehicles except buses)

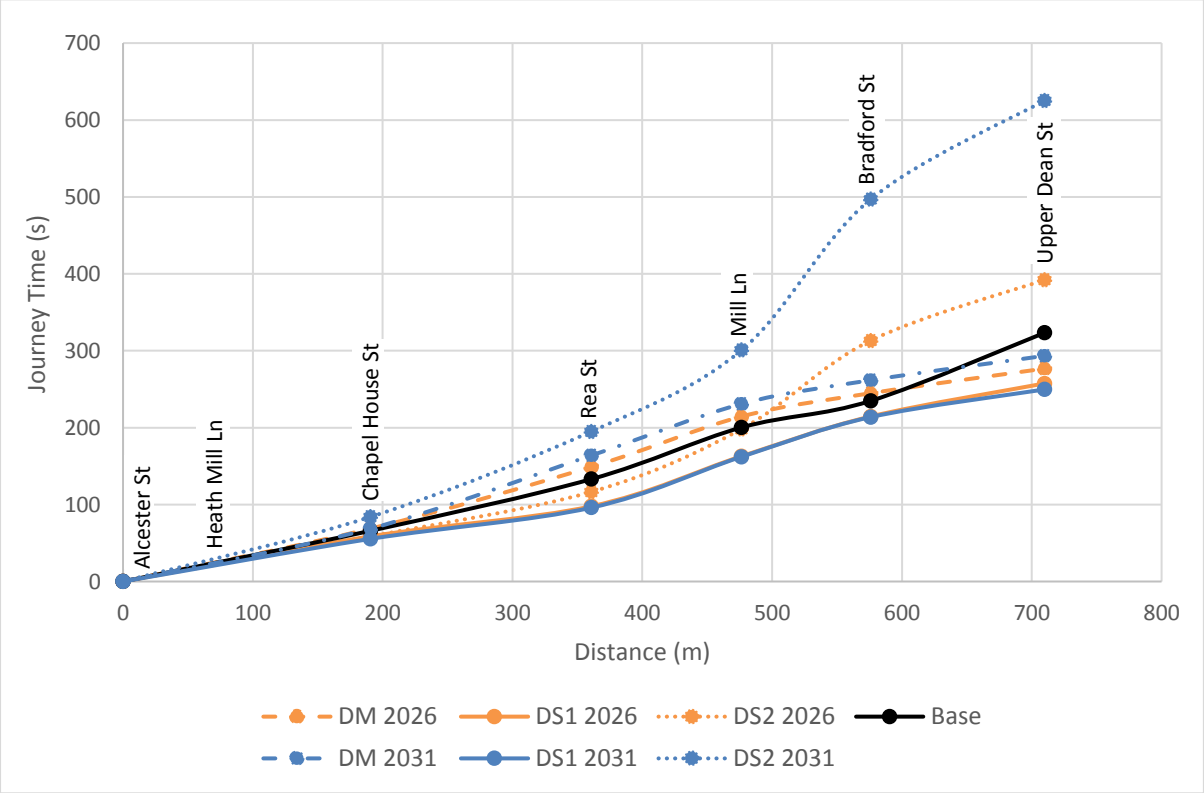


Figure 6.8 High Street Deritend (westbound) – PM Peak (buses)

6.2.1.2 *Moor Street Queensway*

As general traffic is to be prevented from using Moor Street Queensway in the future under BCC's proposals, only bus journey times have been analysed. The journey time analysis is shown in Figure 6.9 to Figure 6.12.

The models show that travelling northbound in both the AM and PM peaks (Figure 6.9 and Figure 6.11) there will be an increase in journey times in DS1 and DS2 compared to DM. This is due to the remodelled Albert Street junction, which is to be reconfigured to incorporate tram movements and the proposed bus interchange.

In contrast to this, buses travelling southbound experience quicker journey times in both the AM and PM peaks (Figure 6.10 and Figure 6.12), due to the introduction of the bus interchange. The interchange will provide additional bus stop capacity, meaning buses are less likely to have to wait for a stop to become available on Moor Street Queensway.

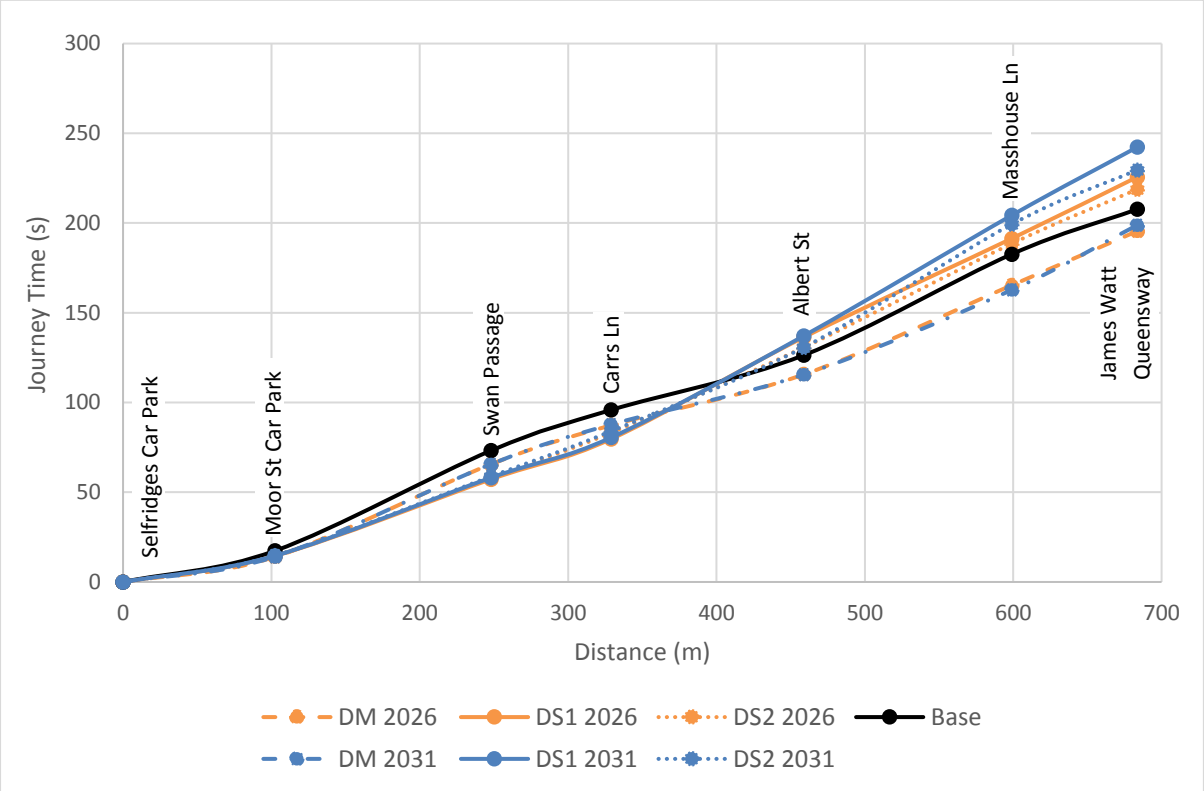


Figure 6.9 Moor Street Queensway (northbound) – AM Peak (buses)

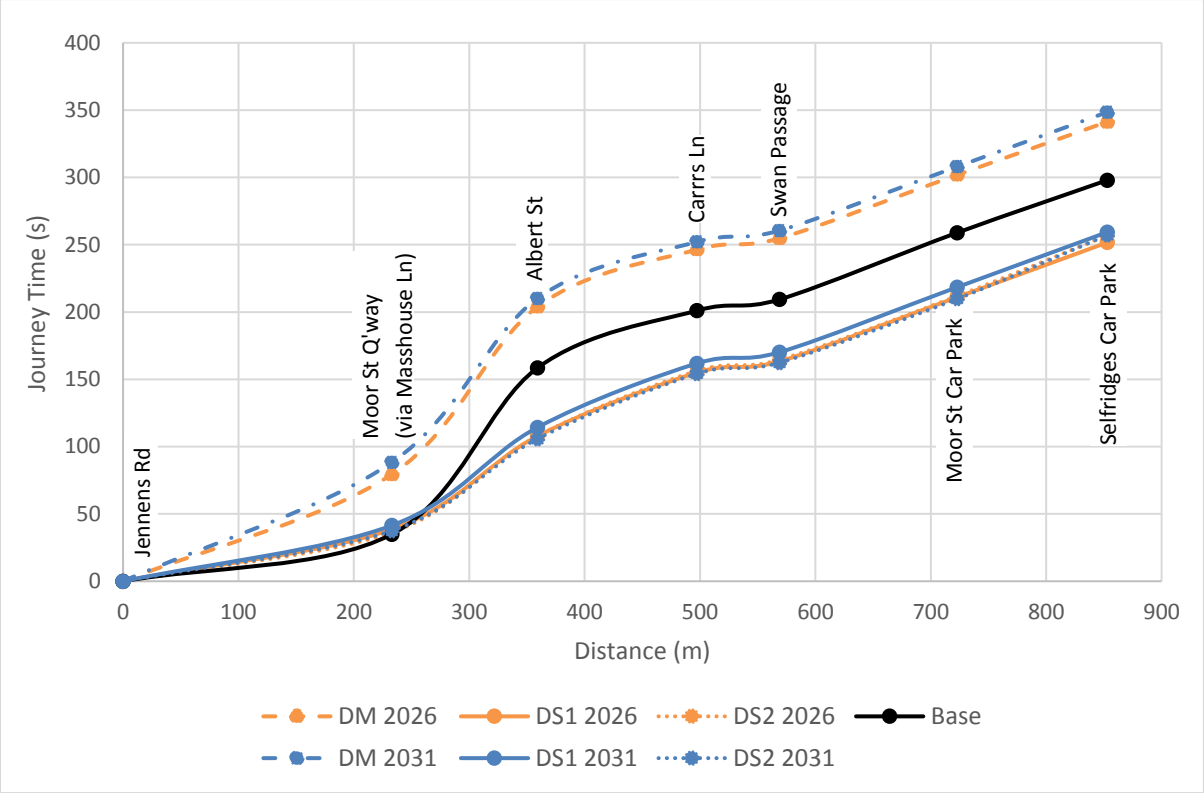


Figure 6.10 Moor Street Queensway (southbound) – AM Peak (buses)

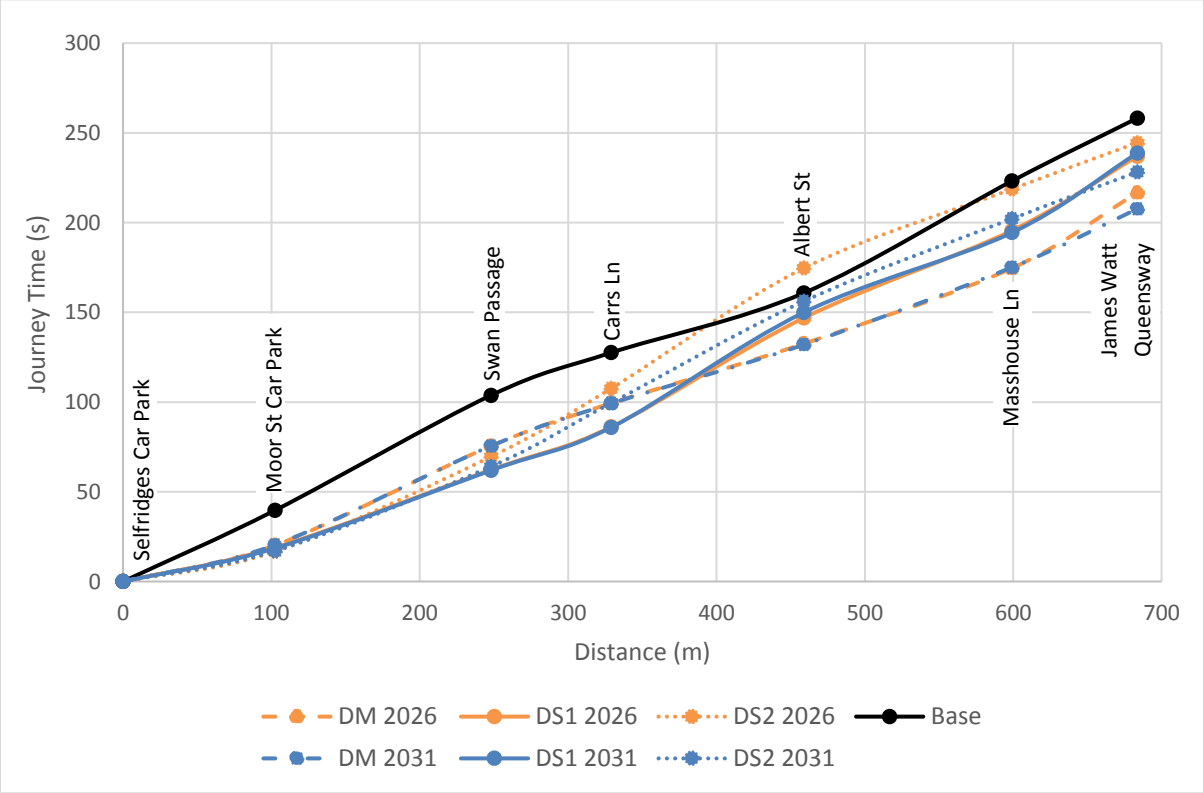


Figure 6.11 Moor Street Queensway (northbound) – PM Peak (buses)

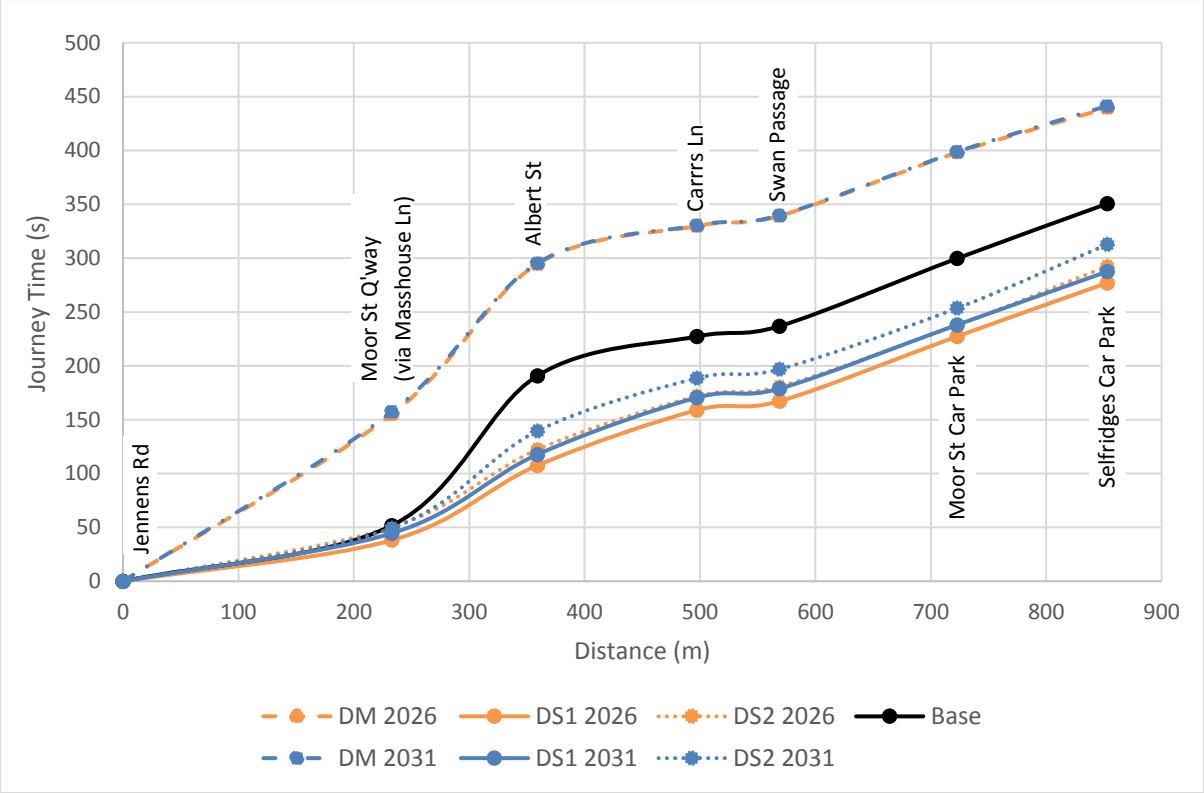


Figure 6.12 Moor Street Queensway (southbound) – PM Peak (buses)

6.2.1.3 Bull Street

Bull Street will only be accessible by general traffic for access, as such only bus journey times have been analysed. The journey time analysis along Carrs Lane, High Street and Bull Street for the AM and PM peaks is shown in Figure 6.13 and Figure 6.14.

In both peaks buses will experience additional delay due to the signalisation of the High Street junction with Dale End, Bull Street and the realigned Albert Street. However, the modelling shows that any buses arriving at a red signal on High Street will clear the junction within a single cycle.

It should be considered that the realignment of Albert Street permits to use the shorter, more direct route between Moor Street Queensway and Corporation Street, rather than travelling via Carrs Lane and High Street. However, no details on potential reassignment of bus routes were available at the time of modelling, therefore the potential journey time saving is not included in the model outputs.

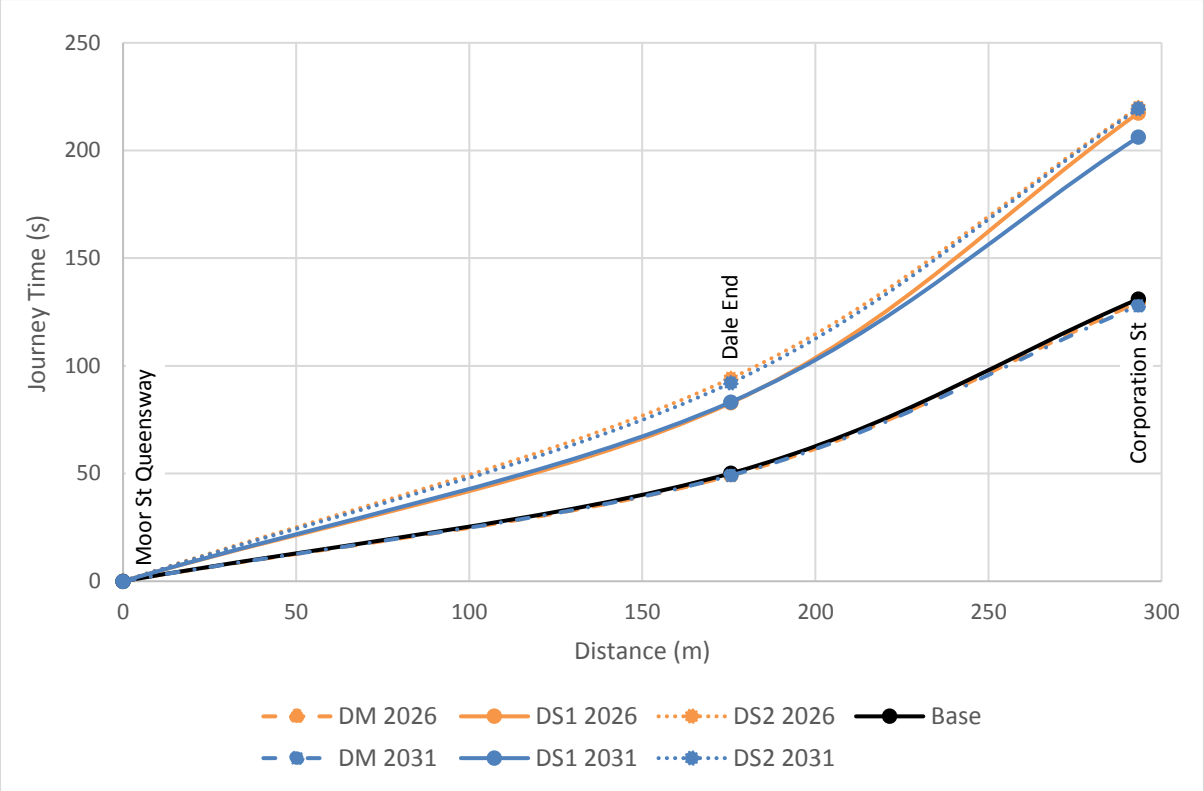


Figure 6.13 High Street – Bull Street - AM Peak (buses)

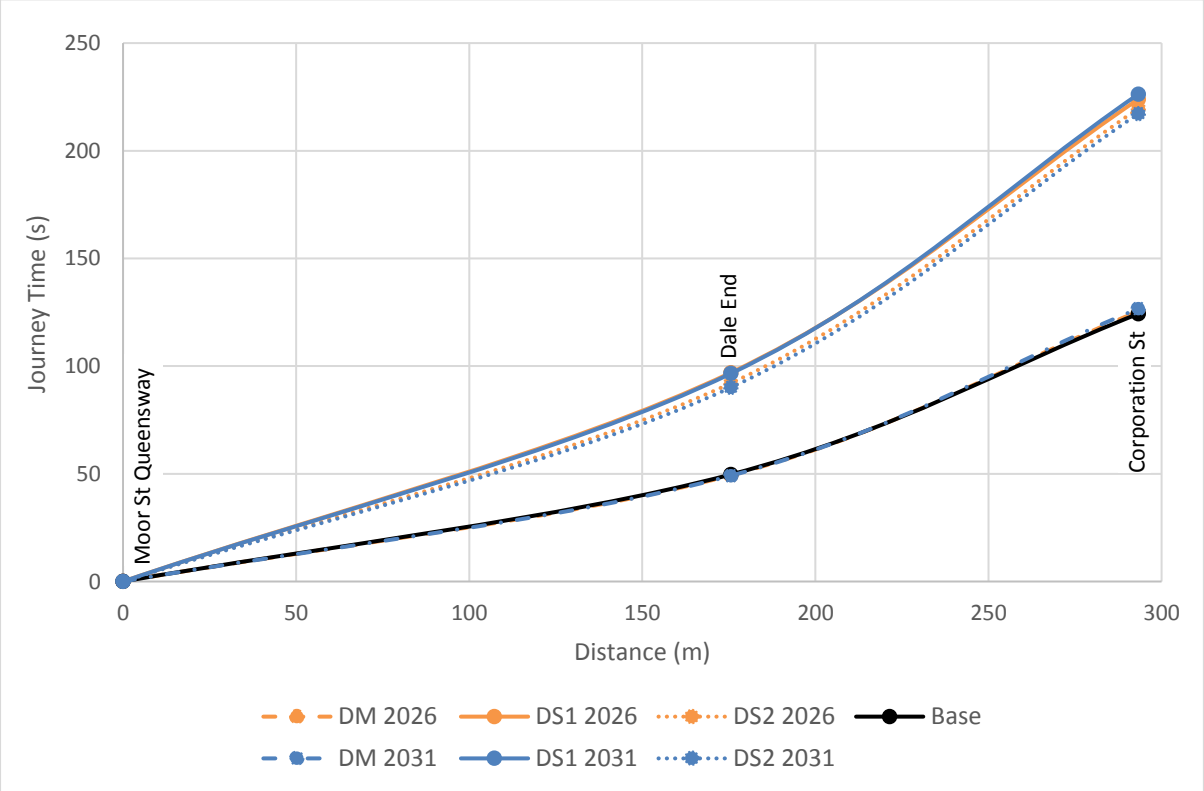


Figure 6.14 High Street – Bull Street - PM Peak (buses)

6.3 Junction Performance

The junction performance has been analysed in terms of average delay per vehicle and level of service (LOS). The LOS rates performance based upon delay threshold on an A to F grading, as given in the Highway Capacity Manual 2010, and is as follows:

Level of Service	Description	Signalised Junction	Priority Junction
A	Free flow	≤ 10 seconds	≤ 10 seconds
B	Reasonably free flow	10 – 20 seconds	10 – 15 seconds
C	Stable flow	20 – 35 seconds	15 – 25 seconds
D	Approaching unstable flow	35 – 55 seconds	25 – 35 seconds
E	Unstable flow	55 – 80 seconds	35 – 50 seconds
F	Forced or breakdown flow	> 80 seconds	> 50 seconds

The junction performance analysis is given in Table 6.1 to Table 6.4. The LOS is shown in red where a junction is operating at level E or F. Note that the volumes exclude buses.

6.3.1 Junction Performance Summary

The modelling demonstrates that with the introduction of BEE, every junction will operate at a Level of Service D or below with the exception of three junctions, as shown in the tables below.

Both Moor Street Queensway / St Martin's Queensway and Albert Street / Dingleys Passage will both suffer some blocking back from the remodelling of the Moor Street Queensway / Albert Street junction, which will be upgraded to include the tramway and the bus interchange.

Drivers travelling through New Canal Street / Bordesley Street junction will experience some additional delay due to the proposed signalisation, in addition to waiting behind trams at the adjacent tram stop.

The modelling shows that if the bus lanes on High Street Deritend were to be retained, several junctions will operate with high levels of delay, particularly around the Moat Lane gyratory.

Whilst the delay and level of service indicates that some junctions are operating within capacity in DS2, this is actually due to much of the traffic demand being held in congestion upstream. The actual flow, is therefore lower than the demand flow. This can be identified by comparing the DS1 and DS2 throughput, which should be the same, and is particularly noticeable in the PM peak.

The High Street Deritend / Rea Street has been subject to additional right turn flow into Rea Street following the closure of the eastern end of Moat Lane gyratory in October 2016. Table 6.1 and Table 6.2 show that the junction will operate with negligible additional delay compared to the DM scenario in the AM peak. Due to higher flows in the PM peak compared with the AM there will be some additional delay, as shown in Table 6.3 and Table 6.4, when introducing the tramway to then junction. However, the it will operate within capacity at LOS D.

Table 6.1 2026 AM Peak Junction Performance

Node No.	Junction	Throughput (veh)			Delay (s/veh)			Level of Service		
		DM	DS1	DS2	DM	DS1	DS2	DM	DS1	DS2
100	Moor Street Queensway / James Watt Queensway / Jennens Road	1033	1176	1175	34	30	29	C	C	C
101	Moor Street Queensway / The Priory Queensway / Masshouse Lane	412	497	497	63	49	48	E	D	D
102	Moor Street Queensway / Albert Street	95	95	95	25	29	27	C	C	C
103	Albert Street / Dingleys Passage	96	94	95	47	65	65	E	F	F
104	Albert Street / New Meeting Street	172			24			C		
105	High Street / Bull Street / Dale End	0	0	0	4	25	26	A	C	C
106	Moor Street Queensway / Selfridges Car Park	0	2	2	10	14	13	A	B	B
108	Moor Street Queensway / St Martin's Queensway	0	0	0	38	62	60	D	E	E
200	New Canal Street / Fazeley Street	389	436	386	11	17	17	B	B	B
202	New Canal Street / Bordesley Street	526	780	687	2	42	39	A	D	D
203	New Canal Street / Coventry Street	542	407	360	1	1	2	A	A	A
207	Moor Street Queensway / Carrs Lane	0	0	0	7	6	6	A	A	A
300	Moat Lane / Spiceal Street	572	650	616	7	8	11	A	A	B
301	Moat Lane / Upper Dean Street	653	749	717	23	24	23	C	C	C
302	Moat Lane / Bradford Street	462	649	625	10	6	7	B	A	A
303	Digbeth / Mill Lane	240	306	296	9	7	9	A	A	A
304	Digbeth / Rea Street	1101	1194	1133	29	31	27	C	C	C
305	High Street Deritend / Stone Yard	1018	422	417	13	2	2	B	A	A
306	High Street Deritend / Chapel Street	1049	425	421	19	2	3	C	A	A
307	High Street Deritend / Heath Mill Lane	1752	1009	995	23	18	21	C	B	C
308	High Street Deritend / Alcester Street	1916	1456	1442	43	19	21	D	B	C
309	High Street Deritend / Adderley Street	745	729	720	1	1	2	A	A	A
310	High Street Deritend / Floodgate Street	404	221	200	1	3	3	A	A	A
311	Digbeth / Milk Street	1023	320	295	24	0	0	C	A	A
312	Digbeth / Oxford Street	449	788	724	7	13	62	A	B	F
313	Digbeth / Meriden Street	781	848	775	12	21	40	B	C	D
314	Digbeth / Alison Street	604	682	637	8	8	28	A	A	D

Table 6.2 2031 AM Peak Junction Performance

Node No.	Junction	Throughput (veh)			Delay (s/veh)			Level of Service		
		DM	DS1	DS2	DM	DS1	DS2	DM	DS1	DS2
100	Moor Street Queensway / James Watt Queensway / Jennens Road	1021	1198	1198	34	30	29	C	C	C
101	Moor Street Queensway / The Priory Queensway / Masshouse Lane	407	512	513	65	50	50	E	D	D
102	Moor Street Queensway / Albert Street	97	101	101	25	28	25	C	C	C
103	Albert Street / Dingleys Passage	97	100	101	44	56	57	E	F	F
104	Albert Street / New Meeting Street	170			17			B		
105	High Street / Bull Street / Dale End	0	0	0	4	25	25	A	C	C
106	Moor Street Queensway / Selfridges Car Park	0	2	2	10	14	14	B	B	B
108	Moor Street Queensway / St Martin's Queensway	0	0	0	38	61	58	D	E	E
200	New Canal Street / Fazeley Street	384	449	382	11	17	17	B	B	B
202	New Canal Street / Bordesley Street	528	797	647	2	44	46	A	D	D
203	New Canal Street / Coventry Street	563	421	350	1	1	6	A	A	A
207	Moor Street Queensway / Carrs Lane	0	0	0	7	7	6	A	A	A
300	Moat Lane / Spiceal Street	572	676	624	7	8	13	A	A	B
301	Moat Lane / Upper Dean Street	657	741	691	23	24	34	C	C	C
302	Moat Lane / Bradford Street	475	601	563	10	5	9	B	A	A
303	Digbeth / Mill Lane	246	249	238	9	8	12	A	A	B
304	Digbeth / Rea Street	1125	1188	1099	33	32	30	C	C	C
305	High Street Deritend / Stone Yard	1055	426	420	20	2	2	C	A	A
306	High Street Deritend / Chapel Street	1068	431	424	30	2	3	D	A	A
307	High Street Deritend / Heath Mill Lane	1780	1094	1067	27	18	19	C	B	B
308	High Street Deritend / Alcester Street	1923	1544	1520	48	20	22	D	C	C
309	High Street Deritend / Adderley Street	757	793	782	1	1	2	A	A	A
310	High Street Deritend / Floodgate Street	417	288	263	1	3	3	A	A	A
311	Digbeth / Milk Street	1057	322	288	29	0	1	D	A	A
312	Digbeth / Oxford Street	453	787	698	7	10	74	A	B	F
313	Digbeth / Meriden Street	791	867	763	12	19	45	B	B	D
314	Digbeth / Alison Street	604	707	644	8	9	31	A	A	D

Table 6.3 2026 PM Peak Junction Performance

Node No.	Junction	Throughput (veh)			Delay (s/veh)			Level of Service		
		DM	DS1	DS2	DM	DS1	DS2	DM	DS1	DS2
100	Moor Street Queensway / James Watt Queensway / Jennens Road	1435	1488	1341	43	28	30	D	C	C
101	Moor Street Queensway / The Priory Queensway / Masshouse Lane	638	608	470	72	48	57	E	D	E
102	Moor Street Queensway / Albert Street	270	202	76	17	28	1	B	C	A
103	Albert Street / Dingleys Passage	271	202	76	41	94	57	E	F	F
104	Albert Street / New Meeting Street	301			47			D		
105	High Street / Bull Street / Dale End	0	0	210	4	26	35	A	C	C
106	Moor Street Queensway / Selfridges Car Park	103	95	93	25	27	25	C	C	C
108	Moor Street Queensway / St Martin's Queensway	0	0	0	38	66	49	D	E	D
200	New Canal Street / Fazeley Street	506	461	410	12	12	10	B	B	A
202	New Canal Street / Bordesley Street	716	865	779	2	53	53	A	D	D
203	New Canal Street / Coventry Street	609	469	404	1	10	43	A	B	E
207	Moor Street Queensway / Carrs Lane	0	0	0	7	6	7	A	A	A
300	Moat Lane / Spiceal Street	870	879	518	9	12	102	A	B	F
301	Moat Lane / Upper Dean Street	742	766	392	22	24	316	C	C	F
302	Moat Lane / Bradford Street	585	583	389	17	6	171	C	A	F
303	Digbeth / Mill Lane	457	421	362	9	7	82	A	A	F
304	Digbeth / Rea Street	1739	1716	1228	21	39	55	C	D	D
305	High Street Deritend / Stone Yard	910	344	326	2	2	7	A	A	A
306	High Street Deritend / Chapel Street	1003	416	388	4	4	11	A	A	B
307	High Street Deritend / Heath Mill Lane	2119	1664	1395	25	25	40	C	C	D
308	High Street Deritend / Alcester Street	2353	1987	1776	33	15	26	C	B	C
309	High Street Deritend / Adderley Street	1202	1186	1052	2	2	2	A	A	A
310	High Street Deritend / Floodgate Street	897	902	660	2	5	9	A	A	A
311	Digbeth / Milk Street	1324	727	458	9	1	1	A	A	A
312	Digbeth / Oxford Street	884	1277	826	7	21	127	A	C	F
313	Digbeth / Meriden Street	1271	1259	856	13	30	100	B	C	F
314	Digbeth / Alison Street	971	995	571	9	19	301	A	C	F

Table 6.4 2031 PM Peak Junction Performance

Node No.	Junction	Throughput (veh)			Delay (s/veh)			Level of Service		
		DM	DS1	DS2	DM	DS1	DS2	DM	DS1	DS2
100	Moor Street Queensway / James Watt Queensway / Jennens Road	1552	1532	1368	38	31	28	D	C	C
101	Moor Street Queensway / The Priory Queensway / Masshouse Lane	689	634	466	66	52	59	E	D	E
102	Moor Street Queensway / Albert Street	289	223	70	15	28	0	B	C	A
103	Albert Street / Dingleys Passage	289	223	70	39	65	59	E	F	F
104	Albert Street / New Meeting Street	323			48			D		
105	High Street / Bull Street / Dale End	0	0	0	4	27	43	A	C	D
106	Moor Street Queensway / Selfridges Car Park	103	95	94	25	27	14	C	C	B
108	Moor Street Queensway / St Martin's Queensway	0	0	0	39	64	76	D	E	E
200	New Canal Street / Fazeley Street	525	449	422	12	12	4	B	B	A
202	New Canal Street / Bordesley Street	705	817	48	2	58	41	A	E	D
203	New Canal Street / Coventry Street	625	459	79	1	6	0	A	A	A
207	Moor Street Queensway / Carrs Lane	0	0	415	7	6	2	A	A	A
300	Moat Lane / Spiceal Street	874	911	222	9	13	231	A	B	F
301	Moat Lane / Upper Dean Street	744	795	160	22	27	449	C	C	F
302	Moat Lane / Bradford Street	581	609	254	17	6	206	C	A	F
303	Digbeth / Mill Lane	457	446	299	9	7	119	A	A	F
304	Digbeth / Rea Street	1781	1722	1544	24	40	80	C	D	F
305	High Street Deritend / Stone Yard	992	376	312	2	2	15	A	A	C
306	High Street Deritend / Chapel Street	1043	446	254	4	4	32	A	A	D
307	High Street Deritend / Heath Mill Lane	2219	1692	506	26	25	32	C	C	C
308	High Street Deritend / Alcester Street	2409	2014	460	34	14	13	C	B	B
309	High Street Deritend / Adderley Street	1233	1170	683	2	2	1	A	A	A
310	High Street Deritend / Floodgate Street	959	901	325	2	5	9	A	A	A
311	Digbeth / Milk Street	1393	688	386	10	1	2	B	A	A
312	Digbeth / Oxford Street	910	1267	728	7	19	73	A	C	F
313	Digbeth / Meriden Street	1280	1265	442	13	26	92	B	C	F
314	Digbeth / Alison Street	978	1027	439	9	19	305	A	C	F

6.4 Network Performance

The network performance for the entire network has been compared between the DM and DS models, with the findings presented in Table 6.5 to Table 6.8.

The relative standard deviation gives a comparison of the standard deviation relative to the actual value. The relative standard deviation can be compared for individual network performance indicators across the modelled scenarios. It should not be compared across network performance indicators.

The description of most of the network performance indicators is self-explanatory. For clarification, latent demand is the total number of vehicles unable to enter the network during the simulation period. Latent delay time is the total delay experienced by the vehicles that could not enter the network at their original start time. Latent delay can include vehicles that did manage to enter the network but only after queuing outside of the network before entering.

The number of stops is the total number of instances when a vehicles speed became zero within the network, generally when in a queue of traffic. It can be used as a measure of congestion. The total stopped delay is the total time that vehicles were stationary for. Average delay is the average delay encountered by each vehicle passing through the network.

6.4.1 Network Performance Summary

The network performance analysis shows that in the DM and DS2 scenarios, not all vehicles are able to enter the network during the simulation period. This is particularly noticeable in the DS2 PM peak scenario (Table 6.7 and Table 6.8), where severe congestion is caused by the retention of the bus lanes on High Street Deritend.

Of the three scenarios, DM, DS1 and DS2, the total stopped delay is lowest for the DS1 scenario for all forecast year periods. This demonstrates that the introduction of BEE will reduce congestion. Similarly, average speeds are highest in DS1.

In both the AM and PM peaks, the relative standard deviations typically lower in the DS1 model compared with the DM and DS2 models. This demonstrates that there is less variance between modelled runs in DS1 and that therefore the network will be more stable.

Table 6.5 Network Performance – 2026 AM Peak

Network Performance Indicator	Do Minimum			Do Something 1			Do Something 2		
	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev
Latent demand	228	66	0.29	1	2	1.70	133	282	2.12
Number of vehicles in the network	275	27	0.10	128	13	0.10	196	127	0.65
Number of vehicles that have left the network	4147	56	0.01	3705	57	0.02	3555	328	0.09
Total Distance Travelled (km)	2348	39	0.02	2098	33	0.02	2017	180	0.09
Total travel time (h)	174	8	0.05	132	5	0.03	168	44	0.26
Total delay time (h)	110	9	0.08	75	4	0.05	114	48	0.42
Latent delay time (h)	13	5	0.35	0	0	0.97	9	19	2.15
Average delay time per vehicle (s)	90	7	0.08	70	3	0.04	112	58	0.51
Total stopped delay (h)	78	7	0.08	50	3	0.06	86	50	0.58
Average stopped delay per vehicle (s)	63	6	0.09	47	2	0.05	86	58	0.68
Number of Stops	10493	903	0.09	7812	317	0.04	9160	1323	0.14
Average number of stops per vehicles	2	0	0.09	2	0	0.03	2	0	0.14
Average speed (mph)	8	0	0.06	10	0	0.02	8	2	0.25

Table 6.6 Network Performance – 2031 AM Peak

Network Performance Indicator	Do Minimum			Do Something 1			Do Something 2		
	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev
Latent demand	329	70	0.21	4	7	1.79	208	338	1.63
Number of vehicles in the network	294	41	0.14	134	16	0.12	243	141	0.58
Number of vehicles that have left the network	4190	86	0.02	3822	62	0.02	3596	393	0.11
Total Distance Travelled (km)	2379	49	0.02	2154	32	0.01	2034	218	0.11
Total travel time (h)	192	12	0.06	137	7	0.05	191	52	0.27
Total delay time (h)	128	13	0.10	78	6	0.08	135	57	0.42
Latent delay time (h)	23	9	0.37	1	1	1.19	13	23	1.72
Average delay time per vehicle (s)	103	11	0.11	71	5	0.07	131	68	0.52
Total stopped delay (h)	90	9	0.10	53	5	0.09	105	60	0.57
Average stopped delay per vehicle (s)	72	8	0.11	48	4	0.08	102	70	0.68
Number of Stops	12265	1119	0.09	8184	586	0.07	10071	1137	0.11
Average number of stops per vehicles	3	0	0.09	2	0	0.06	3	0	0.07
Average speed (mph)	8	1	0.08	10	0	0.04	7	2	0.28

Table 6.7 Network Performance – 2026 PM Peak

Network Performance Indicator	Do Minimum			Do Something 1			Do Something 2		
	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev
Latent demand	194	241	1.24	38	21	0.55	730	197	0.27
Number of vehicles in the network	262	38	0.15	204	12	0.06	423	46	0.11
Number of vehicles that have left the network	5349	204	0.04	5021	74	0.01	4359	157	0.04
Total Distance Travelled (km)	3104	85	0.03	2813	48	0.02	2309	85	0.04
Total travel time (h)	223	23	0.10	201	13	0.06	381	32	0.08
Total delay time (h)	135	25	0.18	125	12	0.09	319	34	0.11
Latent delay time (h)	17	20	1.14	3	2	0.49	56	13	0.23
Average delay time per vehicle (s)	87	19	0.22	86	8	0.09	241	32	0.13
Total stopped delay (h)	99	24	0.24	86	9	0.10	263	32	0.12
Average stopped delay per vehicle (s)	64	18	0.29	59	6	0.09	199	30	0.15
Number of Stops	12287	956	0.08	12548	989	0.08	62881	5042	0.08
Average number of stops per vehicles	2	0	0.09	2	0	0.07	13	1	0.10
Average speed (mph)	9	1	0.11	9	0	0.05	4	0	0.10

Table 6.8 Network Performance – 2031 PM Peak

Network Performance Indicator	Do Minimum			Do Something 1			Do Something 2		
	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev	Val.	Std Dev	Rel. Std Dev
Latent demand	187	35	0.18	54	105	1.93	862	192	0.22
Number of vehicles in the network	266	27	0.10	222	30	0.14	453	70	0.15
Number of vehicles that have left the network	5520	90	0.02	5114	105	0.02	4359	202	0.05
Total Distance Travelled (km)	3199	48	0.02	2871	53	0.02	2299	123	0.05
Total travel time (h)	227	14	0.06	208	23	0.11	402	27	0.07
Total delay time (h)	136	14	0.10	130	23	0.18	340	29	0.09
Latent delay time (h)	20	4	0.19	3	4	1.28	69	16	0.23
Average delay time per vehicle (s)	85	9	0.11	88	16	0.19	255	29	0.11
Total stopped delay (h)	98	11	0.11	91	20	0.22	282	30	0.11
Average stopped delay per vehicle (s)	61	7	0.12	61	14	0.23	212	29	0.13
Number of Stops	12887	1138	0.09	12635	1460	0.12	67119	4318	0.06
Average number of stops per vehicles	2	0	0.09	2	0	0.12	14	1	0.08
Average speed (mph)	9	1	0.06	9	1	0.10	4	0	0.11

7 Sensitivity Test

The modelling demonstrates that retention of the bus lanes on High Street Deritend results in severe congestion. However, in practice, drivers would avoid the congestion by finding alternate routes. To assess the impact of drivers avoiding congestion, a series of sensitivity tests has been carried out to predict the operation of the scheme with reduced traffic flows on High Street Deritend.

It is important to note that drivers avoiding the congestion would likely use inappropriate routes within Digbeth, such as narrow streets, residential streets and streets where there are high levels of kerbside activity given the semi-industrial nature of the area. Increasing traffic on these roads would have negative social, economic and safety impacts on Digbeth. For this reason, it is preferred to retain two general traffic lanes in either direction on High Street Deritend, as per the Do Something 1 scenario.

Four sensitivity tests have been carried out, each representing the 2031 Do Something 2 PM peak scenario to test the impact of traffic avoiding High Street Deritend.

1. Traffic flows derived by including the bus lane in the Birmingham City Centre Strategic Transport Model and applying the hybrid traffic flow calculation described in Section 5.
2. Flow on High Street Deritend and New Canal Street equal to 75% of flow used in the models analysed in Section 6, which were based on the DS1 layout.
3. Flow on High Street Deritend and New Canal Street equal to 50% of flow used in the models analysed in Section 6, which were based on the DS1 layout.
4. Flow on High Street Deritend and New Canal Street equal to 25% of flow used in the models analysed in Section 6, which were based on the DS1 layout.

The outputs of the sensitivity tests have been analysed in terms of journey times along High Street Deritend.

7.1 Journey Time Comparison Summary

Figure 7.1 to Figure 7.4 shows a comparison of the four sensitivity tests against the outputs from the DS1 model and the DS2 model that assigns the full DS1 volume of traffic.

As the demand flow is reduced the journey time gets quicker. Each of the graphs show that there is little difference between the ‘50% of DS1’ and ‘25% of DS1’ journey times. This indicates that there is little congestion with this level of demand. The DS1 journey times, which have been shown for comparison, fall close to the 50% and 25% lines. This shows that to achieve journey times comparable to those where the bus lanes are removed, the volume of traffic on High Street Deritend must be reduced to between 25% and 50% of the traffic in the DS1 model. Therefore, between 50% and 75% of traffic must divert to an alternate route.

This analysis supports the junction and network performance analysis in Sections 6.3 and 6.4, which shows that the network will operate within capacity for DS1.

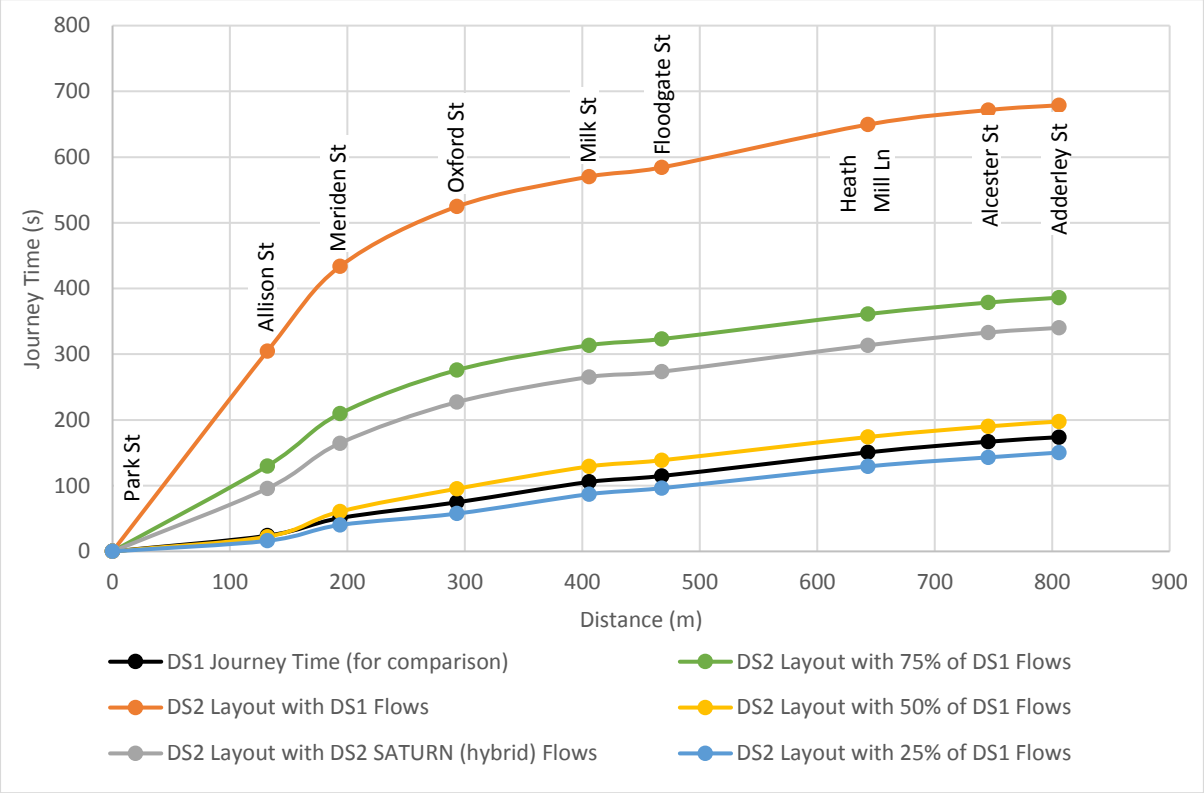


Figure 7.1 DS2 Sensitivity Test: High Street Deritend (eastbound) – 2031 PM Peak (general traffic)

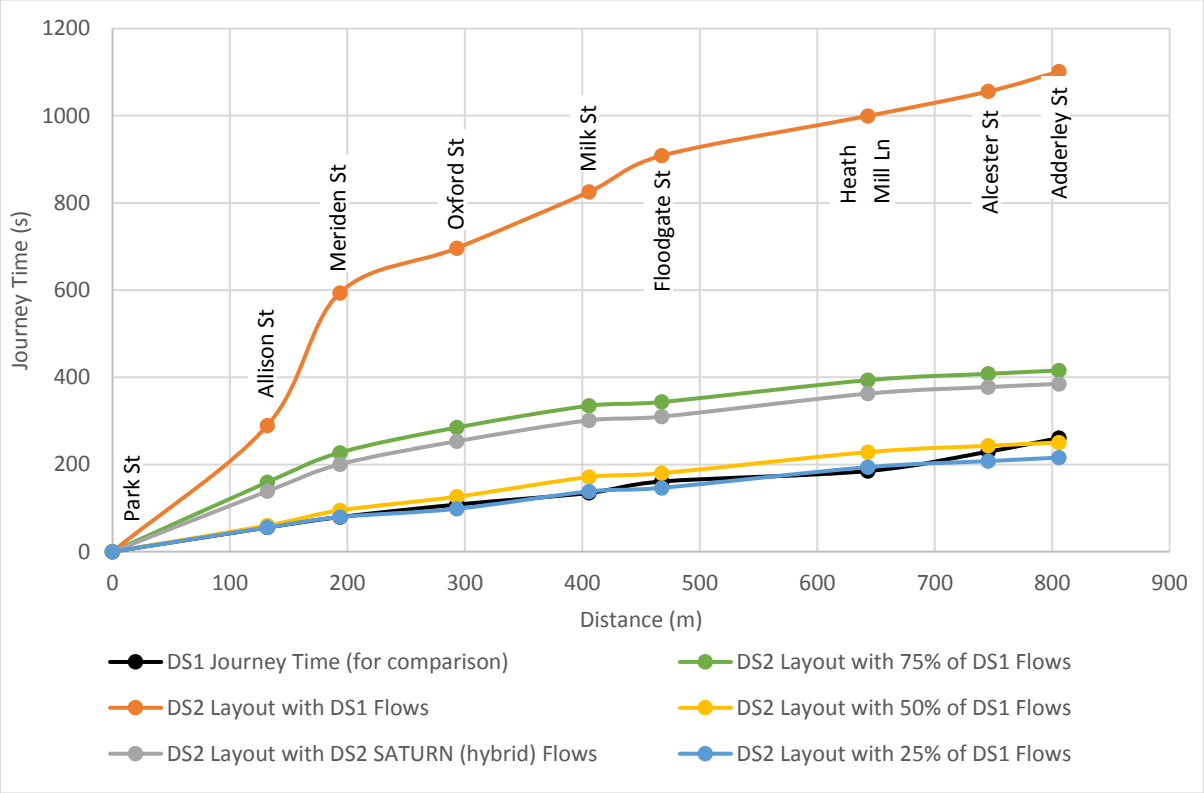


Figure 7.2 DS2 Sensitivity Test: High Street Deritend (eastbound) – 2031 PM Peak (buses)

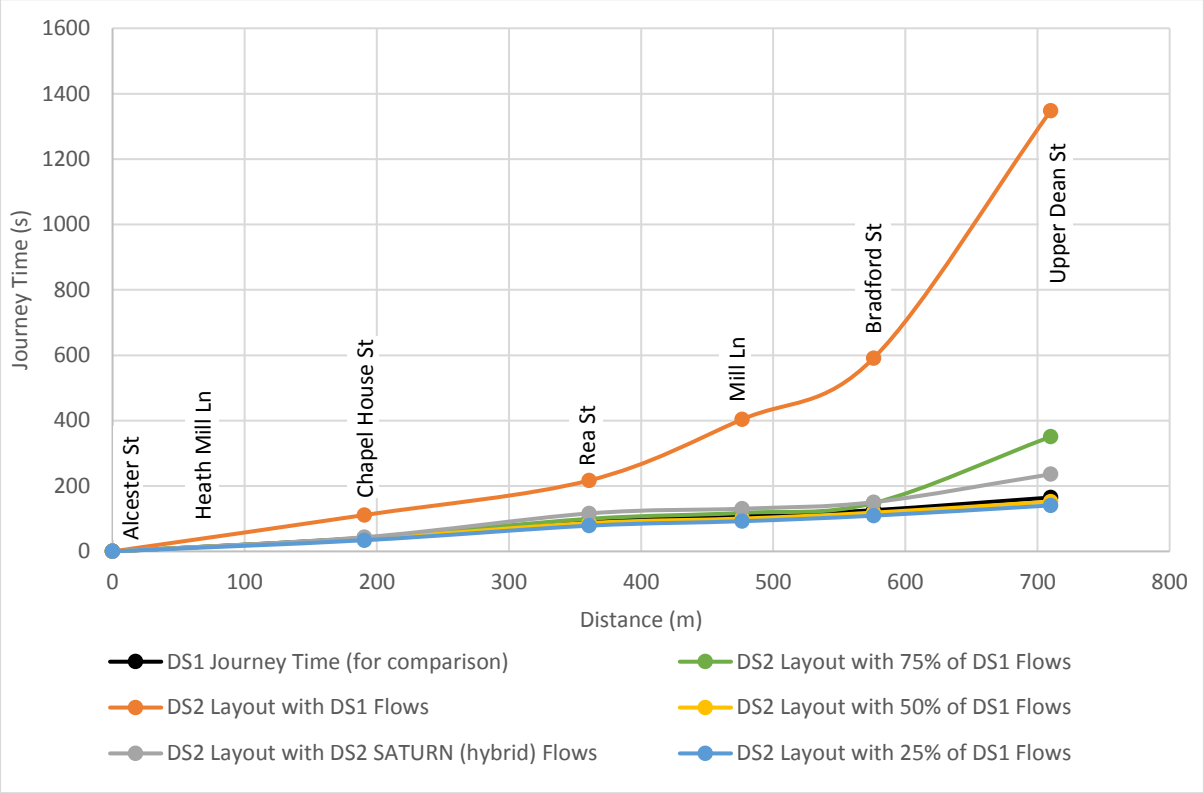


Figure 7.3 DS2 Sensitivity Test: High Street Deritend (westbound) – 2031 PM Peak (general traffic)

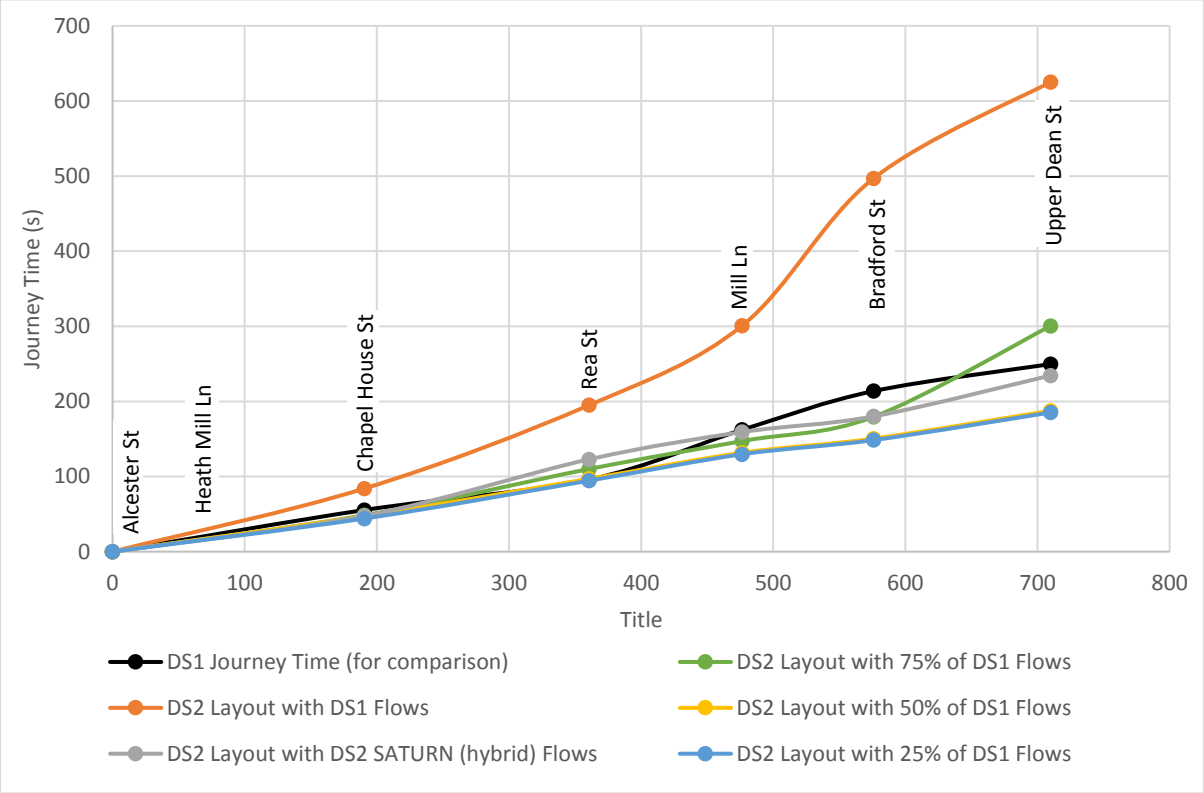


Figure 7.4 DS2 Sensitivity Test: High Street Deritend (westbound) – 2031 PM Peak (buses)

8 Summary & Conclusion

A series of microsimulation models have been developed using VISSIM to test the impact to general traffic and buses of implementing the Birmingham Eastside Midland Metro extension.

Following the validation of the base model, Do Minimum and Do Something VISSIM models were developed. The models represent 2026 and 2031 future year scenarios for the one-hour AM and PM peaks.

The Do Minimum model includes committed developments, such as High Speed 2 but does not include the Birmingham Eastside Extension tram line. The effect of other committed developments outside the modelled network are taken into account in the traffic demand, which was taken from the Birmingham City Centre SATURN model.

Using the DM model as a starting point, two Do Something networks were developed to test the impact of the BEE proposals:

- DS1 represents the proposed scheme.
- DS2 has been developed to address concerns raised by National Express regarding the removal of the bus lanes on High Street Deritend. DS2 is identical to DS1 but retains these bus lanes.

DS2 was specifically carried out to address National Express's objection to the Transport and Works Act Order submission.

The Do Something models include the proposed BEE tram line along with the other committed developments included in the Do Minimum model. The signal operation of each junction through which the tram passes has been coded using VisVAP to give full tram priority. There are ten trams per hour in each direction along BEE in both the AM and PM peaks.

The forecast models represent 2026 and 2031, AM and PM peak hour traffic conditions. Forecast traffic flows have been calculated using the Birmingham City Centre Strategic Transport Model in conjunction with observed traffic counts.

The modelling demonstrates that the BEE proposals will have a small impact on journey times through the network. The pattern of the change in journey times is consistent between the AM and PM peaks and between the forecast years. Compared with the DM scenario, journey times will be slightly higher travelling eastbound on High Street Deritend. This is due to incorporating the tram through each junction. There will be minimal impact on westbound journey times.

On Moor Street Queensway, journey times will be slightly higher travelling northbound, due to the added complexity of the junction with Albert Street. However, there will be an improvement in southbound journey times, as additional bus stops will be provided within the proposed bus interchange, reducing bus congestion along Moor Street Queensway.

The signalisation of High Street / Bull Street will result in some additional delay, although the junction will operate with a Level of Service no worse than C, which represents stable flow.

If the bus lanes were to be retained along High Street Deritend, this would result in severe congestion, largely due to drivers having to merge into a single lane from two lanes at the start of the eastbound bus lane. This is exacerbated by traffic queuing to turn right into Rea Street immediately after the start of the bus lane, which would block the ahead movement.

Considering National Express's concerns on the operation of the Rea Street junction with High Street Deritend, the models show that there will be an increase in delay in the PM peak as a result of incorporating the tramway. However, this will be less than twenty seconds and the junction will operate within capacity. There will be negligible impact in the AM peak.

The network performance analysis shows that only a negligible amount of traffic is unable to enter the network during the simulation period in the DS1 scenario. However, in the DM and DS2 scenarios there is considerably more traffic unable to enter the network due to downstream congestion. The lowest total delay to traffic is experienced in the DS1 scenario. Similarly, the average delay per vehicle is lower in DS1 compared to the DM and DS2 scenarios.

The junction performance analysis shows that all junctions except for three will operate within Level of Service D with the introduction of BEE. The added complexity of Moor Street Queensway / Albert Street, incorporating BEE and the proposed bus interchange, will incur some blocking back to nearby junctions. Also, the signalisation of New Canal Street / Bordesley Street and the adjacent tram stop will result in increases delays compared to the DM scenario. Notably, all junctions along High Street Deritend will operate within capacity. Retaining the bus lanes on High Street Deritend will result in blocking back throughout the network, with several junctions failing.

Assuming drivers would avoid a congested area, a sensitivity test was carried out on the DS2 network, whereby demand flows were reduced. This demonstrated that when retaining the bus lanes, to achieve similar journey times to the DS1 proposal, between 50 and 75 percent of traffic must find an alternate route. This is likely to result in increased traffic volumes on the residential and commercial roads throughout Digbeth and may add pressure to the ring road.

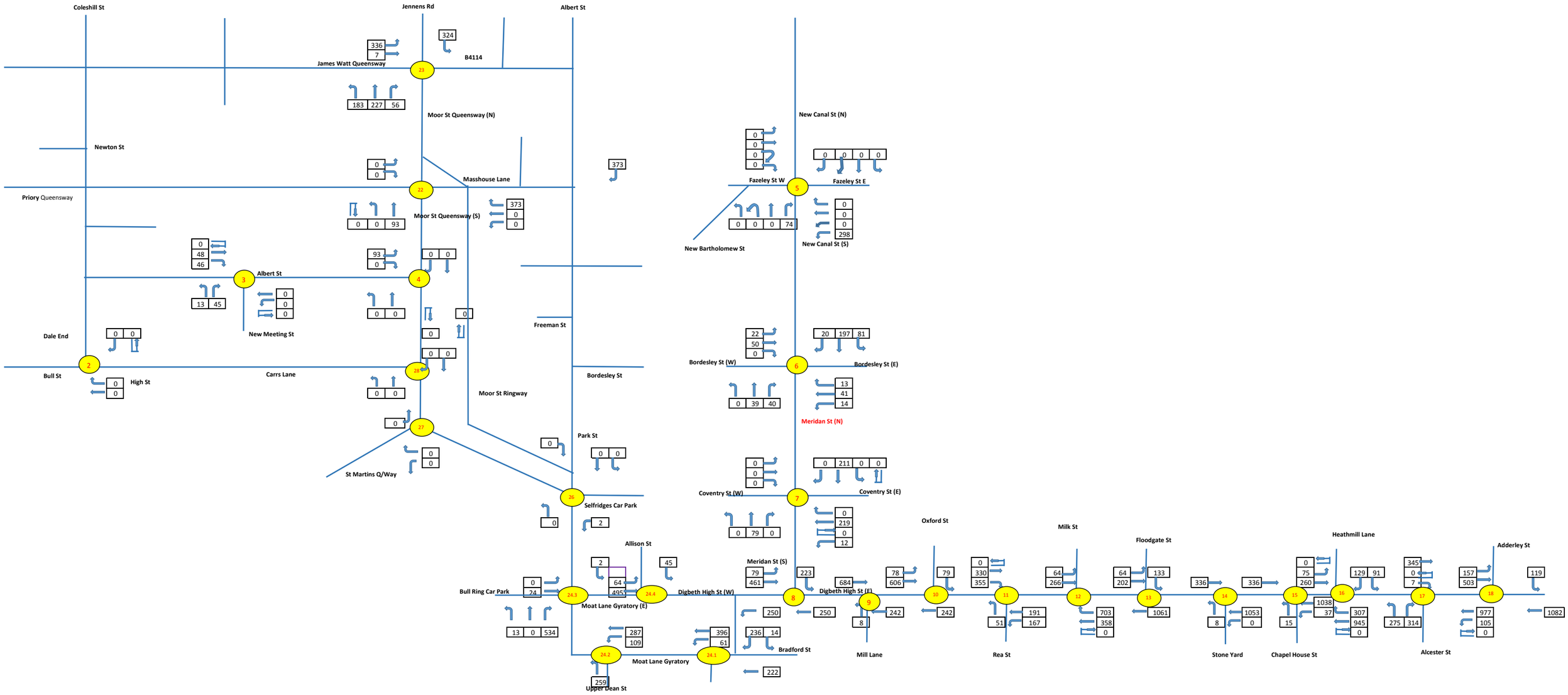
Overall, the modelling demonstrates that the network will operate within capacity with the introduction of BEE and there will be minimal overall impact to general traffic and buses.

APPENDIX A

Forecast Traffic Flows

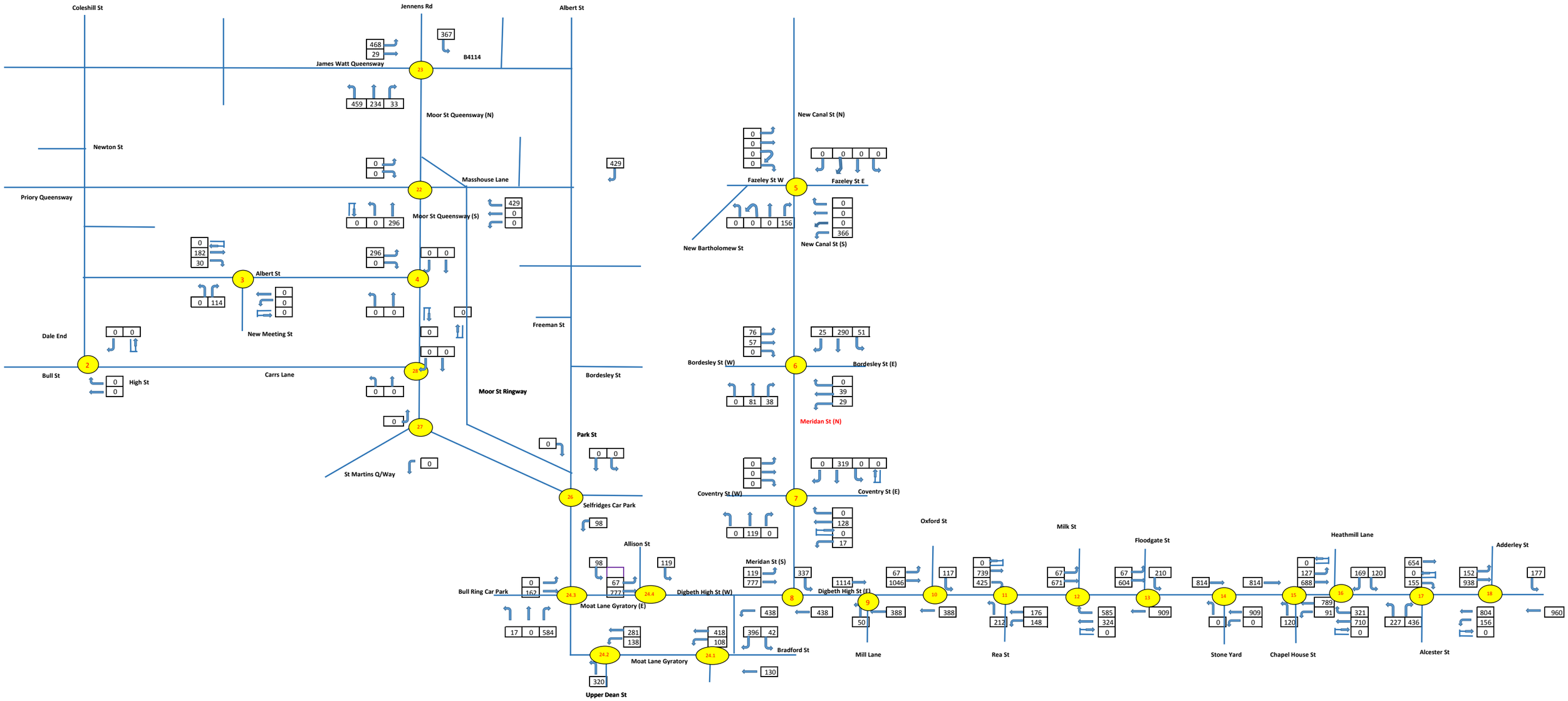
2026 AM DM

FLOWS EXCLUDE BUSES



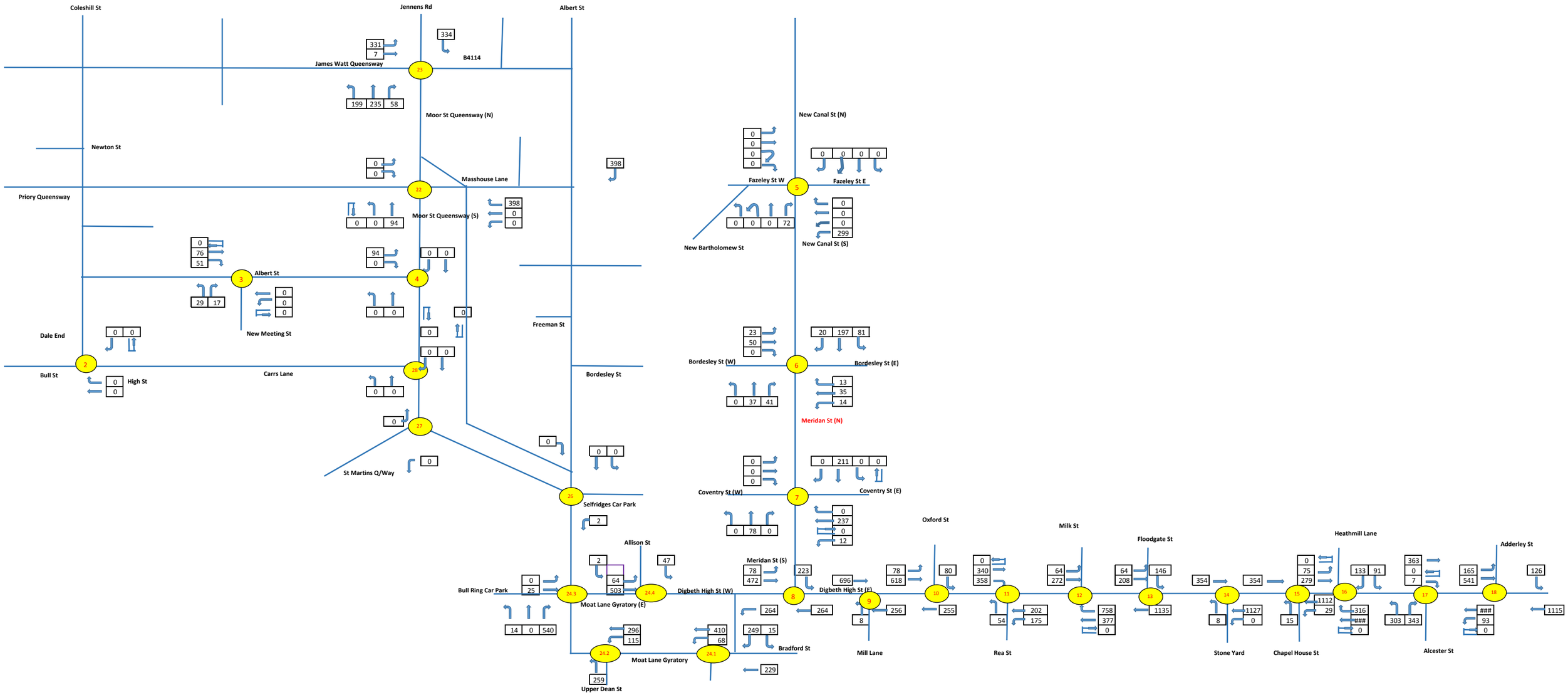
2026 PM DM

FLOWS EXCLUDE BUSES



2031 AM DM

FLOWS EXCLUDE BUSES



2031 PM DM

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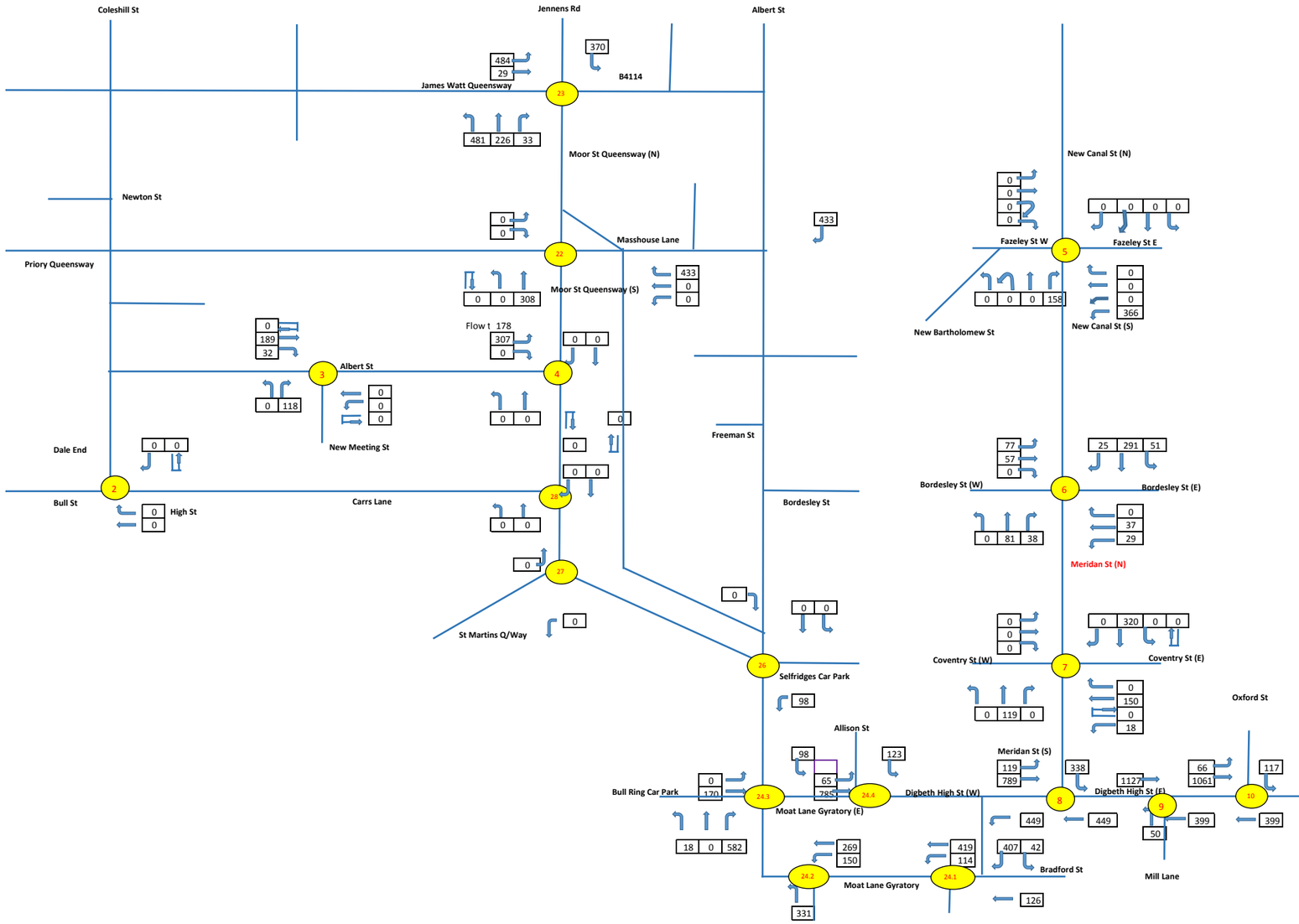
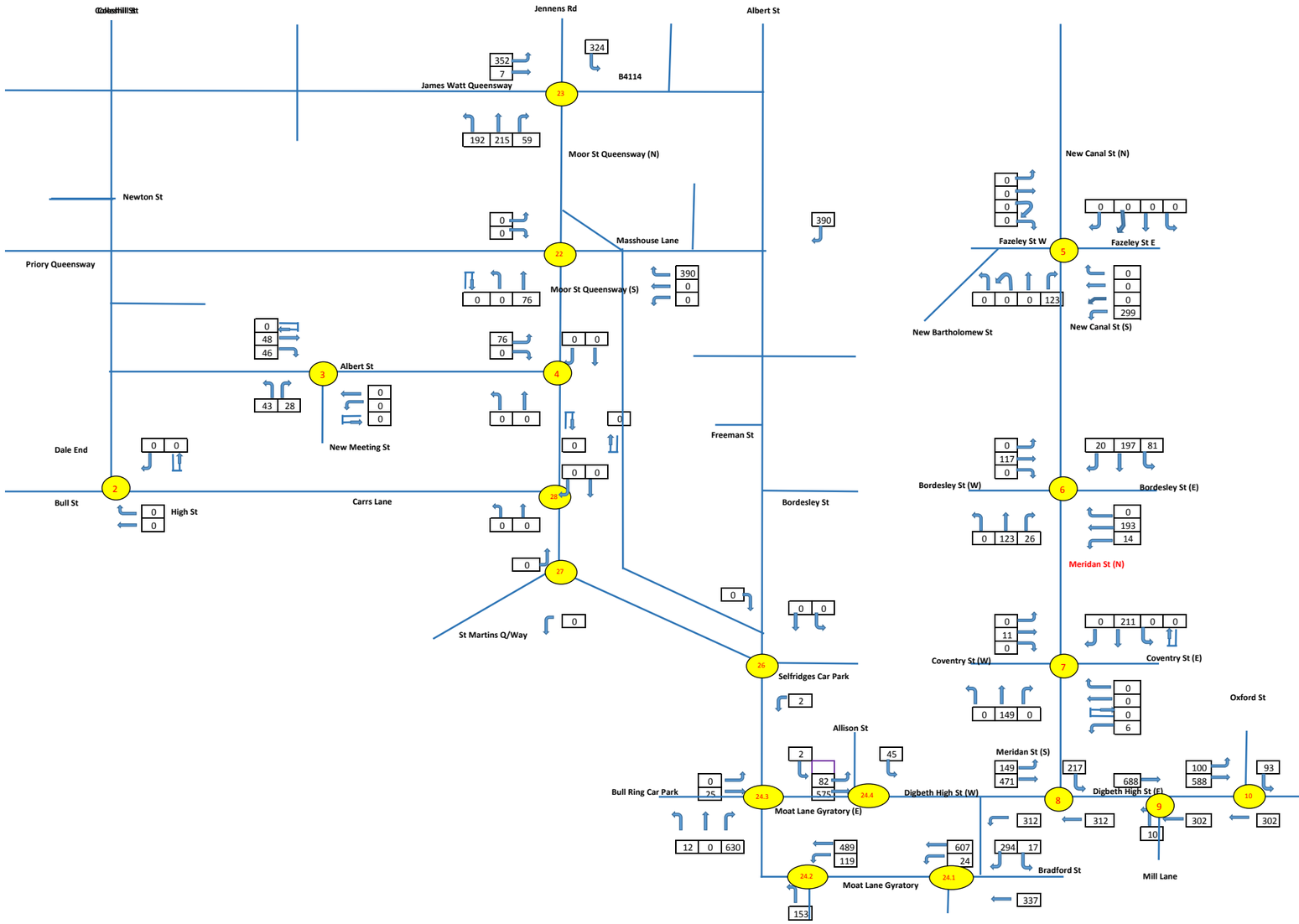


2026 AM DS

FLOWS EXCLUDE BUSES



2026 PM DS

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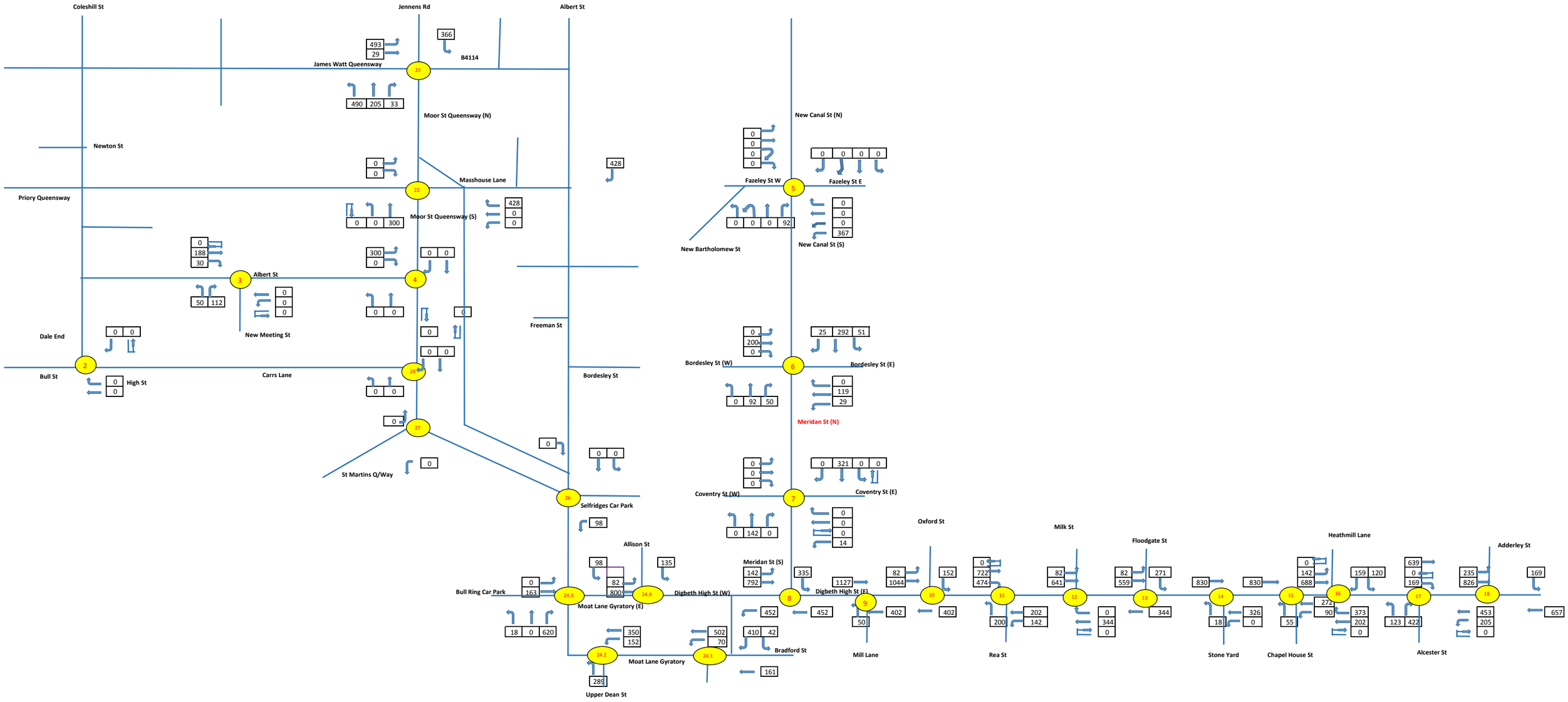
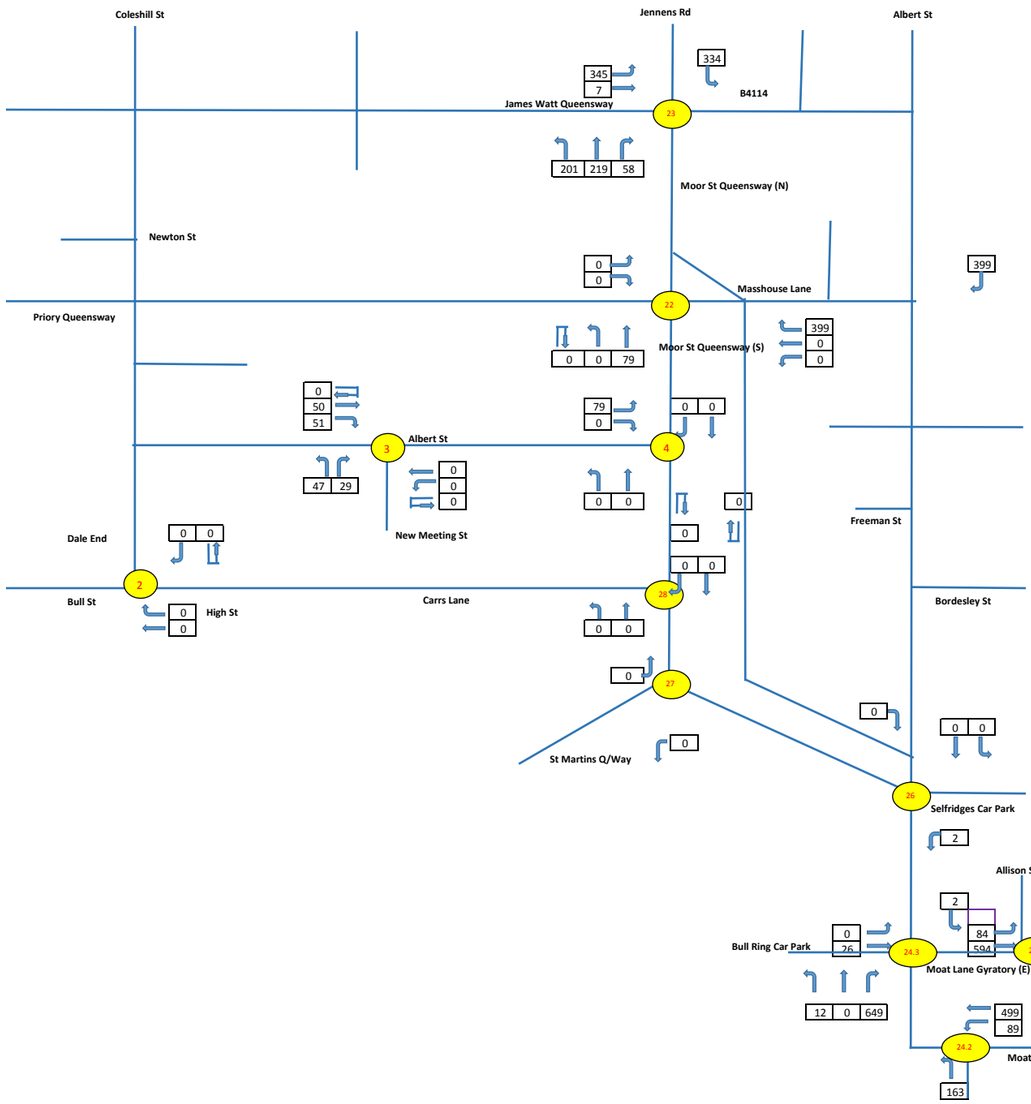
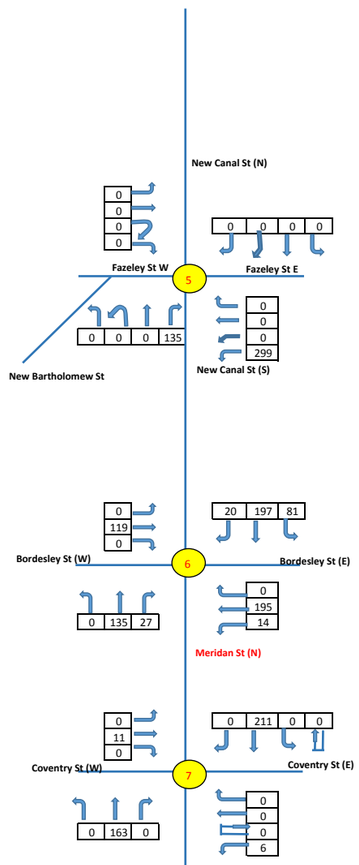
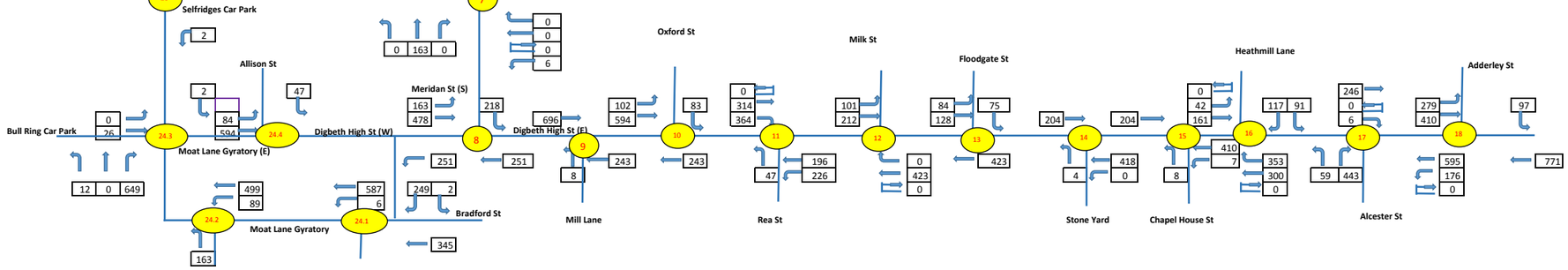


2031 AM DS

FLOWS EXCLUDE BUSES

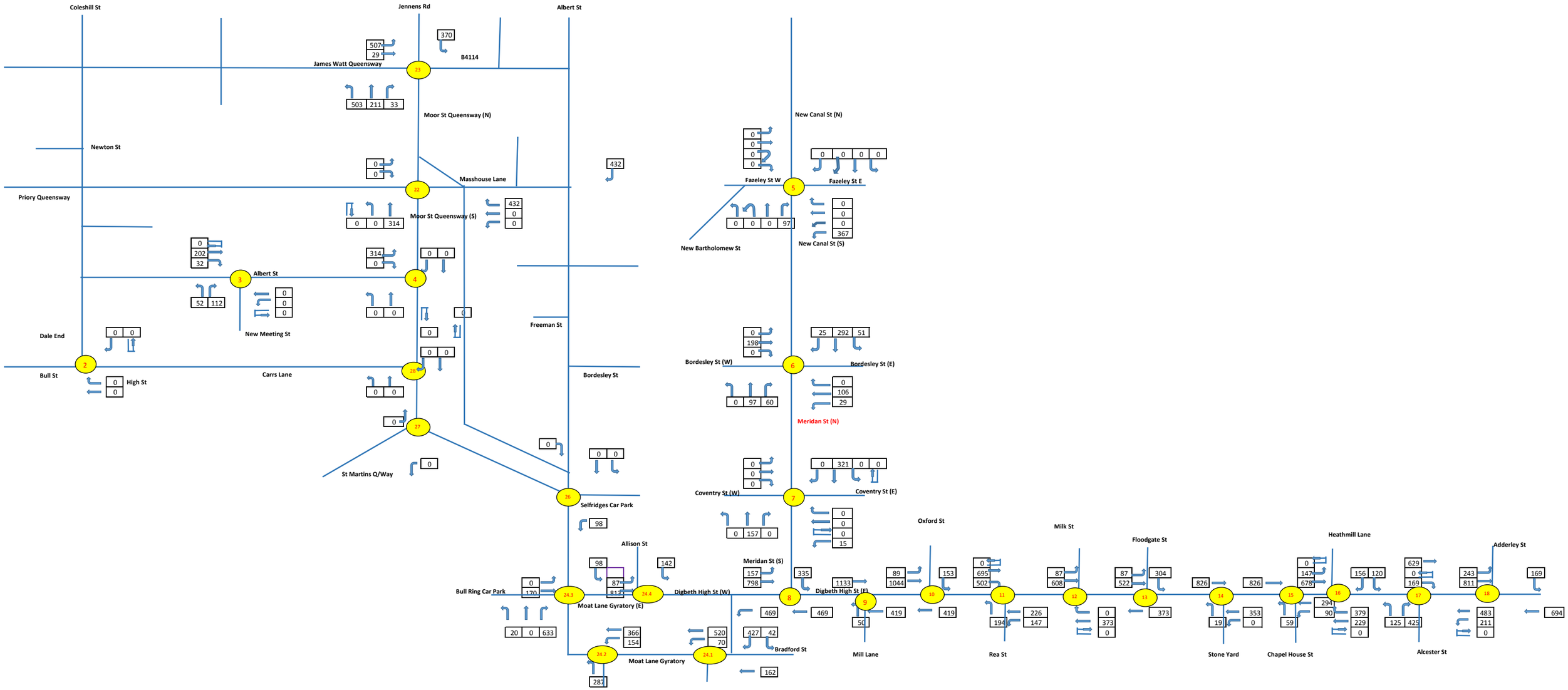






2031 PM DS

FLOWS EXCLUDE BUSES

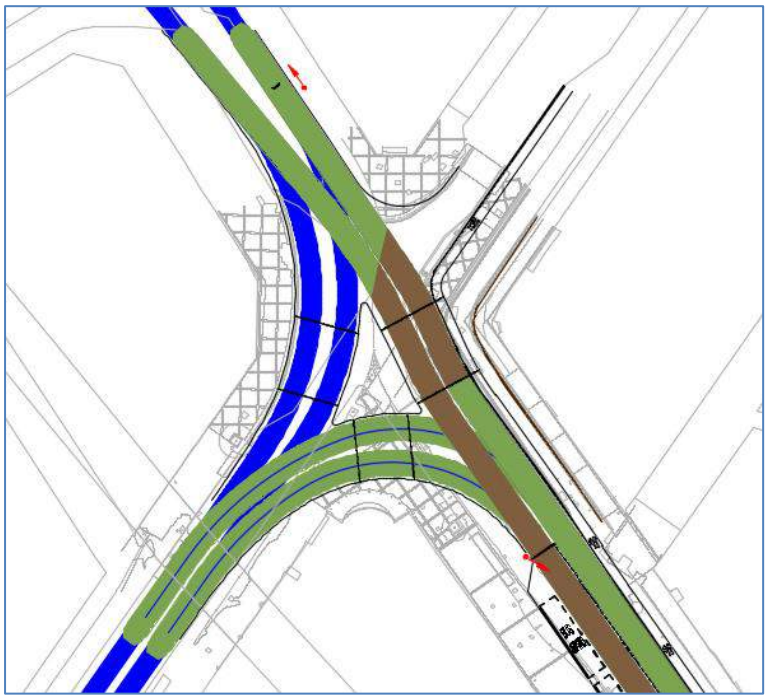


APPENDIX B

Traffic Signal Arrangements

Bull Street / Corporation Street

Junction layout:



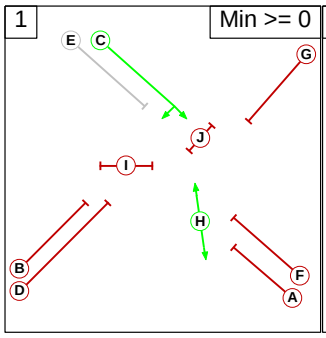
Description:

BEE begins at Bull Street / Corporation Street and connects to BCCE. Due to conflicting traffic movements, only one junction can pass through the junction in each stage.

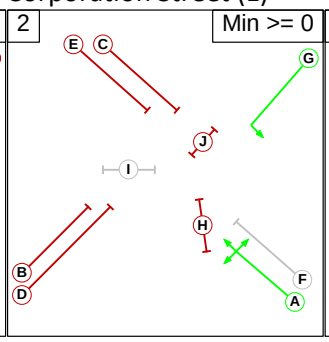
The approach on Corporation Street (E) is cycles only. Bull Street (S) is shared between buses and trams. Service vehicles are permitted to use Bull Street (N) and (S) as well as Corporation Street (E).

Staging diagram:

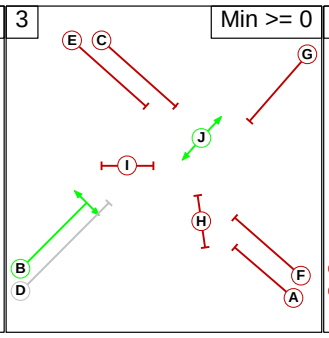
Bull Street (N)



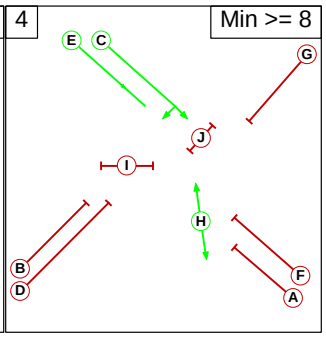
Bull Street (S) & Corporation Street (E)



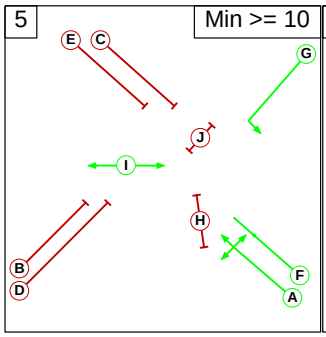
Corporation Street (W)



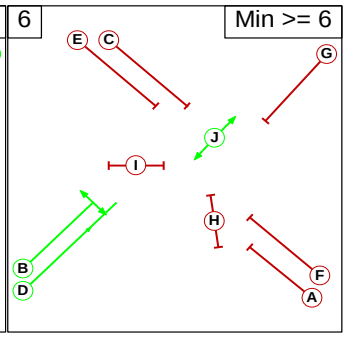
Alternate to Stage 1 with Tram



Alternate to Stage 2 with Tram



Alternate to Stage 3 with Tram

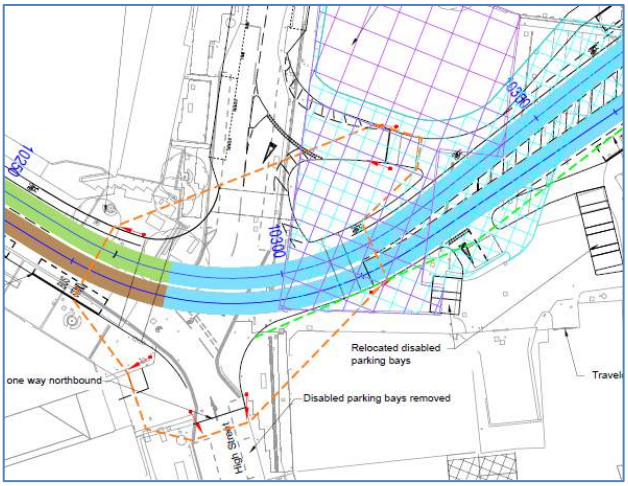


Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Entering from southwest	2	6
Entering from northwest	2	4
Entering from southeast	2	5

Bull Street / Dale End

Junction layout:

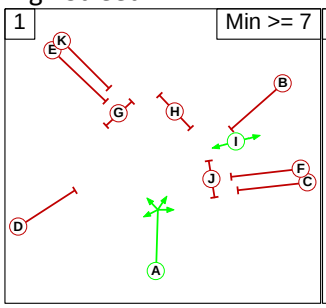


Description:

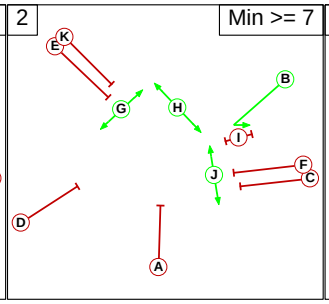
The signal operation at Bull Street / Dale End is complex, with five main stages and two alternate stages that run when there is a tram demand. The Bull Street approach is tram only. Opposing trams are not permitted to pass through the junction in the same stage. Vehicles can use New Meeting Street for access only, which includes access to the Millennium Point car park.

Staging diagram:

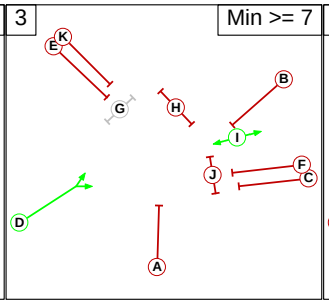
High Street



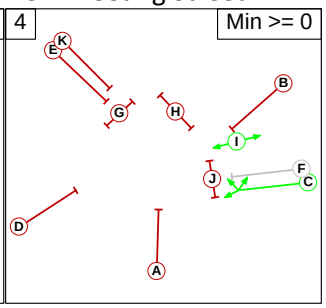
Dale End



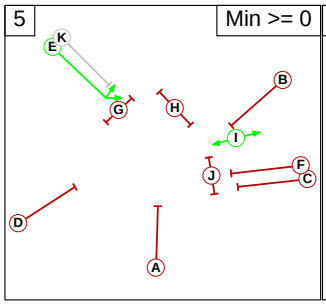
Service Access



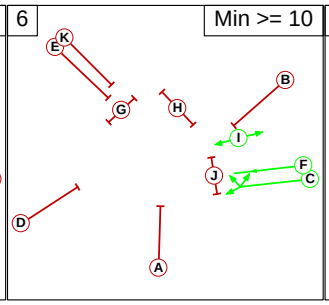
New Meeting Street



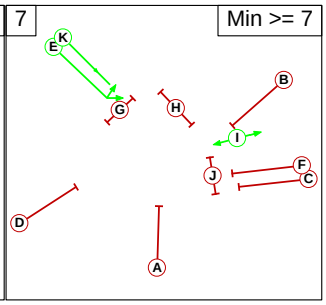
Bull Street



Alternate to Stage 4 with Tram



Alternate to Stage 5 with Tram

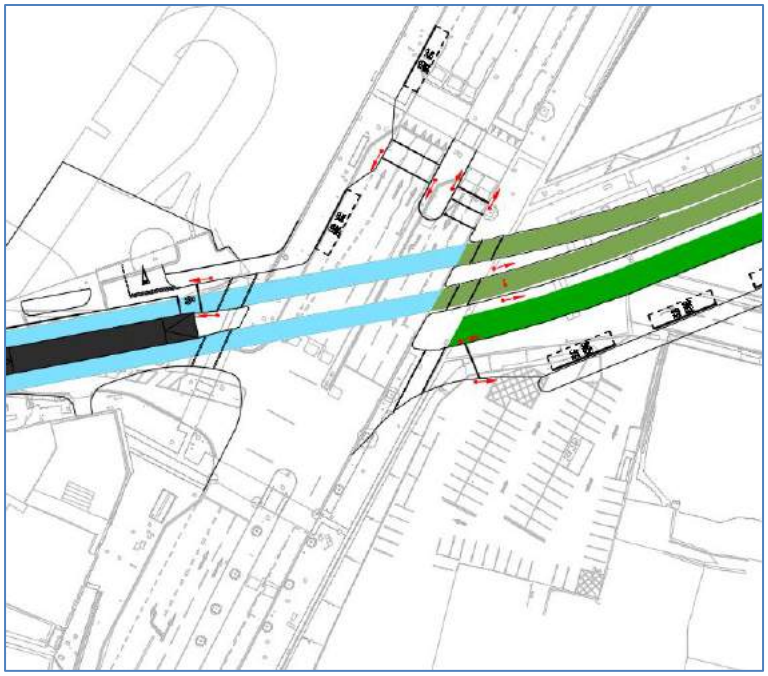


Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Eastbound	1	7
Westbound	1	6

Moor Street Queensway / Albert Street

Junction layout:



Description:

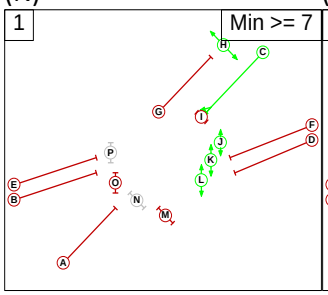
The tramway crosses over Moor Street Queensway between Albert Street and the proposed interchange. A secondary northbound stopline is located to the north of the tramway on Moor Street Queensway at a pedestrian crossing. The signalling has been designed to minimise any queuing at this stopline and thus reducing the likelihood of the tramway being blocked.

Due to this stopline, there is a pre-prepare loop to detect when a tram approaches from Bull Street and run a pre-prepare stage which will clear any traffic preventing the tram from reaching its stop. The prepare loop runs once the tram is at the stop.

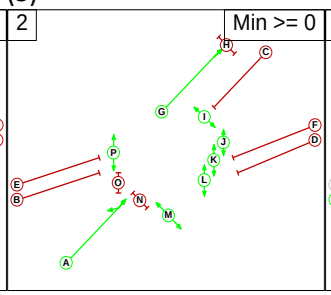
Buses and trams from the interchange run in separate stages as buses are permitted to turn right across the tramway.

Staging diagram:

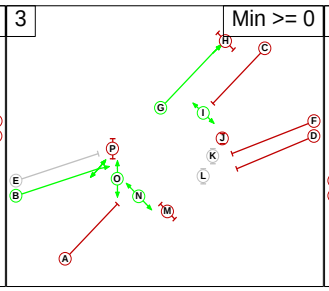
Moor Street Queensway (N)



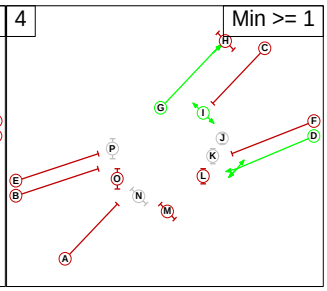
Moor Street Queensway (S)



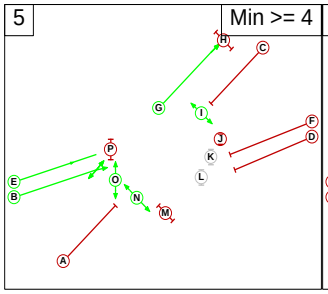
Albert Street



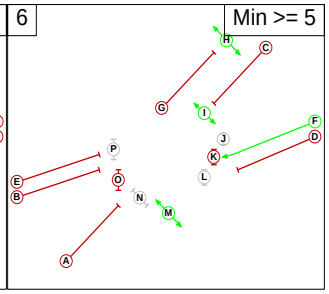
Interchange (Bus)



Alternate to Stage 3 with Tram



Interchange (Tram)



Advance, pre-prepare and prepare stages:

Direction	Pre-Prepare Stage	Prepare Stage	Advance Stage
Eastbound	3	2	5
Westbound	-	1	6

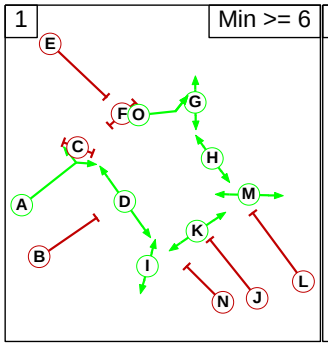
Moor Street Queensway / The Priory Queensway

Junction layout:

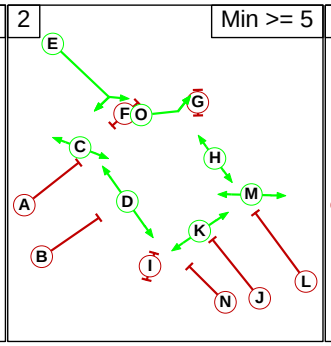
As existing.

Staging diagram:

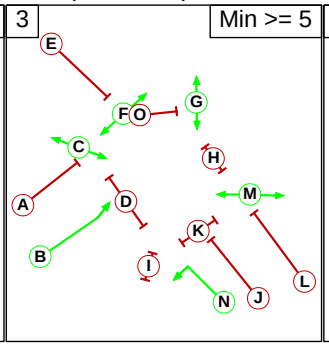
Moor Street Queensway (Left turn & Buses)



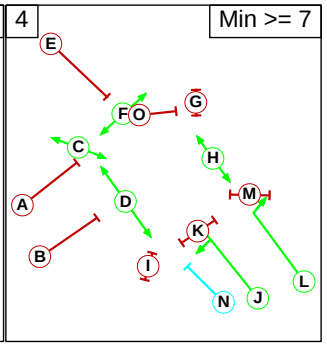
The Priory Queensway



Moor Street Queensway (Ahead) & Masshouse Lane (Left turn)



Masshouse Lane

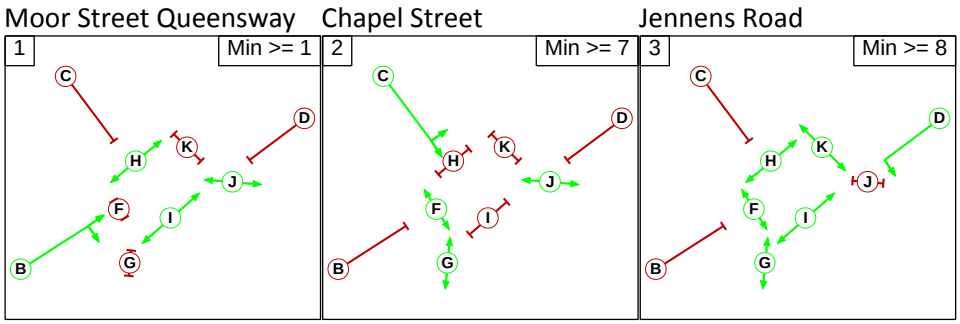


Moor Street Queensway / Chapel Street / Jennens Road

Junction layout:

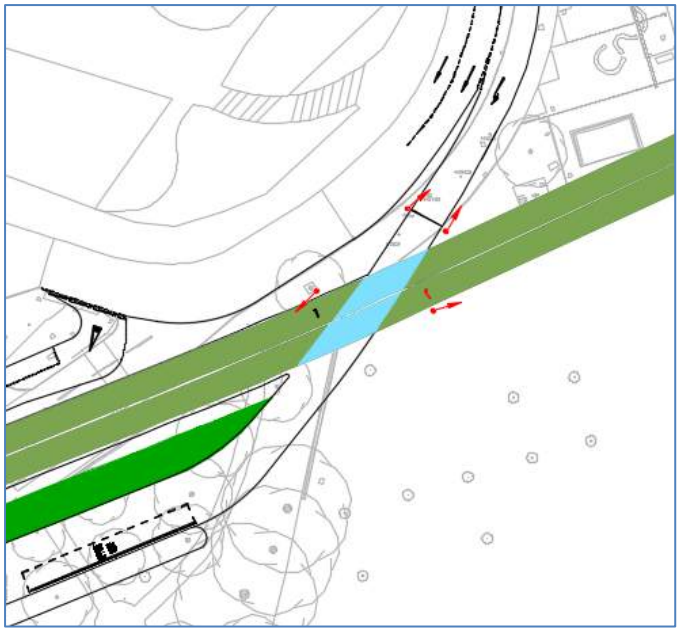
As existing.

Staging diagram:



Park Street / Masshouse Lane

Junction layout:

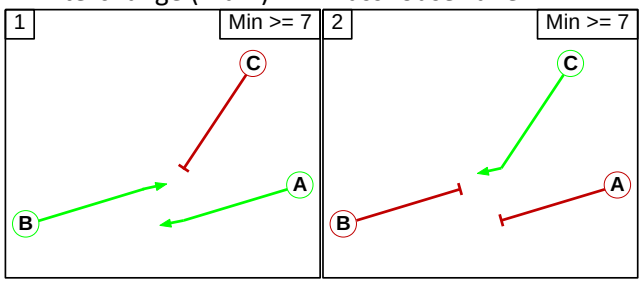


Description:

The Park Street tram crossing will remain on green for traffic until a tram is detected.

Staging diagram:

PT Interchange (Tram) Masshouse Lane

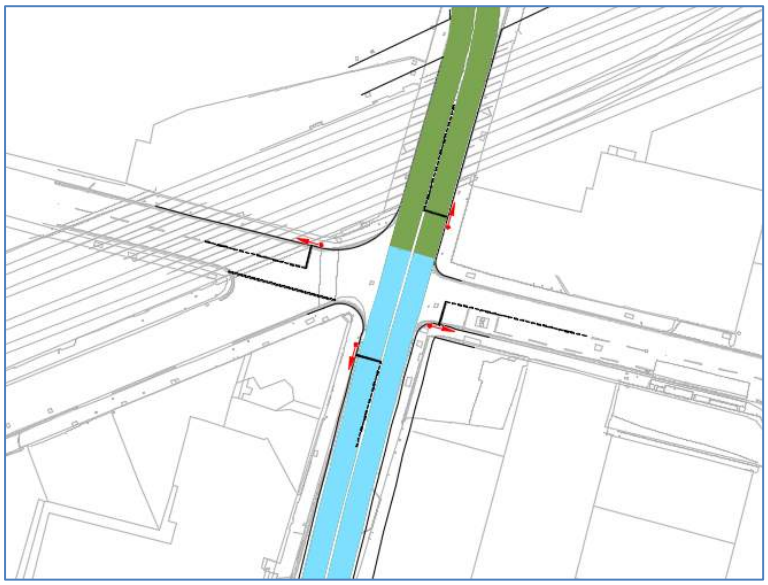


Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Eastbound	-	1
Westbound	-	1

New Canal Street / Fazeley Street

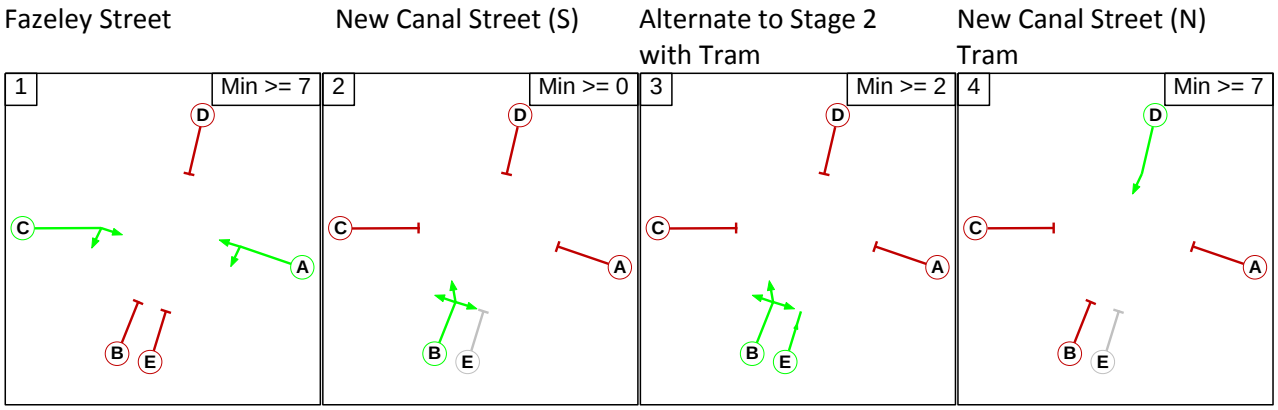
Junction layout:



Description:

The southbound approach on New Canal Street is tram only; the northbound approach is shared. Trams are not permitted to pass through the junction in the same stage as this may be confusing for drivers turning right off New Canal Street.

Staging diagram:

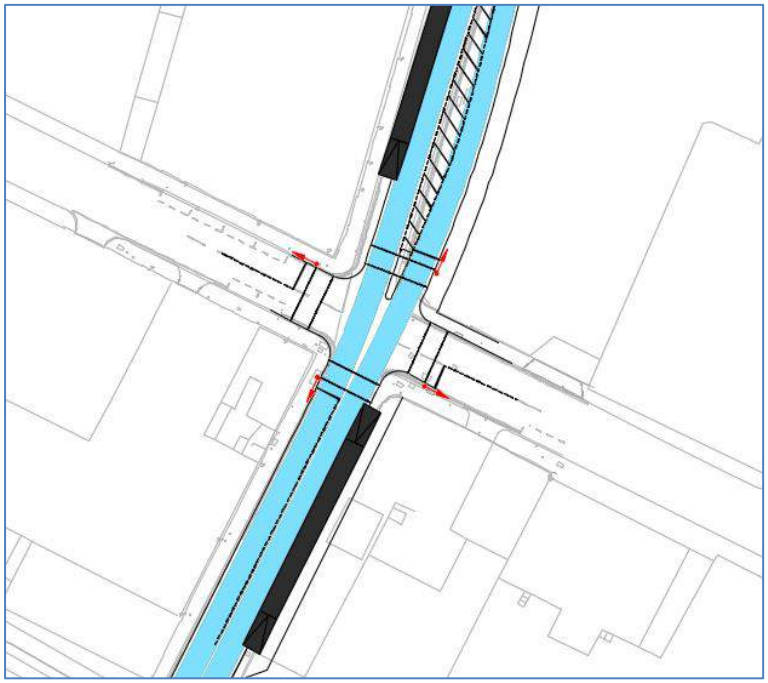


Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Southbound	1	4
Northbound	2	3

New Canal Street / Bordesley Street

Junction layout:



Description:

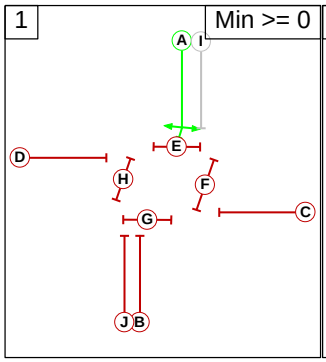
New Canal Street – Meriden Street is shared carriageway. Similar to the Fazeley Street junction, trams are not permitted to pass through the junction during the same stage as this may be confusing for right turning drivers. There is also an 'all red' pedestrians stage.

Similar to the Moor Street Queensway junction, there is a tram stop just north of the junction on shared carriageway. Again the prepare stage is intended to help the tram get to the stop but unlike

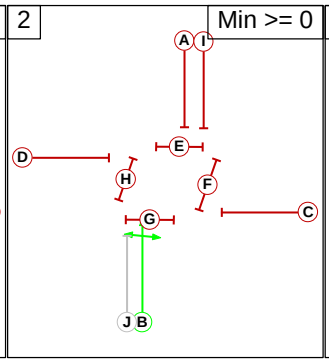
the Moor Street Queensway junction, the prepare stage continues running whilst the tram is at the stop. This may need to be amended depending on the performance of the junction, as it prevents traffic passing through the junction whilst the tram is at the stop.

Staging diagram:

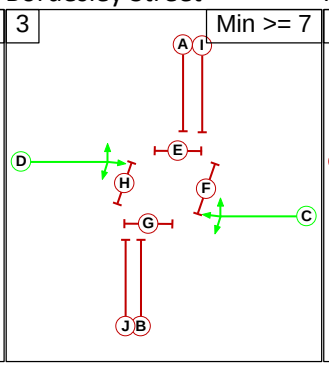
New Canal Street



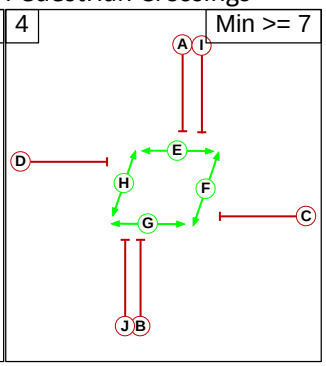
Meriden Street



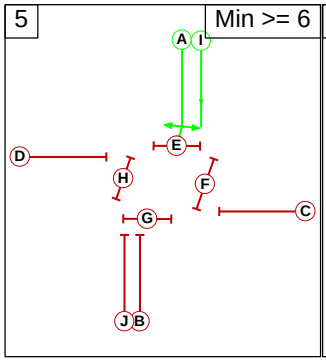
Bordesley Street



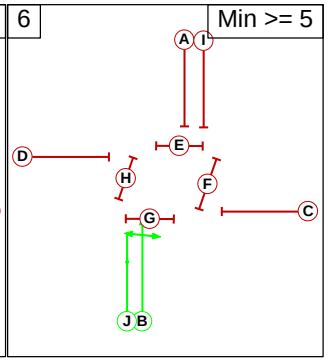
Pedestrian Crossings



Alternate to Stage 1 with Tram



Allternate to Stage 2 with Tram



Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Southbound	1	5
Northbound	2	6

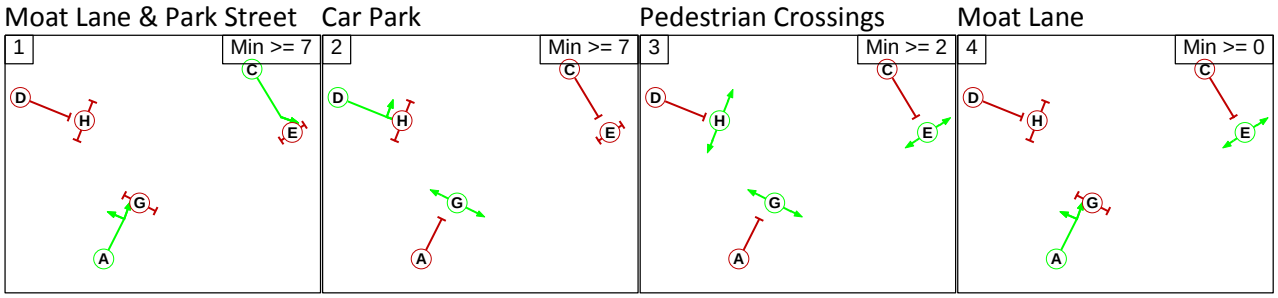
Moat Lane Gyratory (Park Street, Upper Dean Street & Digbeth)

Park Street

Junction layout:

As existing.

Staging diagram:

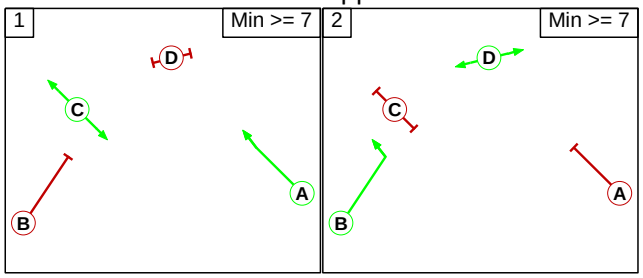


Upper Dean Street

Junction layout:

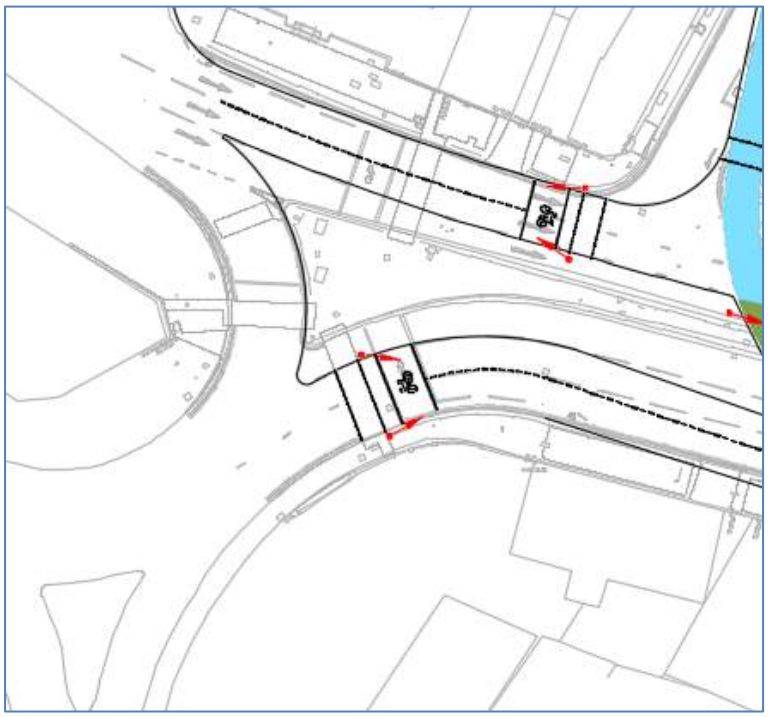
As existing.

Staging diagram:



Digbeth

Junction layout:

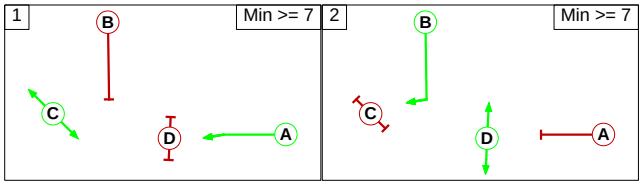


Description:

The layout is similar to the existing layout but with a widened central island on Digbeth. The gyratory movement is restricted to buses only.

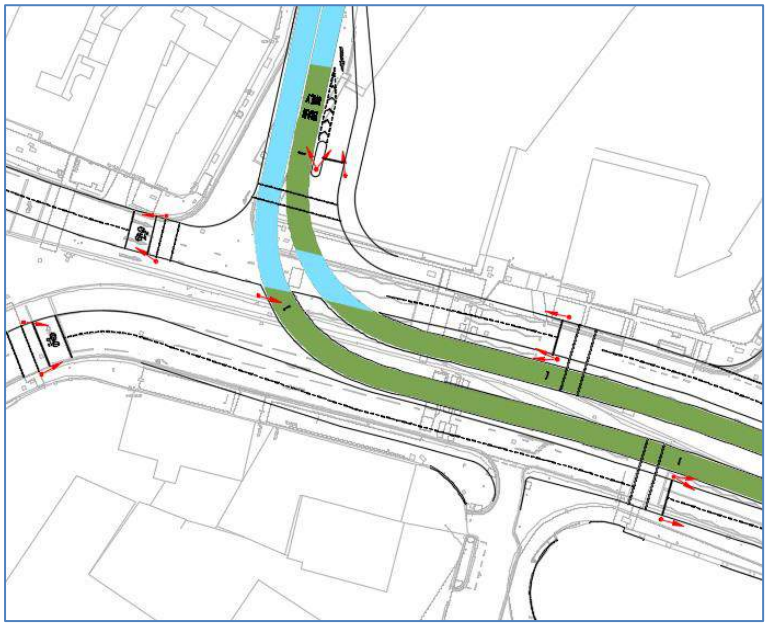
Staging diagram:

Digbeth Moat Lane



Digbeth / Meriden Street

Junction layout:

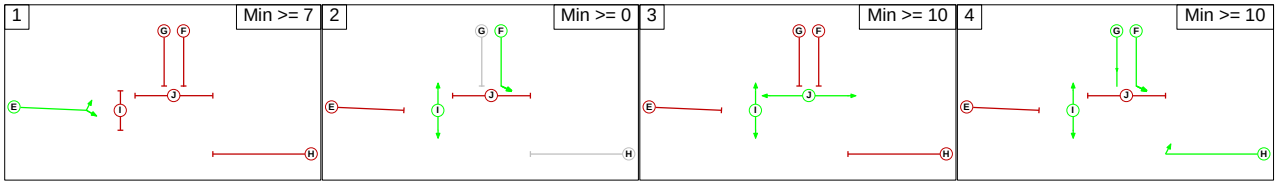


Description:

On the Meriden Street approach, the tram diverges from the shared carriageway and passes through to the segregated section between the eastbound and westbound carriageways on Digbeth. The opposing trams are permitted to pass through the junction simultaneously.

Staging diagram:

Digbeth Street Meridan Street Pedestrian Crossings Alternate to Stage 2 with Tram

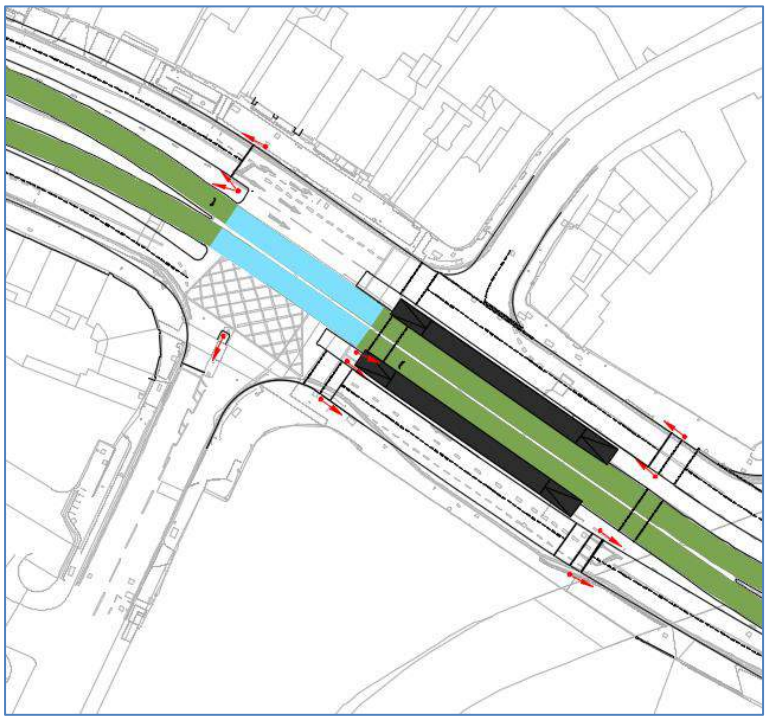


Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Eastbound	1	4
Northbound	1	4

High Street Deritend / Rea Street / Milk Street

Junction layout:

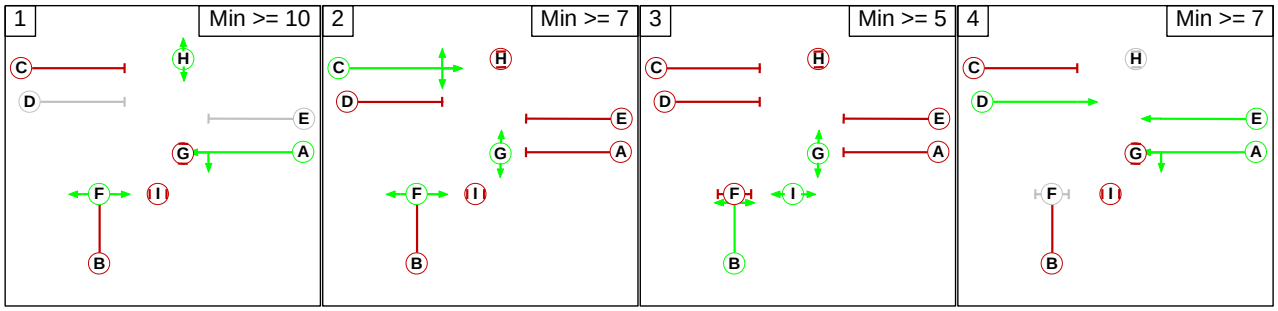


Description:

The tramway passes through the junction segregated from traffic. Due to the permitted right turn into Rea Street, the opposing High Street Deritend arms run separately. Trams are permitted to run in the same stage with the westbound High Street Deritend approach.

Staging diagram:

High Street Deitrend Digbeth Rea Street Alternate to Stage 1 with Tram

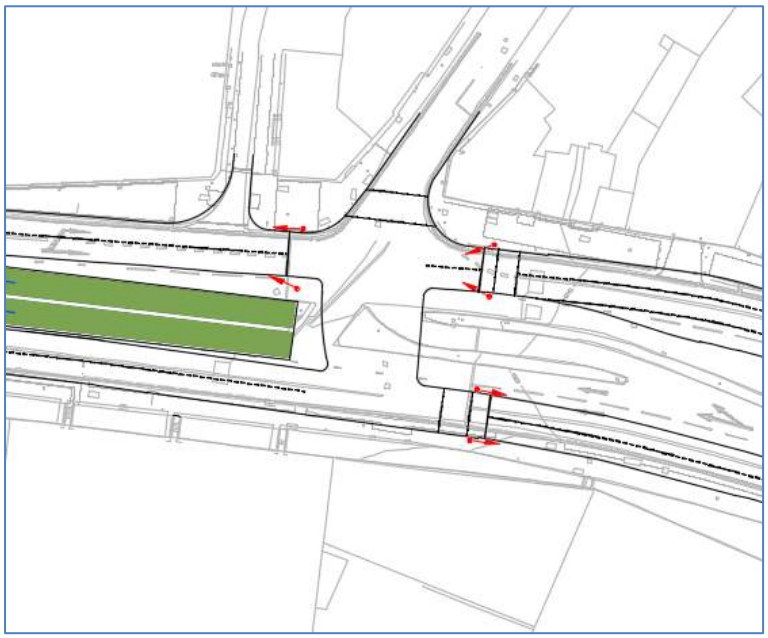


Advance and prepare tram stages:

Direction	Prepare Stage	Advance Stage
Eastbound	2	4
Westbound	2	4

High Street Deritend / Heath Mill Lane

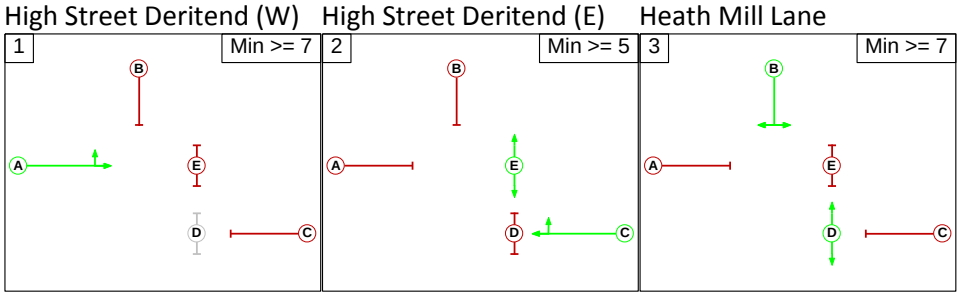
Junction layout:



Description:

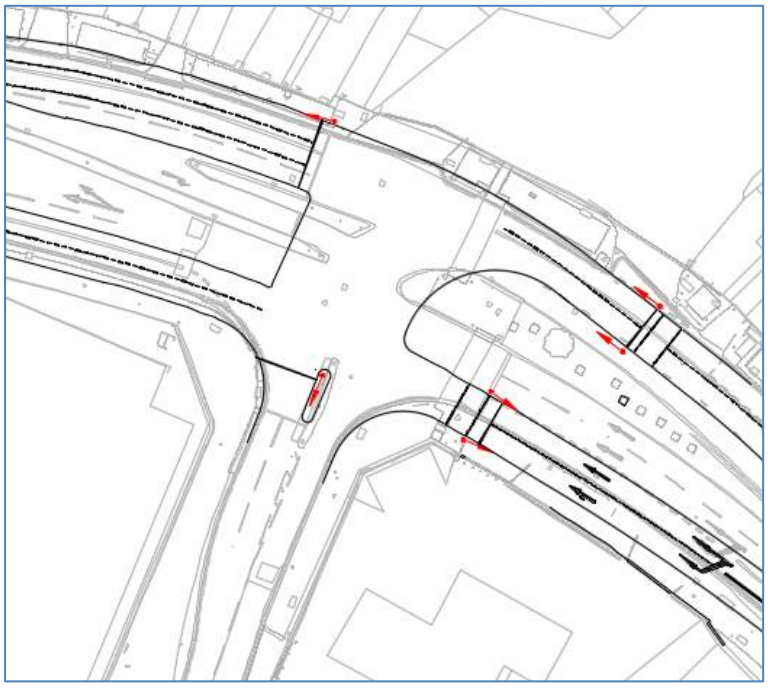
This junction is beyond the BEE terminus and has been designed to incorporate the future extension to the airport. Due to the wide central reservation, the eastbound and westbound approaches are controlled in separate stages to prevent confusion for traffic turning right into Heath Mill Lane.

Staging diagram:



High Street Deritend / Alcester Street

Junction layout:



Description:

As with Heath Mill Lane, this junction has been designed to designed to incorporate the future extension to the airport. Due to restricted capacity, additional westbound lanes have been modelled in VISSIM, which does not fully reflect the layout above.

Staging diagram:

