Memo

To	Project name	Project number	Subject
National Highways	Humber Zero - Phillips 66 and VPI Developments	60712174	National Highways Response 2
Date	**Document ref**	**Issued by**	**Prepared by**
March 27 2024	AA.23.19.25 / AA.23.19.26 / DevHU0163	Mark Romanowski	Amelia Simmons
Checked by	**Revision No.**		
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1. Background

This document represents the second step in responding to comments initially received from National Highways on the 5th and 16th of January 2024, in relation to the Humber Zero developments at Phillips 66 and VPI Immingham respectively. An additional meeting was also held with National Highways on 16th January.

Following information provided by AECOM within Response 1 (dated 16th February 2024, see **Appendix A**) National Highways provided a further response dated 7th March 2024 (Ref DevHU0163 Phillips 66 and VPI).

This response deals with outstanding comments provided within the DevHU0163 TM (Phillips 66 and VPI) document and also includes the results of the junction modelling as agreed.

A list of appendices supplied as part of this response is provided below:

- Appendix A – AECOM Response 1 (16.02.24)
- Appendix B – New Traffic Counts - Raw Data
- Appendix C – Flow Diagrams
- Appendix D – Modelling Outputs

Direct quotes from the National Highways responses are shown in italics.

2. National Highways Comments (DevHU0163 Phillips 66 and VPI)

2.1 National Highways Comment 1 (M180 Material Impacts)

JSJV notes that in the AM and PM peak hours 85 two-way trips are forecast to route to/from the M180 west of M180 Junction 4. We would note that the distance and journey time referred to does not necessarily preclude the junctions from assessment, for example, trips leaving a development within the peak period may still interact with distant junctions within the same peak hour period.

Therefore, we consider it appropriate for the distribution study area to be extended to a point where the impact is considered immaterial.

2.2 AECOM Response

Based on the above query, further assumptions with regard to the distribution at M180 J4 have been carried out, firstly to inform the assessment of the junction itself and secondly to demonstrate that there will be an immaterial impact on junctions to the west of M180 J4.

It has been assumed that a proportion of traffic would travel north and south at this junction, based on the traffic survey data collected in February 2024. This proportion has subsequently been applied to traffic travelling from the Proposed Developments through the junction as shown in Table 1 below.

Table 1. M180 J4 Traffic Distribution

Junction Arm	Distribution	Development Traffic
A15 (North arm, leading to A18)	25%	21
A15 (South arm, leading to Lincoln)	25%	21
M180 (West arm, leading to M18)	50%	43
Total	**100%**	**85**

The 43 two-way development trips equate to an increase of less than 2% in the AM and PM peak hour on the M180 to the west of J4 in this location (as shown in Table 2 below). Therefore, this proportion of traffic is considered to be immaterial and well within any daily variation in terms of its interaction with other junctions west of J4 on the M180.

Table 2. M180 West of J4 – Percentage Impact

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
07:00-08:00	2,629	**43**	2,672	1.6%
16:00-17:00	3,015	**43**	3,058	1.4%

In addition, a proportion of the construction traffic would potentially distribute onto the A181 towards Scunthorpe north of the M180 J3, (meaning the actual proportion reaching J1 and J2 would also be reduced, giving further evidence as to why these junctions do not require further assessment.

M180 J3 is also a free flow junction (e.g. vehicles do not need to go through a priority junction / roundabout to make the movement), therefore this would preclude the need for assessment of this particular junction.

2.3 National Highways Comment 2 (New Traffic Surveys)

JSJV considers it appropriate that the traffic survey flows presented in any forthcoming documentation are supported by an analysis to demonstrate that the flows are representative.

2.4 AECOM Response

New traffic flows were carried out at the following junctions on Tuesday 20th February 2024, as shown in Figure 1.

- A160 / Eastfield Road junction;
- M180 J5; and
- M180 J4.

Figure 1. New Junction Count Locations

In order to validate the new traffic surveys, a comparison was made against available WebTRIS data. The WebTRIS data was filtered to include weekdays only and then averaged over the entirety of 2023 (excluding the Christmas week (Mon 25 Dec to Mon 31 Dec 2023). The relevant movements from the February 2024 count have been calculated from the same time period as the WebTRIS data to ensure the same link and direction is being reviewed. Full details of the new traffic counts are provided in **Appendix B**.

The results of the validation review are presented in Tables 3 to 5 below.

Table 3. M180 / A180 junction (M180 J5)

WebTRIS Location	07.00-08.00 WebTRIS	07.00-08.00 Survey	07.00-08.00 Difference	16.00-17.00 WebTRIS	16.00-17.00 Survey	16.00-17.00 Difference
TMU Site 8753/1 on link M180 J5 eastbound exit	729	786	57 (7.3%)	828	821	7 (0.8%)

Table 3 shows that that the WebTRIS data and survey data for this link are comparable, with percentage differences of 7.3% and 0.8% in the AM and PM peak respectively. The new count data is therefore considered appropriate for use.

Table 4. A160 / Eastfield Road

WebTRIS Location	07.00-08.00 WebTRIS	07.00-08.00 Survey	07.00-08.00 Difference	16.00-17.00 WebTRIS	16.00-17.00 Survey	16.00-17.00 Difference
TMU Site 9958/1 on A160 eastbound between A1077 and A1173	529	547	18 (3.3%)	443	424	19 (4.5%)
TMU Site 9959/1 on A160 westbound between A1173 and A1077	488	453	35 (7.7%)	580	596	16 (2.7%)

Table 4 shows that the WebTRIS data and survey data are comparable, with the percentage differences ranging between 2.7-7.7%. The new count data is therefore considered appropriate for use.

Table 5. Survey Site 3: M180 J4

WebTRIS Location	07.00-08.00 WebTRIS	07.00-08.00 Survey	07.00-08.00 Difference	16.00-17.00 WebTRIS	16.00-17.00 Survey	16.00-17.00 Difference
TMU Site 8754/1 on link M180 J4 eastbound exit	367	390	23 (5.9%)	431	498	67 (13.5%)

Table 5 shows that the WebTRIS data and survey data are comparable, with percentage differences of 5.9% and 13.5% in the AM and PM peak respectively. The new count data is therefore considered appropriate for use.

2.5 National Highways Comment 3 (Committed Developments)

JSJV will withhold judgement on the committed developments until the Applicant has received confirmation from the relevant LPA. In this instance, we would recommend that the Applicant discusses committed development with North Lincolnshire Council and North East Lincolnshire Council.

2.6 AECOM Response

North Lincolnshire Council and North East Lincolnshire Council were contacted for their advice on which committed developments should be considered as part of the assessment work. They highlighted a number of developments, which are summarised below. Following the summary of each development is the reasoning for inclusion or non-inclusion within the assessment work.

- DCOs
  - The Immingham Open Cycle Gas Turbine Order 2020 (VPI – 299 MW gas fired power station)
    - As detailed in the associated ES chapter (**6.2.7 - ES Chapter 7 Traffic & Transportation (PDF, 577KB),** the construction work was scheduled to take place in 2021 and 2022. However, the site is currently under construction and is indicating a July 2025 completion. It is recommended that

this site be excluded on the basis that the construction workforce will be declining from a 2024 peak and will not affect the basis of the assessment in 2025.

- It is therefore likely that some construction traffic was included within the new traffic counts undertaken in February 2024.
- During operation, vehicle trips will not exceed 30 two-way vehicles per hour on any links, which is considered immaterial.
- On the above basis, the traffic associated with this development **will not be included** within the assessment.

– The Able Marine Energy Park Development Consent Order 2014 (and Material Amendments 1 and 2) (New quay and associated manufacturing and storage development to support the offshore renewable sector)

- At this stage the specific dates associated with the start/end of construction and operation for this site are unknown based on information available. It is not possible to assess whether traffic would be on the road network at the same time as the peak construction traffic from VPI / Phillips 66, therefore an accurate assessment of the cumulative impacts is also not possible. Therefore, the traffic associated with this development **will not be included** within the assessment.

– South Humber Bank Energy Centre Order 2021 (in NE Lincs – 95MW EfW plant)

- The ES chapter (**6.2.9 - ES Vol I Chapter 9: Traffic and Transport (PDF, 530KB)** states that the construction period for this development is estimated to be approximately 36 months starting in 2020, reaching a peak in 2021 or starting in 2021 following DCO award reaching a peak in 2022. It should be noted that construction has been delayed (not yet started).
- However, the routes assessed within the ES do not overlap with any identified routes for VPI / Phillips 66.
- Once operational the development will employ up to 56 staff. Conservatively assuming a car occupancy of one staff member per vehicle, this equates to 56 cars per day. Over the course of a day this number is considered immaterial in terms of impacts on the SRN.
- Based on the above, the traffic associated with this development **will not be included** within the assessment.

– Stallingborough Combined Cycle Gas Turbine and Carbon Capture Plant

- Construction of this development is not expected to commence until 2028, therefore would not occur at the same time as the VPI / Phillips 66 peak of construction in 2025. In addition, only EIA scoping information is currently available at this time and no traffic flow diagrams are provided to indicate where traffic would distribute.
- Subsequently, the traffic associated with this development **will not be included** within the assessment.

• Other Planning Permissions

– PA/2018/918 – (VPI) 49.9MW gas fired power station. Conditions discharged and permission implemented (confirmed via Certificate of lawfulness)

- Construction of the site is already underway and due to the small-scale nature of the development and intermittent operation, the traffic associated with this development **will not be included** within the assessment.
- Also, the completion of the site is expected in 2024, so a reduction in baseline could also be expected by 2025. It is therefore likely that some construction traffic was included within the new traffic counts undertaken in February 2024.

- PA/2015/1264 – Able Logistics Park. Port related storage and associated facilities, including flood defences, waste processing facility and hydrogen pipeline spur. Pre-commencement conditions discharged for certain phases and permission implemented.
  - This application is linked to the DCO application above and the same reasons for not including the development within the assessment also apply. The traffic associated with this development **will not be included** within the assessment.
- PA/2021/1525 – Monopile manufacturing facility (part within, part adjacent to AMEP site). Permission has not been implemented but is extant.
  - Planning documentation for the development indicated that traffic and transport was scoped out of this application and therefore the traffic associated with this development **will not be included** within the assessment.
- PA/2023/502 – Enabling works (Able).
  - North Lincolnshire Council identified this development but indicated that they did not think this was relevant as it had not been determined yet and has no operational impact on traffic.
  - This development **will not be included** within the assessment.
- DM/0105/18/FUL – Stallingborough Interchange commercial site.
  - None of the roads / junctions included within the traffic flow diagrams and assessments within the TA documentation match the locations identified for assessment within our review.
  - Subsequently, the traffic associated with this development **will not be included** within the assessment.
- DM/0664/19/FUL – Velocys waste to jet fuel.
  - None of the roads / junctions included within the traffic flow diagrams and assessments within the TA documentation match the locations identified for assessment within our review.
  - Subsequently, the traffic associated with this development **will not be included** within the assessment.
- DM/0026/18/FUL – North Beck waste to energy.
  - None of the roads / junctions included within the traffic flow diagrams and assessments within the TA documentation match the locations identified for assessment within our review.
  - Subsequently, the traffic associated with this development **will not be included** within the assessment.
- DM/0628/18/FUL – Immingham Railfreight waste to energy.
  - None of the roads / junctions included within the traffic flow diagrams and assessments within the TA documentation match the locations identified for assessment within our review.
  - Subsequently, the traffic associated with this development **will not be included** within the assessment.
- DM/1070/18/FUL – South Humber Bank Energy Centre (SHBEC) waste to energy plant.
  - None of the roads / junctions included within the traffic flow diagrams and assessments within the TA documentation match the locations identified for assessment within our review.
  - It should also be noted that this is the same development (albeit a lower MW output version) as the South Humber Bank Energy Centre DCO and only one or other could be built out. The planning permission came first, then a DCO was obtained for the same development with >50MW output capacity.
  - Subsequently, the traffic associated with this development **will not be included** within the assessment.

  - DM/0329/18/FUL – Great Coates Energy Ltd (former Vireol Site)– Waste to Energy
    - None of the roads / junctions included within the traffic flow diagrams and assessments within the TA documentation match the locations identified for assessment within our review.
    - Subsequently, the traffic associated with this development **will not be included** within the assessment.

Subsequently, we can confirm the following committed developments for inclusion within the flows for the traffic modelling. These are the same as recommended within AECOM Response 1.

- Viking CCS CO_2 gathering network
  - Development Consent Order (DCO) application currently at Pre-Examination stage
- Immingham Green Energy Terminal (IGET)
  - DCO application currently at Pre-Examination stage
- Immingham Eastern Ro-Ro Terminal (IERRT)
  - DCO application currently at Recommendation stage
- North Killingholme Power Project
  - DCO granted, but construction has not yet commenced

The flows associated with the committed developments are included in traffic flow diagrams provided in **Appendix C**.

3. National Highways Comments (DevHU0163 Phillips 66 and VPI) - Reiterated Comments

The following points were reiterated in the Summary and Conclusions section of DevHU0163 TM.

1. Traffic Management proposed on the SRN should be agreed with the relevant National Highways team and be designed in accordance with relevant policies and design guidance.
2. Temporary signage should be agreed with the relevant National Highways team and be designed in accordance with relevant policy.
3. The National Highways Abnormal Loads Team should be consulted regarding any AIL deliveries well in advance to ensure the suitability of the route(s).

These points are noted, and appropriate actions will be taken within the relevant timeframes to ensure information is provided to National Highways.

4. Junction Modelling

This section details the results of the traffic modelling carried out at the following locations as agreed with National Highways.

- Junction A - A160 / Eastfield Road junction (signalised junction, LinSig modelling);
- Junction B - A160 / Habrough Rd (Habrough Roundabout, Junctions 10 modelling);
- Junction C - A160 / A180 Junction (grade separated junction, Junctions 10 modelling);
- Junction D - M180 Junction 5 (grade separated junction, Junctions 10 modelling).
- Junction E - A160 / Humber Road / Manby Road (Manby Roundabout, Junctions 10 modelling); and
- Junction F - M180 Junction 4 (grade separated junction, Junctions 10 modelling).

Industry-standard software, namely TRL Software package Junctions 10 for priority junctions or roundabouts has been used for the assessment of the unsignalised junctions. For the signalised junctions industry standard software, namely LinSig has been used.

The junctions being assessed are shown below. All flow diagrams for the assessed scenarios are provided within **Appendix C**. All modelling outputs are provided within **Appendix D**.

Figure 2. Junctions Assessed

4.1 Junctions 10 Modelling

The results of the assessment indicate the maximum Ratio of Flow to Capacity (RFC) value on each arm and the maximum queue generated. RFC values below 0.85 indicate the junction is operating without any issues. Values between 0.85 and 1.0 indicate the junction is operating above its design capacity but still operating within its theoretical capacity. RFC values over 1.0 represent congested conditions and the junction begins to operate over capacity.

4.2 LinSig Modelling

LinSig is used to model the operation of signalised junctions and reports a Degree of Saturation (DoS) for each link (i.e. demand / available capacity) and Mean Max Queue (MMQ) recorded in Passenger Car Units (PCUs).

A DoS between 0% and 90% is generally considered to represent stable operating conditions, and values between 90% and 100% represents a constrained scenario (i.e. possible queues building up at the junction and increases in vehicle delay). A DoS beyond 100% represents overloaded conditions and a junction working beyond theoretical capacity.

LinSig provides an overall Practical Reserve Capacity (PRC) is a commonly used measure of its available spare capacity. It is related to the degree of saturation of a traffic signal junction. Positive numbers present potential spare capacity and negative numbers present potential over-capacity issues.

4.3 Scenarios

The three scenarios that the junctions are being assessed against are:

- Base 2025;

- Base 2025 + Committed Development; and
- Base 2025 + Committed Development + Proposed Developments.

A growth factor was obtained using TEMPro software version 8.1 (Trip End Model Presentation Programme) and specified for the assessed peak periods, as follows. This was then applied to the traffic flow data to give an overall base future year:

- AM (2025) = 1.0443; and
- PM (2025) = 1.0434.

4.4 Junction A - A160 / Eastfield Road Junction

The junction has been modelled using LINSIG and the modelling results for this junction are provided in Table 6 below. Full details of the modelling inputs and outputs, including staging diagrams and cycle timings are provided within **Appendix D**.

Table 6. Junction A - A160 / Eastfield Road Junction Model Results

Scenario	Junction Arm	AM			PM		
		DoS (%)	Average Delay (s)	Mean Max Queue	DoS (%)	Average Delay (s)	Mean Max Queue
Base 2025	A160 WB Ahead Left	40.1%	22.4	8.4	67.2%	44.3	13.1
	A160 WB Ahead Right	74.8%	29.5	8.8	68.3%	45.8	12.5
	Eastfield Road NB	71.3%	72.7	7.2	59.5%	58.3	7.1
	A160 EB Left Ahead	52.8%	9.8	8.3	50.2%	24.9	8.4
	A160 EB Ahead Right	44.1%	26.9	7.3	40.0%	40.5	8.2
	Eastfield Road SB Left	14.3%	44.8	1.6	18.0%	31.7	2.9
	Eastfield Road SB Right Ahead	72.0%	77.2	6.7	99.1%	117.0	26.8
	Overall PRC		20.3%			-10.1%	
	Cycle time		120 seconds			120 seconds	
Base 2025 + Committed Development	A160 WB Ahead Left	41.1%	22.6	8.7	87.1%	59.6	20.1
	A160 WB Ahead Right	82.2%	30.2	9.0	68.3%	54.0	18.4
	Eastfield Road NB	73.5%	74.6	7.6	60.1%	58.5	7.1
	A160 EB Left Ahead	61.1%	9.1	9.0	54.0%	25.9	9.2
	A160 EB Ahead Right	44.1%	27.0	8.1	37.8%	41.3	9.0
	Eastfield Road SB Left	14.5%	44.8	1.7	18.3%	31.7	3.0
	Eastfield Road SB Right Ahead	74.1%	79.3	7.0	99.1%	117.0	26.8
	Overall PRC		9.4%			-10.1%	
	Cycle time		120 seconds			120 seconds	
Base 2025 + Committed + Proposed Developments	A160 WB Ahead Left	40.7%	22.5	8.6	90.2%	65.4	21.8
	A160 WB Ahead Right	91.3%	31.0	9.0	75.7%	56.6	19.3
	Eastfield Road NB	73.5%	74.6	7.6	60.1%	58.5	7.1
	A160 EB Left Ahead	77.0%	10.3	10.0	54.2%	25.9	9.3

Scenario	Junction Arm	AM			PM		
	A160 EB Ahead Right	48.2%	27.4	8.4	35.6%	41.3	9.0
	Eastfield Road SB Left	14.5%	44.8	1.7	20.3%	32.0	3.3
	Eastfield Road SB Right Ahead	74.1%	79.3	7.0	135.6%	593.9	127.0
	Overall PRC		-1.4%			-50.7%	
	Cycle time		120 seconds			120 seconds	

The results indicate that during the AM period, all lanes continue to operate stably, aside from the 'A160 WB Ahead Right' lane which is marginally constrained when the Proposed Developments' traffic is added. However, the average delay and queues remain manageable under this scenario.

All base modelling queues were validated against survey data, and the lane queue is representative of observed conditions.

In the PM period, all lanes operate stably aside from 'A160 WB Ahead Left' when the Proposed Developments' traffic is added, and 'Eastfield Road SB Right Ahead' in all scenarios. The 3.1% increase in the DoS for the 'A160 WB Ahead Left' lane is marginal, with the delay and queues remaining manageable.

The 'Eastfield Road SB Right Ahead' lane becomes overloaded when the Proposed Developments' traffic is added in the PM. This is coupled with a significant rise in delays and queuing. To mitigate against the overloaded operation of this lane, signal timings were optimised to show how the junction could operate under timing changes. This essentially increases the green time for the Eastfield Road south lane from 27 to 38 seconds.

The results are provided in Table 7 below for the affected PM period.

Table 7. Junction A - A160 / Eastfield Road Junction Model Results – With Signal Timing Changes

Scenario	Junction Arm	PM		
		DoS (%)	Average Delay (s)	Mean Max Queue
Base 2025 + Committed + Proposed Developments (with Optimised Signal Timings)	A160 WB Ahead Left	98.0%	101.7	27.8
	A160 WB Ahead Right	75.7%	66.7	21.3
	Eastfield Road NB	97.1%	153.8	12.7
	A160 EB Left Ahead	57.2%	28.0	9.6
	A160 EB Ahead Right	39.8%	44.6	9.5
	Eastfield Road SB Left	15.9%	23.8	2.9
	Eastfield Road SB Right Ahead	99.2%	101.3	34.7
	Overall PRC		-10.3%	
	Cycle time		120 seconds	

With the mitigation measure (signal timing optimisation) in place, no lanes are overloaded. When compared with the non-mitigation scenario, there is a decrease in queue on the Eastfield Road SB Right Ahead lane of 92 PCUs (decreasing from approximately 127 to 35).

In addition, it should be reiterated that the assessment is a worst-case scenario, taking place for a temporary period and that any temporary impacts would be managed through the Construction Worker Travel Plan and Construction Traffic Management Plan.

4.5 Junction B - A160 / Habrough Rd (Habrough Roundabout)

The junction has been modeled using Junctions 10 and the modelling results for this junction are provided in Table 8 below.

Table 8. Junction B - A160 / Habrough Rd (Habrough Roundabout) Model Results

Scenario	Junction Arm	AM			PM		
		Queue (PCI)	Delay (s)	RFC	Queue (PCI)	Delay (s)	RFC
Base 2025	A160 E	0.3	1.94	0.22	0.9	2.93	0.46
	Habrough Rd	0.2	1.97	0.15	0.1	2.09	0.07
	A160 W	4.9	12.37	0.82	0.7	3.72	0.40
	Ulceby Rd	0.2	4.32	0.18	0.1	2.82	0.08
	E Halton Rd	0.2	2.35	0.14	0.2	1.97	0.18
Base 2025 + Committed Development	A160 E	0.3	1.97	0.23	1.5	3.66	0.57
	Habrough Rd	0.2	2.00	0.15	0.1	2.30	0.07
	A160 W	23.0	49.44	0.98	0.9	3.99	0.44
	Ulceby Rd	0.3	5.10	0.21	0.1	2.90	0.08
	E Halton Rd	0.2	2.62	0.16	0.2	2.01	0.18
Base 2025 + Committed + Proposed Developments	A160 E	0.3	1.97	0.23	2.2	4.76	0.67
	Habrough Rd	0.2	2.00	0.15	0.1	2.54	0.08
	A160 W	114.2	190.22	1.11	0.9	4.01	0.44
	Ulceby Rd	0.3	5.30	0.21	0.1	2.90	0.08
	E Halton Rd	0.2	2.71	0.16	0.2	2.02	0.18

The results indicate that the junction is predicted to operate close to capacity on one arm with the addition of the committed development traffic (A160 W) in the AM period. The addition of the Proposed Developments' construction traffic is predicted to worsen the operation of this arm.

It should be noted that the peak impacts are only expected to be temporary in nature, with total vehicles reduced either side of the peak month. Also, the scenarios tested are a worst case as they assume the peak construction period for the combined Proposed Developments.

However, there are measures that could be explored to reduce the impacts on the junction, such as restricting vehicle movements during the network peak hours. Any temporary impacts would also be managed through the Construction Worker Travel Plan and Construction Traffic Management Plan.

The junction is predicted to operate satisfactorily in the PM period with the committed development traffic and Proposed Developments' traffic included.

4.6 Junction C - A160 / A180 Junction

Modelling results for this junction are provided in Table 9 below.

Table 9. Junction C - A160 / A180 Junction Model Results

Scenario	Junction Arm	AM			PM		
		Queue (PCI)	Delay (s)	RFC	Queue (PCI)	Delay (s)	RFC
Base 2025	A160	0.3	1.30	0.20	0.5	1.51	0.32
	A180 East	0.3	1.88	0.20	0.1	1.80	0.07
	A180 West	0.0	0.00	0.00	0.0	0.00	0.00
Base 2025 + Committed Development	A160	0.3	1.31	0.21	0.7	1.70	0.39
	A180 East	0.3	1.95	0.22	0.1	2.19	0.08
	A180 West	0.0	0.00	0.00	0.0	0.00	0.00
Base 2025 + Committed + Proposed Developments	A160	0.3	1.31	0.21	0.9	1.88	0.45
	A180 East	0.3	1.94	0.22	0.1	2.55	0.12
	A180 West	0.0	0.00	0.00	0.0	0.00	0.00

The results indicate that the junction is predicted to operate satisfactorily in all scenarios, even with the addition of committed traffic and Proposed Developments' construction traffic.

4.7 Junction D - M180 Junction 5

Modelling results for this junction are provided in Table 10 below.

Table 10. Junction D – M180 Junction 5 Model Results

Scenario	Junction Arm	AM			PM		
		Queue (PCI)	Delay (s)	RFC	Queue (PCI)	Delay (s)	RFC
Base 2025	M180 E	0.6	3.76	0.36	1.8	8.29	0.63
	A18	1.3	5.09	0.55	0.9	4.46	0.45
	M180 W	1.4	5.31	0.56	1.7	5.78	0.60
	Barnetby Top	0.7	11.60	0.39	0.5	10.77	0.30
	A15	1.4	3.21	0.56	1.2	2.92	0.53
Base 2025 + Committed Development	M180 E	0.7	4.24	0.39	2.2	9.50	0.67
	A18	1.6	6.17	0.60	0.9	4.75	0.46
	M180 W	1.7	6.55	0.61	1.8	6.28	0.62
	Barnetby Top	1.2	18.71	0.54	0.5	11.63	0.32
	A15	1.8	3.76	0.62	1.3	2.95	0.54
Base 2025 + Committed + Proposed Development	M180 E	0.7	4.24	0.39	1.3	4.94	0.54
	A18	1.6	6.17	0.60	1.1	5.49	0.50
	M180 W	1.7	6.55	0.61	0.8	4.45	0.43
	Barnetby Top	1.2	18.71	0.54	0.3	6.62	0.21
	A15	2.0	4.12	0.65	0.9	2.15	0.46

The results indicate that the junction is predicted to operate satisfactorily in all scenarios, even with the addition of committed traffic Proposed Developments' construction traffic.

4.8 Junction E – A160 / Humber Road / Manby Road (Manby Roundabout)

Modelling results for this junction are provided in Table 11 below.

Table 11. Junction E - A160 / Humber Road / Manby Road (Manby Roundabout) Model Results

Scenario	Junction Arm	AM			PM		
		Queue (PCI)	Delay (s)	RFC	Queue (PCI)	Delay (s)	RFC
Base 2025	Humber Road	0.3	2.38	0.21	0.8	3.32	0.42
	Manby Road	0.5	2.83	0.32	0.3	2.51	0.19
	Phillips 66	0.0	0.00	0.00	0.0	5.63	0.02
	A160 W	0.6	3.16	0.34	0.4	2.72	0.27
	Conoco Access	0.0	2.71	0.00	0.0	0.00	0.00
Base 2025 + Committed Development	Humber Road	0.3	2.43	0.22	1.2	3.99	0.52
	Manby Road	0.7	3.14	0.38	0.3	2.67	0.21
	Phillips 66	0.0	0.00	0.00	0.0	6.37	0.02
	A160 W	0.7	3.56	0.39	0.5	2.92	0.31
	Conoco Access	0.0	2.96	0.00	0.0	0.00	0.00
Base 2025 + Committed + Proposed Developments	Humber Road	0.3	2.42	0.22	1.2	4.05	0.53
	Manby Road	0.7	3.14	0.38	0.3	2.69	0.21
	Phillips 66	0.0	0.00	0.00	0.0	6.47	0.02
	A160 W	0.8	3.68	0.41	0.5	2.91	0.32
	Conoco Access	0.0	3.03	0.01	0.0	0.00	0.00

The results indicate that the junction is predicted to operate satisfactorily in all scenarios, even with the addition of committed traffic and Proposed Developments' construction traffic.

4.9 Junction F - M180 Junction 4

Modelling results for this junction are provided in Table 12 below.

Table 12. Junction F - M180 Junction 4 Model Results

Scenario	Junction Arm	AM			PM		
		Queue (PCI)	Delay (s)	RFC	Queue (PCI)	Delay (s)	RFC
Base 2025	M180 E	1.6	4.93	0.59	2.0	5.74	0.65
	A15 N	2.9	11.41	0.73	4.2	17.42	0.80
	M180 W	0.7	4.73	0.38	1.4	7.86	0.57
	A15 S	1.5	3.64	0.57	1.1	3.09	0.49
Base 2025 + Committed	M180 E	1.6	4.93	0.59	4.4	10.11	0.80
	A15 N	6.4	21.77	0.86	40.9	142.11	1.07

Development	M180 W	0.9	6.26	0.45	2.0	11.21	0.65
	A15 S	2.6	5.86	0.71	1.1	3.14	0.50
Base 2025 + Committed + Proposed Developments	M180 E	1.6	4.93	0.59	5.1	11.47	0.83
	A15 N	7.4	24.77	0.88	55.6	188.13	1.12
	M180 W	0.9	6.56	0.46	2.0	11.13	0.65
	A15 S	2.9	6.40	0.73	1.1	3.08	0.50

The results indicate that the junction is predicted to operate close to capacity on one arm with the addition of the committed development traffic (A15 N) in the AM period. However, the addition of the Proposed Developments' construction traffic is only predicted to worsen the operation of this arm with the addition of 1 extra queuing vehicle, which is considered immaterial.

The results indicate that the junction is predicted to operate over capacity on one arm with the addition of the committed development traffic (A15 N) in the PM period. The addition of the Proposed Developments' construction traffic is predicted to worsen the operation of this arm, but as the junction is already operating over capacity, it is not considered that this worsening causes a material impact.

In addition, any possible temporary impacts would be managed through the Construction Worker Travel Plan and Construction Traffic Management Plan.

Appendix A AECOM Response 1 (16.02.24)

Memo

To	Project name	Project number	Subject
National Highways	Humber Zero - Phillips 66 and VPI Developments	60712174	National Highways Response 1
Date	**Document ref**	**Issued by**	**Prepared by**
16th February 2024	AA.23.19.25	Mark Romanowski	Mark Romanowski
Checked by	**Revision No.**		
Stephen Moss	1		

1. National Highways Response 1

1.1 Introduction

This document is the first step in responding to comments supplied by National Highways on 5th and 16th January 2024, in relation to the Humber Zero developments at Phillips 66 and VPI Immingham respectively. An additional meeting was also held with National Highways on 16th January.

The purpose of this memo is to provide National Highways with further details and justification as requested as part of the comments. The further information provided within this memo is provided below:

- Review of network peak hours – using WebTRIS / previous count data;
- Trip generation during network peak hours and distribution during network peak hours, including justification for the construction peak period trip generation daily profile assumptions;
- List of committed developments to be applied, including justification for use, trip generation and distribution, including flow diagrams;
- Agreement on future year to assess, including justification;
- Confirmation of peak hours and junctions for assessment, including justification;
- Daily profile of operational trip generation;
- Usage of traffic counts from Immingham Eastern Ro-Ro Terminal (IERRT) Transport Assessment (TA) (December 2023); and
- Committed development details.

Raw data from the 2022 Automatic Traffic Counts (ATCs) is provided in **Appendix A**. WebTRIS data can be found online using the references provided.

1.2 Review of Network Peak Hours

In order to confirm the peak hours for assessment, data from a number of ATCs carried out in February 2022 has been used. Where data was not available for other locations on the Strategic Road Network (SRN), WebTRIS data from 2023 has been used.

Details of the February 2022 ATCs from the peak AM and PM hours are provided in Table 1 and the locations are shown in Figure 1.

Figure 1. ATC Locations (2022 Count)

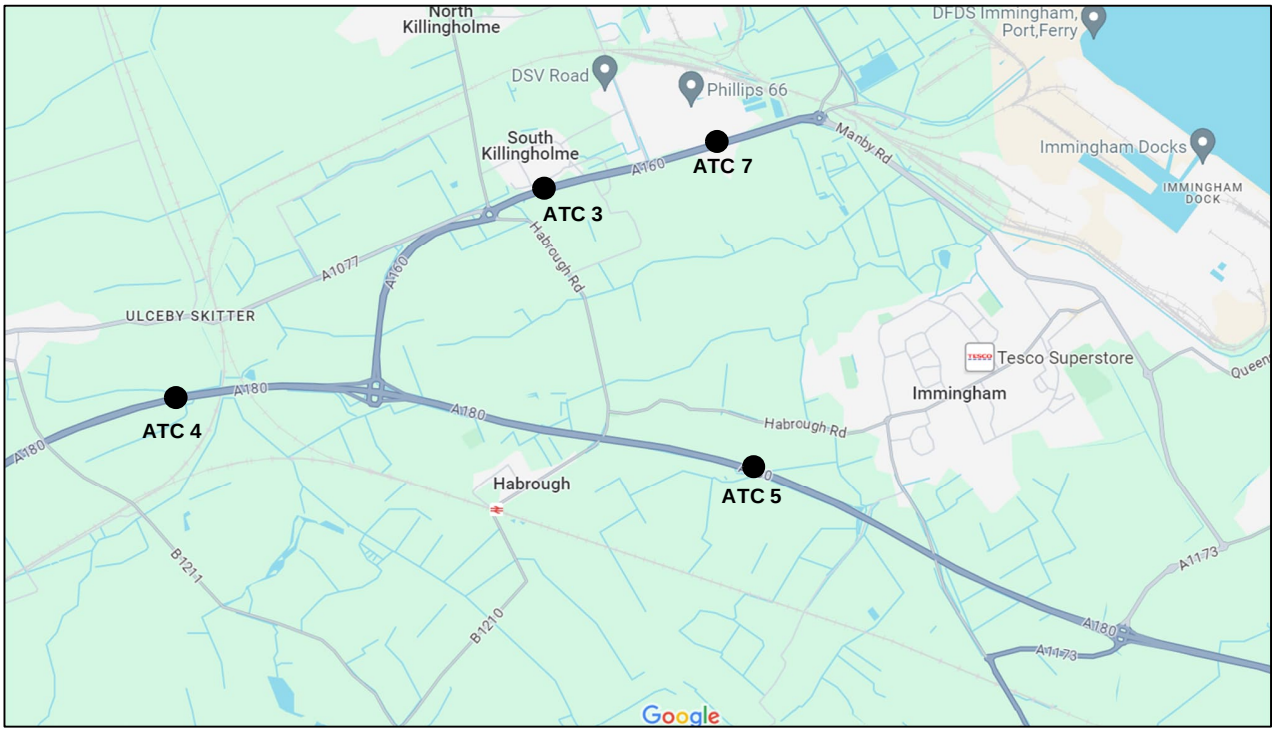


Table 1. ATC Locations Peak Hour Data Comparison, Two-Way (Collected February 2022)

Site	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00
ATC 3 - A160 (West of Eastfield Rd)	1,178	1,553	1,021	810	1,112	1,489	1,243	767
ATC 4 - A180 (West of A160 jct)	1,973	2,900	2,556	2,003	2,370	2,632	2,368	1,559
ATC 5 - A180 (near Immingham, between A160 and A1173 jcts)	673	1,056	967	735	1,077	1,223	1,076	723
ATC 7 - A160 (between Eastfield Rd and A1173 jct)	814	1,072	904	737	952	1,123	969	581

The data from the ATCs shows that the highest AM and PM two-way flows were during the 07:00-08:00 and 16:00-17:00 periods.

Details of the WebTRIS counts, taken as an average between January 2023 and December 2023 from the peak AM and PM hours are provided in Table 2 and the locations are shown in Figure 2.

Figure 2. WebTRIS Count Locations

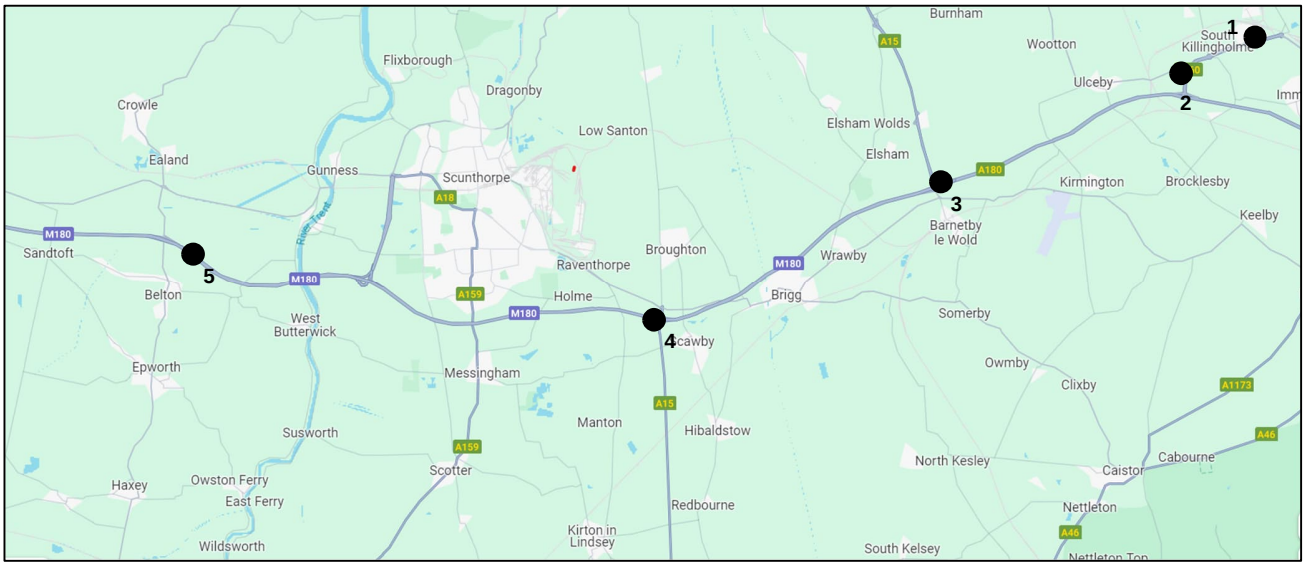


Table 2. WEBTRIS Peak Hour Data Comparison, One-Way (Jan 2023-Dec 2023)

Point	Site	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00
1	TMU Site 9958/1 on A160 eastbound between A1077 and A1173	298	405	357	296	333	343	307	207
	TMU Site 9959/1 on A160 westbound between A1173 and A1077	311	341	300	276	349	385	318	187
2	TMU Site 7072/1 on A160 eastbound between A180 and A1077	562	671	398	326	437	452	446	323
3	TMU Site 8751/2 on link A180 westbound exit for M180/A15	283	348	332	312	375	450	423	280
	TMU Site 8751/1 on link A180 eastbound access from M180/A15	288	468	398	300	343	375	368	268
4	TMU Site 8755/2 on link M180 eastbound J4	394	649	610	597	738	752	702	504
	TMU Site 8756/2 on link M180 westbound J4	469	655	631	653	753	748	648	435
5	MIDAS site at M180/1127A[1]	817	1374	1355	1204	1362	1437	1388	1023
	MIDAS site at M180/1127B[1]	903	1255	1211	1240	1514	1579	1363	915

WebTRIS data also confirmed peak hours as 07:00-08:00 and 16:00-17:00. Only one of the flows in the PM period was higher during the 15:00-16:00 period.

[1] These are the most westerly two-way counts available on the M180 in WebTRIS, therefore have been used to assume base flows for the far western extent of the M180 (e.g. west of M180 J2).

1.3 Trip Generation During Network Peak Hours

Further details of the daily construction trip generation can be provided. The following table shows the total daily workers and HGVs expected by VPI and Phillips 66 during the identified peak month of construction (e.g. Month 23). For the purposes of the assessment, a construction year of 2025 has been assumed, however it is possible that due to delays in the Government's cluster sequencing competition, the peak construction year may occur later.

For clarification, within the Humber Zero TA, Section 8A.5 sets out the expected construction traffic volumes during the peak month for the individual sites (Tables 8A.14 and 8A.15), which occur in different years (VPI = 2027, Phillips 66 = 2025), then a combined total was provided in Table 8A.16 adding the two totals together.

However, this combined total is an overestimate as peak traffic for each site will not occur at the same time. Overlap in construction of the Proposed Developments is however anticipated to occur and the highest number of vehicles combined is expected in Month 23 of construction. Consequently, the volumes to be used as part of this assessment are as shown in Table 3.

Table 3. VPI and Phillips 66 Construction Workers - Peak Month Daily Total (Month 23)

	VPI	Phillips 66	Total
Workers	57	790	847
HGVs	15	115	130

It should be noted that the Humber Zero TA document (Section 8A.4) quoted that the construction sites would operate 24/7, however during determination of the planning applications, North Lincolnshire Council has requested that the sites will operate a 12-hour working day, between 07:00 and 19:00. This now supersedes information provided within the Humber Zero Environmental Statement (ES) Transport chapter and TA.

The confirmed proportion of workers arriving and departing both construction sites is as shown in Table 4.

Table 4. VPI and Phillips 66 Construction Workers – Daily Profile Percentage Split

Time Period	In	Out
06:00-07:00	50%	0%
07:00-08:00	30%	0%
08:00-09:00	20%	0%
09:00-10:00	0%	0%
10:00-11:00	0%	0%
11:00-12:00	0%	0%
12:00-13:00	0%	0%
13:00-14:00	0%	0%
14:00-15:00	0%	0%
15:00-16:00	0%	0%
16:00-17:00	0%	30%
17:00-18:00	0%	40%
18:00-19:00	0%	20%
19:00-20:00	0%	10%
Total	**100%**	**100%**

In terms of construction HGVs, as described within the TA, construction HGVs arrivals / departures will be split equally across the 12-hour working day (07:00-19:00).

The above proportions have been applied to the total number of daily construction workers expected each day. The resultant daily profile is therefore presented as shown in Table 5

Table 5. VPI and Phillips 66 Construction Workers – Daily Profile

Time Period	VPI Workers		Phillips 66 Workers		Total	
	In	Out	In	Out	In	Out
06:00-07:00	29	0	395	0	424	0
07:00-08:00	17	0	237	0	254	0
08:00-09:00	11	0	158	0	169	0
09:00-10:00	0	0	0	0	0	0
10:00-11:00	0	0	0	0	0	0
11:00-12:00	0	0	0	0	0	0
12:00-13:00	0	0	0	0	0	0
13:00-14:00	0	0	0	0	0	0
14:00-15:00	0	0	0	0	0	0
15:00-16:00	0	0	0	0	0	0
16:00-17:00	0	17	0	237	0	254
17:00-18:00	0	23	0	316	0	339
18:00-19:00	0	11	0	158	0	169
19:00-20:00	0	6	0	79	0	85
Total	**57**	**57**	**790**	**790**	**847**	**847**

As described within the Humber Zero TA (Section 8A.5), based on existing operation at both sites, car sharing will be expected, with a proposed proportion of 1.35 workers per vehicle. For the purposes of assessment, the proportion of workers per vehicle has therefore been set at 1.35. This will be controlled through the Construction Worker Travel Plans (CWTP).

Based on this factor, the total number of worker construction vehicle movements to be considered as part of the assessment can be presented as shown in Table 6.

Table 6. VPI and Phillips 66 Construction Workers – Total Vehicles

Time Period	VPI Workers		Phillips 66 Workers		Total	
	In	Out	In	Out	In	Out
06:00-07:00	21	0	293	0	314	0
07:00-08:00	13	0	176	0	188	0
08:00-09:00	8	0	117	0	126	0
09:00-10:00	0	0	0	0	0	0
10:00-11:00	0	0	0	0	0	0
11:00-12:00	0	0	0	0	0	0

12:00-13:00	0	0	0	0	0	0
13:00-14:00	0	0	0	0	0	0
14:00-15:00	0	0	0	0	0	0
15:00-16:00	0	0	0	0	0	0
16:00-17:00	0	13	0	176	0	188
17:00-18:00	0	17	0	234	0	251
18:00-19:00	0	8	0	117	0	126
19:00-20:00	0	4	0	59	0	63
Total	**42**	**42**	**585**	**585**	**628**	**628**

Based on a 12-hour working day, the total daily construction HGVs are proportioned as shown in Table 7. (Any minor discrepancies in the final totals are due to rounding and do not affect the overall results).

Table 7. VPI and Phillips 66 Construction HGVs – Total Vehicles

Time Period	VPI HGVs		Phillips 66 HGVs		Total	
	In	Out	In	Out	In	Out
06:00-07:00	0	0	0	0	0	0
07:00-08:00	1	1	10	10	11	11
08:00-09:00	1	1	10	10	11	11
09:00-10:00	1	1	10	10	11	11
10:00-11:00	1	1	10	10	11	11
11:00-12:00	1	1	10	10	11	11
12:00-13:00	1	1	10	10	11	11
13:00-14:00	1	1	10	10	11	11
14:00-15:00	1	1	10	10	11	11
15:00-16:00	1	1	10	10	11	11
16:00-17:00	1	1	10	10	11	11
17:00-18:00	1	1	10	10	11	11
18:00-19:00	1	1	10	10	11	11
19:00-20:00	0	0	0	0	0	0
Total	**15**	**15**	**115**	**115**	**130**	**130**

The total daily construction vehicles, including worker vehicles and HGVs can be presented as shown in Table 8.

Table 8. VPI and Phillips 66 – Total Vehicles

Time Period	VPI All Vehicles		Phillips 66 All Vehicles		Total	
	In	Out	In	Out	In	Out
06:00-07:00	21	0	293	0	314	0
07:00-08:00	14	1	185	10	199	11
08:00-09:00	10	1	127	10	136	11
09:00-10:00	1	1	10	10	11	11
10:00-11:00	1	1	10	10	11	11
11:00-12:00	1	1	10	10	11	11
12:00-13:00	1	1	10	10	11	11
13:00-14:00	1	1	10	10	11	11
14:00-15:00	1	1	10	10	11	11
15:00-16:00	1	1	10	10	11	11
16:00-17:00	1	14	10	185	11	199
17:00-18:00	1	18	10	244	11	262
18:00-19:00	1	10	10	127	11	136
19:00-20:00	0	4	0	59	0	63
Total	**57**	**57**	**700**	**700**	**758**	**758**

1.4 Phillips 66 and VPI Trip Distribution During Network Peak Hours

The trip distribution for worker vehicles and HGVs during the peak hours are as described within the Humber Zero TA (Section 8A.5). The diagrams are included as Figures 3-6 below for reference. The junctions on the M180 were not originally part of the study area, therefore distributions were not produced. However, for the purposes of this assessment, the proportion of Proposed Development construction traffic on the M180 has been derived by assuming that all traffic that leaves the western point of the study area (A180 / A15 junction) will travel along the M180.

Figure 3. VPI Worker Distribution

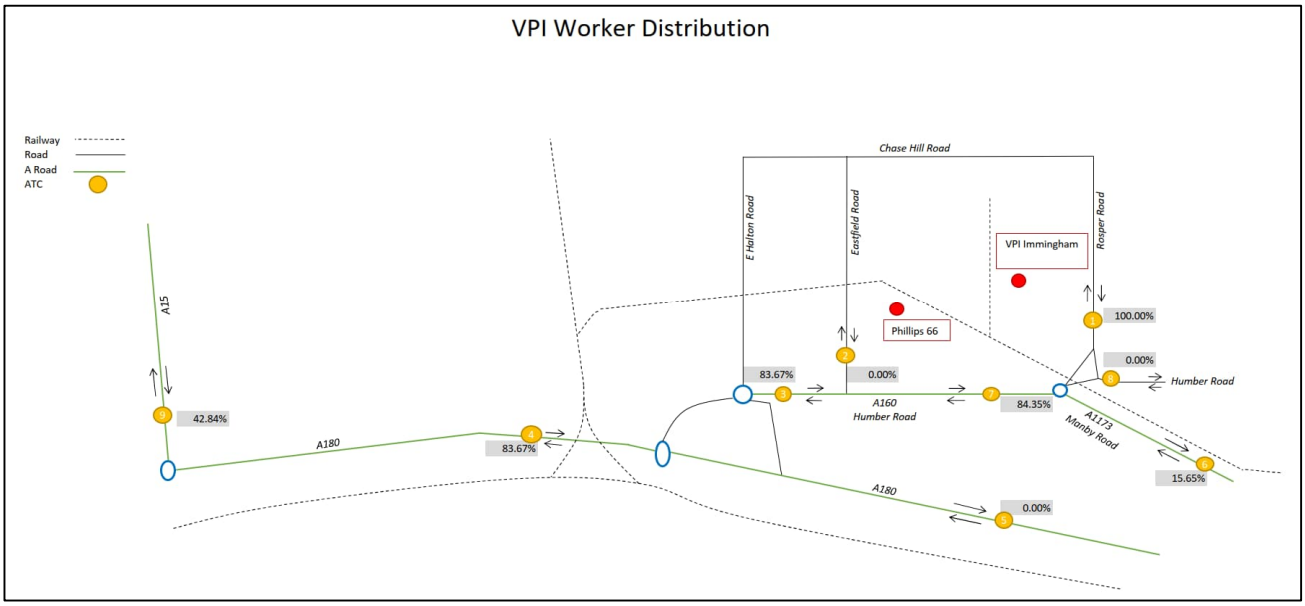


Figure 4. VPI HGV Distribution

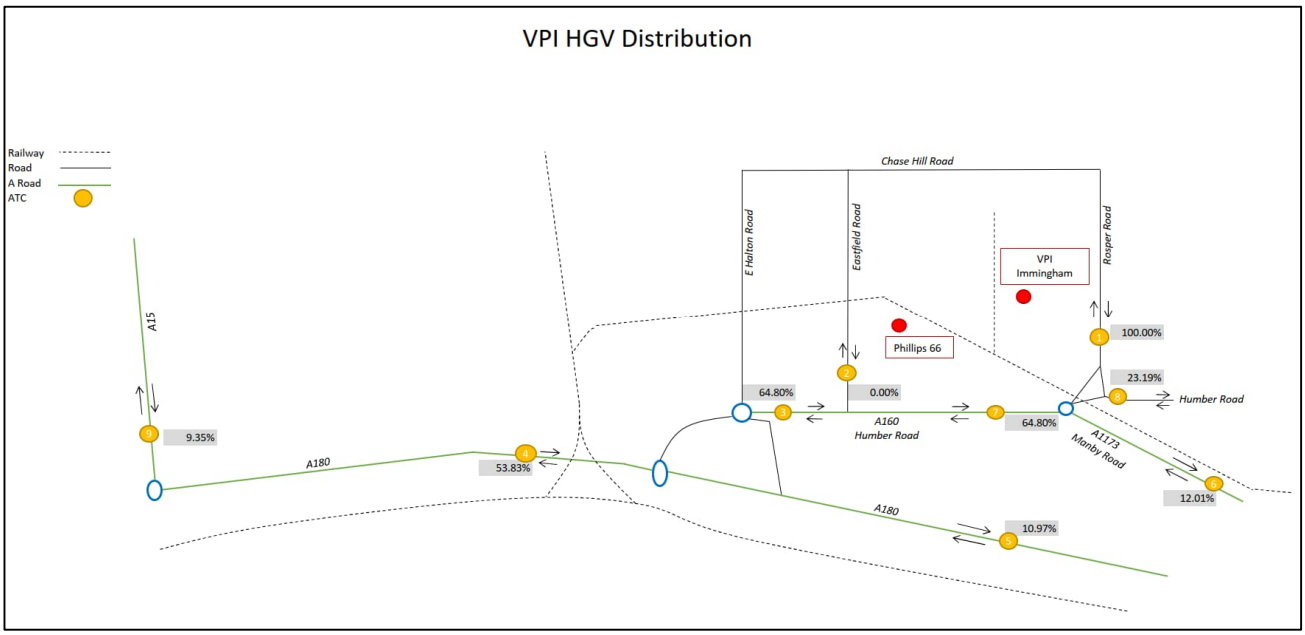


Figure 5. Phillips 66 Worker Distribution

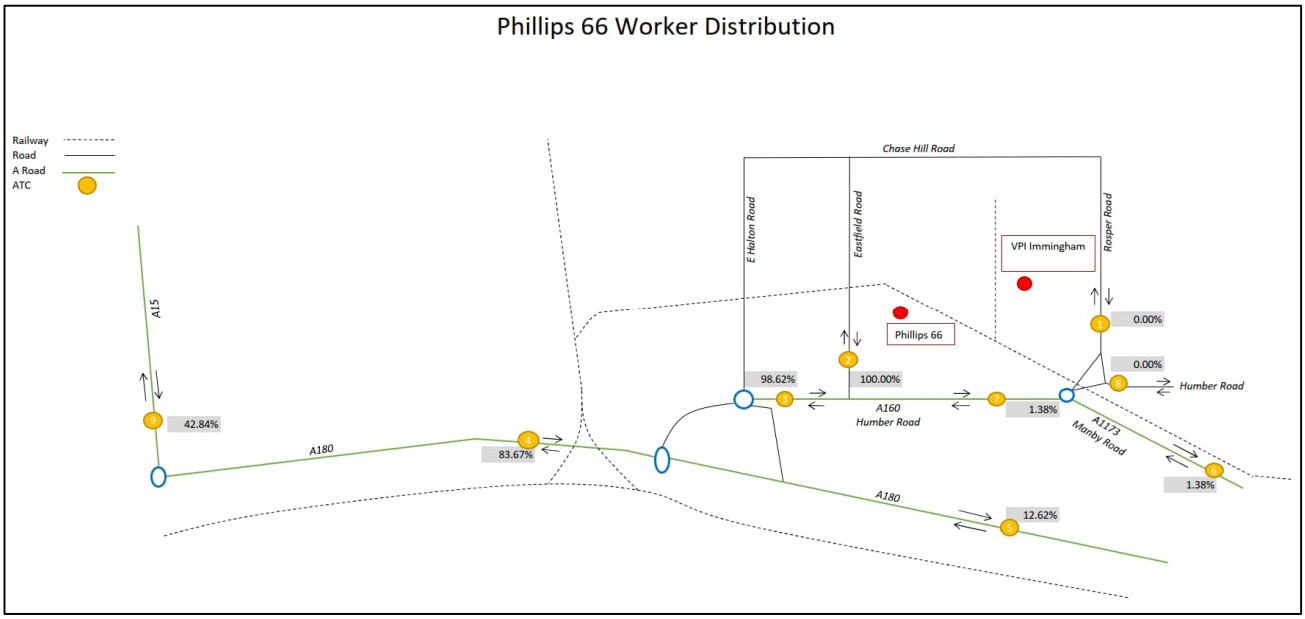
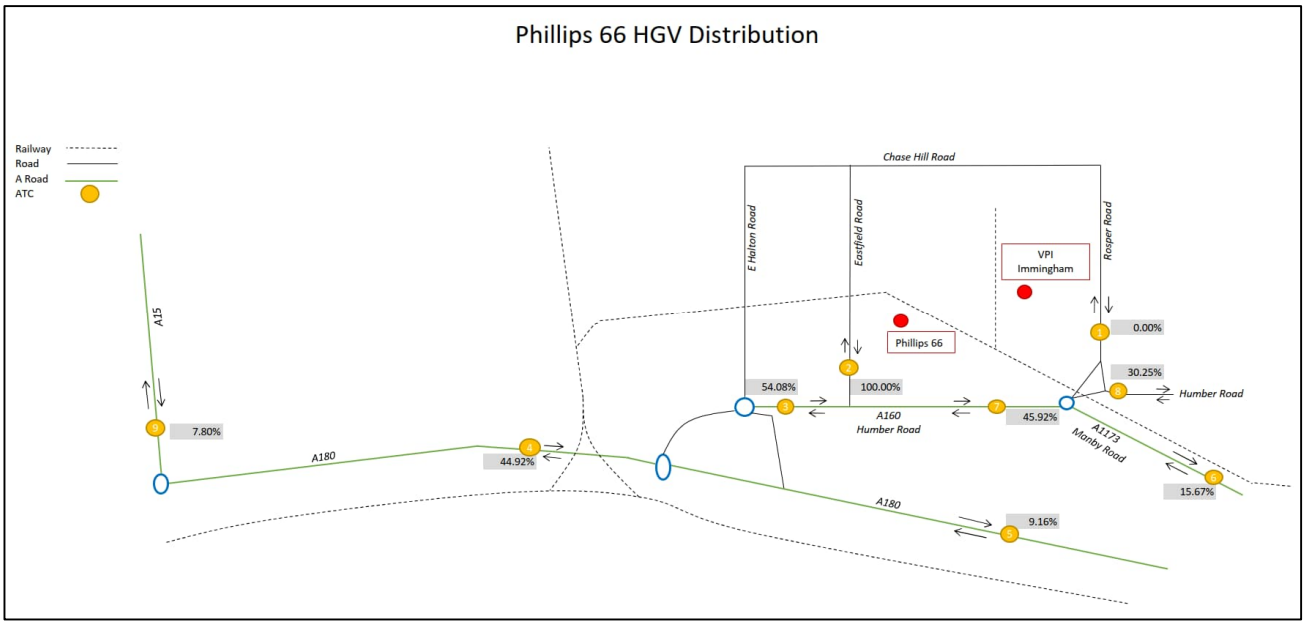


Figure 6. Phillips 66 HGV Distribution



1.5 Future Year to Assess

Based on the proposed construction programmes, the largest combined traffic generation will be during Month 23 of the construction schedule. For the purposes of the assessment, a construction year of 2025 has been assumed, however it is possible that due to delays in the Government's cluster sequencing competition, the peak construction year may occur later. An additional forecast year of 2026 will therefore also be included as part of the assessment.

1.6 Confirmation of Peak Hours and Junctions for Assessment

A further test has been carried out to verify the junctions to be assessed on the SRN. For this assessment, the two-way peak hour Proposed Development construction traffic for both Phillips 66 and VPI has been combined and added to the base traffic at the ATC / WebTRIS locations. This has provided an overview of the percentage change generated by the combined construction traffic.

As a secondary test, the combined construction traffic has also been added to other hours outside the AM and PM peak periods to provide confidence that even with the Proposed Development traffic added, the total traffic does not exceed the assumed base peak hours of 07:00-08:00 and 16:00-17:00. This provides further confirmation that only the 07:00-08:00 and 16:00-17:00 periods require assessment.

Note the 09:00-10:00 and 15:00-16:00 periods have not been included as no worker trips are expected during these periods and the expected HGV trips are very low (11 two-way).

1.6.1 ATC 3 - A160 (West of Eastfield Rd)

Traffic impacts during each hour are shown in Table 9 below, along with the distribution percentage.

Table 9. ATC 3 - A160 (West of Eastfield Rd) – Traffic

Time Period	Distribution				Total Vehicles			
	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV
06:00-07:00	84%	65%	99%	54%	18	0	289	0
07:00-08:00	84%	65%	99%	54%	11	2	173	10
08:00-09:00	84%	65%	99%	54%	7	2	115	10
16:00-17:00	84%	65%	99%	54%	11	2	173	10
17:00-18:00	84%	65%	99%	54%	14	2	231	10
18:00-19:00	84%	65%	99%	54%	7	2	115	10
19:00-20:00	84%	65%	99%	54%	4	0	58	0

The impact of the Proposed Development construction vehicles at the count location is shown in Table 10.

Table 10. ATC 3 - A160 (West of Eastfield Rd) – Base + Development Traffic

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
06:00-07:00	1,178	306	1,485	26%
07:00-08:00	1,553	196	1,749	13%
08:00-09:00	1,021	134	1,156	13%
16:00-17:00	1,489	196	1,685	13%
17:00-18:00	1,243	257	1,500	21%
18:00-19:00	767	134	902	18%
19:00-20:00	364	61	426	17%

Table 10 indicates that total traffic in other hours outside the AM and PM peak periods is still lower than the peak hours of 07:00-08:00 and 16:00-17:00, even with the Proposed Development construction traffic included (apart from 17:00-18:00, but this is only 11 vehicles more than the peak, so not considered significant).

Based on the high number of construction vehicles expected to flow through ATC 3, which acts as a proxy for the A160 / Eastfield Road junction and the A160 Habrough Roundabout, these junctions will be assessed.

1.6.2 ATC 4 - A180 (West of A160 Junction

Traffic impacts during each hour are shown in Table 11 below, along with the distribution percentage.

Table 11. ATC 4 - A180 (West of A160 Junction) - Traffic

Time Period	Distribution				Total Vehicles			
	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV
06:00-07:00	84%	54%	84%	45%	18	0	245	0
07:00-08:00	84%	54%	84%	45%	11	1	147	9
08:00-09:00	84%	54%	84%	45%	7	1	98	9
16:00-17:00	84%	54%	84%	45%	11	1	147	9
17:00-18:00	84%	54%	84%	45%	14	1	196	9
18:00-19:00	84%	54%	84%	45%	7	1	98	9
19:00-20:00	84%	54%	84%	45%	4	0	49	0

The impact of the Proposed Development construction vehicles at the count location is shown in Table 12.

Table 12. ATC 4 - A180 (West of A160 Junction) – Base + Development Traffic

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
06:00-07:00	1,973	**263**	2,235	13%
07:00-08:00	2,900	**167**	3,068	6%
08:00-09:00	2,556	**115**	2,671	4%
16:00-17:00	2,632	**167**	2,800	6%
17:00-18:00	2,368	**220**	2,588	9%
18:00-19:00	1,559	**115**	1,674	7%
19:00-20:00	841	**53**	894	6%

Table 12 indicates that total traffic in other hours outside the AM and PM peak periods is still lower than the peak hours of 07:00-08:00 and 16:00-17:00, even with the Proposed Development construction traffic included.

Based on the high number of construction vehicles expected to flow through ATC 4, which acts as a proxy for the A160 / A180 junction (Brocklesby Interchange), this junction will be assessed.

1.6.3 ATC 5 - A180 (near Immingham, between A160 and A1173 Junctions)

Traffic impacts during each hour are shown in Table 13, along with the distribution percentage.

Table 13. ATC 5 - A180 (near Immingham, between A160 and A1173 Junctions) - Traffic

Time Period	Distribution				Total Vehicles			
	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV
06:00-07:00	0%	11%	13%	9%	0	0	37	0
07:00-08:00	0%	11%	13%	9%	0	0	22	2
08:00-09:00	0%	11%	13%	9%	0	0	15	2
16:00-17:00	0%	11%	13%	9%	0	0	22	2
17:00-18:00	0%	11%	13%	9%	0	0	30	2
18:00-19:00	0%	11%	13%	9%	0	0	15	2
19:00-20:00	0%	11%	13%	9%	0	0	7	0

The impact of the Proposed Development construction vehicles at the count location is shown in Table 14.

Table 14. ATC 5 - A180 (near Immingham, between A160 and A1173 Junctions) – Base + Development Traffic

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
06:00-07:00	673	**37**	710	5%
07:00-08:00	1,056	**24**	1,080	2%
08:00-09:00	967	**17**	984	2%
16:00-17:00	1,223	**24**	1,247	2%
17:00-18:00	1,076	**32**	1,108	3%
18:00-19:00	723	**17**	740	2%
19:00-20:00	381	**7**	388	2%

Table 14 indicates that total traffic in other hours outside the AM and PM peak periods is still lower than the peak hours of 07:00-08:00 and 16:00-17:00, even with the Proposed Development construction traffic included.

Based on the low number of construction vehicles and low expected percentage increase expected through ATC 5, which acts as a proxy for the A180 / A1173 junction, this junction will not require further assessment. This is also applies to all further A180 junctions to the east of the A180 / A1173 junction, which would also experience low numbers of construction vehicles.

1.6.4 ATC 7 - A160 (between Eastfield Rd and A1173 Junction)

Traffic impacts during each hour are shown in Table 15, along with the distribution percentage.

Table 15. ATC 7 - A160 (between Eastfield Rd and A1173 Junction) - Traffic

Time Period	Distribution				Total Vehicles			
	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV
06:00-07:00	84%	65%	1%	46%	18	0	4	0
07:00-08:00	84%	65%	1%	46%	11	2	2	9
08:00-09:00	84%	65%	1%	46%	7	2	2	9
16:00-17:00	84%	65%	1%	46%	11	2	2	9
17:00-18:00	84%	65%	1%	46%	14	2	3	9
18:00-19:00	84%	65%	1%	46%	7	2	2	9
19:00-20:00	84%	65%	1%	46%	4	0	1	0

The impact of the Proposed Development construction vehicles at the count location is shown in Table 16.

Table 16. ATC 7 - A160 (between Eastfield Rd and A1173 Junction) - Base + Development Traffic

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
06:00-07:00	814	**22**	836	3%
07:00-08:00	1,072	**24**	1,095	2%
08:00-09:00	904	**19**	923	2%
16:00-17:00	1,123	**24**	1,147	2%
17:00-18:00	969	**28**	997	3%
18:00-19:00	581	**19**	600	3%
19:00-20:00	327	**4**	332	1%

Table 16 indicates that total traffic in other hours outside the AM and PM peak periods is still lower than the peak hours of 07:00-08:00 and 16:00-17:00, even with the Proposed Development construction traffic included.

Based on the low number of construction vehicles and low expected percentage increase expected through ATC 7, which acts as a proxy for the A160 Manby Roundabout, ordinarily this junction would not require further assessment. However, due to the proximity of the junction to the VPI Site (on Rosper Road), it is considered that the A160 Manby Roundabout should be assessed.

1.6.5 M180 Junction 4

Traffic impacts during each hour are shown in Table 17, along with the distribution percentage. This location has been used as a proxy for determining if further assessment is required at M180 J4 and J5.

Table 17. M180 Junction 4, Sites 8755/2 and 8746/2 (2023 Data) - Traffic

Time Period	Distribution				Total Vehicles			
	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV
06:00-07:00	41%	44%	41%	37%	9	0	119	0
07:00-08:00	41%	44%	41%	37%	5	1	72	7
08:00-09:00	41%	44%	41%	37%	3	1	48	7
16:00-17:00	41%	44%	41%	37%	5	1	72	7
17:00-18:00	41%	44%	41%	37%	7	1	96	7
18:00-19:00	41%	44%	41%	37%	3	1	48	7
19:00-20:00	41%	44%	41%	37%	2	0	24	0

The impact of the development construction vehicles at the count location is shown in Table 18.

Table 18. M180 Junction 4, Sites 8755/2 and 8746/2 (2023 Data) - Base + Development Traffic

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
06:00-07:00	863	**128**	991	15%
07:00-08:00	1,304	**85**	1,389	7%
08:00-09:00	1,241	**59**	1,300	5%
16:00-17:00	1,500	**85**	1,585	6%
17:00-18:00	1,350	**111**	1,461	8%
18:00-19:00	939	**59**	998	6%
19:00-20:00	595	**26**	621	4%

Table 18 indicates that total traffic in other hours outside the AM and PM peak periods is still lower than the peak hours of 07:00-08:00 and 16:00-17:00, even with the Proposed Development construction traffic included.

Based on the high number of construction vehicles expected to flow through this WebTRIS site, which acts as a proxy for M180 Junction 5 and M180 Junction 4, these junctions will be assessed.

1.6.6 M180 Junctions 2-3

Traffic impacts during each hour are shown in Table 19, along with the distribution percentage. This location acts as a proxy for the M180 west of M180 J4 in the absence of any other usable data from WebTRIS.

Table 19. M180 Junctions 2-3, MIDAS M180-1127 A and M180-1127B (2023 Data) - Traffic

Time Period	Distribution				Total Vehicles			
	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV	VPI Workers	VPI HGV	Phillips 66 Workers	Phillips 66 HGV
06:00-07:00	41%	44%	41%	37%	9	0	119	0
07:00-08:00	41%	44%	41%	37%	5	1	72	7
08:00-09:00	41%	44%	41%	37%	3	1	48	7
16:00-17:00	41%	44%	41%	37%	5	1	72	7
17:00-18:00	41%	44%	41%	37%	7	1	96	7
18:00-19:00	41%	44%	41%	37%	3	1	48	7
19:00-20:00	41%	44%	41%	37%	2	0	24	0

The impact of the development construction vehicles at the count location is shown in Table 20.

Table 20. M180 Junctions 2-3, MIDAS M180-1127 A and M180-1127B (2023 Data) - Base + Development Traffic

Time Period	Base (two-way)	VPI + Phillips 66 Total	Base + VPI + Phillips 66	% Increase
06:00-07:00	1,719	**128**	1,847	7%
07:00-08:00	2,629	**85**	2,715	3%
08:00-09:00	2,566	**59**	2,625	2%
16:00-17:00	3,015	**85**	3,100	3%
17:00-18:00	2,751	**111**	2,861	4%
18:00-19:00	1,939	**59**	1,998	3%
19:00-20:00	1,244	**26**	1,269	2%

The table indicates that total traffic in other hours outside the AM and PM peak periods is still lower than the peak hours of 07:00-08:00 and 16:00-17:00, even with the Proposed Development construction traffic included.

Whilst the number of vehicles potentially reaching the western extent of the M180 is relatively high, the overall percentage increase in traffic in the peak hours of 07:00-08:00 and 16:00-17:00 is very low (3%).

Based on this low percentage increase in traffic and the significant distance / journey time (e.g. approximately 33 miles and a 35 minute drive time between the sites and M180 Junction 1), it is not considered that any junctions west of M180 Junction 5 require assessment.

1.7 Daily Profile of Operational Trip Generation

Operation of both Proposed Developments will require 24/7 working. As given in ES Chapter 3, Section 3.6 the number of operational staff will be approximately 15 FTE for Phillips 66 and approximately 50 FTE for VPI. There

will be day and night shifts, which would have the same arrival / departure times as the construction workers, therefore have been split in the same way, but over the day / night shifts.

Table 21. VPI and Phillips 66 Operational Workers – Daily Profile Percentage Split

Time Period	In	Out
06:00-07:00	25%	25%
07:00-08:00	15%	15%
08:00-09:00	10%	10%
09:00-10:00	0%	0%
10:00-11:00	0%	0%
11:00-12:00	0%	0%
12:00-13:00	0%	0%
13:00-14:00	0%	0%
14:00-15:00	0%	0%
15:00-16:00	0%	0%
16:00-17:00	15%	15%
17:00-18:00	20%	20%
18:00-19:00	10%	10%
19:00-20:00	5%	5%
Total	**100%**	**100%**

Using the same car share ratio of 1.35 workers per car as used for the construction phase assessment, this generates the following total vehicles.

Table 22. VPI and Phillips 66 Operational Workers – Daily Vehicles

Time Period	In	Out
06:00-07:00	12	12
07:00-08:00	7	7
08:00-09:00	5	5
09:00-10:00	0	0
10:00-11:00	0	0
11:00-12:00	0	0
12:00-13:00	0	0
13:00-14:00	0	0
14:00-15:00	0	0
15:00-16:00	0	0
16:00-17:00	7	7
17:00-18:00	10	10
18:00-19:00	5	5
19:00-20:00	2	2

Total	**48**	**48**

Based on the small expected numbers of operational vehicles during the peak hours as shown, it is not considered necessary to carry out assessments for the additional operational scenarios.

1.8 Usage of Junction Turning Counts from IERRT TA

Junction turning counts were carried out in 2021 as part of the Immingham Eastern Ro-Ro Terminal (IERRT), Port of Immingham Transport Assessment (December 2023). Counts undertaken that are relevant to the Humber Zero study area include those at Manby Roundabout, Habrough Roundabout and Brocklesby Interchange.

It is proposed that these counts are used for the purpose of modelling these junctions. A validation check has been carried out using the 2022 ATCs to compare the flows and determine the suitability of the counts. Details are provided in Tables 23 and 24.

Table 23. A160 / A1173 (Manby Roundabout) - Traffic Count Comparison (Two-Way AM Peak Hour)

Time Period	A160 / A1173 (Manby Roundabout) Junction Count (2021) west of junction	ATC 7 - A160 (between Eastfield Rd and A1173 Junction) (2022)	Difference
07:00-08:00	1,095	1,072	+23
16:00-17:00	1,097	1,123	-26

Table 24. A160 / Habrough Rd (Habrough Rbt) - Traffic Count Comparison (Two-Way AM Peak Hour)

Time Period	A160 / Habrough Rd (Habrough Roundabout) (2021) - east of junction	ATC 3 - A160 (West of Eastfield Rd) (2022)	Difference
07:00-08:00	1,626	1,553	+73
16:00-17:00	1,460	1,489	-29

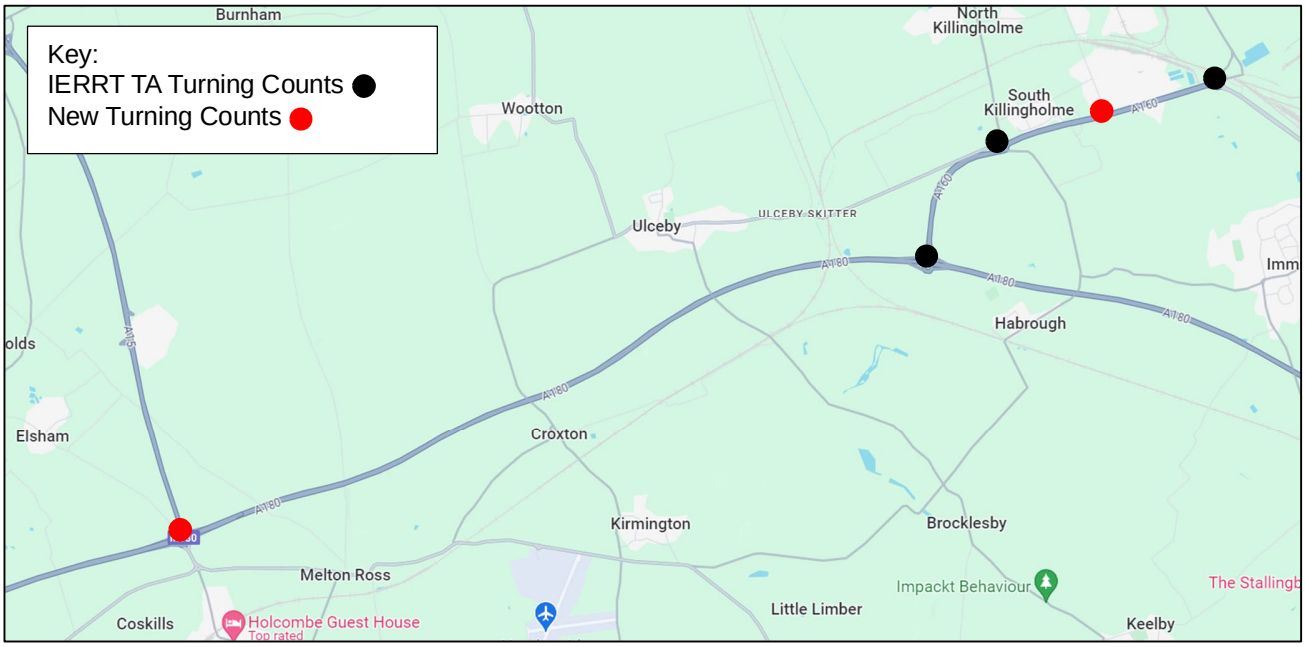
It was not possible to provide a comparison for the 2021 junction count at A180 / A160 (Brocklesby Interchange) as there was not an ATC from 2022 in a suitable location. However, since the flows at ATC 3 are comparable with those at Habrough Roundabout (see Table 24), and the flows between Habrough Rbt and Brocklesby Interchange are comparable, it is considered that flows in 2021 at Brocklesby Interchange are valid for use within the modelling.

1.9 Junction Turning Counts

Based on the above information, it is considered that the junction turning count data from the IERRT TA can be used for Manby Roundabout, Habrough Roundabout and Brocklesby Interchange.

However, new junction turning counts will be carried out at the M180 / A15 junction (M180 J5), M180 J4 and at the A160 Eastfield Road junction, as this data was not available from other sources. These will take place during late February outside of the school half term holidays. The details of the counts are shown below.

Figure 7. Junction Count Locations



1.10 Committed Developments

Further details regarding the committed development traffic to be included within the modelling will be provided, however the following developments have been considered to date:

- Developments mentioned in the National Highways response:

  - Viking CCS CO_2 gathering network
    - Development Consent Order (DCO) application currently at Pre Examination stage
  - Humber Low Carbon Pipelines CO_2 gathering network
    - National Grid Ventures withdrew the DCO on 26th January 2024, therefore this will not be included in our assessment

- Developments not mentioned in the National Highways response, but deemed relevant so **will be included**:
  - Immingham Green Energy Terminal (IGET)
    - DCO application currently at Pre Examination stage
  - Immingham Eastern Ro-Ro Terminal (IERRT)
    - DCO application currently at Recommendation stage
  - North Killingholme Power Project
    - DCO granted, but construction has not yet commenced

It is not expected that traffic associated with these other developments will affect the number of junctions requiring assessment or the peak hours to be assessed.

Appendix A ATCs 2022 Raw Data

Traffic Flow Data from Speed Detection Radar

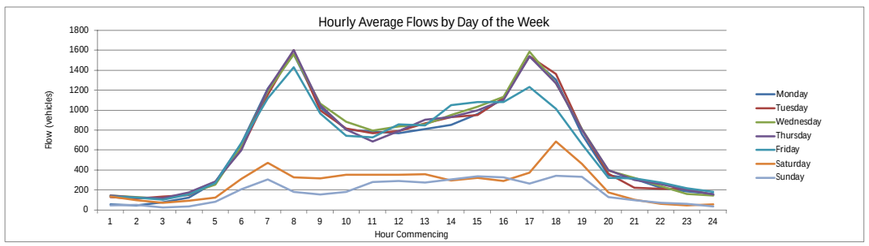
12491
Immingham
Feb 22
SDR Results Sheet

Road: Immingham Specific Location: A160 - ATC 3 Date: 9th Feb - 15th Feb Direction: Both Directions

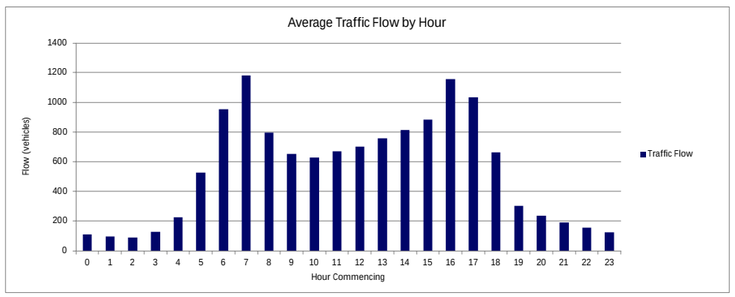
Hour

Day	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	7am-7pm Total	Blank Value Present?	Full Day 7am-7pm Total	AM Peak (7+8)	PM Peak (16+17)		
Wednesday	09/02/2022	142	127	114	164	255	643	1193	1560	1063	883	793	838	855	949	1036	1135	1591	1270	810	391	322	237	159	143	12783	FALSE	12783	2623	2861	Weekday	Wednesday
Thursday	10/02/2022	144	122	119	175	284	594	1211	1606	1050	806	684	787	903	929	1000	1104	1540	1270	803	401	299	258	201	155	12482	FALSE	12482	2656	2810	Weekday	Thursday
Friday	11/02/2022	135	121	102	154	270	670	1117	1433	966	740	729	859	848	1051	1079	1080	1234	1011	660	320	313	273	218	178	11690	FALSE	11690	2399	2245	Weekday	Friday
Saturday	12/02/2022	135	94	69	89	122	308	469	328	314	350	350	350	358	296	322	291	374	687	461	176	99	61	48	52	4481	FALSE	4481	642	1061	Weekend	Saturday
Sunday	13/02/2022	42	47	24	33	83	207	306	179	154	178	281	287	271	305	334	326	264	344	333	130	94	68	61	33	3256	FALSE	3256	333	608	Weekend	Sunday
Monday	14/02/2022	56	44	73	121	281	662	1216	1560	1029	807	784	768	808	850	961	1118	1542	1303	757	348	309	223	184	158	12287	FALSE	12287	2589	2845	Weekday	Monday
Tuesday	15/02/2022	125	114	133	149	279	607	1155	1605	999	815	770	790	865	928	950	1123	1539	1361	806	362	221	211	212	146	12551	FALSE	12551	2604	2900	Weekday	Tuesday

	00:00-01:00	01:00-02:00	02:00-03:00	03:00-04:00	04:00-05:00	05:00-06:00	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-24:00	Average Daily Flow	Average 12HR Flow	Average AM Peak Flow (7-9am)	Average PM Peak Flow (4-6pm)	Average Flow - 06:00 - 22:00	Average Flow - 06:00 - 00:00
Average:	111	96	91	126	225	527	952	1182	796	654	627	668	701	758	812	882	1155	1035	661	304	237	190	155	124	13070	9933	1978	2190	11616	11894
Weekday Average	120	106	108	153	274	635	1178	1553	1021	810	752	808	856	941	1005	1112	1489	1243	767	364	293	240	195	156	16181	12359	2574	2732	14435	14785
Weekend Average	89	71	47	61	103	258	388	254	234	264	316	319	315	301	328	309	319	516	397	153	97	65	55	43	5294	3869	488	835	4570	4667
Monday Average	56	44	73	121	281	662	1216	1560	1029	807	784	768	808	850	961	1118	1542	1303	757	348	309	223	184	158	15962	12287	2589	2845	14383	14725
Tuesday Average	125	114	133	149	279	607	1155	1605	999	815	770	790	865	928	950	1123	1539	1361	806	362	221	211	212	146	16265	12551	2604	2900	14500	14858
Wednesday Average	142	127	114	164	255	643	1193	1560	1063	883	793	838	855	949	1036	1135	1591	1270	810	391	322	237	159	143	16673	12783	2623	2861	14926	15228
Thursday Average	144	122	119	175	284	594	1211	1606	1050	806	684	787	903	929	1000	1104	1540	1270	803	401	299	258	201	155	16445	12482	2656	2810	14651	15007
Friday Average	135	121	102	154	270	670	1117	1433	966	740	729	859	848	1051	1079	1080	1234	1011	660	320	313	273	218	178	15561	11690	2399	2245	13713	14109
Saturday Average	135	94	69	89	122	308	469	328	314	350	350	350	358	296	322	291	374	687	461	176	99	61	48	52	6203	4481	642	1061	5286	5386
Sunday Average	42	47	24	33	83	207	306	179	154	178	281	287	271	305	334	326	264	344	333	130	94	68	61	33	4384	3256	333	608	3854	3948



Speed detection radars are not fully calibrated vehicle counters so all data is indicative.



Traffic Flow Data from Speed Detection Radar

SDR not operational

12491
Immingham
Feb 22

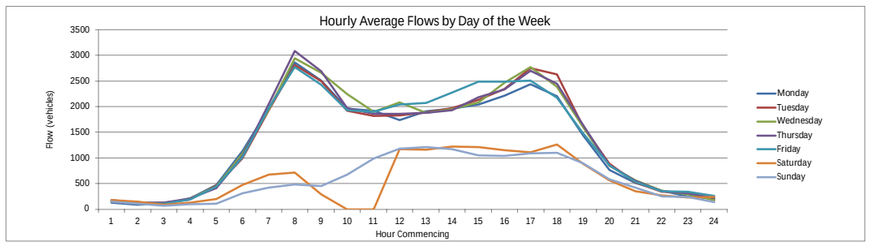
SDR Results Sheet

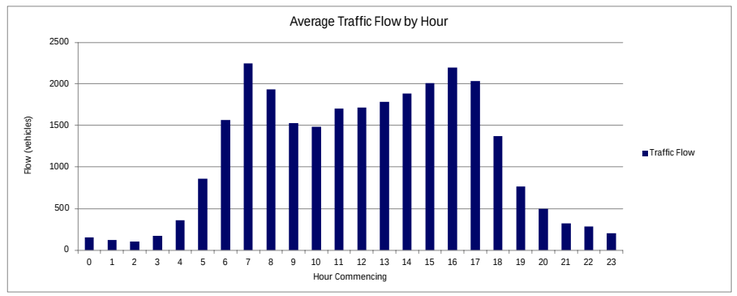
Road: Immingham Specific Location: A180 - ATC 4 Date: 09th Feb - 14th Feb Direction: Both Directions

Day	Date	Hour 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	7am-7pm Total	Blank Value Present?	Full Day 7am-7pm Total	AM Peak (7+8)	PM Peak (16+17)		
Monday	14/02/2022	127	89	108	204	475	1131	1964	2868	2511	1957	1922	1737	1909	1956	2039	2209	2438	2203	1444	760	515	355	251	207	25193	FALSE	25193	5379	4641	Weekday	Monday
Tuesday	15/02/2022	143	123	127	188	465	990	1934	2815	2493	1921	1821	1828	1894	1974	2132	2347	2752	2628	1618	884	524	340	327	177	26223	FALSE	26223	5308	5380	Weekday	Tuesday
Wednesday	16/02/2022	147	133	115	208	445	1079	1943	2951	2659	2240	1897	2077	1881	1946	2084	2467	2768	2387	1608	850	563	356	286	174	26965	FALSE	26965	5610	5155	Weekday	Wednesday
Thursday	17/02/2022	182	129	130	209	415	1031	2056	3093	2688	1968	1859	1862	1876	1933	2188	2337	2696	2444	1643	854	556	349	312	216	26587	FALSE	26587	5781	5140	Weekday	Thursday
Friday	18/02/2022	160	126	111	192	440	1006	1966	2775	2427	1927	1900	2038	2071	2270	2485	2489	2507	2176	1480	858	534	354	342	260	26545	FALSE	26545	5202	4683	Weekday	Friday
Saturday	19/02/2022	180	146	83	131	195	466	677	719	292	0	0	1168	1162	1225	1206	1152	1106	1270	890	557	346	265	230	236	10190	FALSE	10190	1011	2376	Weekend	Saturday
Sunday	20/02/2022	147	106	66	92	106	313	422	481	447	678	992	1182	1215	1172	1049	1043	1087	1102	901	583	421	250	237	139	11349	FALSE	11349	928	2189	Weekend	Sunday

	00:00-01:00	01:00-02:00	02:00-03:00	03:00-04:00	04:00-05:00	05:00-06:00	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-24:00	Average Daily Flow	Average 12HR Flow	Average AM Peak Flow (7-9am)	Average PM Peak Flow (4-6pm)	Average Flow - 06:00 - 22:00	Average Flow - 06:00 - 00:00
Average:	155	122	106	175	363	859	1566	2243	1931	1527	1484	1699	1715	1782	1883	2006	2193	2030	1369	764	494	324	284	201	27277	21865	4174	4223	25013	25497
Weekday Average	152	120	118	200	448	1047	1973	2900	2556	2003	1880	1908	1926	2016	2186	2370	2632	2368	1559	841	538	351	304	207	32602	26303	5456	5000	30006	30516
Weekend Average	164	126	75	112	151	390	550	600	370	339	496	1175	1189	1199	1128	1098	1097	1186	896	570	384	258	234	188	13967	10770	970	2283	12530	12951
Monday Average	127	89	108	204	475	1131	1964	2868	2511	1957	1922	1737	1909	1956	2039	2209	2438	2203	1444	760	515	355	251	207	31379	25193	5379	4641	28787	29245
Tuesday Average	143	123	127	188	465	990	1934	2815	2493	1921	1821	1828	1894	1974	2132	2347	2752	2628	1618	884	524	340	327	177	32445	26223	5308	5380	29905	30409
Wednesday Average	147	133	115	208	445	1079	1943	2951	2659	2240	1897	2077	1881	1946	2084	2467	2768	2387	1608	850	563	356	286	174	33264	26965	5610	5155	30677	31137
Thursday Average	182	129	130	209	415	1031	2056	3093	2688	1968	1859	1862	1876	1933	2188	2337	2696	2444	1643	854	556	349	312	216	33026	26587	5781	5140	30402	30930
Friday Average	160	126	111	192	440	1006	1966	2775	2427	1927	1900	2038	2071	2270	2485	2489	2507	2176	1480	858	534	354	342	260	32894	26545	5202	4683	30257	30859
Saturday Average	180	146	83	131	195	466	677	719	292	0	0	1168	1162	1225	1206	1152	1106	1270	890	557	346	265	230	236	13702	10190	1011	2376	12035	12501
Sunday Average	147	106	66	92	106	313	422	481	447	678	992	1182	1215	1172	1049	1043	1087	1102	901	583	421	250	237	139	14231	11349	928	2189	13025	13401

Speed detection radars are not fully calibrated vehicle counters so all data is indicative.





Traffic Flow Data from Speed Detection Radar

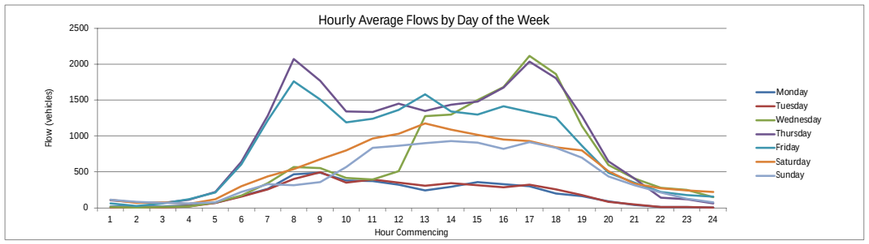
Project Number
Project Name
Date
SDR Results Sheet

Road: Immingham Specific Location: Date: 14th - 20th A180 - ATC 5 Direction: Both Directions

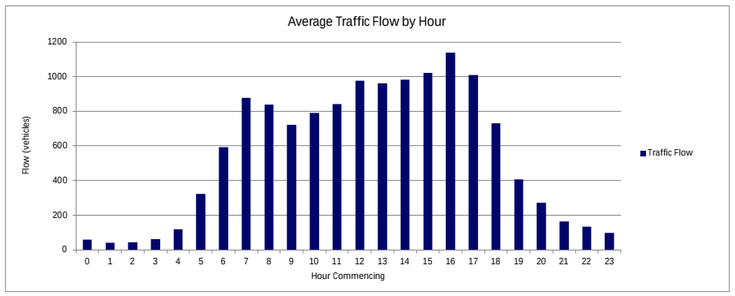
Hour

Day	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	7am-7pm Total	Blank Value Present?	Full Day 7am-7pm Total	AM Peak (7+8)	PM Peak (16+17)		
Monday	14/02/2022	16	17	15	34	66	160	262	467	494	377	372	321	242	294	361	328	297	198	160	90	37	11	10	6	3911	FALSE	3911	961	495	Weekday	Monday
Tuesday	15/02/2022	6	6	6	19	69	153	260	401	502	352	393	350	310	343	317	285	324	259	180	82	49	14	10	7	4016	FALSE	4016	903	583	Weekday	Tuesday
Wednesday	16/02/2022	8	3	10	21	74	173	341	568	557	418	393	507	1275	1302	1498	1680	2120	1861	1136	595	411	281	251	150	13315	FALSE	13315	1125	3981	Weekday	Wednesday
Thursday	17/02/2022	104	76	72	114	218	641	1286	2074	1770	1339	1338	1449	1346	1433	1483	1676	2037	1806	1274	648	411	140	119	63	19025	FALSE	19025	3844	3843	Weekday	Thursday
Friday	18/02/2022	58	25	58	116	214	602	1218	1768	1512	1191	1239	1362	1579	1345	1299	1414	1336	1257	865	489	352	223	178	159	16167	FALSE	16167	3280	2593	Weekday	Friday
Saturday	19/02/2022	113	67	75	58	117	303	438	541	675	802	964	1030	1180	1086	1019	950	932	844	796	508	338	273	239	219	10819	FALSE	10819	1216	1776	Weekend	Saturday
Sunday	20/02/2022	113	84	69	64	79	220	331	318	360	569	839	867	898	930	905	818	913	835	696	441	312	212	129	75	8948	FALSE	8948	678	1748	Weekend	Sunday

	00:00-01:00	01:00-02:00	02:00-03:00	03:00-04:00	04:00-05:00	05:00-06:00	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-24:00	Average Daily Flow	Average 12HR Flow	Average AM Peak Flow (7-9am)	Average PM Peak Flow (4-6pm)	Average Flow - 06:00 - 22:00	Average Flow - 06:00 - 00:00
Average:	60	40	44	61	120	322	591	877	839	721	791	841	976	962	983	1022	1137	1009	730	408	273	165	134	97	13198	10886	1715	2146	12322	12553
Weekday Average	38	25	32	61	128	346	673	1056	967	735	747	798	950	943	992	1077	1223	1076	723	381	252	134	114	77	13548	11287	2023	2299	12727	12917
Weekend Average	113	76	72	61	98	262	385	430	518	686	902	949	1039	1008	962	884	923	840	746	475	325	243	184	147	12322	9884	947	1762	11310	11641
Monday Average	16	17	15	34	66	160	262	467	494	377	372	321	242	294	361	328	297	198	160	90	37	11	10	6	4635	3911	961	495	4311	4327
Tuesday Average	6	6	6	19	69	153	260	401	502	352	393	350	310	343	317	285	324	259	180	82	49	14	10	7	4697	4016	903	583	4421	4438
Wednesday Average	8	3	10	21	74	173	341	568	557	418	393	507	1275	1302	1498	1680	2120	1861	1136	595	411	281	251	150	15633	13315	1125	3981	14943	15344
Thursday Average	104	76	72	114	218	641	1286	2074	1770	1339	1338	1449	1346	1433	1483	1676	2037	1806	1274	648	411	140	119	63	22917	19025	3844	3843	21510	21692
Friday Average	58	25	58	116	214	602	1218	1768	1512	1191	1239	1362	1579	1345	1299	1414	1336	1257	865	489	352	223	178	159	19859	16167	3280	2593	18449	18786
Saturday Average	113	67	75	58	117	303	438	541	675	802	964	1030	1180	1086	1019	950	932	844	796	508	338	273	239	219	13567	10819	1216	1776	12376	12834
Sunday Average	113	84	69	64	79	220	331	318	360	569	839	867	898	930	905	818	913	835	696	441	312	212	129	75	11077	8948	678	1748	10244	10448



Speed detection radars are not fully calibrated vehicle counters so all data is indicative.



Traffic Flow Data from Speed Detection Radar

12491
Immingham
Feb 22
SDR Results Sheet

Road: Immingham Specific Location: A160 - ATC 7 Date: 9th Feb - 15th Feb Direction: Both Directions

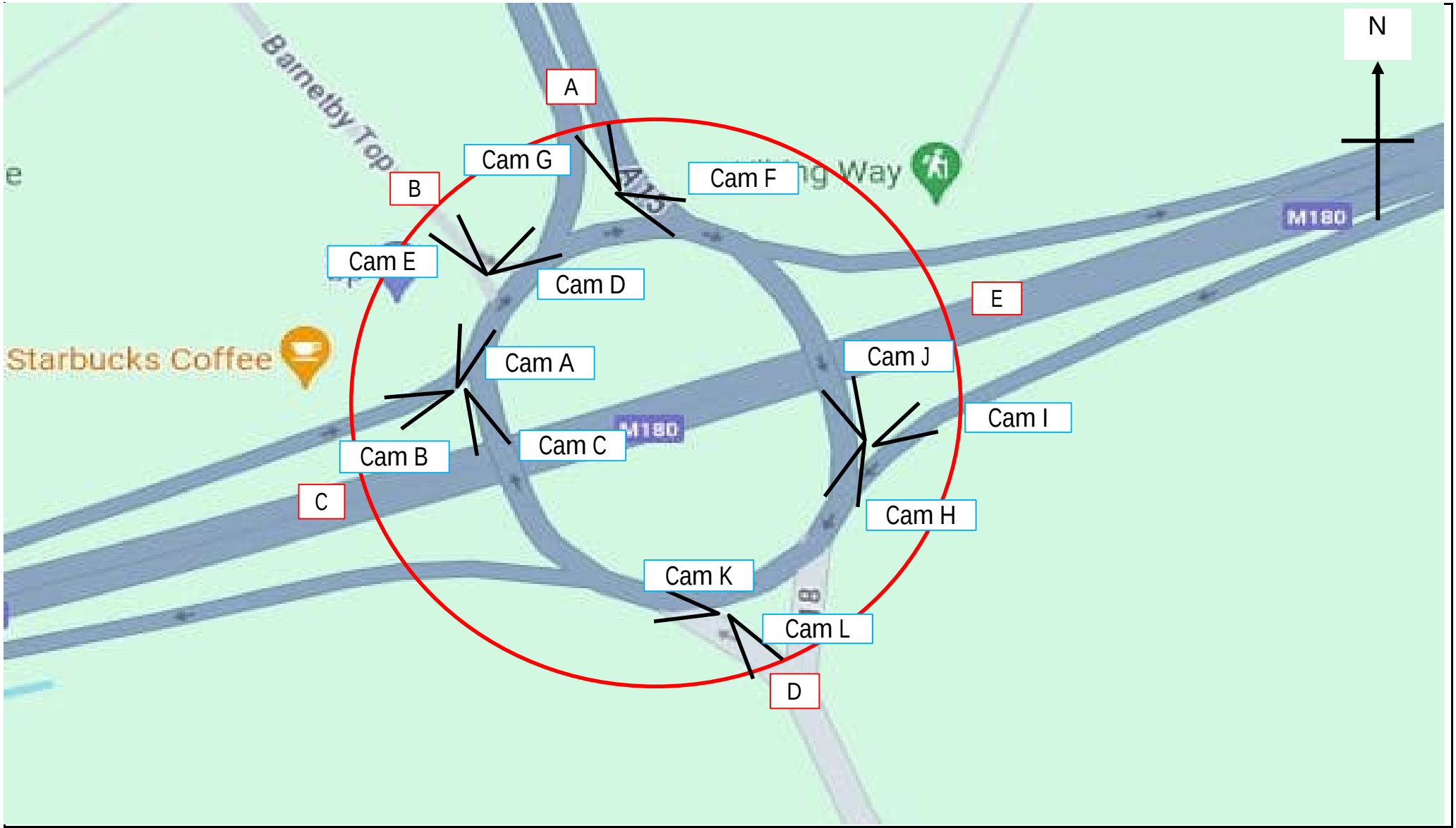
Hour

Day	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	7am-7pm Total	Blank Value Present?	Full Day 7am-7pm Total	AM Peak (7+8)	PM Peak (16+17)		
Wednesday	09/02/2022	142	119	123	135	218	560	838	1068	948	833	781	770	795	890	934	1006	1214	990	632	350	299	247	141	137	10861	FALSE	10861	2016	2204	Weekday	Wednesday
Thursday	10/02/2022	141	119	100	145	245	533	838	1097	924	745	627	727	813	882	888	933	1232	1012	566	365	264	262	209	161	10446	FALSE	10446	2021	2244	Weekday	Thursday
Friday	11/02/2022	136	104	104	152	214	564	790	1019	851	672	690	795	785	976	947	951	928	783	498	278	304	254	199	186	9895	FALSE	9895	1870	1711	Weekday	Friday
Saturday	12/02/2022	131	91	66	80	110	300	325	312	299	343	355	360	345	291	265	248	236	256	232	128	72	64	51	58	3542	FALSE	3542	611	492	Weekend	Saturday
Sunday	13/02/2022	39	48	24	26	70	201	177	168	114	155	257	297	286	297	257	265	224	269	211	117	82	80	68	37	2800	FALSE	2800	282	493	Weekend	Sunday
Monday	14/02/2022	43	45	58	107	249	575	839	1048	877	718	723	663	739	803	799	943	1118	984	582	316	280	196	183	151	9997	FALSE	9997	1925	2102	Weekday	Monday
Tuesday	15/02/2022	105	114	100	121	230	541	765	1127	918	719	673	672	767	841	837	929	1124	1074	628	327	221	204	213	160	10309	FALSE	10309	2045	2198	Weekday	Tuesday

	00:00-01:00	01:00-02:00	02:00-03:00	03:00-04:00	04:00-05:00	05:00-06:00	06:00-07:00	07:00-08:00	08:00-09:00	09:00-10:00	10:00-11:00	11:00-12:00	12:00-13:00	13:00-14:00	14:00-15:00	15:00-16:00	16:00-17:00	17:00-18:00	18:00-19:00	19:00-20:00	20:00-21:00	21:00-22:00	22:00-23:00	23:00-24:00	Average Daily Flow	Average 12HR Flow	Average AM Peak Flow (7-9am)	Average PM Peak Flow (4-6pm)	Average Flow - 06:00 - 22:00	Average Flow - 06:00 - 00:00
Average:	105	91	82	109	191	468	653	834	704	598	587	612	647	711	704	754	868	767	478	269	217	187	152	127	10916	8264	1539	1635	9590	9869
Weekday Average	113	100	97	132	231	555	814	1072	904	737	699	725	780	878	881	952	1123	969	581	327	274	233	189	159	13525	10302	1975	2092	11949	12297
Weekend Average	85	70	45	53	90	251	251	240	207	249	306	329	316	294	261	257	230	263	222	123	77	72	60	48	4394	3171	447	493	3694	3801
Monday Average	43	45	58	107	249	575	839	1048	877	718	723	663	739	803	799	943	1118	984	582	316	280	196	183	151	13039	9997	1925	2102	11628	11962
Tuesday Average	105	114	100	121	230	541	765	1127	918	719	673	672	767	841	837	929	1124	1074	628	327	221	204	213	160	13410	10309	2045	2198	11826	12199
Wednesday Average	142	119	123	135	218	560	838	1068	948	833	781	770	795	890	934	1006	1214	990	632	350	299	247	141	137	14170	10861	2016	2204	12595	12873
Thursday Average	141	119	100	145	245	533	838	1097	924	745	627	727	813	882	888	933	1232	1012	566	365	264	262	209	161	13828	10446	2021	2244	12175	12545
Friday Average	136	104	104	152	214	564	790	1019	851	672	690	795	785	976	947	951	928	783	498	278	304	254	199	186	13180	9895	1870	1711	11521	11906
Saturday Average	131	91	66	80	110	300	325	312	299	343	355	360	345	291	265	248	236	256	232	128	72	64	51	58	5018	3542	611	492	4131	4240
Sunday Average	39	48	24	26	70	201	177	168	114	155	257	297	286	297	257	265	224	269	211	117	82	80	68	37	3769	2800	282	493	3256	3361

Speed detection radars are not fully calibrated vehicle counters so all data is indicative.

Appendix B New Traffic Counts - Raw Data



NDC NATIONWIDE DATA COLLECTION	Site / Location:	Site 1 - M180 / A180 junction (M180 J5)	Project No:	15052	Drawing No:	15052-01	Drawn By:	DC
	Survey Date:	Tuesday 20th February 2024	Project Name:	Immingham				
	Survey Times:	06:00 – 09:00 / 15:00 – 18:00	Drawing Title:	Site Layout and Observed Movements				

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	A to E							PCU	TOT	TIME	A to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	74	15	3	9	0	0	0	105.5	101	07:00	35	13	3	2	2	0	0	58.6	55
07:15	120	21	4	12	0	1	0	165	158	07:15	35	17	6	1	1	0	0	61.8	60
07:30	115	30	9	9	0	0	0	167.5	163	07:30	35	13	1	0	0	0	0	49	49
07:45	122	31	3	7	3	0	0	173.4	166	07:45	56	17	2	3	0	0	0	79.5	78
H/TOT	431	97	19	37	3	1	0	611.4	588	H/TOT	161	60	12	6	3	0	0	248.9	242

TIME	A to E							PCU	TOT	TIME	A to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	63	15	1	7	0	0	0	89.5	86	16:00	84	7	1	1	0	0	0	93.5	93
16:15	59	21	1	10	0	0	0	96	91	16:15	82	17	3	4	0	0	0	108	106
16:30	75	14	1	7	1	1	0	104.8	99	16:30	96	11	0	1	0	2	0	112.5	110
16:45	75	10	1	3	0	0	0	90.5	89	16:45	85	10	1	5	3	1	0	112.4	105
H/TOT	272	60	4	27	1	1	0	380.8	365	H/TOT	347	45	5	11	3	3	0	426.4	414

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	A to C							PCU	TOT	TIME	A to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	82	16	4	16	1	0	0	128.3	119	07:00	6	1	1	0	0	0	0	8	8
07:15	73	32	5	9	0	0	0	123.5	119	07:15	5	2	0	1	0	0	0	8.5	8
07:30	92	19	1	16	0	0	0	136	128	07:30	1	0	0	0	0	0	0	1	1
07:45	72	24	2	12	2	0	0	120.6	112	07:45	1	1	0	0	0	0	0	2	2
H/TOT	319	91	12	53	3	0	0	508.4	478	H/TOT	13	4	1	1	0	0	0	19.5	19

TIME	A to C							PCU	TOT	TIME	A to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	101	12	4	16	0	0	0	141	133	16:00	5	1	0	0	0	0	0	6	6
16:15	84	13	3	6	0	0	0	109	106	16:15	3	5	0	0	0	0	0	8	8
16:30	96	26	1	7	0	0	0	133.5	130	16:30	3	3	0	3	0	0	0	10.5	9
16:45	91	14	0	10	0	0	0	120	115	16:45	2	1	0	0	0	0	0	3	3
H/TOT	372	65	8	39	0	0	0	503.5	484	H/TOT	13	10	0	3	0	0	0	27.5	26

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	A to A							PCU	TOT	TIME	B to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	1	0	0	0	0	0	0	1	1	07:00	5	1	2	1	0	0	0	9.5	9
07:15	0	0	0	0	0	0	0	0	0	07:15	7	3	0	1	0	0	0	11.5	11
07:30	0	0	0	0	0	0	0	0	0	07:30	4	2	1	0	0	0	0	7	7
07:45	0	0	0	0	0	0	0	0	0	07:45	7	2	0	0	0	0	0	9	9
H/TOT	1	0	0	0	0	0	0	1	1	H/TOT	23	8	3	2	0	0	0	37	36

TIME	A to A							PCU	TOT	TIME	B to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	0	0	0	0	0	0	0	0	0	16:00	4	2	0	0	0	0	0	6	6
16:15	0	0	0	0	0	0	0	0	0	16:15	5	4	1	3	0	0	0	14.5	13
16:30	1	0	0	0	0	0	0	1	1	16:30	4	2	0	1	0	1	0	9.5	8
16:45	0	0	0	0	0	0	0	0	0	16:45	11	3	0	1	0	0	0	15.5	15
H/TOT	1	0	0	0	0	0	0	1	1	H/TOT	24	11	1	5	0	1	0	45.5	42

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	B to E							PCU	TOT	TIME	B to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	7	2	0	1	0	0	0	10.5	10	07:00	3	2	0	0	0	0	0	5	5
07:15	11	0	1	0	0	0	0	12	12	07:15	5	5	0	0	0	0	0	10	10
07:30	6	2	0	1	0	0	0	9.5	9	07:30	9	2	0	0	0	0	0	11	11
07:45	12	6	0	1	0	0	0	19.5	19	07:45	8	3	0	0	0	0	0	11	11
H/TOT	36	10	1	3	0	0	0	51.5	50	H/TOT	25	12	0	0	0	0	0	37	37

TIME	B to E							PCU	TOT	TIME	B to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	1	1	0	2	0	0	0	5	4	16:00	6	2	0	0	0	0	0	8	8
16:15	3	2	0	0	0	0	0	5	5	16:15	1	3	0	1	0	0	0	5.5	5
16:30	1	3	0	1	0	0	0	5.5	5	16:30	4	1	0	0	1	0	0	7.3	6
16:45	3	1	0	3	0	0	0	8.5	7	16:45	2	1	1	0	0	0	0	4	4
H/TOT	8	7	0	6	0	0	0	24	21	H/TOT	13	7	1	1	1	0	0	24.8	23

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	B to C							PCU	TOT	TIME	B to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	9	0	0	3	0	0	0	13.5	12	07:00	0	0	0	0	0	0	0	0	0
07:15	10	3	1	1	0	0	0	15.5	15	07:15	0	0	0	0	0	0	0	0	0
07:30	15	5	0	2	0	0	0	23	22	07:30	0	0	0	0	0	0	0	0	0
07:45	10	1	0	1	0	0	0	12.5	12	07:45	0	0	0	0	0	0	0	0	0
H/TOT	44	9	1	7	0	0	0	64.5	61	H/TOT	0	0	0	0	0	0	0	0	0

TIME	B to C							PCU	TOT	TIME	B to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	13	3	0	2	0	0	0	19	18	16:00	0	0	0	0	0	0	0	0	0
16:15	2	4	0	1	0	0	0	7.5	7	16:15	0	0	0	0	0	0	0	0	0
16:30	8	3	0	0	0	0	0	11	11	16:30	0	0	0	0	0	0	0	0	0
16:45	4	3	0	0	0	0	0	7	7	16:45	0	0	0	0	0	0	0	0	0
H/TOT	27	13	0	3	0	0	0	44.5	43	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	C to B							PCU	TOT	TIME	C to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	1	4	1	1	0	0	0	7.5	7	07:00	113	24	4	13	1	0	0	162.8	155
07:15	8	3	0	0	0	0	0	11	11	07:15	84	29	4	8	0	0	0	129	125
07:30	8	5	1	2	0	0	0	17	16	07:30	87	18	4	11	0	0	0	125.5	120
07:45	8	1	0	0	0	0	0	9	9	07:45	94	20	0	10	0	0	0	129	124
H/TOT	25	13	2	3	0	0	0	44.5	43	H/TOT	378	91	12	42	1	0	0	546.3	524

TIME	C to B							PCU	TOT	TIME	C to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	9	2	0	2	0	0	0	14	13	16:00	65	31	3	11	1	0	0	117.8	111
16:15	12	5	0	2	0	0	0	20	19	16:15	97	36	3	9	0	0	0	149.5	145
16:30	14	5	0	0	0	1	0	21	20	16:30	79	21	1	7	0	0	0	111.5	108
16:45	22	0	1	1	0	0	0	24.5	24	16:45	91	21	2	4	0	0	0	120	118
H/TOT	57	12	1	5	0	1	0	79.5	76	H/TOT	332	109	9	31	1	0	0	498.8	482

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	C to E							PCU	TOT	TIME	C to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	0	0	0	0	0	0	0	0	0	07:00	21	13	2	5	0	0	0	43.5	41
07:15	0	1	0	0	0	0	0	1	1	07:15	33	15	1	2	0	0	0	52	51
07:30	0	0	0	0	0	0	0	0	0	07:30	31	16	4	5	0	0	0	58.5	56
07:45	1	0	0	0	0	0	0	1	1	07:45	39	18	3	8	1	0	0	74.3	69
H/TOT	1	1	0	0	0	0	0	2	2	H/TOT	124	62	10	20	1	0	0	228.3	217

TIME	C to E							PCU	TOT	TIME	C to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	0	0	0	0	0	0	0	0	0	16:00	54	10	1	4	0	0	0	71	69
16:15	0	0	0	0	0	0	0	0	0	16:15	63	16	2	1	2	0	0	87.1	84
16:30	0	0	1	0	0	0	0	1	1	16:30	61	18	0	4	0	0	0	85	83
16:45	1	0	0	0	0	0	0	1	1	16:45	58	12	1	5	1	0	0	80.8	77
H/TOT	1	0	1	0	0	0	0	2	2	H/TOT	236	56	4	14	3	0	0	323.9	313

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	C to C							PCU	TOT	TIME	D to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	0	0	0	0	0	0	0	0	0	07:00	41	17	3	4	0	0	0	67	65
07:15	1	0	0	0	0	0	0	1	1	07:15	36	12	0	3	0	0	0	52.5	51
07:30	0	0	0	0	0	0	0	0	0	07:30	75	12	1	1	0	0	0	89.5	89
07:45	0	0	0	0	0	0	0	0	0	07:45	65	17	2	3	0	0	0	88.5	87
H/TOT	1	0	0	0	0	0	0	1	1	H/TOT	217	58	6	11	0	0	0	297.5	292

TIME	C to C							PCU	TOT	TIME	D to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	0	1	0	0	0	0	0	1	1	16:00	42	9	0	3	0	0	0	55.5	54
16:15	0	0	0	0	0	0	0	0	0	16:15	29	11	1	4	2	0	0	51.6	47
16:30	0	0	0	0	0	0	0	0	0	16:30	53	11	0	1	0	0	0	65.5	65
16:45	0	0	0	0	0	0	0	0	0	16:45	47	7	1	4	1	0	0	63.3	60
H/TOT	0	1	0	0	0	0	0	1	1	H/TOT	171	38	2	12	3	0	0	235.9	226

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	D to B							PCU	TOT	TIME	D to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	13	1	0	0	0	0	0	14	14	07:00	67	10	3	2	0	0	0	83	82
07:15	11	3	0	0	0	0	0	14	14	07:15	69	11	2	1	0	1	0	85.5	84
07:30	13	1	0	0	0	0	0	14	14	07:30	61	13	3	1	0	1	0	80.5	79
07:45	4	3	1	0	0	0	0	8	8	07:45	60	7	2	4	0	0	0	75	73
H/TOT	41	8	1	0	0	0	0	50	50	H/TOT	257	41	10	8	0	2	0	324	318

TIME	D to B							PCU	TOT	TIME	D to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	7	0	0	0	0	0	0	7	7	16:00	50	11	0	3	2	0	0	70.1	66
16:15	6	2	0	2	1	0	0	13.3	11	16:15	40	11	1	1	1	0	0	55.8	54
16:30	6	2	1	0	0	0	0	9	9	16:30	63	12	3	1	0	0	0	79.5	79
16:45	15	4	0	0	0	0	0	19	19	16:45	54	12	0	2	1	0	0	71.3	69
H/TOT	34	8	1	2	1	0	0	48.3	46	H/TOT	207	46	4	7	4	0	0	276.7	268

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	D to E							PCU	TOT	TIME	D to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	28	10	3	2	1	0	0	46.3	44	07:00	0	0	0	0	0	0	0	0	0
07:15	24	0	0	2	0	0	0	27	26	07:15	0	0	0	0	0	0	0	0	0
07:30	39	1	2	0	0	0	0	42	42	07:30	0	0	0	0	0	0	0	0	0
07:45	26	4	1	0	0	0	0	31	31	07:45	0	0	0	0	0	0	0	0	0
H/TOT	117	15	6	4	1	0	0	146.3	143	H/TOT	0	0	0	0	0	0	0	0	0

TIME	D to E							PCU	TOT	TIME	D to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	16	4	1	1	0	0	0	22.5	22	16:00	0	0	0	0	0	0	0	0	0
16:15	7	3	0	0	0	0	0	10	10	16:15	0	0	0	0	0	0	0	0	0
16:30	19	1	0	1	0	1	0	23.5	22	16:30	1	0	0	0	0	0	0	1	1
16:45	11	1	0	0	0	0	0	12	12	16:45	0	0	0	0	0	0	0	0	0
H/TOT	53	9	1	2	0	1	0	68	66	H/TOT	1	0	0	0	0	0	0	1	1

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	E to D							PCU	TOT	TIME	E to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	14	1	0	0	0	0	0	15	15	07:00	0	0	0	0	0	0	0	0	0
07:15	8	2	0	0	0	1	0	12	11	07:15	0	0	0	0	0	0	0	0	0
07:30	10	5	3	0	0	0	0	18	18	07:30	1	0	0	0	0	0	0	1	1
07:45	8	3	2	1	0	0	0	14.5	14	07:45	0	0	0	0	0	0	0	0	0
H/TOT	40	11	5	1	0	1	0	59.5	58	H/TOT	1	0	0	0	0	0	0	1	1

TIME	E to D							PCU	TOT	TIME	E to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	23	1	1	2	0	0	0	28	27	16:00	0	0	0	0	0	0	0	0	0
16:15	30	3	4	3	0	0	0	41.5	40	16:15	0	0	0	0	0	0	0	0	0
16:30	28	6	2	1	0	0	0	37.5	37	16:30	0	0	0	0	0	0	0	0	0
16:45	36	2	0	4	0	1	0	46	43	16:45	0	0	0	0	0	0	0	0	0
H/TOT	117	12	7	10	0	1	0	153	147	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	E to B							PCU	TOT	TIME	E to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	2	1	0	0	0	0	0	3	3	07:00	87	27	1	8	0	0	0	127	123
07:15	3	6	1	3	0	0	0	14.5	13	07:15	75	16	3	10	1	0	0	111.3	105
07:30	4	1	0	1	0	0	0	6.5	6	07:30	65	26	2	5	0	1	0	102.5	99
07:45	1	2	0	0	0	0	0	3	3	07:45	60	12	2	8	0	0	0	86	82
H/TOT	10	10	1	4	0	0	0	27	25	H/TOT	287	81	8	31	1	1	0	426.8	409

TIME	E to B							PCU	TOT	TIME	E to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	4	0	0	0	0	0	0	4	4	16:00	68	25	3	10	1	0	0	113.3	107
16:15	2	0	0	0	0	0	0	2	2	16:15	107	20	2	8	0	0	0	141	137
16:30	1	0	0	1	0	0	0	2.5	2	16:30	86	24	3	9	0	0	0	126.5	122
16:45	1	1	0	0	0	0	0	2	2	16:45	116	22	1	12	0	0	0	157	151
H/TOT	8	1	0	1	0	0	0	10.5	10	H/TOT	377	91	9	39	1	0	0	537.8	517

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	E to E							PCU	TOT	TIME	TO ARM A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	0	0	0	0	0	0	0	0	0	07:00	273	62	10	24	1	0	0	383.3	370
07:15	0	0	0	0	0	0	0	0	0	07:15	235	59	9	20	1	1	0	337.3	325
07:30	0	0	0	0	0	0	0	0	0	07:30	217	59	10	17	0	2	0	315.5	305
07:45	0	0	0	0	0	0	0	0	0	07:45	221	41	4	22	0	0	0	299	288
H/TOT	0	0	0	0	0	0	0	0	0	H/TOT	946	221	33	83	2	3	0	1335.1	1288

TIME	E to E							PCU	TOT	TIME	TO ARM A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	0	0	0	0	0	0	0	0	0	16:00	187	69	6	24	4	0	0	307.2	290
16:15	0	0	0	0	0	0	0	0	0	16:15	249	71	7	21	1	0	0	360.8	349
16:30	0	0	0	0	0	0	0	0	0	16:30	233	59	7	18	0	1	0	328	318
16:45	0	0	0	0	0	0	0	0	0	16:45	272	58	3	19	1	0	0	363.8	353
H/TOT	0	0	0	0	0	0	0	0	0	H/TOT	941	257	23	82	6	1	0	1359.8	1310

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	FROM ARM A							PCU	TOT	TIME	TO ARM B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	198	45	11	27	3	0	0	301.4	284	07:00	22	7	2	1	0	0	0	32.5	32
07:15	233	72	15	23	1	1	0	358.8	345	07:15	27	14	1	4	0	0	0	48	46
07:30	243	62	11	25	0	0	0	353.5	341	07:30	26	7	1	3	0	0	0	38.5	37
07:45	251	73	7	22	5	0	0	375.5	358	07:45	14	7	1	0	0	0	0	22	22
H/TOT	925	252	44	97	9	1	0	1389.2	1328	H/TOT	89	35	5	8	0	0	0	141	137

TIME	FROM ARM A							PCU	TOT	TIME	TO ARM B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	253	35	6	24	0	0	0	330	318	16:00	25	3	0	2	0	0	0	31	30
16:15	228	56	7	20	0	0	0	321	311	16:15	23	12	0	4	1	0	0	43.3	40
16:30	271	54	2	18	1	3	0	362.3	349	16:30	24	10	1	4	0	1	0	43	40
16:45	253	35	2	18	3	1	0	325.9	312	16:45	40	6	1	1	0	0	0	48.5	48
H/TOT	1005	180	17	80	4	4	0	1339.2	1290	H/TOT	112	31	2	11	1	1	0	165.8	158

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	FROM ARM B							PCU	TOT	TIME	TO ARM C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	24	5	2	5	0	0	0	38.5	36	07:00	132	33	7	23	1	0	0	208.8	196
07:15	33	11	2	2	0	0	0	49	48	07:15	120	47	6	13	0	0	0	192.5	186
07:30	34	11	1	3	0	0	0	50.5	49	07:30	183	36	2	19	0	0	0	249.5	240
07:45	37	12	0	2	0	0	0	52	51	07:45	147	42	4	16	2	0	0	221.6	211
H/TOT	128	39	5	12	0	0	0	190	184	H/TOT	582	158	19	71	3	0	0	872.4	833

TIME	FROM ARM B							PCU	TOT	TIME	TO ARM C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	24	8	0	4	0	0	0	38	36	16:00	156	25	4	21	0	0	0	216.5	206
16:15	11	13	1	5	0	0	0	32.5	30	16:15	115	28	4	11	2	0	0	168.1	160
16:30	17	9	0	2	1	1	0	33.3	30	16:30	157	40	1	8	0	0	0	210	206
16:45	20	8	1	4	0	0	0	35	33	16:45	142	24	1	14	1	0	0	190.3	182
H/TOT	72	38	2	15	1	1	0	138.8	129	H/TOT	570	117	10	54	3	0	0	784.9	754

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	FROM ARM C							PCU	TOT	TIME	TO ARM D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	135	41	7	19	1	0	0	213.8	203	07:00	73	29	5	7	2	0	0	122.1	116
07:15	126	48	5	10	0	0	0	194	189	07:15	81	39	7	3	1	1	0	135.8	132
07:30	126	39	9	18	0	0	0	201	192	07:30	85	36	8	5	0	0	0	136.5	134
07:45	142	39	3	18	1	0	0	213.3	203	07:45	111	41	7	12	1	0	0	179.3	172
H/TOT	529	167	24	65	2	0	0	822.1	787	H/TOT	350	145	27	27	4	1	0	573.7	554

TIME	FROM ARM C							PCU	TOT	TIME	TO ARM D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	128	44	4	17	1	0	0	203.8	194	16:00	167	20	3	7	0	0	0	200.5	197
16:15	172	57	5	12	2	0	0	256.6	248	16:15	176	39	9	9	2	0	0	242.1	235
16:30	154	44	2	11	0	1	0	218.5	212	16:30	190	36	2	6	1	2	0	243.3	237
16:45	172	33	4	10	1	0	0	226.3	220	16:45	181	25	3	14	4	2	0	243.2	229
H/TOT	626	178	15	50	4	1	0	905.2	874	H/TOT	714	120	17	36	7	4	0	929.1	898

SITE: 1 DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5) DAY: Tuesday

TIME	FROM ARM D							PCU	TOT	TIME	TO ARM E							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	149	38	9	8	1	0	0	210.3	205	07:00	109	27	6	12	1	0	0	162.3	155
07:15	140	26	2	6	0	1	0	179	175	07:15	155	22	5	14	0	1	0	205	197
07:30	188	27	6	2	0	1	0	226	224	07:30	160	33	11	10	0	0	0	219	214
07:45	155	31	6	7	0	0	0	202.5	199	07:45	161	41	4	8	3	0	0	224.9	217
H/TOT	632	122	23	23	1	2	0	817.8	803	H/TOT	585	123	26	44	4	1	0	811.2	783

TIME	FROM ARM D							PCU	TOT	TIME	TO ARM E							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	115	24	1	7	2	0	0	155.1	149	16:00	80	20	2	10	0	0	0	117	112
16:15	82	27	2	7	4	0	0	130.7	122	16:15	69	26	1	10	0	0	0	111	106
16:30	142	26	4	3	0	1	0	178.5	176	16:30	95	18	2	9	1	2	0	134.8	127
16:45	127	24	1	6	2	0	0	165.6	160	16:45	90	12	1	6	0	0	0	112	109
H/TOT	466	101	8	23	8	1	0	629.9	607	H/TOT	334	76	6	35	1	2	0	474.8	454

SITE: 1

DATE: 20/02/2024

LOCATION: M180 / A180 junction (M180 J5)

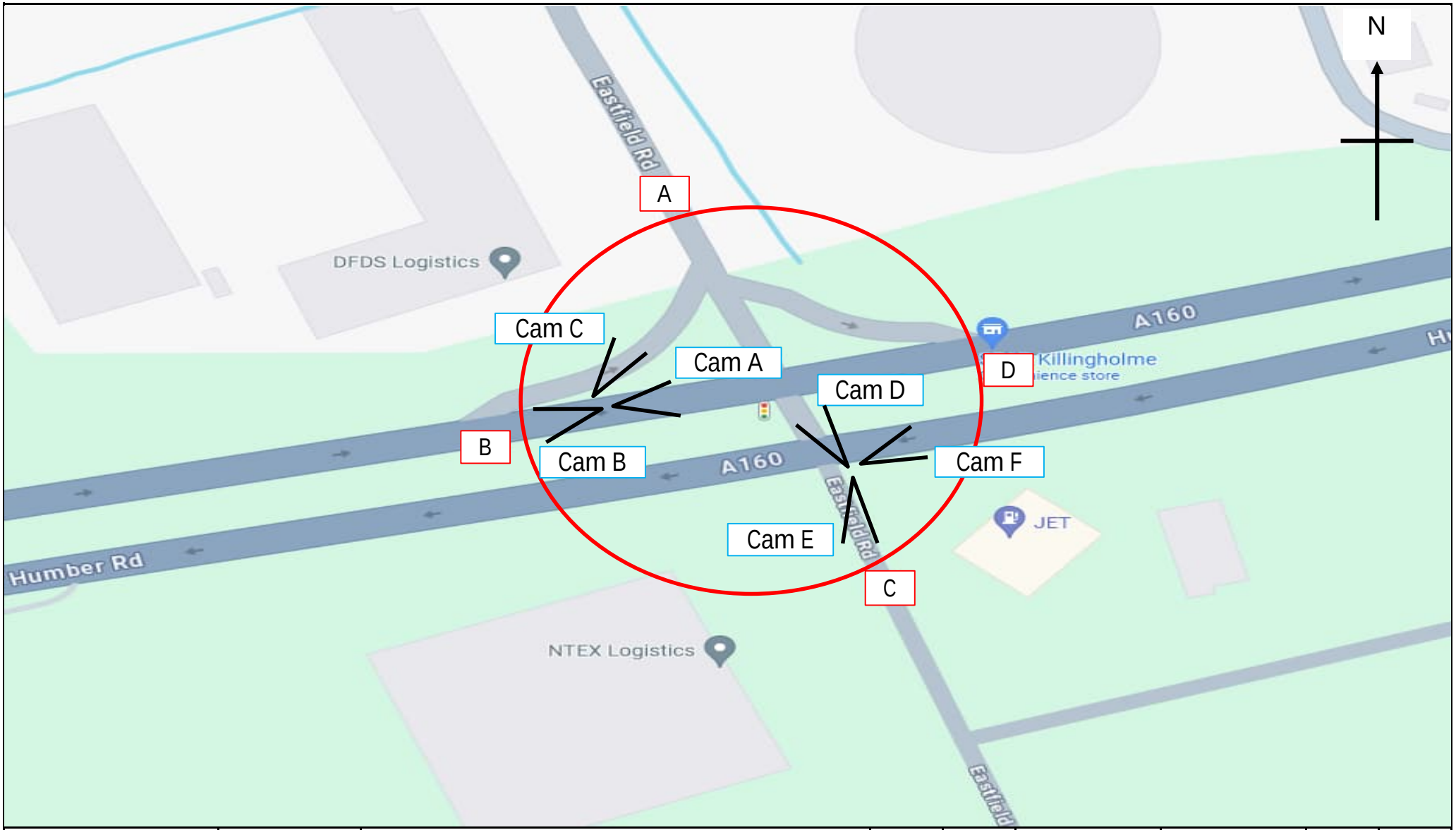
DAY: Tuesday

TIME	FROM ARM E									TIME	JUNCTION TOTAL								
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	PCU	TOT		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	PCU	TOT
07:00	103	29	1	8	0	0	0	145	141	07:00	609	158	30	67	5	0	0	909	869
07:15	86	24	4	13	1	1	0	137.8	129	07:15	618	181	28	54	2	3	0	918.6	886
07:30	80	32	5	6	0	1	0	128	124	07:30	671	171	32	54	0	2	0	959	930
07:45	69	17	4	9	0	0	0	103.5	99	07:45	654	172	20	58	6	0	0	946.8	910
H/TOT	338	102	14	36	1	2	0	514.3	493	H/TOT	2552	682	110	233	13	5	0	3733.4	3595

PEAK HOUR CALCULATION	TOT
07:00 to 08:00	3595
07:15 to 08:15	3635
07:30 to 08:30	3686
07:45 to 08:45	3575

TIME	FROM ARM E									TIME	JUNCTION TOTAL								
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	PCU	TOT		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	PCU	TOT
16:00	95	26	4	12	1	0	0	145.3	138	16:00	615	137	15	64	4	0	0	872.2	835
16:15	139	23	6	11	0	0	0	184.5	179	16:15	632	176	21	55	6	0	0	925.3	890
16:30	115	30	5	11	0	0	0	166.5	161	16:30	699	163	13	45	2	6	0	959.1	928
16:45	153	25	1	16	0	1	0	205	196	16:45	725	125	9	54	6	2	0	957.8	921
H/TOT	502	104	16	50	1	1	0	701.3	674	H/TOT	2671	601	58	218	18	8	0	3714.4	3574

PEAK HOUR CALCULATION	TOT
16:00 to 17:00	3574
16:15 to 17:15	3716
16:30 to 17:30	3698
16:45 to 17:45	3577



NDC NATIONWIDE DATA COLLECTION	Site / Location:	Site 2 - A160 / Eastfield	Project No:	15052	Drawing No:	15052-02	Drawn By:	DC
	Survey Date:	Tuesday 20th February 2024	Project Name:	Immingham				
	Survey Times:	06:00 – 09:00 / 15:00 – 18:00	Drawing Title:	Site Layout and Observed Movements				

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	A to D							PCU	TOT	TIME	A to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	3	2	1	1	0	0	0	8.8	7	07:00	2	1	1	0	0	0	0	4.5	4
07:15	7	1	0	2	0	0	0	12.6	10	07:15	1	0	0	0	0	0	0	1	1
07:30	10	3	2	1	0	1	0	18.7	17	07:30	1	3	1	0	0	0	0	5.5	5
07:45	9	4	1	0	0	0	0	14.5	14	07:45	0	4	3	0	0	0	0	8.5	7
H/TOT	29	10	4	4	0	1	0	54.6	48	H/TOT	4	8	5	0	0	0	0	19.5	17

TIME	A to D							PCU	TOT	TIME	A to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	28	2	0	4	0	0	0	39.2	34	16:00	12	1	0	1	0	0	0	15.3	14
16:15	20	2	2	4	0	0	1	34.4	29	16:15	9	4	0	1	0	0	0	15.3	14
16:30	25	1	2	2	0	0	0	33.6	30	16:30	6	2	0	2	0	0	1	12.8	11
16:45	4	1	2	0	0	0	0	8	7	16:45	4	2	0	1	0	0	1	8.5	8
H/TOT	77	6	6	10	0	0	1	115.2	100	H/TOT	31	9	0	5	0	0	2	51.9	47

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	A to B							PCU	TOT	TIME	A to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	4	0	2	14	0	0	0	39.2	20	07:00	0	0	0	0	0	0	0	0	0
07:15	3	0	3	16	0	0	0	44.3	22	07:15	0	0	0	0	0	0	0	0	0
07:30	2	0	2	8	0	0	0	23.4	12	07:30	0	0	0	0	0	0	0	0	0
07:45	2	0	4	13	0	0	0	37.9	19	07:45	0	0	0	0	0	0	0	0	0
H/TOT	11	0	11	51	0	0	0	144.8	73	H/TOT	0	0	0	0	0	0	0	0	0

TIME	A to B							PCU	TOT	TIME	A to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	84	8	3	5	0	0	0	108	100	16:00	0	0	0	0	0	0	0	0	0
16:15	77	14	1	12	0	0	0	120.1	104	16:15	0	0	0	0	0	0	0	0	0
16:30	91	11	0	4	0	1	0	111.6	107	16:30	0	0	0	0	0	0	0	0	0
16:45	68	6	1	7	0	0	0	91.6	82	16:45	0	0	0	0	0	0	0	0	0
H/TOT	320	39	5	28	0	1	0	431.3	393	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	B to A							PCU	TOT	TIME	B to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	129	15	0	10	0	2	0	167.8	156	07:00	51	10	5	30	0	0	0	137.5	96
07:15	142	13	2	9	0	0	0	178.7	166	07:15	64	8	5	49	0	2	0	193	128
07:30	86	7	0	7	1	0	0	111.1	101	07:30	43	20	6	31	0	0	0	143.3	100
07:45	94	6	0	6	0	0	0	113.8	106	07:45	83	15	12	37	0	1	0	201.5	148
H/TOT	451	41	2	32	1	2	0	571.4	529	H/TOT	241	53	28	147	0	3	0	675.3	472

TIME	B to A							PCU	TOT	TIME	B to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	4	0	0	16	0	0	0	40.8	20	16:00	19	8	5	45	0	1	0	138.4	78
16:15	6	1	3	11	0	0	0	36.8	21	16:15	23	8	5	54	0	0	0	162.7	90
16:30	5	2	1	16	0	0	0	45.3	24	16:30	25	4	2	49	0	0	0	144.7	80
16:45	4	1	1	18	0	0	0	47.9	24	16:45	19	1	3	37	0	0	0	109.6	60
H/TOT	19	4	5	61	0	0	0	170.8	89	H/TOT	86	21	15	185	0	1	0	555.4	308

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	B to C							PCU	TOT	TIME	B to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	8	2	0	1	0	0	0	12.3	11	07:00	0	0	0	0	0	0	0	0	0
07:15	11	3	0	0	0	0	0	14	14	07:15	0	0	0	0	0	0	0	0	0
07:30	10	0	0	0	0	0	0	10	10	07:30	0	0	0	0	0	0	0	0	0
07:45	5	7	2	0	0	0	0	15	14	07:45	0	0	0	0	0	0	0	0	0
H/TOT	34	12	2	1	0	0	0	51.3	49	H/TOT	0	0	0	0	0	0	0	0	0

TIME	B to C							PCU	TOT	TIME	B to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	3	0	1	0	0	0	0	4.5	4	16:00	2	0	0	0	0	0	0	2	2
16:15	1	1	2	1	0	0	0	7.3	5	16:15	0	0	0	0	0	0	0	0	0
16:30	6	1	0	0	0	1	0	7.4	8	16:30	1	1	0	0	0	0	0	2	2
16:45	2	0	0	3	0	0	0	8.9	5	16:45	0	0	0	0	1	0	0	2	1
H/TOT	12	2	3	4	0	1	0	28.1	22	H/TOT	3	1	0	0	1	0	0	6	5

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	C to B							PCU	TOT	TIME	C to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	0	0	1	11	0	0	0	26.8	12	07:00	5	1	0	0	0	0	1	6.2	7
07:15	4	0	1	12	0	1	0	33.5	18	07:15	4	1	0	0	0	0	0	5	5
07:30	3	3	0	11	0	0	0	31.3	17	07:30	5	0	1	0	0	0	0	6.5	6
07:45	2	1	3	8	0	0	0	25.9	14	07:45	6	0	1	1	0	0	0	9.8	8
H/TOT	9	4	5	42	0	1	0	117.5	61	H/TOT	20	2	2	1	0	0	1	27.5	26

TIME	C to B							PCU	TOT	TIME	C to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	5	2	0	15	0	0	0	41.5	22	16:00	2	1	1	1	0	0	0	6.8	5
16:15	13	4	0	8	0	0	0	35.4	25	16:15	1	0	2	0	0	0	0	4	3
16:30	13	3	2	9	0	0	0	39.7	27	16:30	2	2	0	1	0	0	0	6.3	5
16:45	13	3	2	7	0	0	0	35.1	25	16:45	1	5	1	0	0	0	0	7.5	7
H/TOT	44	12	4	39	0	0	0	151.7	99	H/TOT	6	8	4	2	0	0	0	24.6	20

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	C to D							PCU	TOT	TIME	C to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	1	0	1	0	0	0	0	2.5	2	07:00	0	0	0	0	0	0	0	0	0
07:15	5	1	5	3	0	0	0	20.4	14	07:15	0	0	0	0	0	0	0	0	0
07:30	4	1	0	0	0	0	0	5	5	07:30	0	0	0	0	0	0	0	0	0
07:45	3	2	0	1	0	0	0	7.3	6	07:45	0	0	0	0	0	0	0	0	0
H/TOT	13	4	6	4	0	0	0	35.2	27	H/TOT	0	0	0	0	0	0	0	0	0

TIME	C to D							PCU	TOT	TIME	C to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	3	0	2	1	0	0	0	8.3	6	16:00	0	0	0	0	0	0	0	0	0
16:15	0	0	1	1	0	0	0	3.8	2	16:15	0	0	0	0	0	0	0	0	0
16:30	4	0	2	1	0	0	0	9.3	7	16:30	0	0	0	0	0	0	0	0	0
16:45	0	1	0	0	0	0	0	1	1	16:45	0	0	0	0	0	0	0	0	0
H/TOT	7	1	5	3	0	0	0	22.4	16	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	D to C							PCU	TOT	TIME	D to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	0	0	1	0	0	0	0	1.5	1	07:00	11	3	2	68	0	0	0	173.4	84
07:15	0	0	0	1	0	0	0	2.3	1	07:15	14	2	3	73	0	0	0	188.4	92
07:30	1	1	0	1	0	0	0	4.3	3	07:30	13	2	4	76	0	0	0	195.8	95
07:45	3	0	1	2	0	0	0	9.1	6	07:45	18	5	6	61	0	0	0	172.3	90
H/TOT	4	1	2	4	0	0	0	17.2	11	H/TOT	56	12	15	278	0	0	0	729.9	361

TIME	D to C							PCU	TOT	TIME	D to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	1	0	0	2	0	0	0	5.6	3	16:00	75	14	12	36	0	0	0	189.8	137
16:15	1	0	3	0	0	0	0	5.5	4	16:15	59	6	6	47	0	0	0	182.1	118
16:30	1	1	0	0	0	0	0	2	2	16:30	77	12	5	59	0	0	0	232.2	153
16:45	1	0	2	1	0	0	0	6.3	4	16:45	60	10	4	37	0	3	0	162.3	114
H/TOT	4	1	5	3	0	0	0	19.4	13	H/TOT	271	42	27	179	0	3	0	766.4	522

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	D to A							PCU	TOT	TIME	D to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	19	3	1	2	0	0	0	28.1	25	07:00	0	0	0	0	0	0	0	0	0
07:15	23	0	1	2	0	0	1	29.3	27	07:15	0	0	0	0	0	0	0	0	0
07:30	16	2	0	0	0	0	0	18	18	07:30	0	0	0	0	0	0	0	0	0
07:45	8	2	1	0	0	0	0	11.5	11	07:45	0	0	0	0	0	0	0	0	0
H/TOT	66	7	3	4	0	0	1	86.9	81	H/TOT	0	0	0	0	0	0	0	0	0

TIME	D to A							PCU	TOT	TIME	D to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	10	1	5	2	0	1	0	23.5	19	16:00	0	0	0	0	0	0	0	0	0
16:15	9	2	0	1	0	0	0	13.3	12	16:15	0	0	0	0	0	0	0	0	0
16:30	9	1	2	7	0	0	0	29.1	19	16:30	0	0	0	0	0	0	0	0	0
16:45	6	2	1	2	0	0	0	14.1	11	16:45	0	0	0	0	0	0	0	0	0
H/TOT	34	6	8	12	0	1	0	80	61	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	TO ARM A							PCU	TOT	TIME	FROM ARM A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	153	19	1	12	0	2	1	202.1	188	07:00	9	3	4	15	0	0	0	52.5	31
07:15	169	14	3	11	0	0	1	213	198	07:15	11	1	3	18	0	0	0	57.9	33
07:30	107	9	1	7	1	0	0	135.6	125	07:30	13	6	5	9	0	1	0	47.6	34
07:45	108	8	2	7	0	0	0	135.1	125	07:45	11	8	8	13	0	0	0	60.9	40
H/TOT	537	50	7	37	1	2	2	685.8	636	H/TOT	44	18	20	55	0	1	0	218.9	138

TIME	TO ARM A							PCU	TOT	TIME	FROM ARM A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	16	2	6	19	0	1	0	71.1	44	16:00	124	11	3	10	0	0	0	162.5	148
16:15	16	3	5	12	0	0	0	54.1	36	16:15	106	20	3	17	0	0	1	169.8	147
16:30	16	5	3	24	0	0	0	80.7	48	16:30	122	14	2	8	0	1	1	158	148
16:45	11	8	3	20	0	0	0	69.5	42	16:45	76	9	3	8	0	0	1	108.1	97
H/TOT	59	18	17	75	0	1	0	275.4	170	H/TOT	428	54	11	43	0	1	3	598.4	540

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	TO ARM B							PCU	TOT	TIME	FROM ARM B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	15	3	5	93	0	0	0	239.4	116	07:00	188	27	5	41	0	2	0	317.6	263
07:15	21	2	7	101	0	1	0	266.2	132	07:15	217	24	7	58	0	2	0	385.7	308
07:30	18	5	6	95	0	0	0	250.5	124	07:30	139	27	6	38	1	0	0	264.4	211
07:45	22	6	13	82	0	0	0	236.1	123	07:45	182	28	14	43	0	1	0	330.3	268
H/TOT	76	16	31	371	0	1	0	992.2	495	H/TOT	726	106	32	180	1	5	0	1298	1050

TIME	TO ARM B							PCU	TOT	TIME	FROM ARM B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	166	24	15	56	0	0	0	341.3	261	16:00	28	8	6	61	0	1	0	185.7	104
16:15	149	24	7	67	0	0	0	337.6	247	16:15	30	10	10	66	0	0	0	206.8	116
16:30	182	27	7	72	0	1	0	385.5	289	16:30	37	8	3	65	0	1	0	199.4	114
16:45	141	19	7	51	1	3	0	291	222	16:45	25	2	4	58	1	0	0	168.4	90
H/TOT	638	94	36	246	1	4	0	1355.4	1019	H/TOT	120	28	23	250	1	2	0	760.3	424

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	TO ARM C							PCU	TOT	TIME	FROM ARM C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	10	3	2	1	0	0	0	18.3	16	07:00	6	1	2	11	0	0	1	35.5	21
07:15	12	3	0	1	0	0	0	17.3	16	07:15	13	2	6	15	0	1	0	58.9	37
07:30	12	4	1	1	0	0	0	19.8	18	07:30	12	4	1	11	0	0	0	42.8	28
07:45	8	11	6	2	0	0	0	32.6	27	07:45	11	3	4	10	0	0	0	43	28
H/TOT	42	21	9	5	0	0	0	88	77	H/TOT	42	10	13	47	0	1	1	180.2	114

TIME	TO ARM C							PCU	TOT	TIME	FROM ARM C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	16	1	1	3	0	0	0	25.4	21	16:00	10	3	3	17	0	0	0	56.6	33
16:15	11	5	5	2	0	0	0	28.1	23	16:15	14	4	3	9	0	0	0	43.2	30
16:30	13	4	0	2	0	1	1	22.2	21	16:30	19	5	4	11	0	0	0	55.3	39
16:45	7	2	2	5	0	0	1	23.7	17	16:45	14	9	3	7	0	0	0	43.6	33
H/TOT	47	12	8	12	0	1	2	99.4	82	H/TOT	57	21	13	44	0	0	0	198.7	135

SITE: 2 DATE: 20/02/2024

LOCATION: A160 / Eastfield DAY: Tuesday

TIME	TO ARM D							PCU	TOT	TIME	FROM ARM D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	55	12	7	31	0	0	0	148.8	105	07:00	30	6	4	70	0	0	0	203	110
07:15	76	10	10	54	0	2	0	226	152	07:15	37	2	4	76	0	0	1	220	120
07:30	57	24	8	32	0	1	0	167	122	07:30	30	5	4	77	0	0	0	218.1	116
07:45	95	21	13	38	0	1	0	223.3	168	07:45	29	7	8	63	0	0	0	192.9	107
H/TOT	283	67	38	155	0	4	0	765.1	547	H/TOT	126	20	20	286	0	0	1	834	453

TIME	TO ARM D							PCU	TOT	TIME	FROM ARM D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	50	10	7	50	0	1	0	185.9	118	16:00	86	15	17	40	0	1	0	218.9	159
16:15	43	10	8	59	0	0	1	200.9	121	16:15	69	8	9	48	0	0	0	200.9	134
16:30	54	5	6	52	0	0	0	187.6	117	16:30	87	14	7	66	0	0	0	263.3	174
16:45	23	3	5	37	0	0	0	118.6	68	16:45	67	12	7	40	0	3	0	182.7	129
H/TOT	170	28	26	198	0	1	1	693	424	H/TOT	309	49	40	194	0	4	0	865.8	596

15052 - Immingham
FEBRUARY 2024
CLASSIFIED TURNING COUNT

SITE: 2 DATE: 20/02/2024

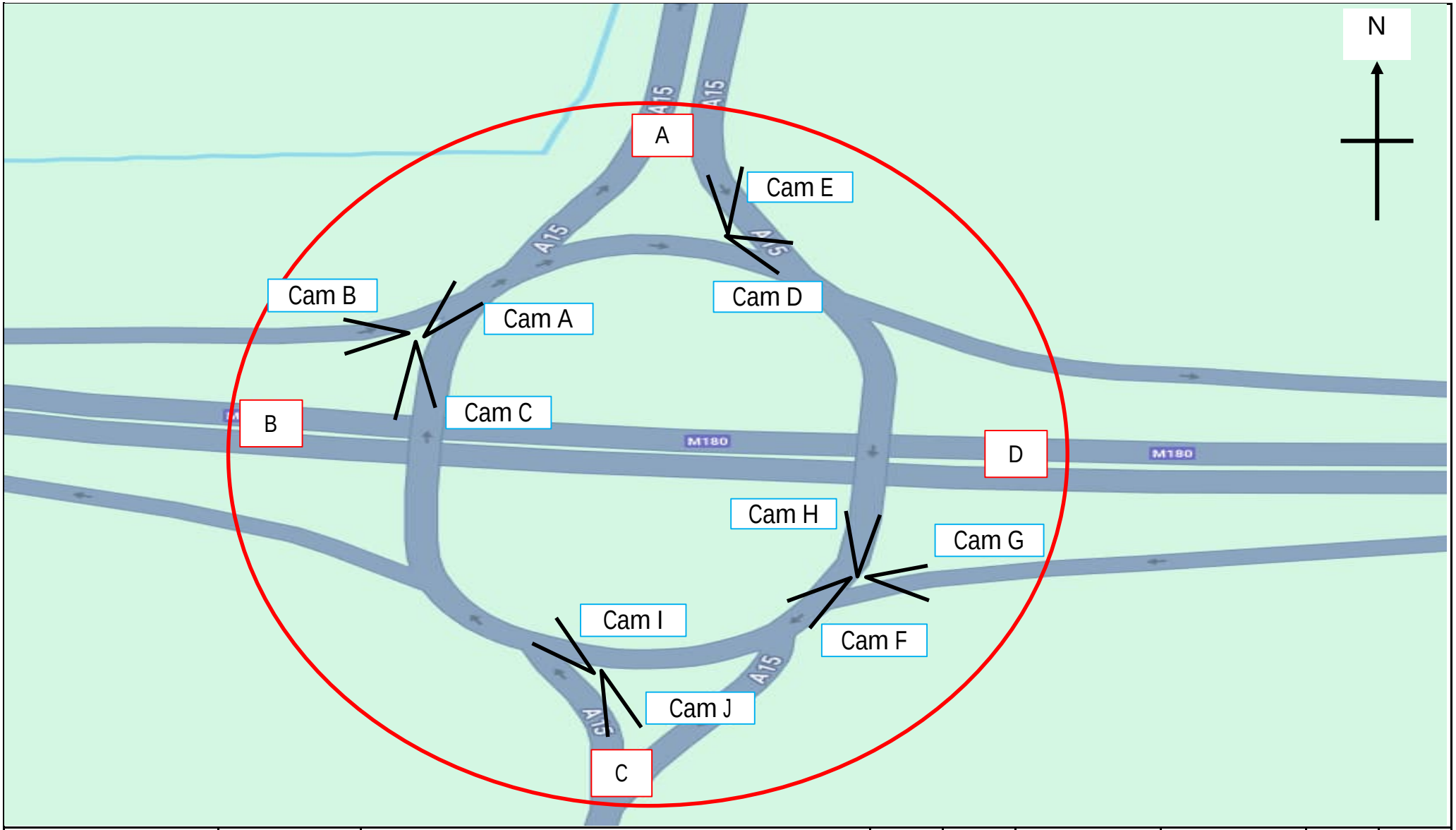
LOCATION: A160 / Eastfield DAY: Tuesday

TIME	JUNCTION TOTAL							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	233	37	15	137	0	2	1	608.6	425
07:15	278	29	20	167	0	3	1	722.5	498
07:30	194	42	16	135	1	1	0	572.9	389
07:45	233	46	34	129	0	1	0	627.1	443
H/TOT	938	154	85	568	1	7	2	2531.1	1755

PEAK HOUR CALCULATION	TOT
07:00 to 08:00	1755
07:15 to 08:15	1699
07:30 to 08:30	1482
07:45 to 08:45	1352

TIME	JUNCTION TOTAL							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	248	37	29	128	0	2	0	623.7	444
16:15	219	42	25	140	0	0	1	620.7	427
16:30	265	41	16	150	0	2	1	676	475
16:45	182	32	17	113	1	3	1	502.8	349
H/TOT	914	152	87	531	1	7	3	2423.2	1695

PEAK HOUR CALCULATION	TOT
16:00 to 17:00	1695
16:15 to 17:15	1689
16:30 to 17:30	1637
16:45 to 17:45	1534



NDC NATIONWIDE DATA COLLECTION	Site / Location:	Site 3 - Broughton Interchange Road	Project No:	15052	Drawing No:	15052-03	Drawn By:	DC
	Survey Date:	Tuesday 20th February 2024	Project Name:	Immingham				
	Survey Times:	06:00 – 09:00 / 15:00 – 18:00	Drawing Title:	Site Layout and Observed Movements				

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	A to D							PCU	TOT	TIME	A to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	139	26	2	16	1	0	0	206.8	184	07:00	24	4	0	7	0	0	0	44.1	35
07:15	135	27	8	11	1	0	0	201.3	182	07:15	30	11	0	3	0	0	0	47.9	44
07:30	145	20	6	15	1	0	0	210.5	187	07:30	29	4	1	1	0	0	0	36.8	35
07:45	132	19	2	8	0	0	0	172.4	161	07:45	32	8	1	8	0	0	0	59.9	49
H/TOT	551	92	18	50	3	0	0	791	714	H/TOT	115	27	2	19	0	0	0	188.7	163

TIME	A to D							PCU	TOT	TIME	A to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	120	38	5	6	2	0	0	183.3	171	16:00	29	8	0	3	0	0	0	43.9	40
16:15	108	20	1	7	2	0	0	149.6	138	16:15	32	12	0	4	0	0	0	53.2	48
16:30	113	26	1	4	0	0	0	149.7	144	16:30	32	7	2	2	0	0	0	46.6	43
16:45	118	17	0	4	1	0	0	146.2	140	16:45	37	2	1	3	0	1	0	47.8	44
H/TOT	459	101	7	21	5	0	0	628.8	593	H/TOT	130	29	3	12	0	1	0	191.5	175

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	A to B							PCU	TOT	TIME	A to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	48	7	1	7	0	0	0	72.6	63	07:00	2	0	0	0	0	0	0	2	2
07:15	46	8	4	8	2	0	0	82.4	68	07:15	0	0	0	0	0	0	0	0	0
07:30	51	4	1	5	1	0	0	70	62	07:30	1	0	0	0	0	0	0	1	1
07:45	40	3	4	8	0	0	0	67.4	55	07:45	1	0	0	0	0	0	0	1	1
H/TOT	185	22	10	28	3	0	0	292.4	248	H/TOT	4	0	0	0	0	0	0	4	4

TIME	A to B							PCU	TOT	TIME	A to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	51	15	0	4	0	0	0	75.2	70	16:00	0	0	0	0	0	0	0	0	0
16:15	47	16	0	1	0	0	0	65.3	64	16:15	0	0	0	0	0	0	0	0	0
16:30	49	10	0	3	0	0	0	65.9	62	16:30	0	0	0	0	0	0	0	0	0
16:45	35	15	0	0	0	0	0	50	50	16:45	1	0	0	0	0	0	0	1	1
H/TOT	182	56	0	8	0	0	0	256.4	246	H/TOT	1	0	0	0	0	0	0	1	1

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	B to A							PCU	TOT	TIME	B to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	23	13	2	4	0	0	0	48.2	42	07:00	0	0	0	0	0	0	0	0	0
07:15	26	12	2	5	0	0	0	52.5	45	07:15	0	0	0	0	0	0	0	0	0
07:30	25	19	2	9	0	0	0	67.7	55	07:30	0	0	0	0	0	0	0	0	0
07:45	40	23	2	6	0	0	0	79.8	71	07:45	0	0	0	0	0	0	0	0	0
H/TOT	114	67	8	24	0	0	0	248.2	213	H/TOT	0	0	0	0	0	0	0	0	0

TIME	B to A							PCU	TOT	TIME	B to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	46	17	1	9	2	0	0	89.2	75	16:00	0	0	0	0	0	0	0	0	0
16:15	55	12	2	8	0	0	0	88.4	77	16:15	0	0	0	0	0	0	0	0	0
16:30	50	14	0	7	0	0	0	80.1	71	16:30	0	0	0	0	0	0	0	0	0
16:45	60	7	2	5	0	0	0	81.5	74	16:45	0	0	0	0	0	0	0	0	0
H/TOT	211	50	5	29	2	0	0	339.2	297	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	B to C							PCU	TOT	TIME	B to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	21	16	4	6	0	0	0	56.8	47	07:00	0	0	0	0	0	0	0	0	0
07:15	22	13	0	1	0	0	0	37.3	36	07:15	1	0	0	0	0	0	0	1	1
07:30	21	14	4	3	0	0	0	47.9	42	07:30	0	0	0	0	0	0	0	0	0
07:45	19	24	3	6	0	0	0	61.3	52	07:45	0	0	0	0	0	0	0	0	0
H/TOT	83	67	11	16	0	0	0	203.3	177	H/TOT	1	0	0	0	0	0	0	1	1

TIME	B to C							PCU	TOT	TIME	B to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	27	5	1	10	0	0	0	56.5	43	16:00	1	0	0	0	0	0	0	1	1
16:15	21	10	0	4	0	0	0	40.2	35	16:15	0	0	0	0	0	0	0	0	0
16:30	48	11	0	8	0	0	0	77.4	67	16:30	0	0	0	0	0	0	0	0	0
16:45	43	8	0	5	0	0	0	62.5	56	16:45	1	0	0	0	0	0	0	1	1
H/TOT	139	34	1	27	0	0	0	236.6	201	H/TOT	2	0	0	0	0	0	0	2	2

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	C to B							PCU	TOT	TIME	C to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	42	13	2	4	0	0	0	67.2	61	07:00	17	5	1	5	0	0	0	35	28
07:15	34	4	3	9	0	0	0	63.2	50	07:15	21	1	1	5	0	0	0	35	28
07:30	17	6	0	6	0	0	0	36.8	29	07:30	31	1	2	4	0	0	0	44.2	38
07:45	33	13	2	9	0	0	0	69.7	57	07:45	31	10	0	3	0	0	0	47.9	44
H/TOT	126	36	7	28	0	0	0	236.9	197	H/TOT	100	17	4	17	0	0	0	162.1	138

TIME	C to B							PCU	TOT	TIME	C to A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	26	11	1	0	0	0	0	38.5	38	16:00	23	6	2	3	0	0	0	38.9	34
16:15	20	17	1	4	0	0	0	47.7	42	16:15	21	7	1	4	0	0	0	38.7	33
16:30	34	10	1	2	0	0	0	50.1	47	16:30	38	4	3	3	0	0	0	53.4	48
16:45	30	12	0	4	0	0	0	51.2	46	16:45	41	4	1	5	0	0	0	58	51
H/TOT	110	50	3	10	0	0	0	187.5	173	H/TOT	123	21	7	15	0	0	0	189	166

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	C to D							PCU	TOT	TIME	C to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	43	20	2	16	0	0	0	102.8	81	07:00	0	0	0	0	0	0	0	0	0
07:15	49	13	1	14	0	0	0	95.7	77	07:15	0	0	0	0	0	0	0	0	0
07:30	43	17	1	14	0	0	0	93.7	75	07:30	0	0	0	0	0	0	0	0	0
07:45	65	21	2	20	0	0	0	135	108	07:45	0	0	0	0	0	0	0	0	0
H/TOT	200	71	6	64	0	0	0	427.2	341	H/TOT	0	0	0	0	0	0	0	0	0

TIME	C to D							PCU	TOT	TIME	C to C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	41	22	2	16	0	0	0	102.8	81	16:00	0	0	0	0	0	0	0	0	0
16:15	47	14	3	20	0	0	0	111.5	84	16:15	0	0	0	0	0	0	0	0	0
16:30	51	15	3	14	0	1	0	103.1	84	16:30	0	0	0	0	0	0	0	0	0
16:45	50	16	3	12	0	0	0	98.1	81	16:45	0	0	0	0	0	0	0	0	0
H/TOT	189	67	11	62	0	1	0	415.5	330	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	D to C							PCU	TOT	TIME	D to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	39	8	3	15	0	0	0	86	65	07:00	0	0	0	0	0	0	0	0	0
07:15	42	20	5	23	0	0	0	122.4	90	07:15	0	0	0	0	0	0	0	0	0
07:30	49	18	4	24	0	0	0	128.2	95	07:30	0	0	0	0	0	0	0	0	0
07:45	48	14	0	25	0	0	0	119.5	87	07:45	0	0	0	0	0	0	0	0	0
H/TOT	178	60	12	87	0	0	0	456.1	337	H/TOT	0	0	0	0	0	0	0	0	0

TIME	D to C							PCU	TOT	TIME	D to B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	42	13	1	15	0	0	0	91	71	16:00	0	0	0	0	0	0	0	0	0
16:15	56	13	2	13	0	0	0	101.9	84	16:15	0	0	0	0	0	0	0	0	0
16:30	62	13	1	16	1	0	0	115.3	93	16:30	0	0	0	0	0	0	0	0	0
16:45	57	21	3	18	0	0	0	123.9	99	16:45	0	0	0	0	0	0	0	0	0
H/TOT	217	60	7	62	1	0	0	432.1	347	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	D to A							PCU	TOT	TIME	D to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	65	19	3	11	1	1	0	116.2	100	07:00	0	0	0	0	0	0	0	0	0
07:15	86	22	2	3	2	0	0	121.9	115	07:15	0	0	0	0	0	0	0	0	0
07:30	108	24	5	6	0	0	0	153.3	143	07:30	0	0	0	0	0	0	0	0	0
07:45	128	21	4	8	1	0	1	175.6	163	07:45	1	0	0	0	0	0	0	1	1
H/TOT	387	86	14	28	4	1	1	567	521	H/TOT	1	0	0	0	0	0	0	1	1

TIME	D to A							PCU	TOT	TIME	D to D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	104	25	3	10	1	0	0	158.5	143	16:00	0	0	0	0	0	0	0	0	0
16:15	131	26	6	10	0	0	0	189	173	16:15	0	0	0	0	0	0	0	0	0
16:30	114	28	2	7	1	0	0	163.1	152	16:30	0	0	0	0	0	0	0	0	0
16:45	135	26	2	8	0	0	0	182.4	171	16:45	0	0	0	0	0	0	0	0	0
H/TOT	484	105	13	35	2	0	0	693	639	H/TOT	0	0	0	0	0	0	0	0	0

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	TO ARM A							PCU	TOT	TIME	FROM ARM A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	107	37	6	20	1	1	0	201.4	172	07:00	213	37	3	30	1	0	0	325.5	284
07:15	133	35	5	13	2	0	0	209.4	188	07:15	211	46	12	22	3	0	0	331.6	294
07:30	165	44	9	19	0	0	0	266.2	237	07:30	226	28	8	21	2	0	0	318.3	285
07:45	200	54	6	17	1	0	1	304.3	279	07:45	205	30	7	24	0	0	0	300.7	266
H/TOT	605	170	26	69	4	1	1	981.3	876	H/TOT	855	141	30	97	6	0	0	1276.1	1129

TIME	TO ARM A							PCU	TOT	TIME	FROM ARM A							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	173	48	6	22	3	0	0	286.6	252	16:00	200	61	5	13	2	0	0	302.4	281
16:15	207	45	9	22	0	0	0	316.1	283	16:15	187	48	1	12	2	0	0	268.1	250
16:30	202	46	5	17	1	0	0	296.6	271	16:30	194	43	3	9	0	0	0	262.2	249
16:45	237	37	5	18	0	0	0	322.9	297	16:45	191	34	1	7	1	1	0	245	235
H/TOT	819	176	25	79	4	0	0	1222.2	1103	H/TOT	772	186	10	41	5	1	0	1077.7	1015

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	TO ARM B							PCU	TOT	TIME	FROM ARM B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	90	20	3	11	0	0	0	139.8	124	07:00	44	29	6	10	0	0	0	105	89
07:15	81	12	7	17	2	0	0	146.6	119	07:15	49	25	2	6	0	0	0	90.8	82
07:30	68	10	1	11	1	0	0	106.8	91	07:30	46	33	6	12	0	0	0	115.6	97
07:45	73	16	6	17	0	0	0	137.1	112	07:45	59	47	5	12	0	0	0	141.1	123
H/TOT	312	58	17	56	3	0	0	530.3	446	H/TOT	198	134	19	40	0	0	0	452.5	391

TIME	TO ARM B							PCU	TOT	TIME	FROM ARM B							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	78	26	1	4	0	0	0	114.7	109	16:00	74	22	2	19	2	0	0	146.7	119
16:15	67	33	1	5	0	0	0	113	106	16:15	76	22	2	12	0	0	0	128.6	112
16:30	83	20	1	5	0	0	0	116	109	16:30	98	25	0	15	0	0	0	157.5	138
16:45	66	27	0	4	0	0	0	102.2	97	16:45	104	15	2	10	0	0	0	145	131
H/TOT	294	106	3	18	0	0	0	445.9	421	H/TOT	352	84	6	56	2	0	0	577.8	500

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	TO ARM C							PCU	TOT	TIME	FROM ARM C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	84	28	7	28	0	0	0	186.9	147	07:00	102	38	5	25	0	0	0	205	170
07:15	94	44	5	27	0	0	0	207.6	170	07:15	104	18	5	28	0	0	0	193.9	155
07:30	99	36	9	28	0	0	0	212.9	172	07:30	91	24	3	24	0	0	0	174.7	142
07:45	99	46	4	39	0	0	0	240.7	188	07:45	129	44	4	32	0	0	0	252.6	209
H/TOT	376	154	25	122	0	0	0	848.1	677	H/TOT	426	124	17	109	0	0	0	826.2	676

TIME	TO ARM C							PCU	TOT	TIME	FROM ARM C							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	98	26	2	28	0	0	0	191.4	154	16:00	90	39	5	19	0	0	0	180.2	153
16:15	109	35	2	21	0	0	0	195.3	167	16:15	88	38	5	28	0	0	0	197.9	159
16:30	142	31	3	26	1	0	0	239.3	203	16:30	123	29	7	19	0	1	0	206.6	179
16:45	137	31	4	26	0	1	0	234.2	199	16:45	121	32	4	21	0	0	0	207.3	178
H/TOT	486	123	11	101	1	1	0	860.2	723	H/TOT	422	138	21	87	0	1	0	792	669

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

TIME	TO ARM D							PCU	TOT	TIME	FROM ARM D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	182	46	4	32	1	0	0	309.6	265	07:00	104	27	6	26	1	1	0	202.2	165
07:15	184	40	9	25	1	0	0	297	259	07:15	128	42	7	26	2	0	0	244.3	205
07:30	188	37	7	29	1	0	0	304.2	262	07:30	157	42	9	30	0	0	0	281.5	238
07:45	198	40	4	28	0	0	0	308.4	270	07:45	177	35	4	33	1	0	1	296.1	251
H/TOT	752	163	24	114	3	0	0	1219.2	1056	H/TOT	566	146	26	115	4	1	1	1024.1	859

TIME	TO ARM D							PCU	TOT	TIME	FROM ARM D							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL				CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	161	60	7	22	2	0	0	286.1	252	16:00	146	38	4	25	1	0	0	249.5	214
16:15	155	34	4	27	2	0	0	261.1	222	16:15	187	39	8	23	0	0	0	290.9	257
16:30	164	41	4	18	0	1	0	252.8	228	16:30	176	41	3	23	2	0	0	278.4	245
16:45	168	33	3	16	1	0	0	244.3	221	16:45	192	47	5	26	0	0	0	306.3	270
H/TOT	648	168	18	83	5	1	0	1044.3	923	H/TOT	701	165	20	97	3	0	0	1125.1	986

15052 - Immingham
FEBRUARY 2024
CLASSIFIED TURNING COUNT

SITE: 3 DATE: 20/02/2024

LOCATION: Broughton Interchange Road DAY: Tuesday

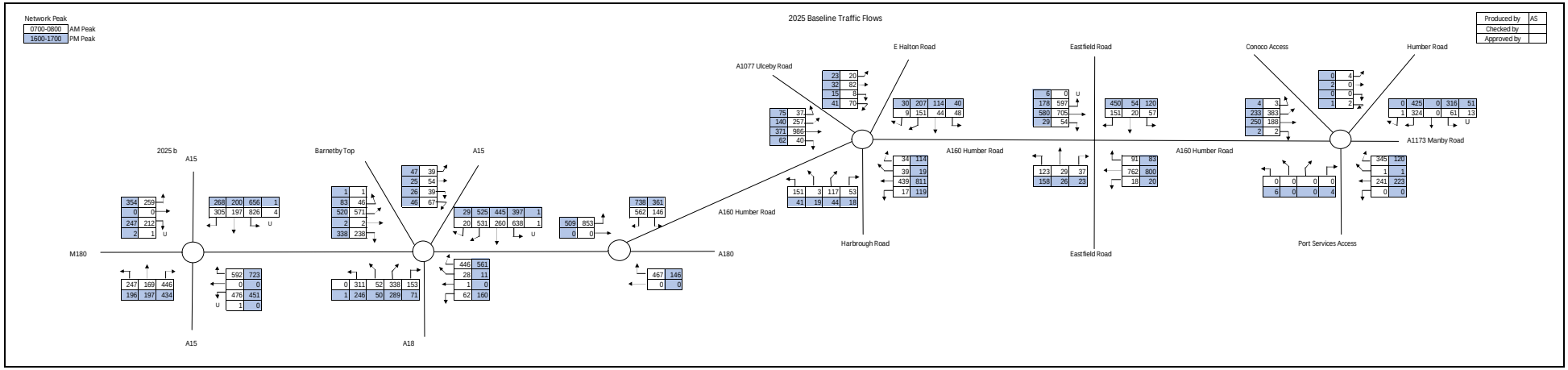
TIME	JUNCTION TOTAL							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	463	131	20	91	2	1	0	837.7	708
07:15	492	131	26	82	5	0	0	860.6	736
07:30	520	127	26	87	2	0	0	890.1	762
07:45	570	156	20	101	1	0	1	990.5	849
H/TOT	2045	545	92	361	10	1	1	3578.9	3055

PEAK HOUR CALCULATION	TOT
07:00 to 08:00	3055
07:15 to 08:15	3142
07:30 to 08:30	3128
07:45 to 08:45	3120

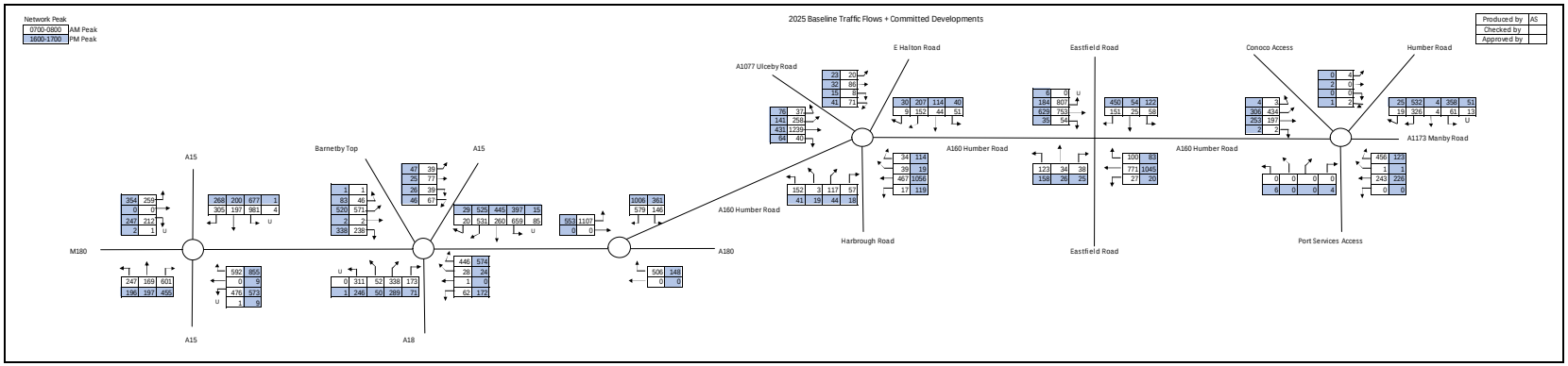
TIME	JUNCTION TOTAL							PCU	TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	510	160	16	76	5	0	0	878.8	767
16:15	538	147	16	75	2	0	0	885.5	778
16:30	591	138	13	66	2	1	0	904.7	811
16:45	608	128	12	64	1	1	0	903.6	814
H/TOT	2247	573	57	281	10	2	0	3572.6	3170

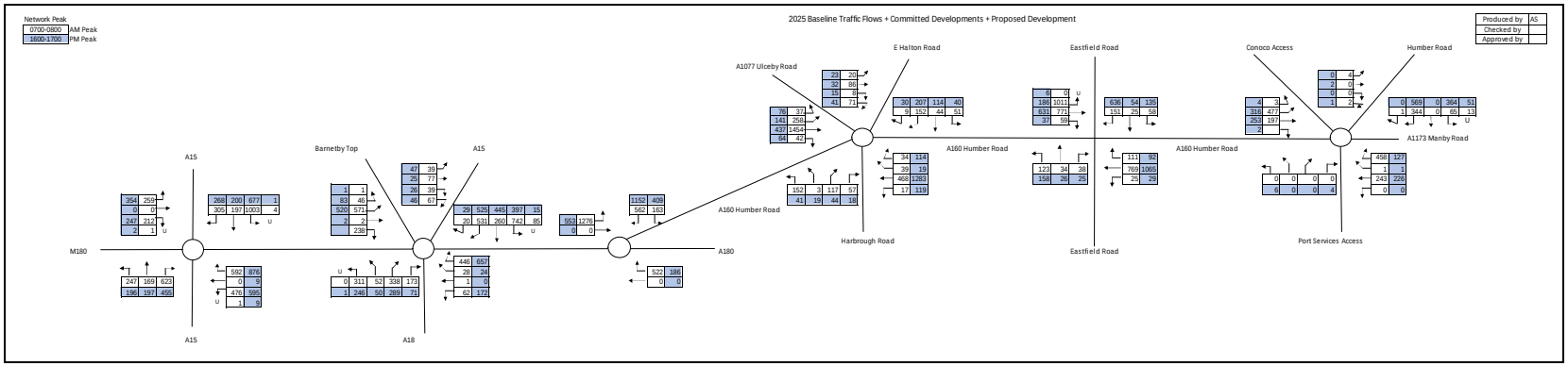
PEAK HOUR CALCULATION	TOT
16:00 to 17:00	3170
16:15 to 17:15	3153
16:30 to 17:30	3168
16:45 to 17:45	3083

Appendix C Flow Diagrams



AM	
1.0443	
PM	
1.0434	


Network Peak
0700-0800 AM Peak
1600-1700 PM Peak
2025 Baseline Traffic Flows + Committed Developments
Produced by 46
Checked by
Approved by
A1077 Ulceby Road
E Halton Road
Eastfield Road
Conoco Access
Humber Road
A1173 Manby Road
A160 Humber Road
A160 Humber Road
A160 Humber Road
Harbrough Road
Eastfield Road
Port Services Access
A15
A15
A15
Barnetby Top
A18
M180
A180


Network Peak
0700-0800 AM Peak
1600-1700 PM Peak
2025 Baseline Traffic Flows + Committed Developments + Proposed Development
Produced by 46
Checked by
Approved by
A15
A15
A15
A18
M180
A180
Barnetby Top
A1077 Ulceby Road
E Halton Road
A160 Humber Road
A160 Humber Road
A160 Humber Road
Harbrough Road
Eastfield Road
Eastfield Road
Conoco Access
Humber Road
A1173 Manby Road
Port Services Access

Appendix D Modelling Outputs

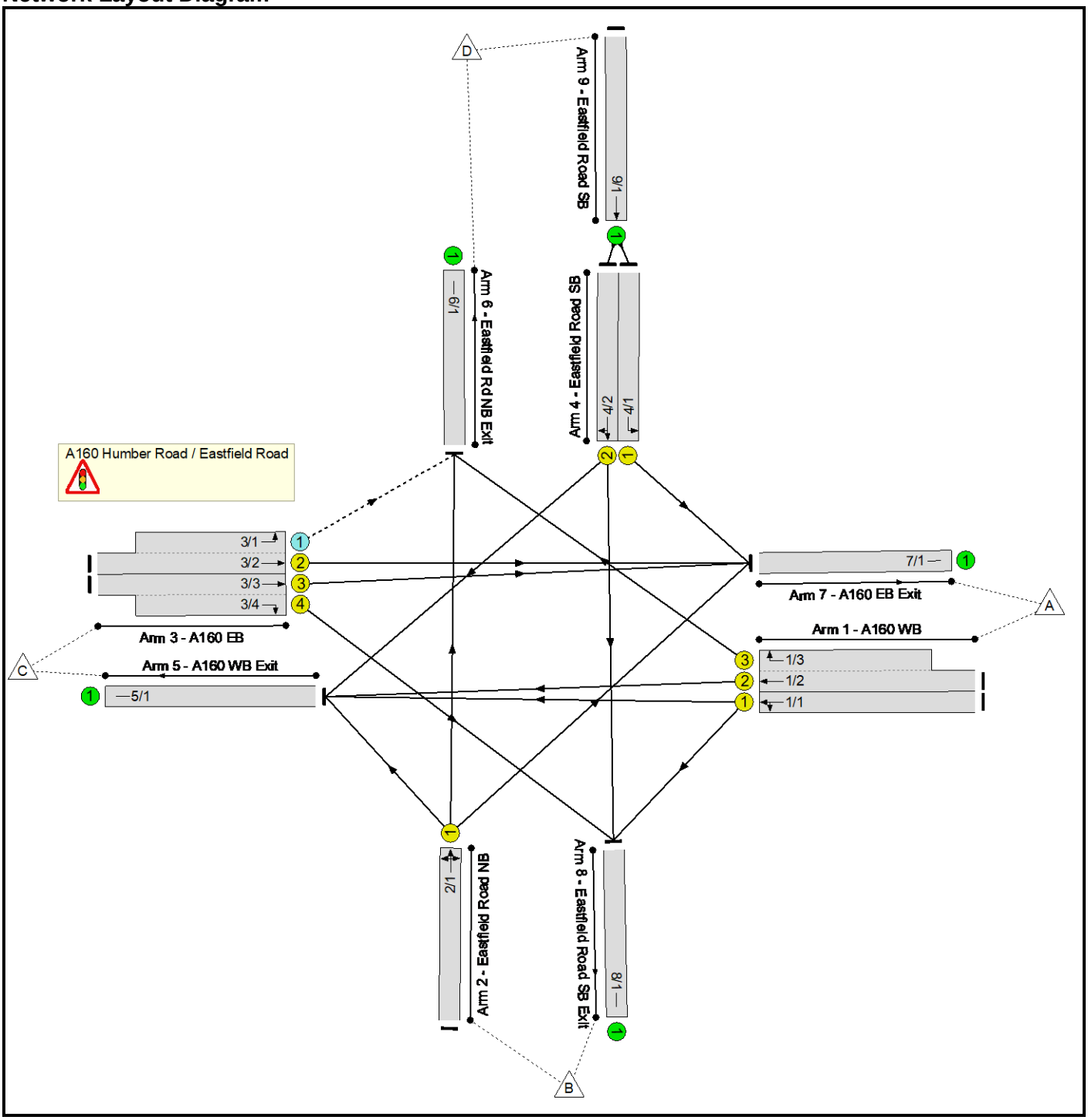
Full Input Data And Results

User and Project Details

Project:	**Immingham Modelling**
Title:	**Eastfield Road Junction**
Location:	
Additional detail:	
File name:	J1 A160_EastfieldRd MITIGATION.lsg3x
Author:	Amelia Simmons
Company:	AECOM
Address:	One Trinity Gardens, Newcastle Upon Tyne

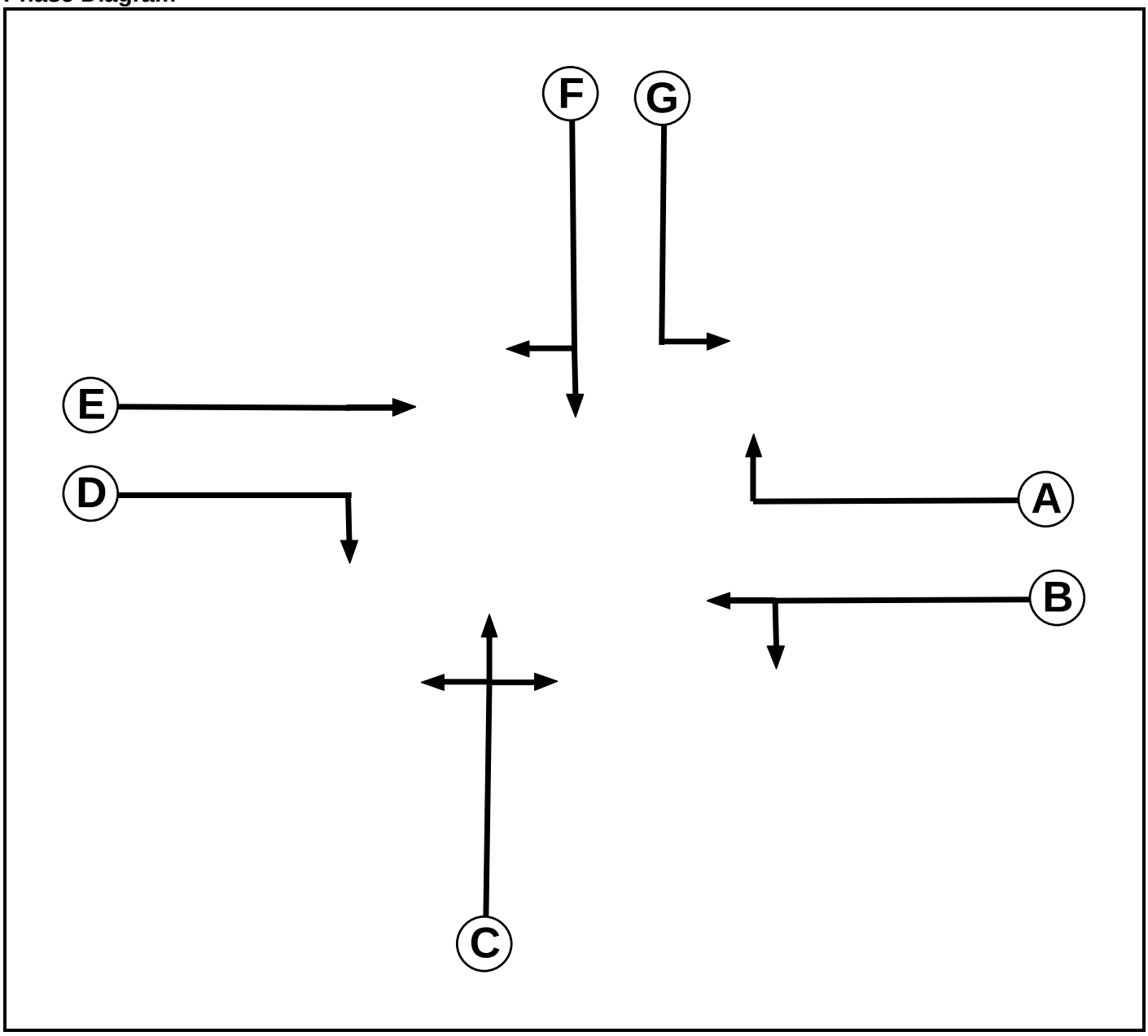
Full Input Data And Results

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	Traffic		7	7
F	Traffic		7	7
G	Traffic		7	7

Full Input Data And Results

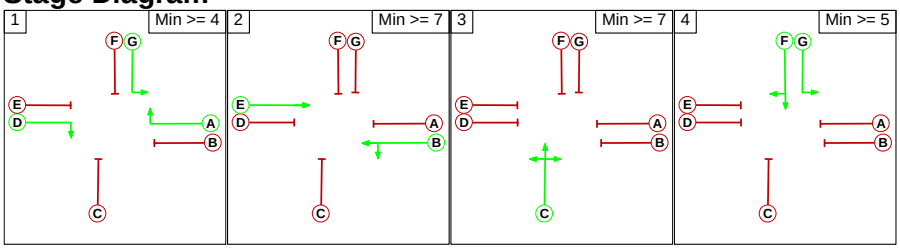
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G
A		-	5	-	8	6	-
B	-		8	5	-	8	-
C	5	6		6	7	7	9
D	-	7	5		-	6	-
E	5	-	5	-		5	8
F	5	5	7	5	5		-
G	-	-	9	-	5	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D G
2	B E
3	C
4	F G

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	9	6
2	8		8	8
3	9	7		9
4	5	5	9	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A160 Humber Road / Eastfield Road

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)
3/1 (A160 EB)	6/1 (Left)	1439	0	2/1	1.09	To 6/1 (Ahead)	-	-	-	-	-
				1/3	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: A160 Humber Road / Eastfield 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)
1/1 (A160 WB)	U	B	2	3	129.0	Geom	-	3.51	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	23.56
1/2 (A160 WB)	U	B	2	3	129.0	Geom	-	3.51	0.00	Y	Arm 5 Ahead	Inf
1/3 (A160 WB)	U	A	2	3	20.0	Geom	-	3.40	0.00	Y	Arm 6 Right	20.90
2/1 (Eastfield Road NB)	U	C	2	3	3.7	Geom	-	4.50	0.00	Y	Arm 5 Left	33.50
											Arm 6 Ahead	Inf
											Arm 7 Right	32.95
3/1 (A160 EB)	O		2	3	17.6	Geom	-	3.30	0.00	N	Arm 6 Left	27.80
3/2 (A160 EB)	U	E	2	3	77.2	Geom	-	3.41	0.00	Y	Arm 7 Ahead	Inf
3/3 (A160 EB)	U	E	2	3	77.2	Geom	-	3.35	0.00	Y	Arm 7 Ahead	Inf
3/4 (A160 EB)	U	D	2	3	25.7	Geom	-	3.42	0.00	Y	Arm 8 Right	23.00
4/1 (Eastfield Road SB)	U	G	2	3	11.7	Geom	-	4.20	0.00	Y	Arm 7 Left	78.75
4/2 (Eastfield Road SB)	U	F	2	3	11.8	Geom	-	4.20	0.00	Y	Arm 5 Right	Inf
											Arm 8 Ahead	Inf
5/1 (A160 WB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Eastfield Rd NB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (A160 EB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Eastfield Road SB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Eastfield Road SB)	U		2	3	23.5	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM 2025 Base'	07:00	08:00	01:00	
2: 'PM 2025 Base'	16:00	17:00	01:00	
3: 'AM 2025 Base + Committed'	07:00	08:00	01:00	
4: 'PM 2025 Base + Committed'	16:00	17:00	01:00	
5: 'AM 2025 Base + Committed + Proposed'	07:00	08:00	01:00	
6: 'PM 2025 Base + Committed + Proposed'	16:00	17:00	01:00	

Scenario 1: 'AM 2025 Base' (FG1: 'AM 2025 Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	18	762	91	871
	B	37	0	123	29	189
	C	705	54	0	597	1356
	D	57	20	151	0	228
	Tot.	799	92	1036	717	2644

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: AM 2025 Base
Junction: A160 Humber Road / Eastfield Road	
1/1	386
1/2 (with short)	485(In) 394(Out)
1/3 (short)	91
2/1	189
3/1 (short)	597
3/2 (with short)	964(In) 367(Out)
3/3 (with short)	392(In) 338(Out)
3/4 (short)	54
4/1	57
4/2	171
5/1	1036
6/1	717
7/1	799
8/1	92
9/1	228

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	95.3 %	1960	1960
				Arm 8 Left	23.56	4.7 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	65.1 %	1989	1989
				Arm 6 Ahead	Inf	15.3 %		
				Arm 7 Right	32.95	19.6 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	88.3 %	2035	2035
				Arm 8 Ahead	Inf	11.7 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM 2025 Base' (FG2: 'PM 2025 Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	20	800	83	903
	B	23	0	158	26	207
	C	580	29	0	178	787
	D	120	54	450	0	624
	Tot.	723	103	1408	287	2521

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM 2025 Base
Junction: A160 Humber Road / Eastfield Road	
1/1	417
1/2 (with short)	486(In) 403(Out)
1/3 (short)	83
2/1	207
3/1 (short)	178
3/2 (with short)	471(In) 293(Out)
3/3 (with short)	316(In) 287(Out)
3/4 (short)	29
4/1	120
4/2	504
5/1	1408
6/1	287
7/1	723
8/1	103
9/1	624

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	95.2 %	1960	1960
				Arm 8 Left	23.56	4.8 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	76.3 %	1987	1987
				Arm 6 Ahead	Inf	12.6 %		
				Arm 7 Right	32.95	11.1 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	89.3 %	2035	2035
				Arm 8 Ahead	Inf	10.7 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM 2025 Base + Committed' (FG3: 'AM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	27	771	100	898
	B	38	0	123	34	195
	C	753	54	0	807	1614
	D	58	25	151	0	234
	Tot.	849	106	1045	941	2941

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: AM 2025 Base + Committed
Junction: A160 Humber Road / Eastfield Road	
1/1	395
1/2 (with short)	503(In) 403(Out)
1/3 (short)	100
2/1	195
3/1 (short)	807
3/2 (with short)	1193(In) 386(Out)
3/3 (with short)	421(In) 367(Out)
3/4 (short)	54
4/1	58
4/2	176
5/1	1045
6/1	941
7/1	849
8/1	106
9/1	234

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	93.2 %	1957	1957
				Arm 8 Left	23.56	6.8 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	63.1 %	1991	1991
				Arm 6 Ahead	Inf	17.4 %		
				Arm 7 Right	32.95	19.5 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	85.8 %	2035	2035
				Arm 8 Ahead	Inf	14.2 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM 2025 Base + Committed' (FG4: 'PM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	20	1045	83	1148
	B	25	0	158	26	209
	C	629	35	0	184	848
	D	122	54	450	0	626
	Tot.	776	109	1653	293	2831

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: PM 2025 Base + Committed
Junction: A160 Humber Road / Eastfield Road	
1/1	541
1/2 (with short)	607(In) 524(Out)
1/3 (short)	83
2/1	209
3/1 (short)	184
3/2 (with short)	500(In) 316(Out)
3/3 (with short)	348(In) 313(Out)
3/4 (short)	35
4/1	122
4/2	504
5/1	1653
6/1	293
7/1	776
8/1	109
9/1	626

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	96.3 %	1961	1961
				Arm 8 Left	23.56	3.7 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	75.6 %	1987	1987
				Arm 6 Ahead	Inf	12.4 %		
				Arm 7 Right	32.95	12.0 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	89.3 %	2035	2035
				Arm 8 Ahead	Inf	10.7 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'AM 2025 Base + Committed + Proposed' (FG5: 'AM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	25	769	111	905
	B	38	0	123	34	195
	C	771	59	0	1011	1841
	D	58	25	151	0	234
	Tot.	867	109	1043	1156	3175

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: AM 2025 Base + Committed + Proposed
Junction: A160 Humber Road / Eastfield Road	
1/1	392
1/2 (with short)	513(In) 402(Out)
1/3 (short)	111
2/1	195
3/1 (short)	1011
3/2 (with short)	1403(In) 392(Out)
3/3 (with short)	438(In) 379(Out)
3/4 (short)	59
4/1	58
4/2	176
5/1	1043
6/1	1156
7/1	867
8/1	109
9/1	234

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	93.6 %	1958	1958
				Arm 8 Left	23.56	6.4 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	63.1 %	1991	1991
				Arm 6 Ahead	Inf	17.4 %		
				Arm 7 Right	32.95	19.5 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	85.8 %	2035	2035
				Arm 8 Ahead	Inf	14.2 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'PM 2025 Base + Committed + Propsoed' (FG6: 'PM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	29	1065	92	1186
	B	25	0	158	26	209
	C	631	37	0	186	854
	D	135	54	636	0	825
	Tot.	791	120	1859	304	3074

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: PM 2025 Base + Committed + Propsoed
Junction: A160 Humber Road / Eastfield Road	
1/1	560
1/2 (with short)	626(In) 534(Out)
1/3 (short)	92
2/1	209
3/1 (short)	186
3/2 (with short)	503(In) 317(Out)
3/3 (with short)	351(In) 314(Out)
3/4 (short)	37
4/1	135
4/2	690
5/1	1859
6/1	304
7/1	791
8/1	120
9/1	825

Full Input Data And Results

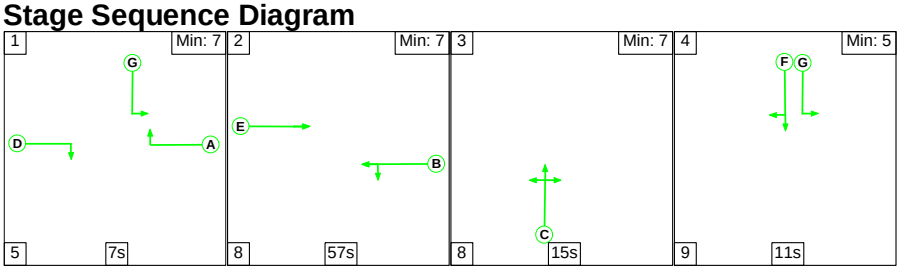
Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	94.8 %	1960	1960
				Arm 8 Left	23.56	5.2 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	75.6 %	1987	1987
				Arm 6 Ahead	Inf	12.4 %		
				Arm 7 Right	32.95	12.0 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	92.2 %	2035	2035
				Arm 8 Ahead	Inf	7.8 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'AM 2025 Base' (FG1: 'AM 2025 Base', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

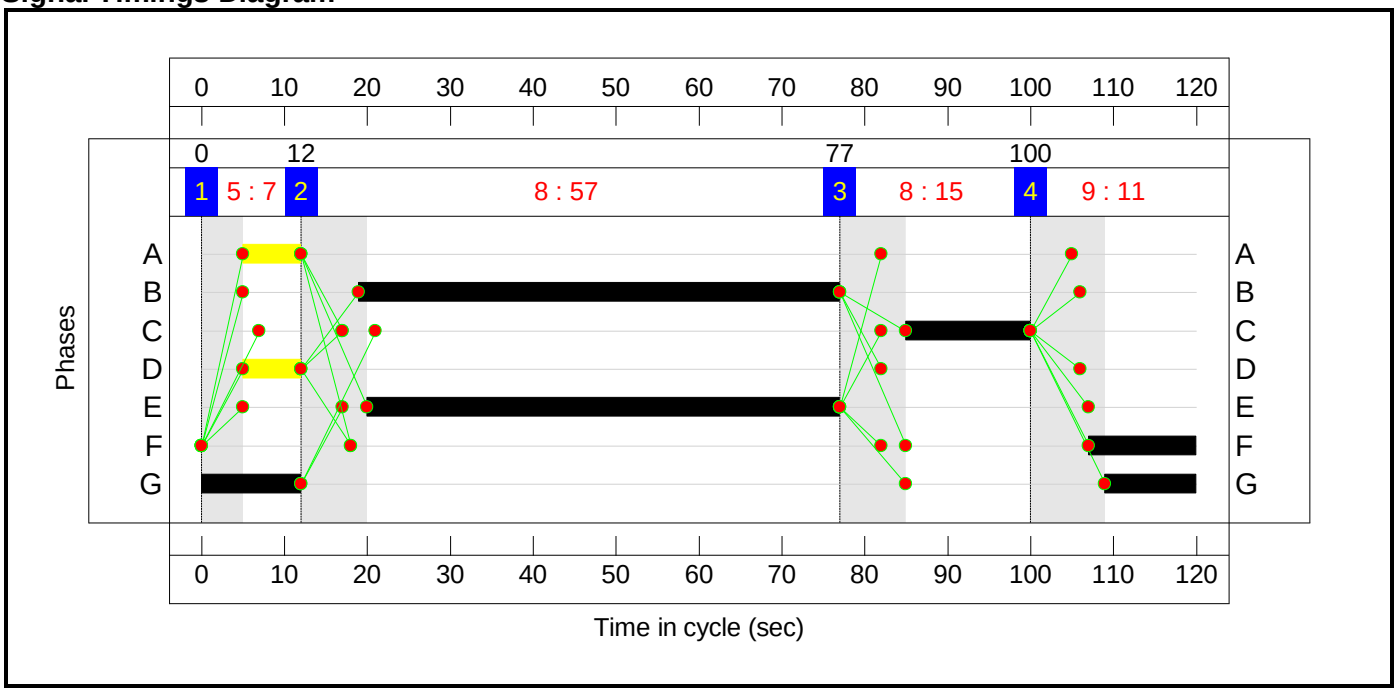


Full Input Data And Results

Stage Timings

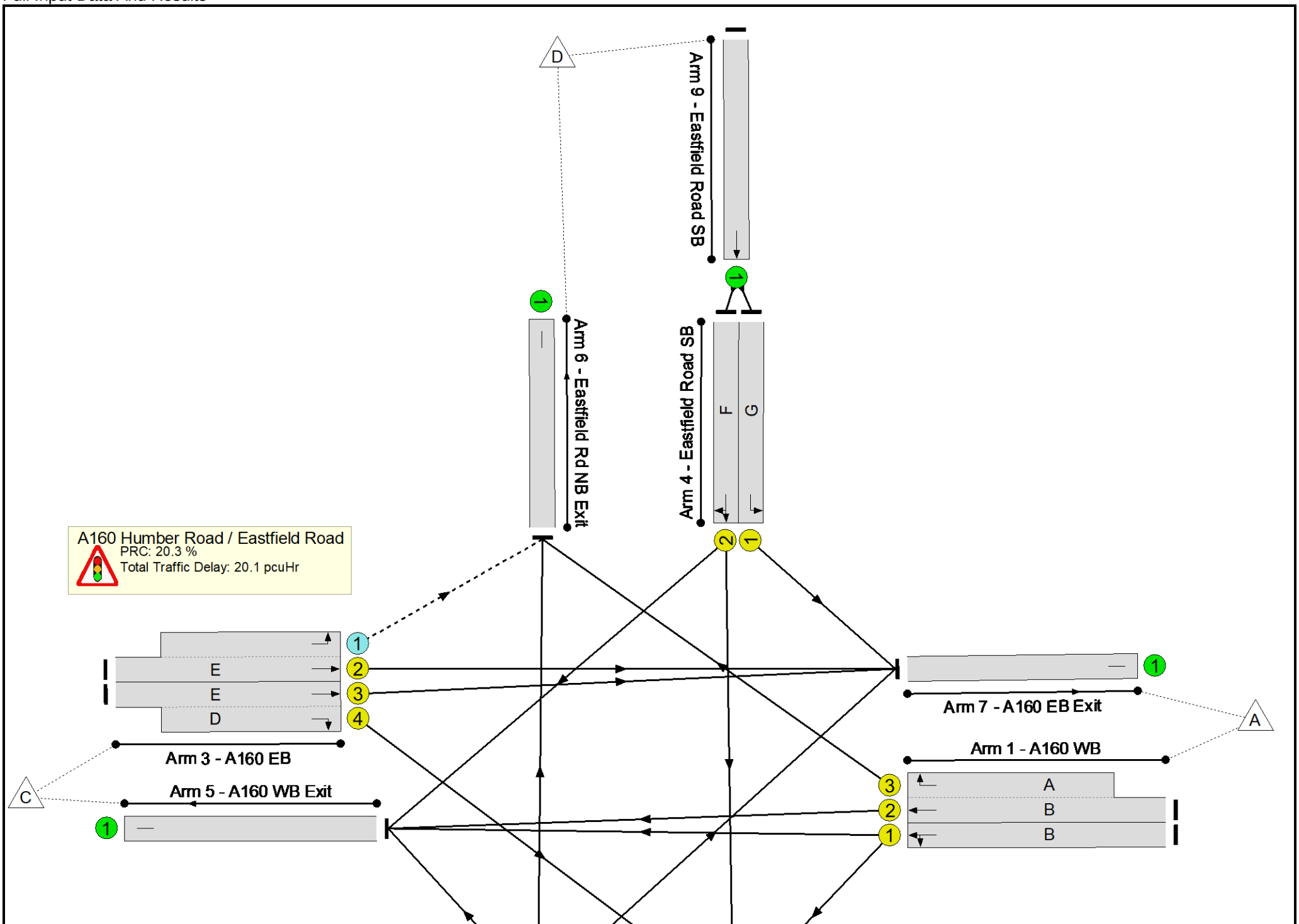
Stage	1	2	3	4
Duration	7	57	15	11
Change Point	0	12	77	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: 20.3 %
Total Traffic Delay: 20.1 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.8%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.8%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	58	-	386	1960	964	40.1%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	58:7	-	485	1966:1824	889+122	44.3 : 74.8%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	15	-	189	1989	265	71.3%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	57	-	964	1956:1978	694+1130	52.8 : 52.8%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	57:7	-	392	1950:1837	928+122	36.4 : 44.1%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	23	-	57	1997	399	14.3%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	13	-	171	2035	237	72.0%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1036	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	717	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	799	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	92	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	228	Inf	Inf	0.0%

Full Input Data And Results

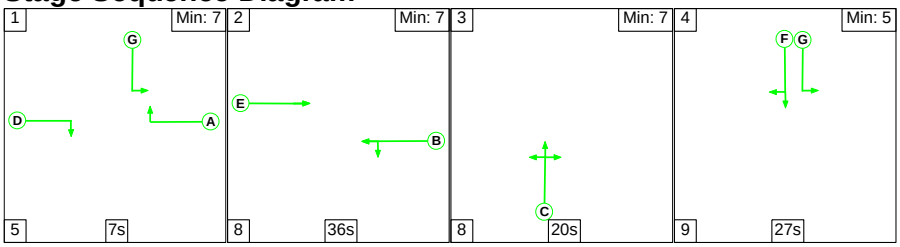
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**102**	**495**	**0**	**15.9**	**4.2**	**0.0**	**20.1**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**102**	**495**	**0**	**15.9**	**4.2**	**0.0**	**20.1**	**-**	**-**	**-**	**-**
1/1	386	386	-	-	-	2.1	0.3	-	2.4	22.4	8.0	0.3	8.4
1/2+1/3	485	485	-	-	-	3.5	0.5	-	4.0	29.5	8.3	0.5	8.8
2/1	189	189	-	-	-	2.6	1.2	-	3.8	72.7	6.0	1.2	7.2
3/2+3/1	964	964	102	495	0	2.1	0.6	-	2.6	9.8	7.7	0.6	8.3
3/3+3/4	392	392	-	-	-	2.6	0.3	-	2.9	26.9	7.0	0.3	7.3
4/1	57	57	-	-	-	0.6	0.1	-	0.7	44.8	1.6	0.1	1.6
4/2	171	171	-	-	-	2.4	1.2	-	3.7	77.2	5.5	1.2	6.7
5/1	1036	1036	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	717	717	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	799	799	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	92	92	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	228	228	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 20.3 Total Delay for Signalled Lanes (pcuHr): 20.11 Cycle Time (s): 120
PRC Over All Lanes (%): 20.3 Total Delay Over All Lanes(pcuHr): 20.11

Full Input Data And Results

Scenario 2: 'PM 2025 Base' (FG2: 'PM 2025 Base', Plan 1: 'Network Control Plan 1')

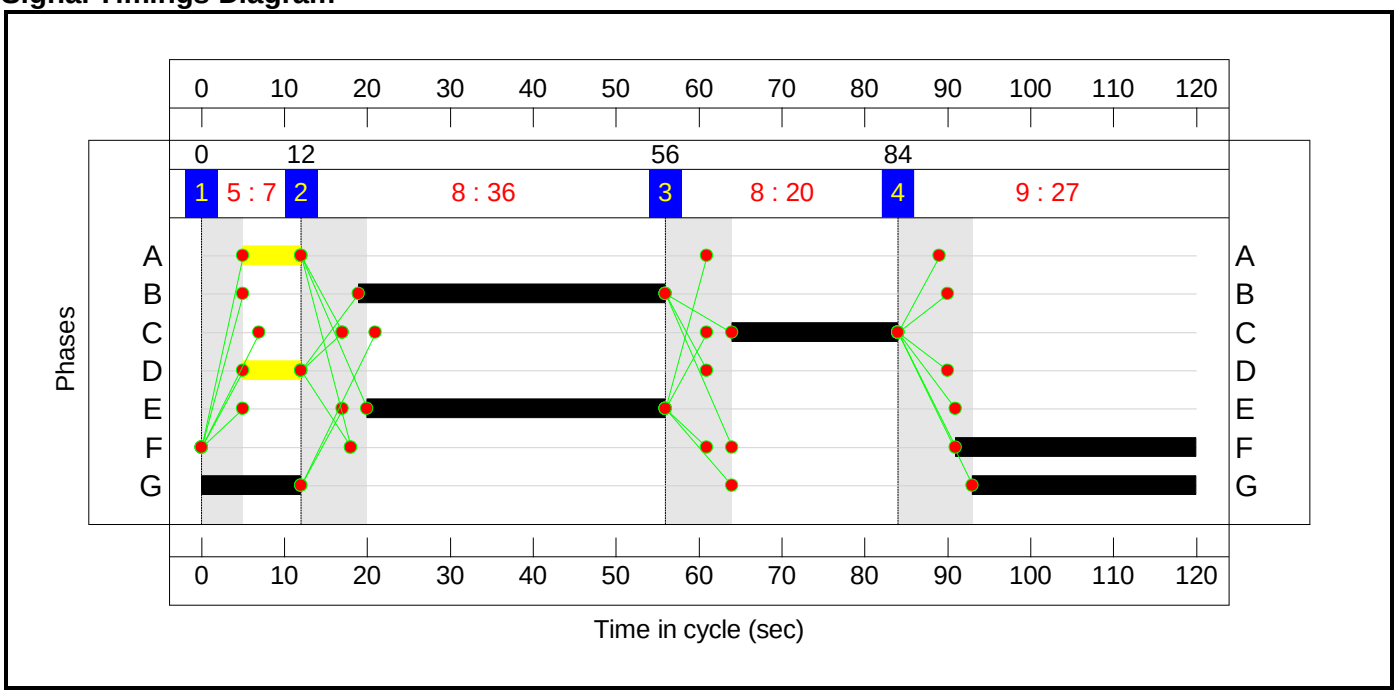
Stage Sequence Diagram



Stage Timings

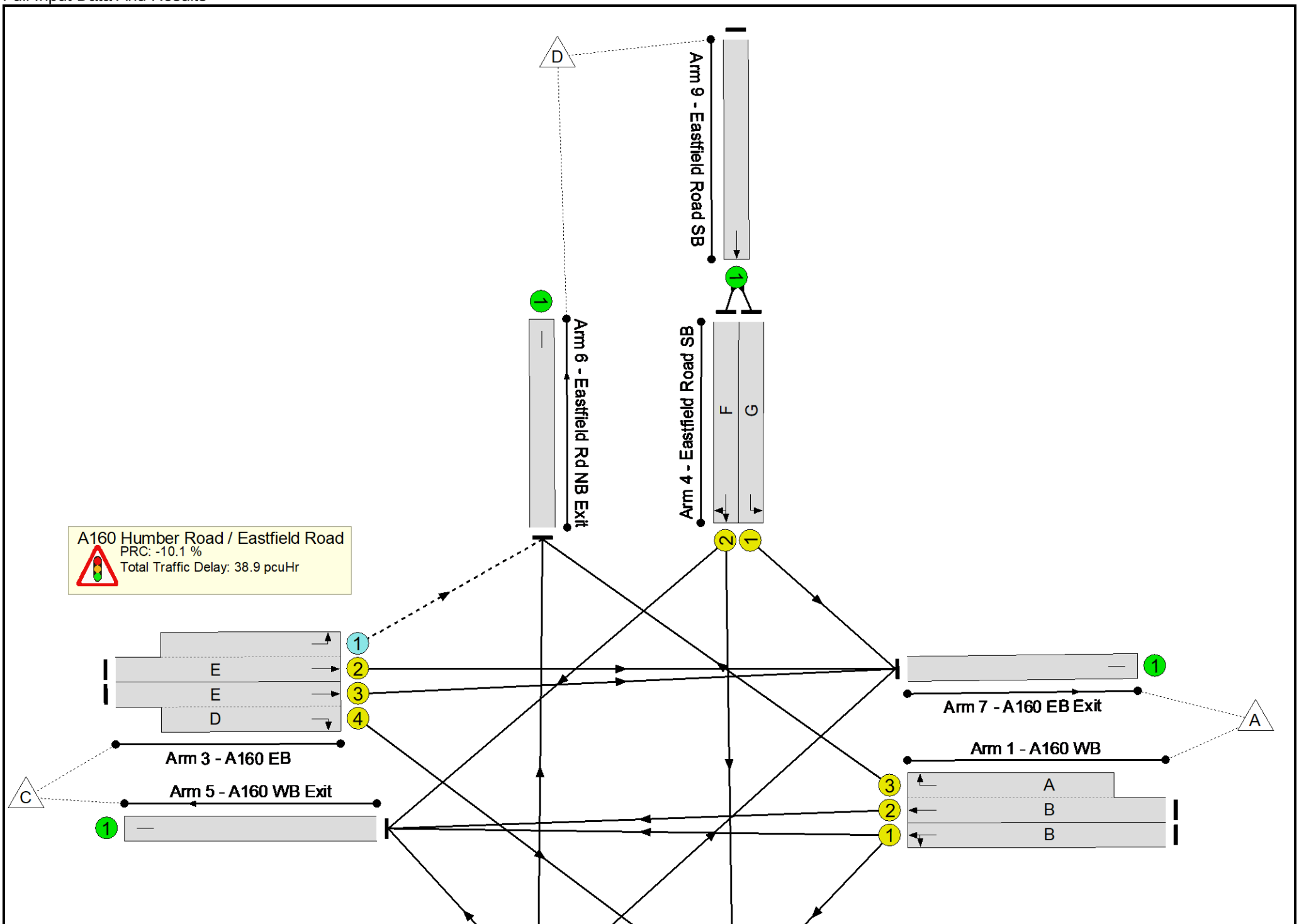
Stage	1	2	3	4
Duration	7	36	20	27
Change Point	0	12	56	84

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -10.1 %
Total Traffic Delay: 38.9 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	37	-	417	1960	621	67.2%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	37:7	-	486	1966:1824	613+122	65.7 : 68.3%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	20	-	207	1987	348	59.5%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	36	-	471	1956:1978	584+355	50.2 : 50.2%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	36:7	-	316	1950:1837	601+73	47.7 : 40.0%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	39	-	120	1997	666	18.0%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	29	-	504	2035	509	99.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1408	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	723	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	103	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	624	Inf	Inf	0.0%

Full Input Data And Results

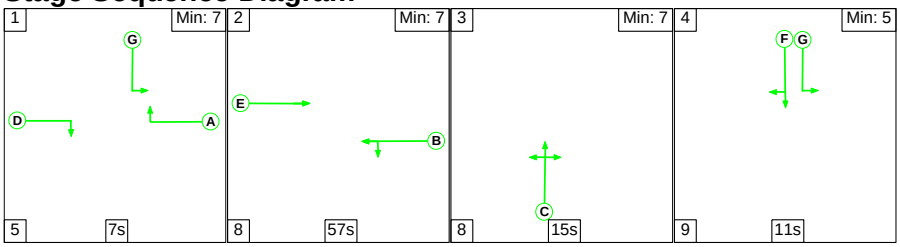
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**43**	**135**	**0**	**25.0**	**13.9**	**0.0**	**38.9**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**43**	**135**	**0**	**25.0**	**13.9**	**0.0**	**38.9**	**-**	**-**	**-**	**-**
1/1	417	417	-	-	-	4.1	1.0	-	5.1	44.3	12.0	1.0	13.1
1/2+1/3	486	486	-	-	-	5.2	1.0	-	6.2	45.8	11.5	1.0	12.5
2/1	207	207	-	-	-	2.6	0.7	-	3.3	58.3	6.3	0.7	7.1
3/2+3/1	471	471	43	135	0	2.8	0.5	-	3.3	24.9	7.9	0.5	8.4
3/3+3/4	316	316	-	-	-	3.1	0.4	-	3.6	40.5	7.7	0.4	8.2
4/1	120	120	-	-	-	0.9	0.1	-	1.1	31.7	2.8	0.1	2.9
4/2	504	504	-	-	-	6.3	10.1	-	16.4	117.0	16.7	10.1	26.8
5/1	1408	1408	-	-	-	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
7/1	723	723	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	103	103	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	624	624	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -10.1 Total Delay for Signalled Lanes (pcuHr): 38.91 Cycle Time (s): 120
PRC Over All Lanes (%): -10.1 Total Delay Over All Lanes(pcuHr): 38.91

Full Input Data And Results

Scenario 3: 'AM 2025 Base + Committed' (FG3: 'AM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

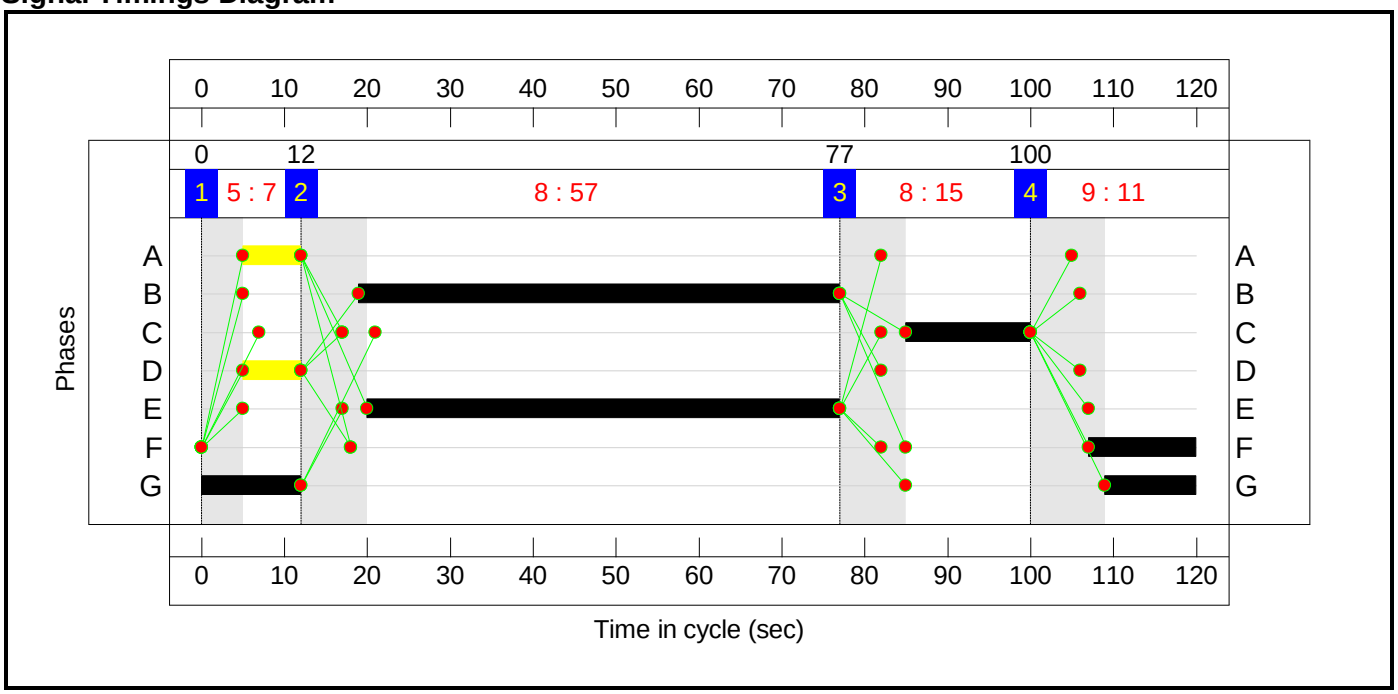
Stage Sequence Diagram



Stage Timings

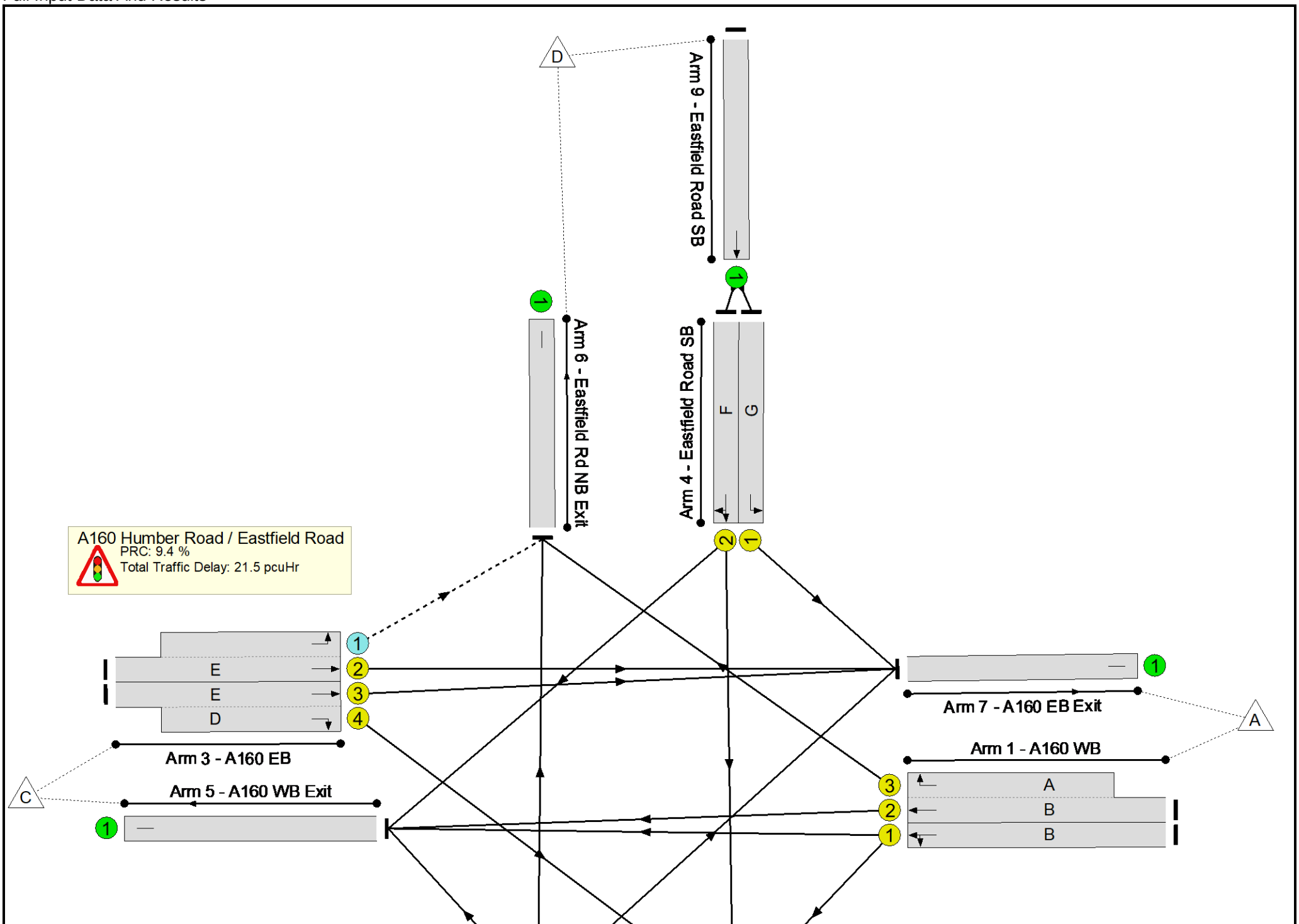
Stage	1	2	3	4
Duration	7	57	15	11
Change Point	0	12	77	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: 9.4 %
Total Traffic Delay: 21.5 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.2%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.2%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	58	-	395	1957	962	41.1%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	58:7	-	503	1966:1824	884+122	45.6 : 82.2%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	15	-	195	1991	265	73.5%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	57	-	1193	1956:1978	638+1320	60.5 : 61.1%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	57:7	-	421	1950:1837	930+122	39.5 : 44.1%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	23	-	58	1997	399	14.5%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	13	-	176	2035	237	74.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1045	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	941	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	234	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	**-**	**-**	**122**	**685**	**0**	**16.8**	**4.7**	**0.0**	**21.5**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**122**	**685**	**0**	**16.8**	**4.7**	**0.0**	**21.5**	**-**	**-**	**-**	**-**
1/1	395	395	-	-	-	2.1	0.3	-	2.5	22.6	8.3	0.3	8.7
1/2+1/3	503	503	-	-	-	3.7	0.5	-	4.2	30.2	8.5	0.5	9.0
2/1	195	195	-	-	-	2.7	1.3	-	4.0	74.6	6.2	1.3	7.6
3/2+3/1	1193	1193	122	685	0	2.2	0.8	-	3.0	9.1	8.3	0.8	9.0
3/3+3/4	421	421	-	-	-	2.8	0.3	-	3.2	27.0	7.7	0.3	8.1
4/1	58	58	-	-	-	0.6	0.1	-	0.7	44.8	1.6	0.1	1.7
4/2	176	176	-	-	-	2.5	1.4	-	3.9	79.3	5.7	1.4	7.0
5/1	1045	1045	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	941	941	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

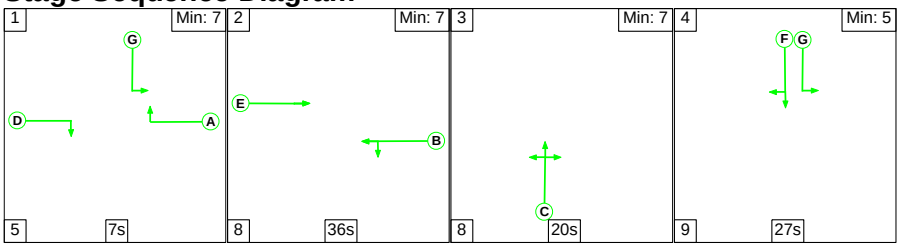
C1 PRC for Signalled Lanes (%): 9.4 Total Delay for Signalled Lanes (pcuHr): 21.51 Cycle Time (s): 120

PRC Over All Lanes (%): 9.4 Total Delay Over All Lanes(pcuHr): 21.51

Full Input Data And Results

Scenario 4: 'PM 2025 Base + Committed' (FG4: 'PM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

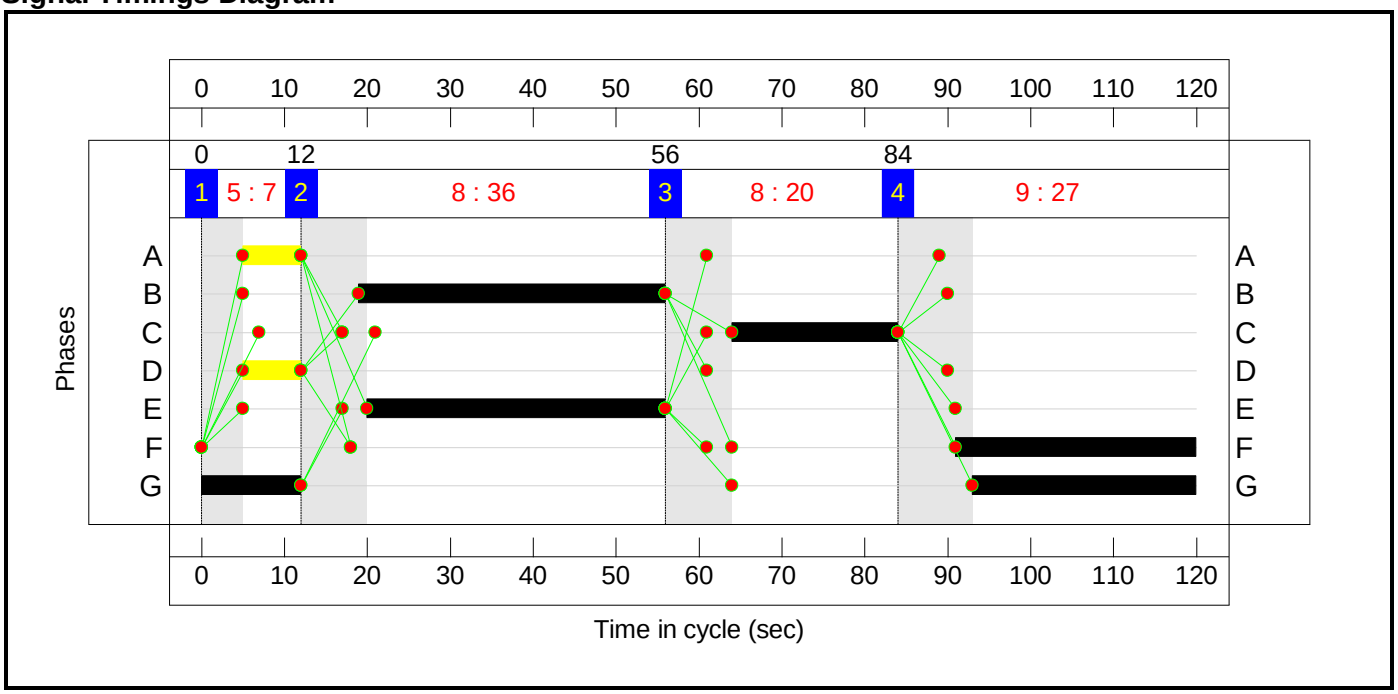
Stage Sequence Diagram



Stage Timings

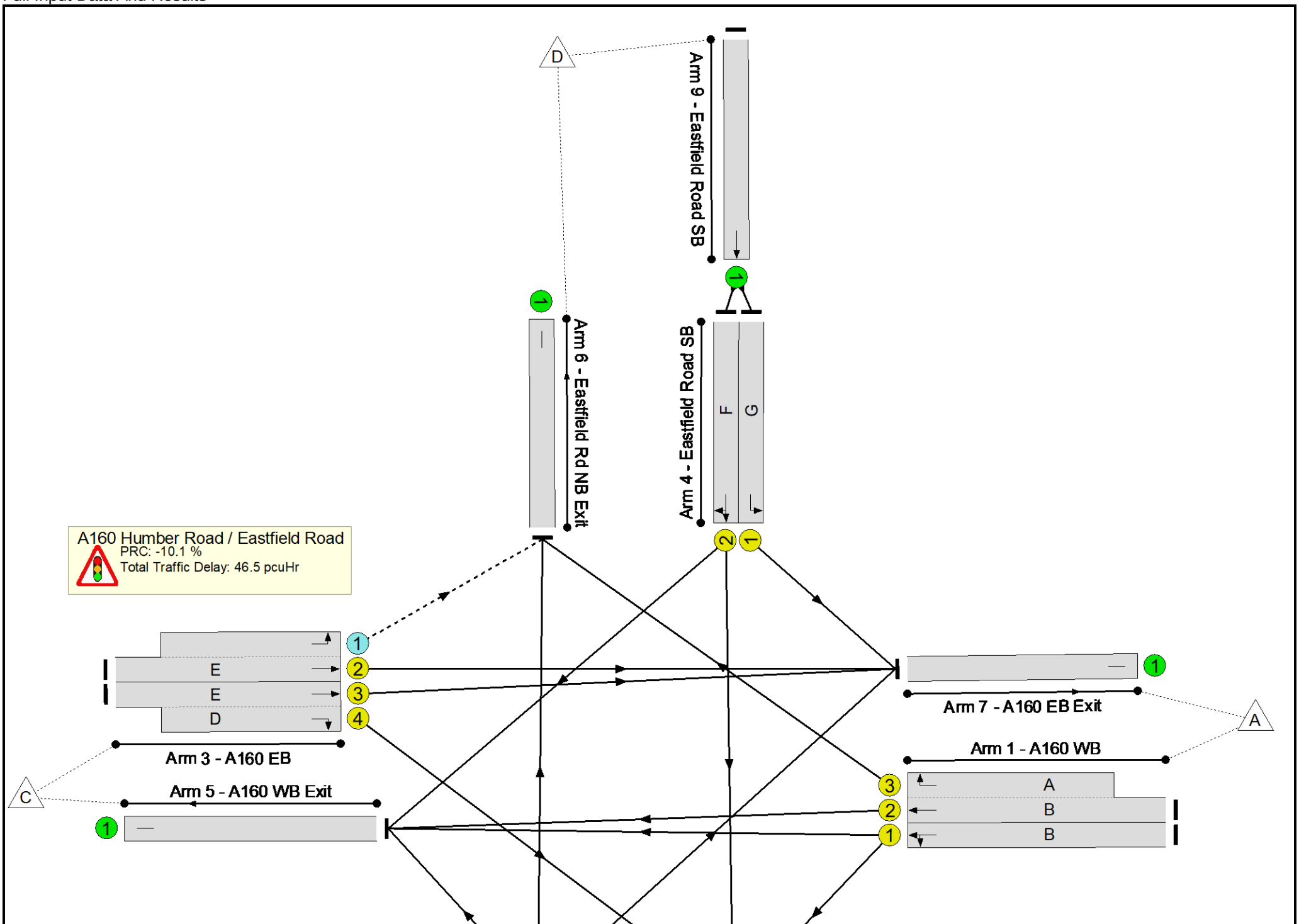
Stage	1	2	3	4
Duration	7	36	20	27
Change Point	0	12	56	84

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -10.1 %
Total Traffic Delay: 46.5 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	37	-	541	1961	621	87.1%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	37:7	-	607	1966:1824	614+122	85.3 : 68.3%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	20	-	209	1987	348	60.1%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	36	-	500	1956:1978	585+341	54.0 : 54.0%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	36:7	-	348	1950:1837	601+93	52.1 : 37.8%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	39	-	122	1997	666	18.3%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	29	-	504	2035	509	99.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1653	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	293	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	776	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	626	Inf	Inf	0.0%

Full Input Data And Results

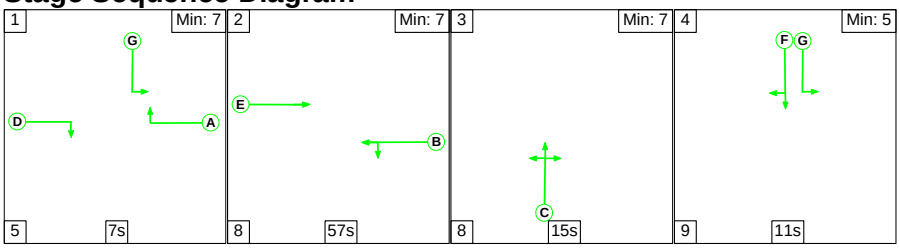
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**44**	**140**	**0**	**29.0**	**17.5**	**0.0**	**46.5**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**44**	**140**	**0**	**29.0**	**17.5**	**0.0**	**46.5**	**-**	**-**	**-**	**-**
1/1	541	541	-	-	-	5.8	3.1	-	9.0	59.6	17.0	3.1	20.1
1/2+1/3	607	607	-	-	-	6.8	2.3	-	9.1	54.0	16.2	2.3	18.4
2/1	209	209	-	-	-	2.7	0.7	-	3.4	58.5	6.4	0.7	7.1
3/2+3/1	500	500	44	140	0	3.0	0.6	-	3.6	25.9	8.6	0.6	9.2
3/3+3/4	348	348	-	-	-	3.5	0.5	-	4.0	41.3	8.5	0.5	9.0
4/1	122	122	-	-	-	1.0	0.1	-	1.1	31.7	2.9	0.1	3.0
4/2	504	504	-	-	-	6.3	10.1	-	16.4	117.0	16.7	10.1	26.8
5/1	1653	1653	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	293	293	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	776	776	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	626	626	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -10.1 Total Delay for Signalled Lanes (pcuHr): 46.50 Cycle Time (s): 120
PRC Over All Lanes (%): -10.1 Total Delay Over All Lanes(pcuHr): 46.50

Full Input Data And Results

Scenario 5: 'AM 2025 Base + Committed + Proposed' (FG5: 'AM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

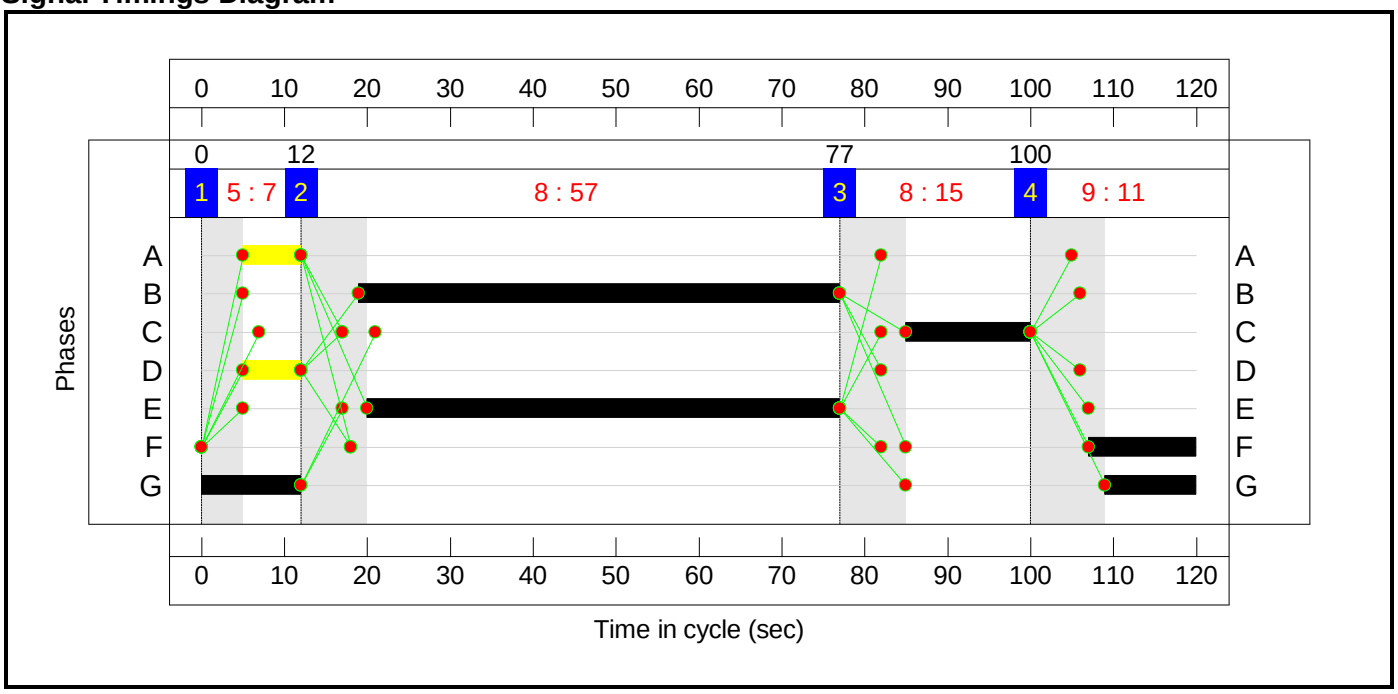
Stage Sequence Diagram



Stage Timings

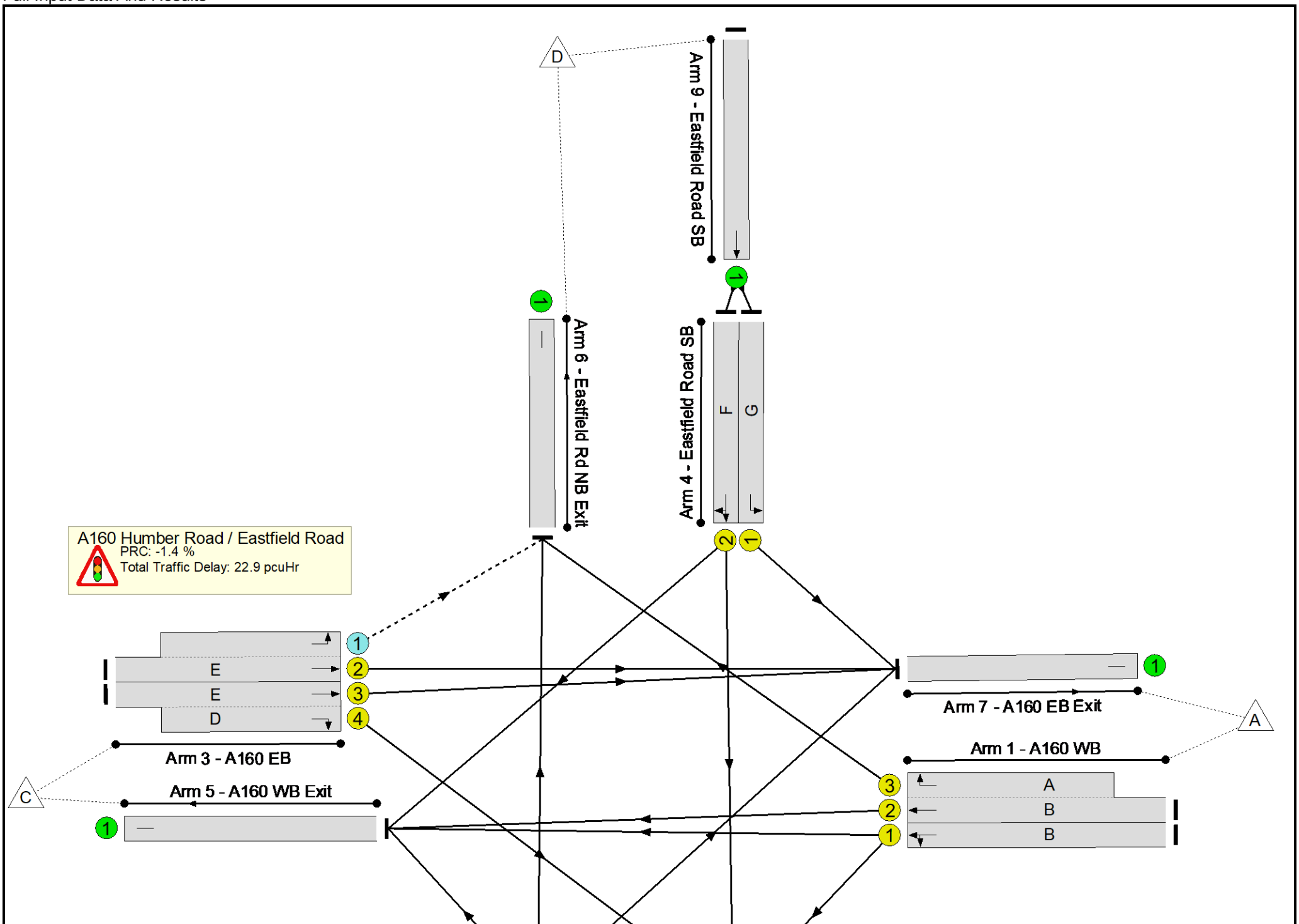
Stage	1	2	3	4
Duration	7	57	15	11
Change Point	0	12	77	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -1.4 %
Total Traffic Delay: 22.9 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
A
B
C
D
E
F
G

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.3%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.3%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	58	-	392	1958	963	40.7%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	58:7	-	513	1966:1824	878+122	45.8 : 91.3%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	15	-	195	1991	265	73.5%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	57	-	1403	1956:1978	518+1313	75.7 : 77.0%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	57:7	-	438	1950:1837	929+122	40.8 : 48.2%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	23	-	58	1997	399	14.5%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	13	-	176	2035	237	74.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1043	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	1156	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	867	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	234	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	**-**	**-**	**142**	**869**	**0**	**17.2**	**5.6**	**0.0**	**22.9**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**142**	**869**	**0**	**17.2**	**5.6**	**0.0**	**22.9**	**-**	**-**	**-**	**-**
1/1	392	392	-	-	-	2.1	0.3	-	2.5	22.5	8.3	0.3	8.6
1/2+1/3	513	513	-	-	-	3.9	0.5	-	4.4	31.0	8.5	0.5	9.0
2/1	195	195	-	-	-	2.7	1.3	-	4.0	74.6	6.2	1.3	7.6
3/2+3/1	1403	1403	142	869	0	2.4	1.6	-	4.0	10.3	8.4	1.6	10.0
3/3+3/4	438	438	-	-	-	3.0	0.4	-	3.3	27.4	8.0	0.4	8.4
4/1	58	58	-	-	-	0.6	0.1	-	0.7	44.8	1.6	0.1	1.7
4/2	176	176	-	-	-	2.5	1.4	-	3.9	79.3	5.7	1.4	7.0
5/1	1043	1043	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1156	1156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	867	867	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

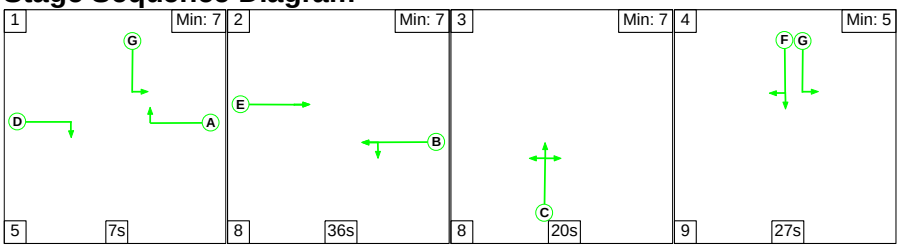
C1 PRC for Signalled Lanes (%): -1.4 Total Delay for Signalled Lanes (pcuHr): 22.87 Cycle Time (s): 120

PRC Over All Lanes (%): -1.4 Total Delay Over All Lanes(pcuHr): 22.87

Full Input Data And Results

Scenario 6: 'PM 2025 Base + Committed + Propsoed' (FG6: 'PM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

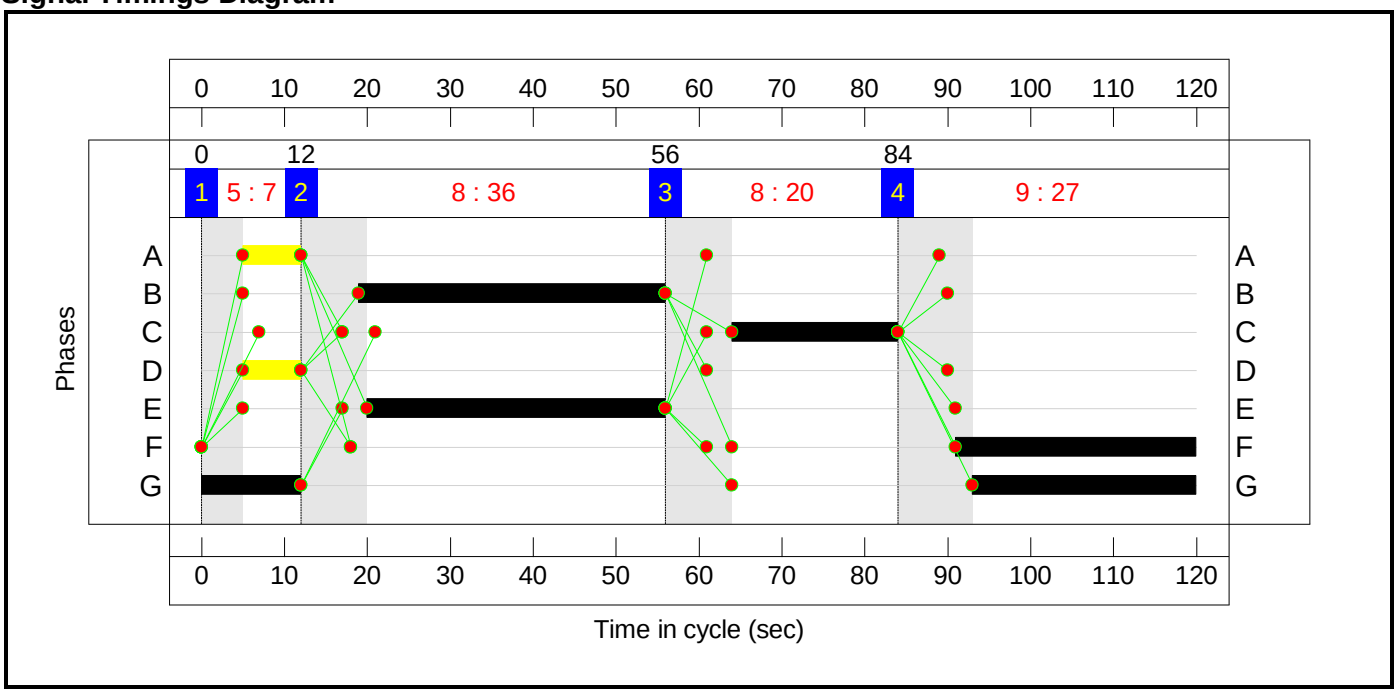
Stage Sequence Diagram



Stage Timings

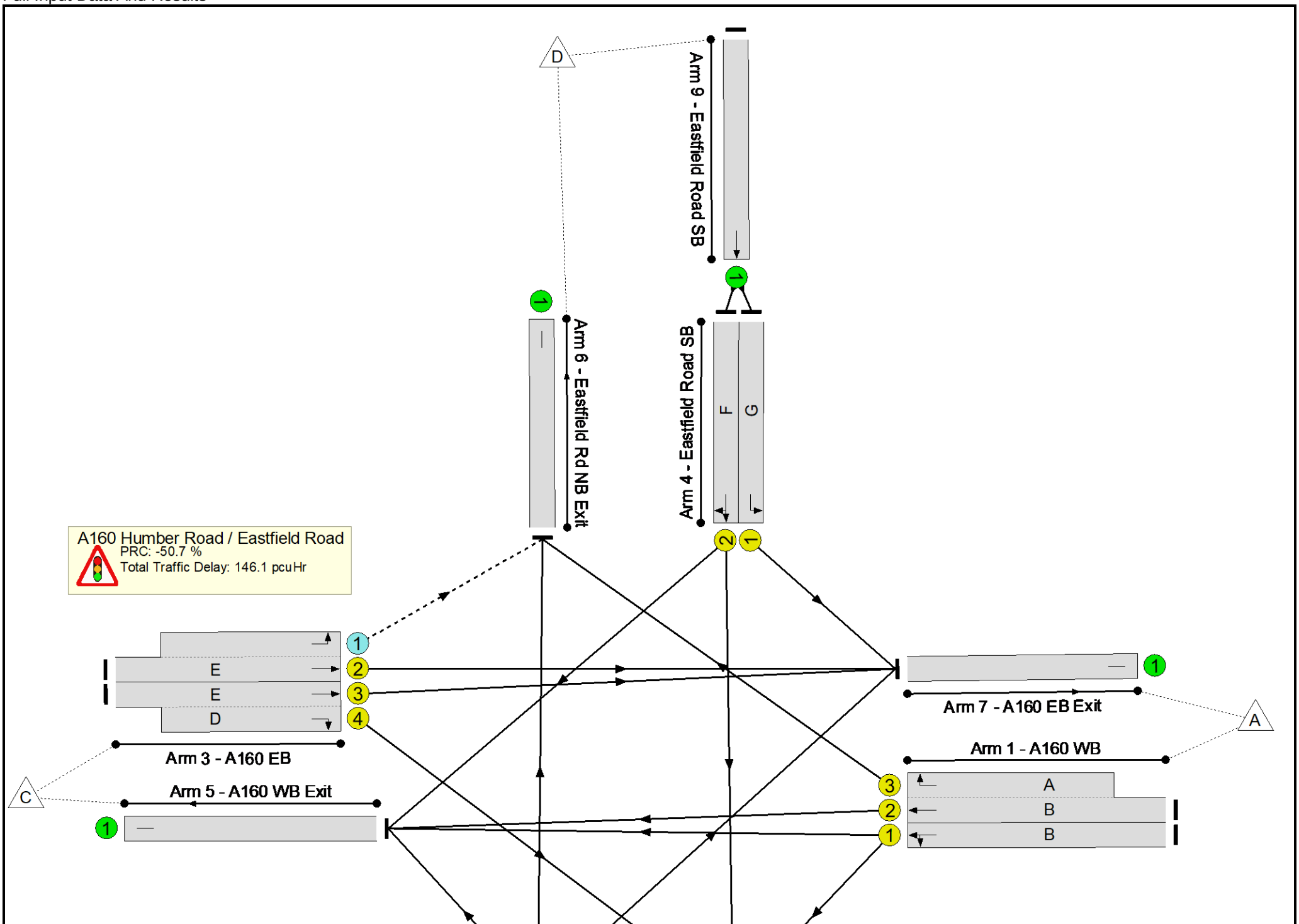
Stage	1	2	3	4
Duration	7	36	20	27
Change Point	0	12	56	84

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -50.7 %
Total Traffic Delay: 146.1 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**135.6%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**135.6%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	37	-	560	1960	621	90.2%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	37:7	-	626	1966:1824	614+122	87.0 : 75.7%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	20	-	209	1987	348	60.1%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	36	-	503	1956:1978	585+343	54.2 : 54.2%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	36:7	-	351	1950:1837	601+104	52.2 : 35.6%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	39	-	135	1997	666	20.3%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	29	-	690	2035	509	135.6%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1859	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	304	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	791	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	120	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	825	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	**-**	**-**	**45**	**141**	**0**	**44.8**	**101.2**	**0.0**	**146.1**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**45**	**141**	**0**	**44.8**	**101.2**	**0.0**	**146.1**	**-**	**-**	**-**	**-**
1/1	560	560	-	-	-	6.1	4.1	-	10.2	65.4	17.7	4.1	21.8
1/2+1/3	626	626	-	-	-	7.1	2.7	-	9.8	56.6	16.6	2.7	19.3
2/1	209	209	-	-	-	2.7	0.7	-	3.4	58.5	6.4	0.7	7.1
3/2+3/1	503	503	45	141	0	3.0	0.6	-	3.6	25.9	8.7	0.6	9.3
3/3+3/4	351	351	-	-	-	3.5	0.5	-	4.0	41.3	8.5	0.5	9.0
4/1	135	135	-	-	-	1.1	0.1	-	1.2	32.0	3.2	0.1	3.3
4/2	690	509	-	-	-	21.3	92.5	-	113.8	593.9	34.5	92.5	127.0
5/1	1692	1692	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	304	304	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	791	791	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	825	825	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -50.7 Total Delay for Signalled Lanes (pcuHr): 146.07 Cycle Time (s): 120
PRC Over All Lanes (%): -50.7 Total Delay Over All Lanes(pcuHr): 146.07

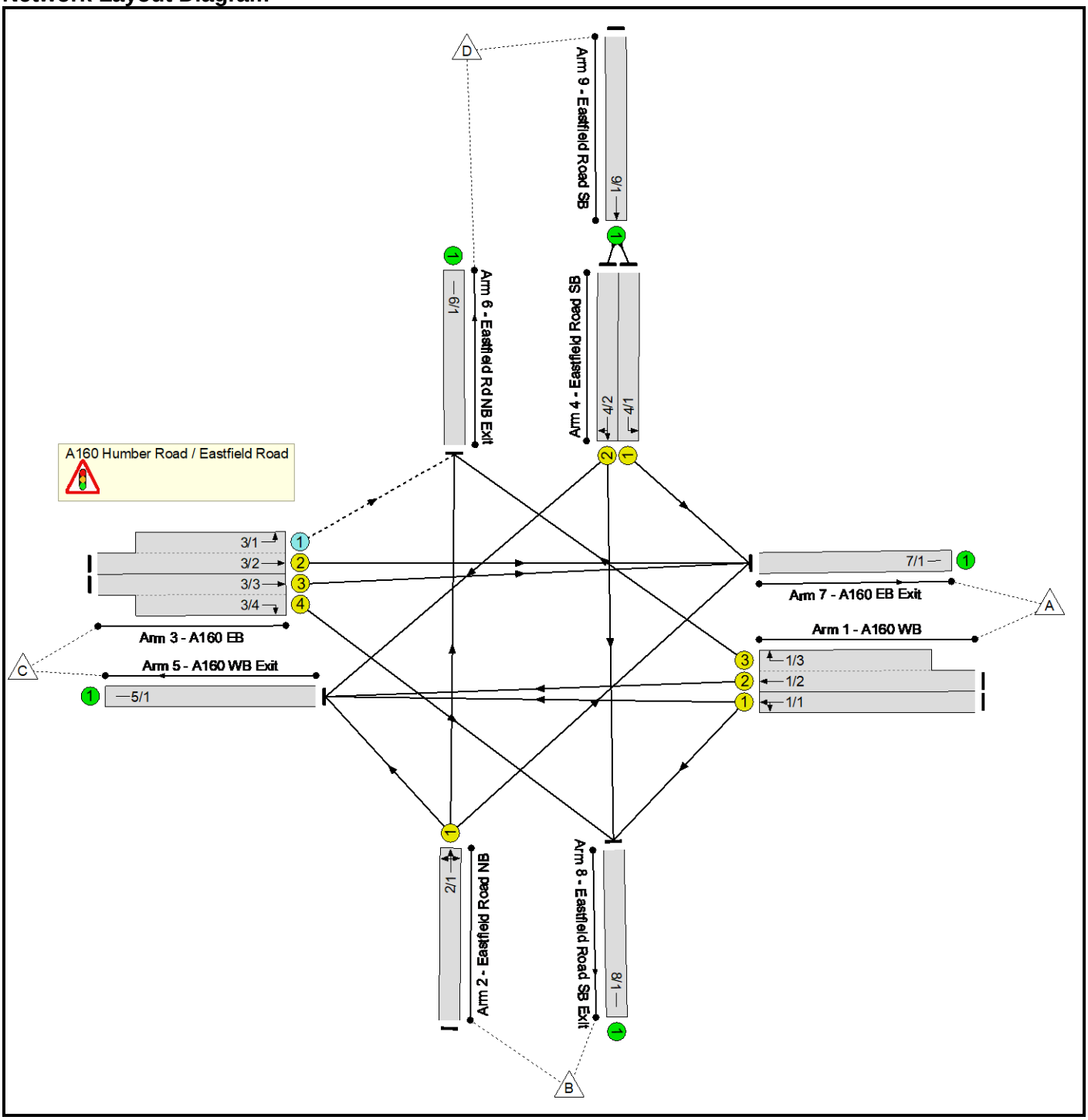
Full Input Data And Results

User and Project Details

Project:	**Immingham Modelling**
Title:	**Eastfield Road Junction (Mitigation)**
Location:	
Additional detail:	
File name:	J1 A160_EastfieldRd MITIGATION.lsg3x
Author:	Amelia Simmons
Company:	AECOM
Address:	One Trinity Gardens, Newcastle Upon Tyne

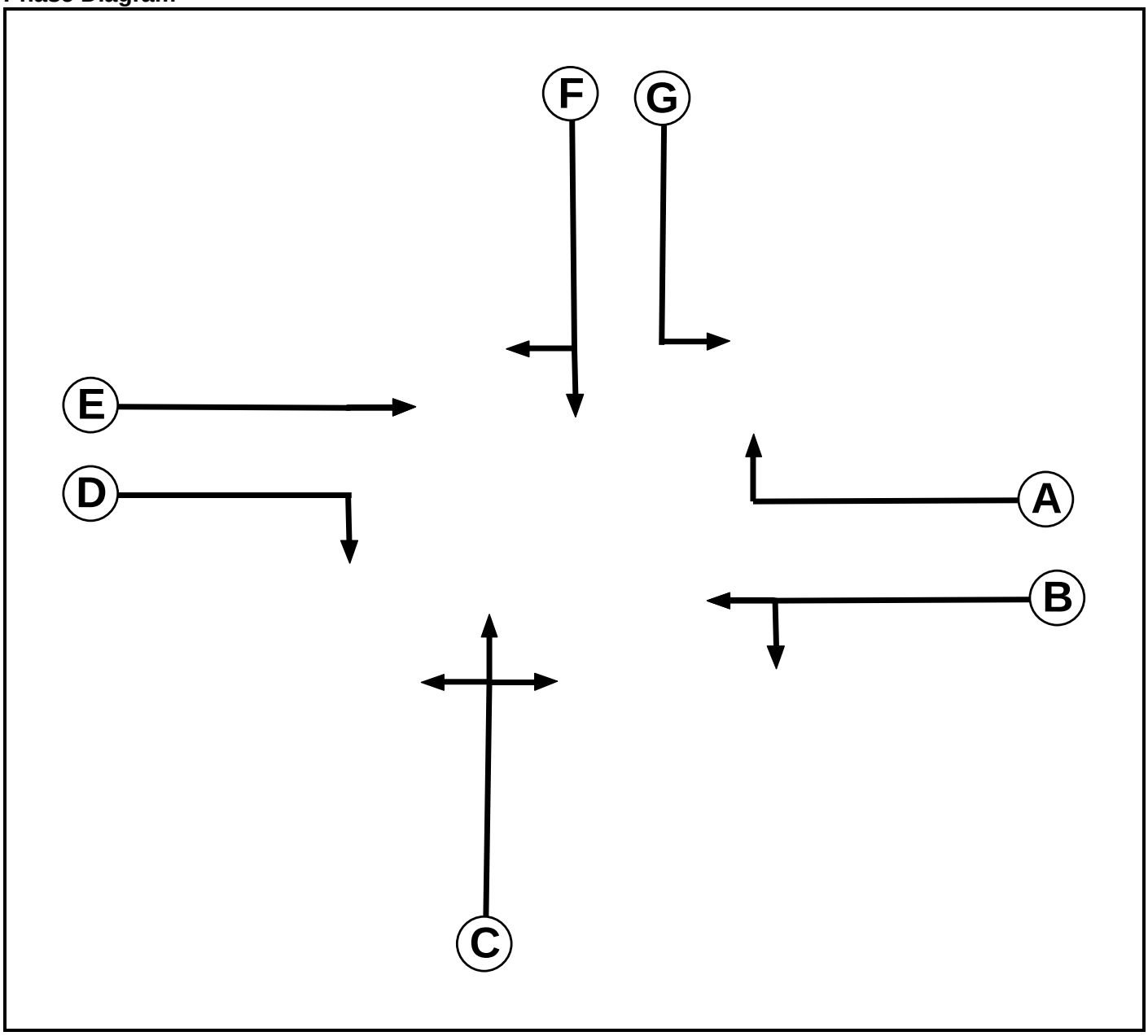
Full Input Data And Results

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	Traffic		7	7
F	Traffic		7	7
G	Traffic		7	7

Full Input Data And Results

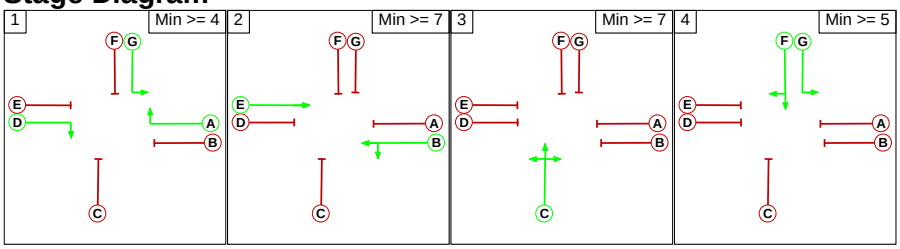
Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G
A		-	5	-	8	6	-
B	-		8	5	-	8	-
C	5	6		6	7	7	9
D	-	7	5		-	6	-
E	5	-	5	-		5	8
F	5	5	7	5	5		-
G	-	-	9	-	5	-	

Phases in Stage

Stage No.	Phases in Stage
1	A D G
2	B E
3	C
4	F G

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	9	6
2	8		8	8
3	9	7		9
4	5	5	9	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A160 Humber Road / Eastfield Road

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)
3/1 (A160 EB)	6/1 (Left)	1439	0	2/1	1.09	To 6/1 (Ahead)	-	-	-	-	-
				1/3	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: A160 Humber Road / Eastfield 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)
1/1 (A160 WB)	U	B	2	3	129.0	Geom	-	3.51	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	23.56
1/2 (A160 WB)	U	B	2	3	129.0	Geom	-	3.51	0.00	Y	Arm 5 Ahead	Inf
1/3 (A160 WB)	U	A	2	3	20.0	Geom	-	3.40	0.00	Y	Arm 6 Right	20.90
2/1 (Eastfield Road NB)	U	C	2	3	3.7	Geom	-	4.50	0.00	Y	Arm 5 Left	33.50
											Arm 6 Ahead	Inf
											Arm 7 Right	32.95
3/1 (A160 EB)	O		2	3	17.6	Geom	-	3.30	0.00	N	Arm 6 Left	27.80
3/2 (A160 EB)	U	E	2	3	77.2	Geom	-	3.41	0.00	Y	Arm 7 Ahead	Inf
3/3 (A160 EB)	U	E	2	3	77.2	Geom	-	3.35	0.00	Y	Arm 7 Ahead	Inf
3/4 (A160 EB)	U	D	2	3	25.7	Geom	-	3.42	0.00	Y	Arm 8 Right	23.00
4/1 (Eastfield Road SB)	U	G	2	3	11.7	Geom	-	4.20	0.00	Y	Arm 7 Left	78.75
4/2 (Eastfield Road SB)	U	F	2	3	11.8	Geom	-	4.20	0.00	Y	Arm 5 Right	Inf
											Arm 8 Ahead	Inf
5/1 (A160 WB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Eastfield Rd NB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (A160 EB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Eastfield Road SB Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Eastfield Road SB)	U		2	3	23.5	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM 2025 Base'	07:00	08:00	01:00	
2: 'PM 2025 Base'	16:00	17:00	01:00	
3: 'AM 2025 Base + Committed'	07:00	08:00	01:00	
4: 'PM 2025 Base + Committed'	16:00	17:00	01:00	
5: 'AM 2025 Base + Committed + Proposed'	07:00	08:00	01:00	
6: 'PM 2025 Base + Committed + Proposed'	16:00	17:00	01:00	

Scenario 1: 'AM 2025 Base' (FG1: 'AM 2025 Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	18	762	91	871
	B	37	0	123	29	189
	C	705	54	0	597	1356
	D	57	20	151	0	228
	Tot.	799	92	1036	717	2644

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: AM 2025 Base
Junction: A160 Humber Road / Eastfield Road	
1/1	386
1/2 (with short)	485(In) 394(Out)
1/3 (short)	91
2/1	189
3/1 (short)	597
3/2 (with short)	964(In) 367(Out)
3/3 (with short)	392(In) 338(Out)
3/4 (short)	54
4/1	57
4/2	171
5/1	1036
6/1	717
7/1	799
8/1	92
9/1	228

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	95.3 %	1960	1960
				Arm 8 Left	23.56	4.7 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	65.1 %	1989	1989
				Arm 6 Ahead	Inf	15.3 %		
				Arm 7 Right	32.95	19.6 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	88.3 %	2035	2035
				Arm 8 Ahead	Inf	11.7 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM 2025 Base' (FG2: 'PM 2025 Base', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	20	800	83	903
	B	23	0	158	26	207
	C	580	29	0	178	787
	D	120	54	450	0	624
	Tot.	723	103	1408	287	2521

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM 2025 Base
Junction: A160 Humber Road / Eastfield Road	
1/1	417
1/2 (with short)	486(In) 403(Out)
1/3 (short)	83
2/1	207
3/1 (short)	178
3/2 (with short)	471(In) 293(Out)
3/3 (with short)	316(In) 287(Out)
3/4 (short)	29
4/1	120
4/2	504
5/1	1408
6/1	287
7/1	723
8/1	103
9/1	624

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	95.2 %	1960	1960
				Arm 8 Left	23.56	4.8 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	76.3 %	1987	1987
				Arm 6 Ahead	Inf	12.6 %		
				Arm 7 Right	32.95	11.1 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	89.3 %	2035	2035
				Arm 8 Ahead	Inf	10.7 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'AM 2025 Base + Committed' (FG3: 'AM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	27	771	100	898
	B	38	0	123	34	195
	C	753	54	0	807	1614
	D	58	25	151	0	234
	Tot.	849	106	1045	941	2941

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: AM 2025 Base + Committed
Junction: A160 Humber Road / Eastfield Road	
1/1	395
1/2 (with short)	503(In) 403(Out)
1/3 (short)	100
2/1	195
3/1 (short)	807
3/2 (with short)	1193(In) 386(Out)
3/3 (with short)	421(In) 367(Out)
3/4 (short)	54
4/1	58
4/2	176
5/1	1045
6/1	941
7/1	849
8/1	106
9/1	234

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	93.2 %	1957	1957
				Arm 8 Left	23.56	6.8 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	63.1 %	1991	1991
				Arm 6 Ahead	Inf	17.4 %		
				Arm 7 Right	32.95	19.5 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	85.8 %	2035	2035
				Arm 8 Ahead	Inf	14.2 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'PM 2025 Base + Committed' (FG4: 'PM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	20	1045	83	1148
	B	25	0	158	26	209
	C	629	35	0	184	848
	D	122	54	450	0	626
	Tot.	776	109	1653	293	2831

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: PM 2025 Base + Committed
Junction: A160 Humber Road / Eastfield Road	
1/1	541
1/2 (with short)	607(In) 524(Out)
1/3 (short)	83
2/1	209
3/1 (short)	184
3/2 (with short)	500(In) 316(Out)
3/3 (with short)	348(In) 313(Out)
3/4 (short)	35
4/1	122
4/2	504
5/1	1653
6/1	293
7/1	776
8/1	109
9/1	626

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	96.3 %	1961	1961
				Arm 8 Left	23.56	3.7 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	75.6 %	1987	1987
				Arm 6 Ahead	Inf	12.4 %		
				Arm 7 Right	32.95	12.0 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	89.3 %	2035	2035
				Arm 8 Ahead	Inf	10.7 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'AM 2025 Base + Committed + Proposed' (FG5: 'AM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	25	769	111	905
	B	38	0	123	34	195
	C	771	59	0	1011	1841
	D	58	25	151	0	234
	Tot.	867	109	1043	1156	3175

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: AM 2025 Base + Committed + Proposed
Junction: A160 Humber Road / Eastfield Road	
1/1	392
1/2 (with short)	513(In) 402(Out)
1/3 (short)	111
2/1	195
3/1 (short)	1011
3/2 (with short)	1403(In) 392(Out)
3/3 (with short)	438(In) 379(Out)
3/4 (short)	59
4/1	58
4/2	176
5/1	1043
6/1	1156
7/1	867
8/1	109
9/1	234

Full Input Data And Results

Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	93.6 %	1958	1958
				Arm 8 Left	23.56	6.4 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	63.1 %	1991	1991
				Arm 6 Ahead	Inf	17.4 %		
				Arm 7 Right	32.95	19.5 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	85.8 %	2035	2035
				Arm 8 Ahead	Inf	14.2 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'PM 2025 Base + Committed + Propsoed' (FG6: 'PM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	29	1065	92	1186
	B	25	0	158	26	209
	C	631	37	0	186	854
	D	135	54	636	0	825
	Tot.	791	120	1859	304	3074

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: PM 2025 Base + Committed + Propsoed
Junction: A160 Humber Road / Eastfield Road	
1/1	560
1/2 (with short)	626(In) 534(Out)
1/3 (short)	92
2/1	209
3/1 (short)	186
3/2 (with short)	503(In) 317(Out)
3/3 (with short)	351(In) 314(Out)
3/4 (short)	37
4/1	135
4/2	690
5/1	1859
6/1	304
7/1	791
8/1	120
9/1	825

Full Input Data And Results

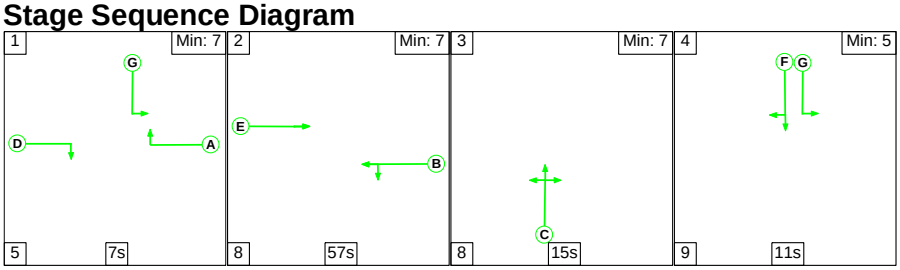
Lane Saturation Flows

Junction: A160 Humber Road / Eastfield Road

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 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	94.8 %	1960	1960
				Arm 8 Left	23.56	5.2 %		
1/2 (A160 WB)	3.51	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1966	1966
1/3 (A160 WB)	3.40	0.00	Y	Arm 6 Right	20.90	100.0 %	1824	1824
2/1 (Eastfield Road NB)	4.50	0.00	Y	Arm 5 Left	33.50	75.6 %	1987	1987
				Arm 6 Ahead	Inf	12.4 %		
				Arm 7 Right	32.95	12.0 %		
3/1 (A160 EB)	3.30	0.00	N	Arm 6 Left	27.80	100.0 %	1978	1978
3/2 (A160 EB)	3.41	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1956	1956
3/3 (A160 EB)	3.35	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1950	1950
3/4 (A160 EB)	3.42	0.00	Y	Arm 8 Right	23.00	100.0 %	1837	1837
4/1 (Eastfield Road SB)	4.20	0.00	Y	Arm 7 Left	78.75	100.0 %	1997	1997
4/2 (Eastfield Road SB)	4.20	0.00	Y	Arm 5 Right	Inf	92.2 %	2035	2035
				Arm 8 Ahead	Inf	7.8 %		
5/1 (A160 WB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Eastfield Rd NB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (A160 EB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Eastfield Road SB Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Eastfield Road SB Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'AM 2025 Base' (FG1: 'AM 2025 Base', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

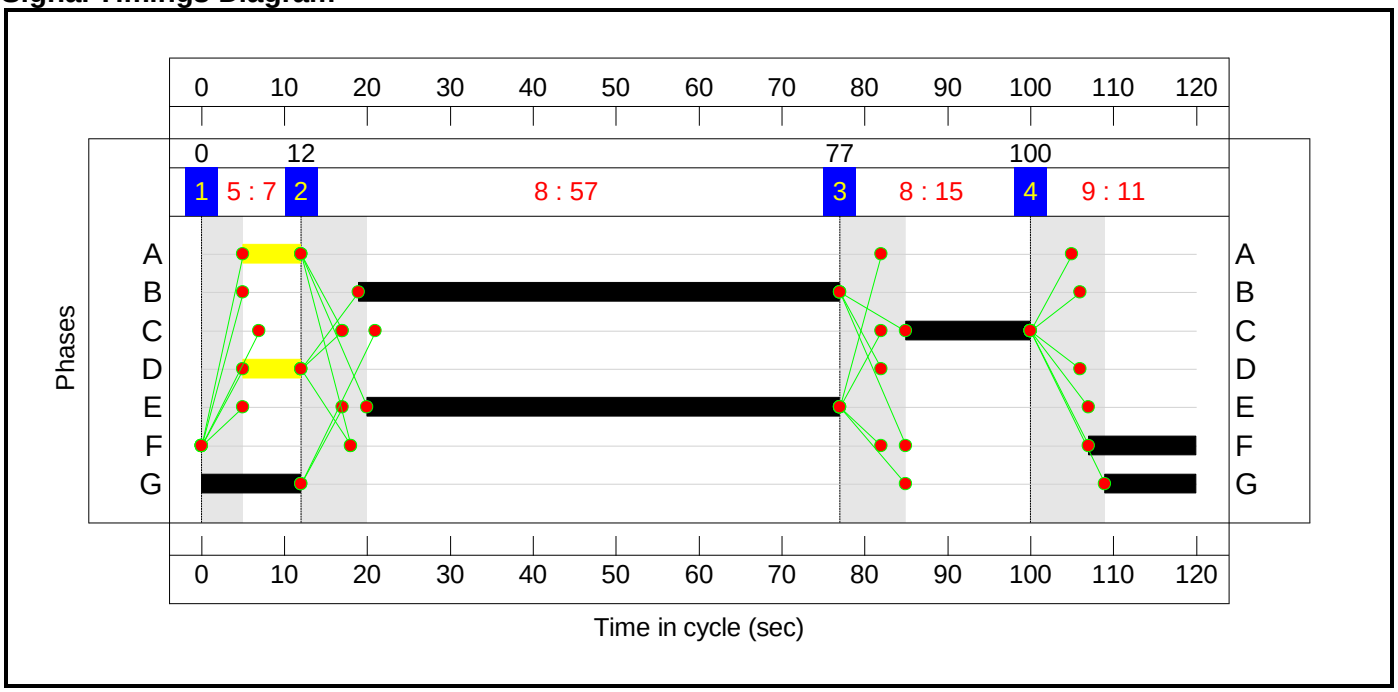


Full Input Data And Results

Stage Timings

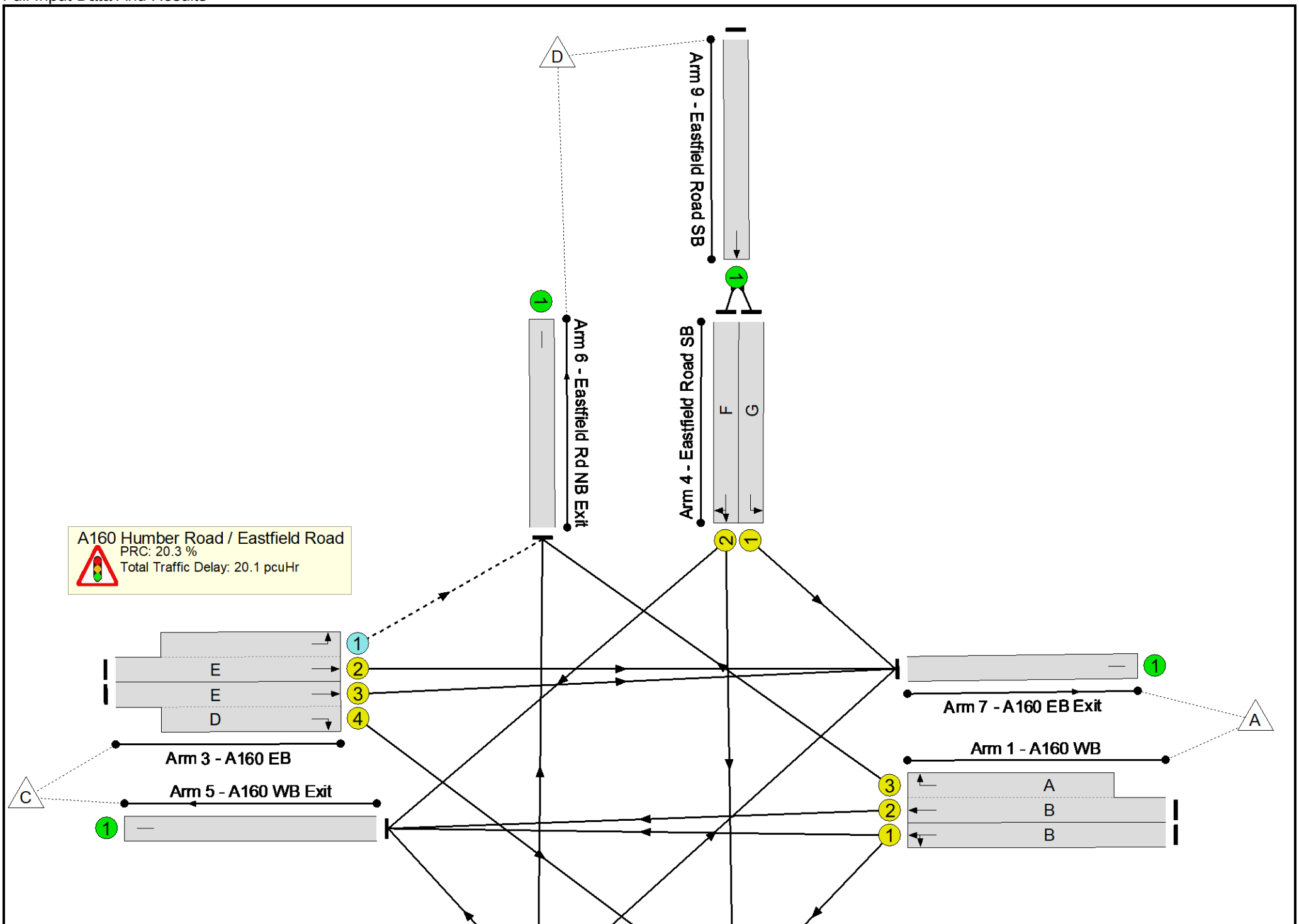
Stage	1	2	3	4
Duration	7	57	15	11
Change Point	0	12	77	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: 20.3 %
Total Traffic Delay: 20.1 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.8%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.8%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	58	-	386	1960	964	40.1%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	58:7	-	485	1966:1824	889+122	44.3 : 74.8%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	15	-	189	1989	265	71.3%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	57	-	964	1956:1978	694+1130	52.8 : 52.8%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	57:7	-	392	1950:1837	928+122	36.4 : 44.1%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	23	-	57	1997	399	14.3%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	13	-	171	2035	237	72.0%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1036	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	717	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	799	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	92	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	228	Inf	Inf	0.0%

Full Input Data And Results

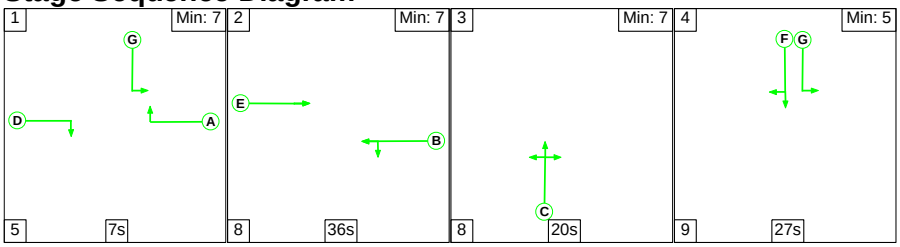
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**102**	**495**	**0**	**15.9**	**4.2**	**0.0**	**20.1**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**102**	**495**	**0**	**15.9**	**4.2**	**0.0**	**20.1**	**-**	**-**	**-**	**-**
1/1	386	386	-	-	-	2.1	0.3	-	2.4	22.4	8.0	0.3	8.4
1/2+1/3	485	485	-	-	-	3.5	0.5	-	4.0	29.5	8.3	0.5	8.8
2/1	189	189	-	-	-	2.6	1.2	-	3.8	72.7	6.0	1.2	7.2
3/2+3/1	964	964	102	495	0	2.1	0.6	-	2.6	9.8	7.7	0.6	8.3
3/3+3/4	392	392	-	-	-	2.6	0.3	-	2.9	26.9	7.0	0.3	7.3
4/1	57	57	-	-	-	0.6	0.1	-	0.7	44.8	1.6	0.1	1.6
4/2	171	171	-	-	-	2.4	1.2	-	3.7	77.2	5.5	1.2	6.7
5/1	1036	1036	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	717	717	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	799	799	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	92	92	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	228	228	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 20.3 Total Delay for Signalled Lanes (pcuHr): 20.11 Cycle Time (s): 120
PRC Over All Lanes (%): 20.3 Total Delay Over All Lanes(pcuHr): 20.11

Full Input Data And Results

Scenario 2: 'PM 2025 Base' (FG2: 'PM 2025 Base', Plan 1: 'Network Control Plan 1')

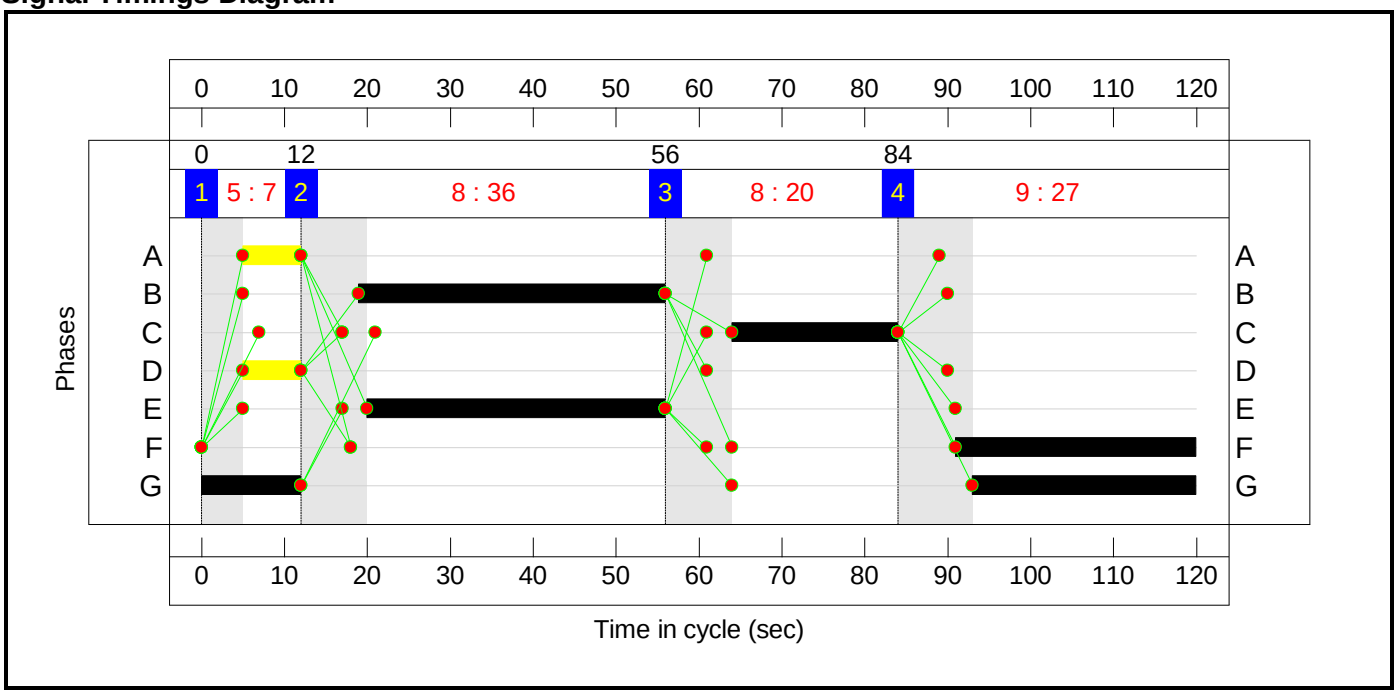
Stage Sequence Diagram



Stage Timings

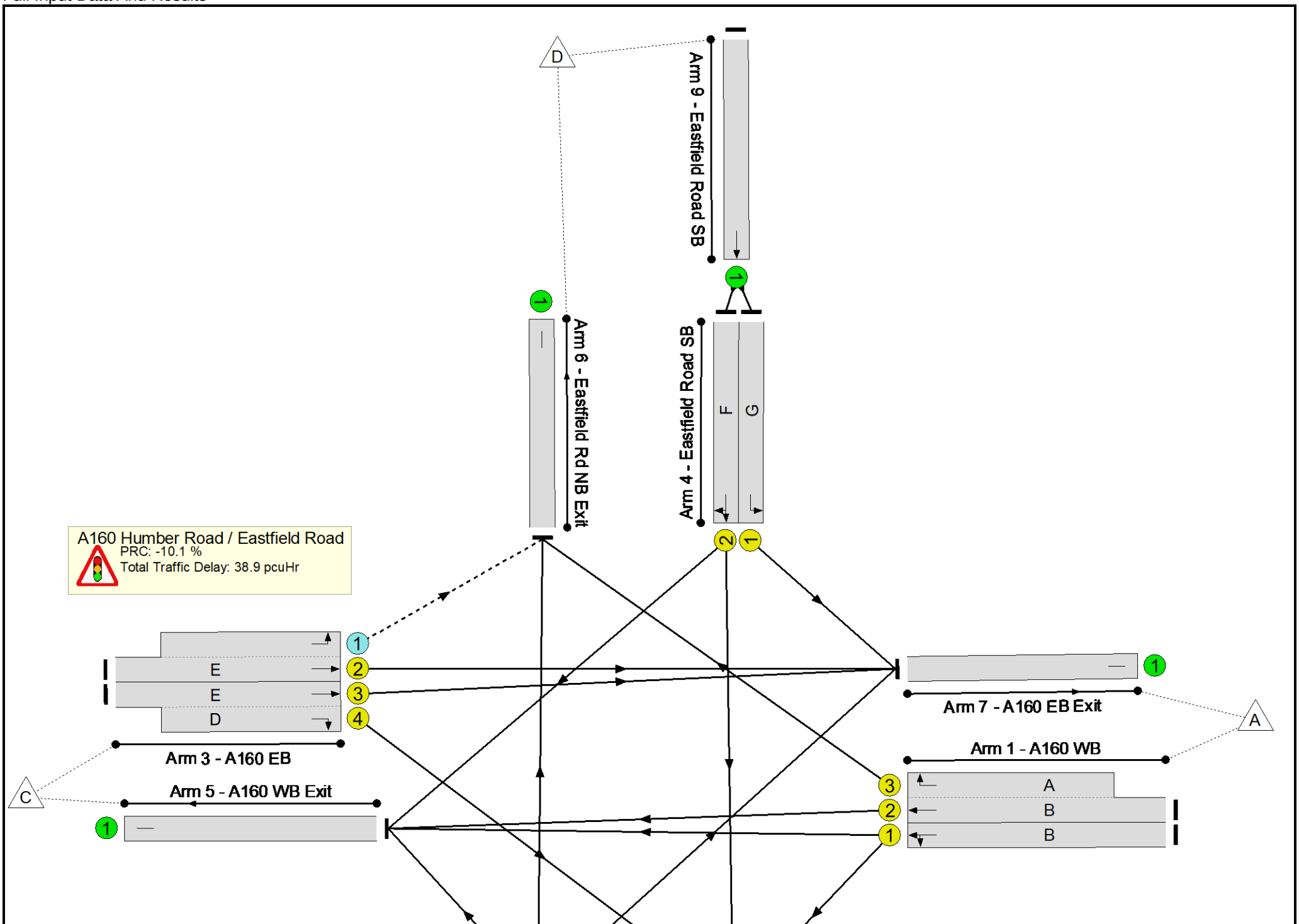
Stage	1	2	3	4
Duration	7	36	20	27
Change Point	0	12	56	84

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -10.1 %
Total Traffic Delay: 38.9 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	37	-	417	1960	621	67.2%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	37:7	-	486	1966:1824	613+122	65.7 : 68.3%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	20	-	207	1987	348	59.5%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	36	-	471	1956:1978	584+355	50.2 : 50.2%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	36:7	-	316	1950:1837	601+73	47.7 : 40.0%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	39	-	120	1997	666	18.0%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	29	-	504	2035	509	99.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1408	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	723	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	103	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	624	Inf	Inf	0.0%

Full Input Data And Results

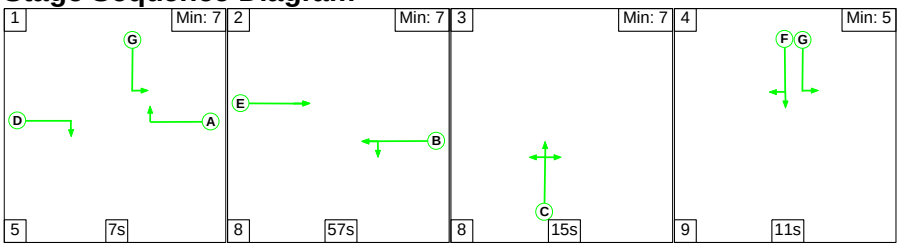
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**43**	**135**	**0**	**25.0**	**13.9**	**0.0**	**38.9**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**43**	**135**	**0**	**25.0**	**13.9**	**0.0**	**38.9**	**-**	**-**	**-**	**-**
1/1	417	417	-	-	-	4.1	1.0	-	5.1	44.3	12.0	1.0	13.1
1/2+1/3	486	486	-	-	-	5.2	1.0	-	6.2	45.8	11.5	1.0	12.5
2/1	207	207	-	-	-	2.6	0.7	-	3.3	58.3	6.3	0.7	7.1
3/2+3/1	471	471	43	135	0	2.8	0.5	-	3.3	24.9	7.9	0.5	8.4
3/3+3/4	316	316	-	-	-	3.1	0.4	-	3.6	40.5	7.7	0.4	8.2
4/1	120	120	-	-	-	0.9	0.1	-	1.1	31.7	2.8	0.1	2.9
4/2	504	504	-	-	-	6.3	10.1	-	16.4	117.0	16.7	10.1	26.8
5/1	1408	1408	-	-	-	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
7/1	723	723	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	103	103	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	624	624	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -10.1 Total Delay for Signalled Lanes (pcuHr): 38.91 Cycle Time (s): 120
PRC Over All Lanes (%): -10.1 Total Delay Over All Lanes(pcuHr): 38.91

Full Input Data And Results

Scenario 3: 'AM 2025 Base + Committed' (FG3: 'AM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

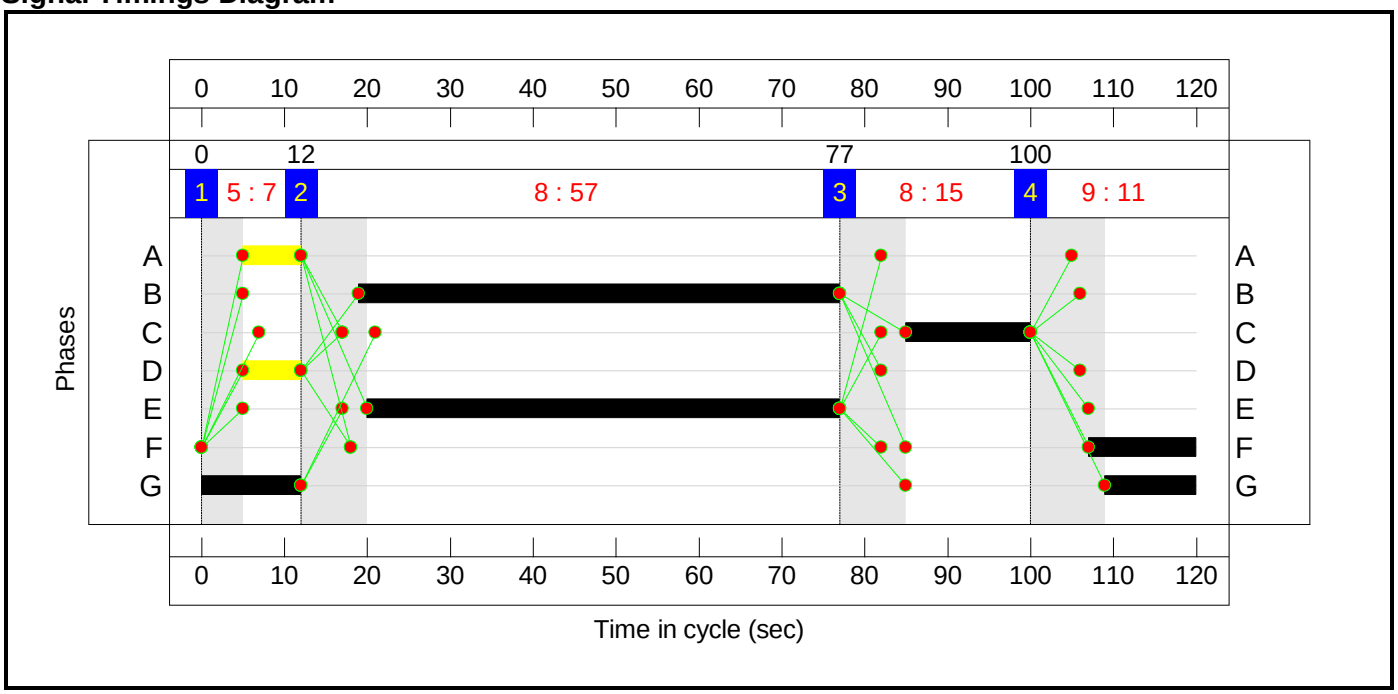
Stage Sequence Diagram



Stage Timings

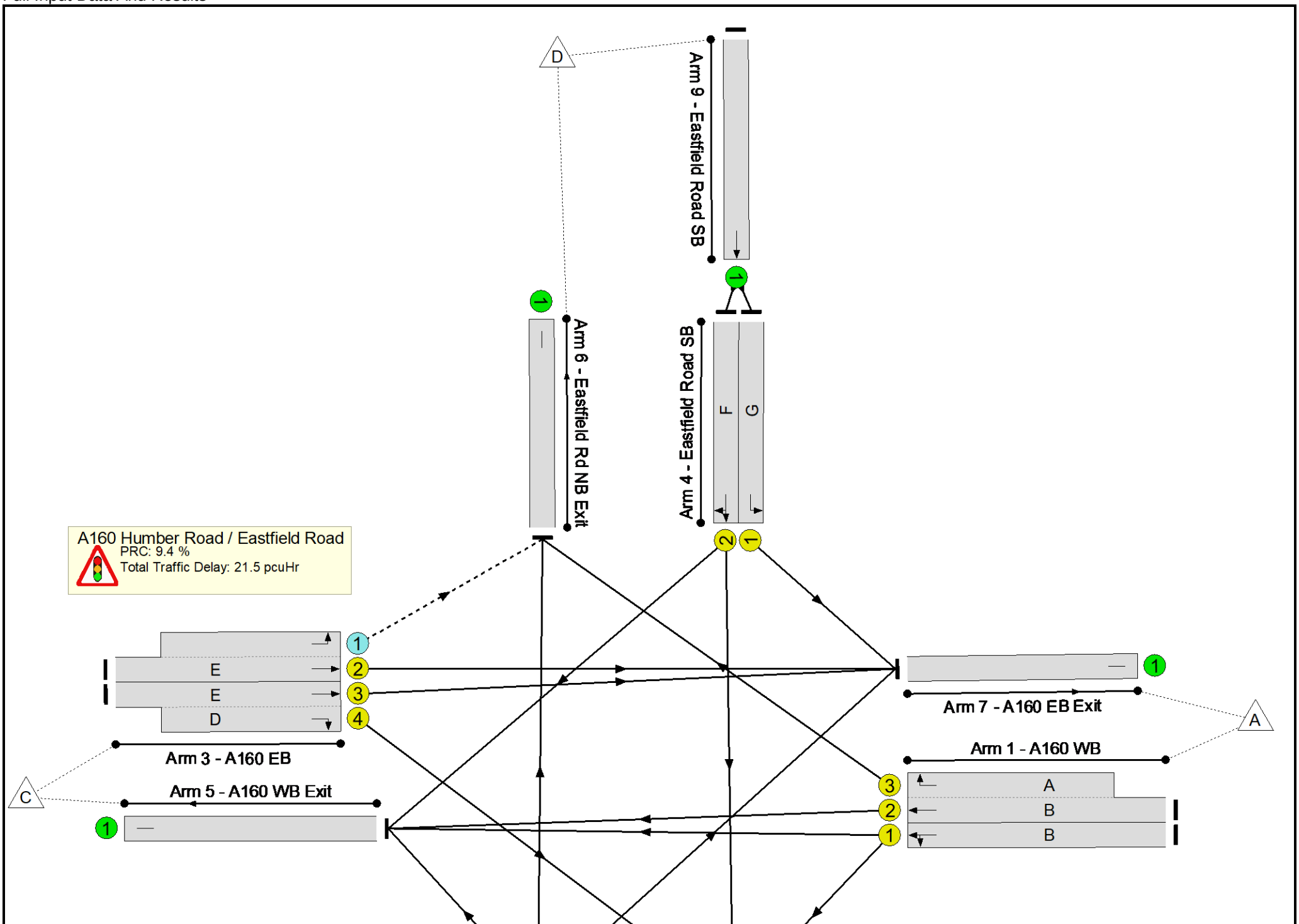
Stage	1	2	3	4
Duration	7	57	15	11
Change Point	0	12	77	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: 9.4 %
Total Traffic Delay: 21.5 pcuHr
D
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
A
Arm 1 - A160 WB
A
B
B
C

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.2%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**82.2%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	58	-	395	1957	962	41.1%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	58:7	-	503	1966:1824	884+122	45.6 : 82.2%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	15	-	195	1991	265	73.5%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	57	-	1193	1956:1978	638+1320	60.5 : 61.1%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	57:7	-	421	1950:1837	930+122	39.5 : 44.1%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	23	-	58	1997	399	14.5%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	13	-	176	2035	237	74.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1045	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	941	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	234	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	**-**	**-**	**122**	**685**	**0**	**16.8**	**4.7**	**0.0**	**21.5**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**122**	**685**	**0**	**16.8**	**4.7**	**0.0**	**21.5**	**-**	**-**	**-**	**-**
1/1	395	395	-	-	-	2.1	0.3	-	2.5	22.6	8.3	0.3	8.7
1/2+1/3	503	503	-	-	-	3.7	0.5	-	4.2	30.2	8.5	0.5	9.0
2/1	195	195	-	-	-	2.7	1.3	-	4.0	74.6	6.2	1.3	7.6
3/2+3/1	1193	1193	122	685	0	2.2	0.8	-	3.0	9.1	8.3	0.8	9.0
3/3+3/4	421	421	-	-	-	2.8	0.3	-	3.2	27.0	7.7	0.3	8.1
4/1	58	58	-	-	-	0.6	0.1	-	0.7	44.8	1.6	0.1	1.7
4/2	176	176	-	-	-	2.5	1.4	-	3.9	79.3	5.7	1.4	7.0
5/1	1045	1045	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	941	941	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

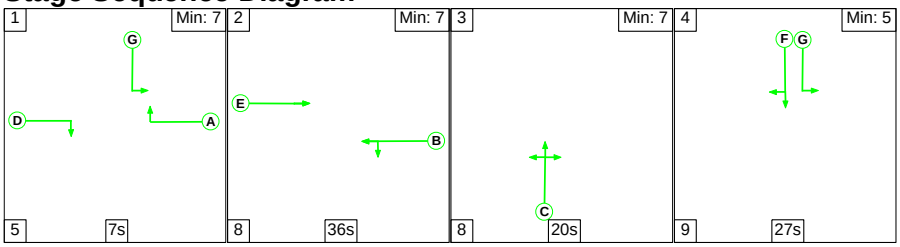
C1 PRC for Signalled Lanes (%): 9.4 Total Delay for Signalled Lanes (pcuHr): 21.51 Cycle Time (s): 120

PRC Over All Lanes (%): 9.4 Total Delay Over All Lanes(pcuHr): 21.51

Full Input Data And Results

Scenario 4: 'PM 2025 Base + Committed' (FG4: 'PM 2025 Base + Committed', Plan 1: 'Network Control Plan 1')

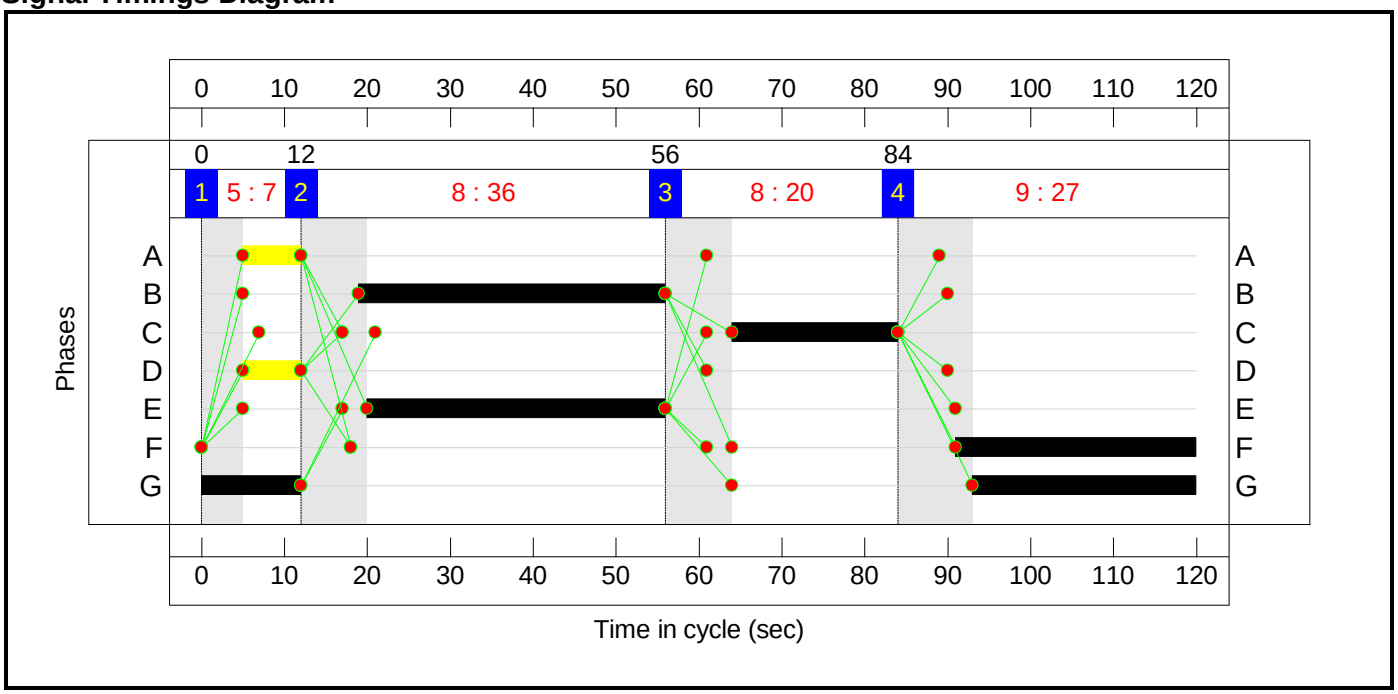
Stage Sequence Diagram



Stage Timings

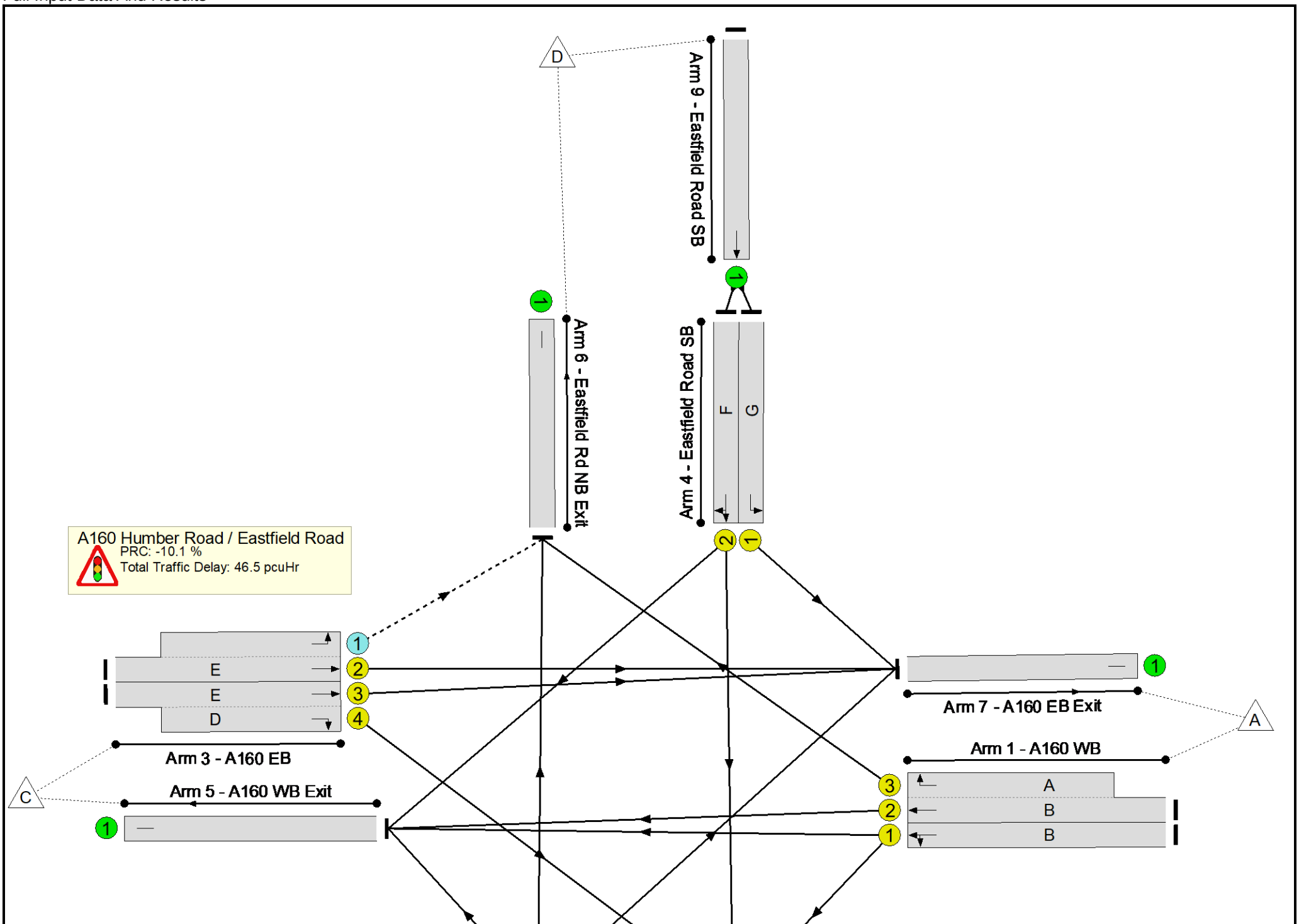
Stage	1	2	3	4
Duration	7	36	20	27
Change Point	0	12	56	84

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -10.1 %
Total Traffic Delay: 46.5 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.1%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	37	-	541	1961	621	87.1%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	37:7	-	607	1966:1824	614+122	85.3 : 68.3%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	20	-	209	1987	348	60.1%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	36	-	500	1956:1978	585+341	54.0 : 54.0%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	36:7	-	348	1950:1837	601+93	52.1 : 37.8%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	39	-	122	1997	666	18.3%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	29	-	504	2035	509	99.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1653	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	293	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	776	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	626	Inf	Inf	0.0%

Full Input Data And Results

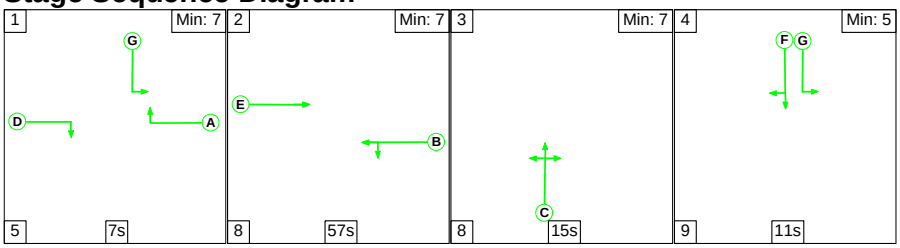
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**44**	**140**	**0**	**29.0**	**17.5**	**0.0**	**46.5**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**44**	**140**	**0**	**29.0**	**17.5**	**0.0**	**46.5**	**-**	**-**	**-**	**-**
1/1	541	541	-	-	-	5.8	3.1	-	9.0	59.6	17.0	3.1	20.1
1/2+1/3	607	607	-	-	-	6.8	2.3	-	9.1	54.0	16.2	2.3	18.4
2/1	209	209	-	-	-	2.7	0.7	-	3.4	58.5	6.4	0.7	7.1
3/2+3/1	500	500	44	140	0	3.0	0.6	-	3.6	25.9	8.6	0.6	9.2
3/3+3/4	348	348	-	-	-	3.5	0.5	-	4.0	41.3	8.5	0.5	9.0
4/1	122	122	-	-	-	1.0	0.1	-	1.1	31.7	2.9	0.1	3.0
4/2	504	504	-	-	-	6.3	10.1	-	16.4	117.0	16.7	10.1	26.8
5/1	1653	1653	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	293	293	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	776	776	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	626	626	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -10.1 Total Delay for Signalled Lanes (pcuHr): 46.50 Cycle Time (s): 120
PRC Over All Lanes (%): -10.1 Total Delay Over All Lanes(pcuHr): 46.50

Full Input Data And Results

Scenario 5: 'AM 2025 Base + Committed + Proposed' (FG5: 'AM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

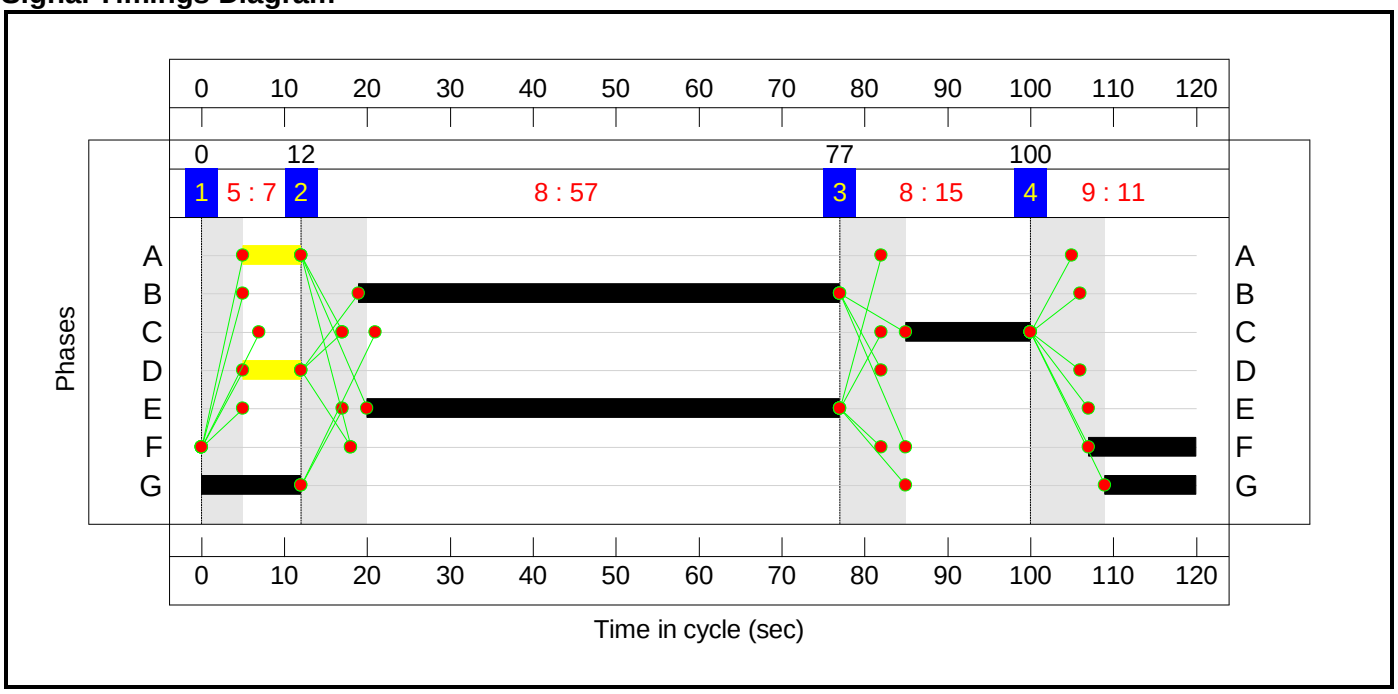
Stage Sequence Diagram



Stage Timings

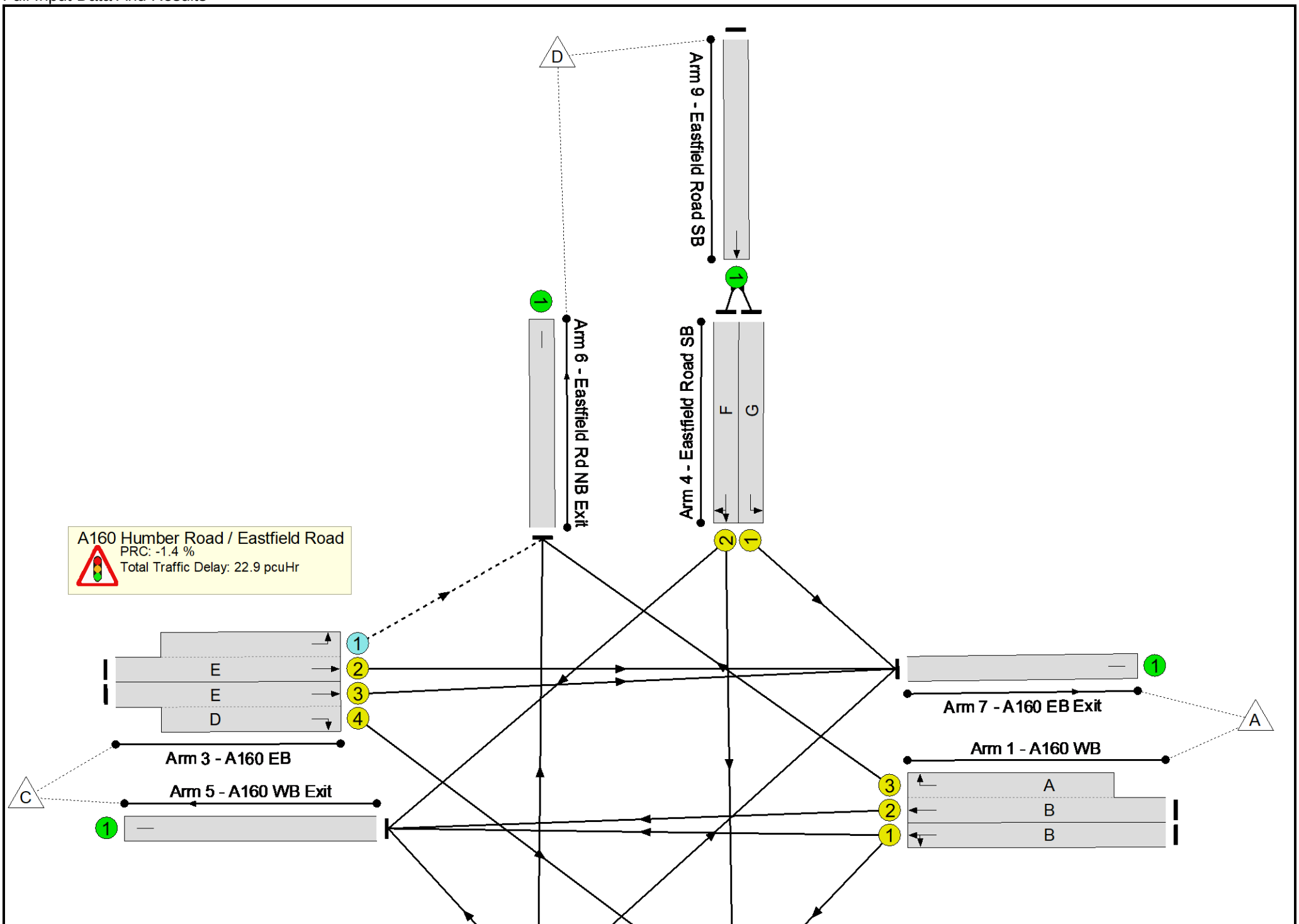
Stage	1	2	3	4
Duration	7	57	15	11
Change Point	0	12	77	100

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -1.4 %
Total Traffic Delay: 22.9 pcuHr
D
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
A
Arm 1 - A160 WB
A
B
B
C

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.3%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**91.3%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	58	-	392	1958	963	40.7%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	58:7	-	513	1966:1824	878+122	45.8 : 91.3%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	15	-	195	1991	265	73.5%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	57	-	1403	1956:1978	518+1313	75.7 : 77.0%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	57:7	-	438	1950:1837	929+122	40.8 : 48.2%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	23	-	58	1997	399	14.5%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	13	-	176	2035	237	74.1%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1043	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	1156	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	867	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	109	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	234	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	**-**	**-**	**142**	**869**	**0**	**17.2**	**5.6**	**0.0**	**22.9**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**142**	**869**	**0**	**17.2**	**5.6**	**0.0**	**22.9**	**-**	**-**	**-**	**-**
1/1	392	392	-	-	-	2.1	0.3	-	2.5	22.5	8.3	0.3	8.6
1/2+1/3	513	513	-	-	-	3.9	0.5	-	4.4	31.0	8.5	0.5	9.0
2/1	195	195	-	-	-	2.7	1.3	-	4.0	74.6	6.2	1.3	7.6
3/2+3/1	1403	1403	142	869	0	2.4	1.6	-	4.0	10.3	8.4	1.6	10.0
3/3+3/4	438	438	-	-	-	3.0	0.4	-	3.3	27.4	8.0	0.4	8.4
4/1	58	58	-	-	-	0.6	0.1	-	0.7	44.8	1.6	0.1	1.7
4/2	176	176	-	-	-	2.5	1.4	-	3.9	79.3	5.7	1.4	7.0
5/1	1043	1043	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1156	1156	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	867	867	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	109	109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

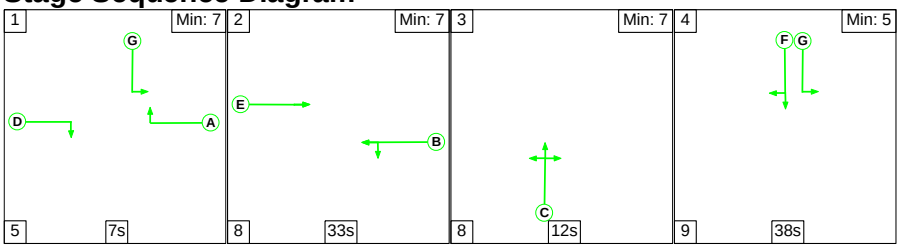
C1 PRC for Signalled Lanes (%): -1.4 Total Delay for Signalled Lanes (pcuHr): 22.87 Cycle Time (s): 120

PRC Over All Lanes (%): -1.4 Total Delay Over All Lanes(pcuHr): 22.87

Full Input Data And Results

Scenario 6: 'PM 2025 Base + Committed + Propsoed' (FG6: 'PM 2025 Base + Committed + Proposed', Plan 1: 'Network Control Plan 1')

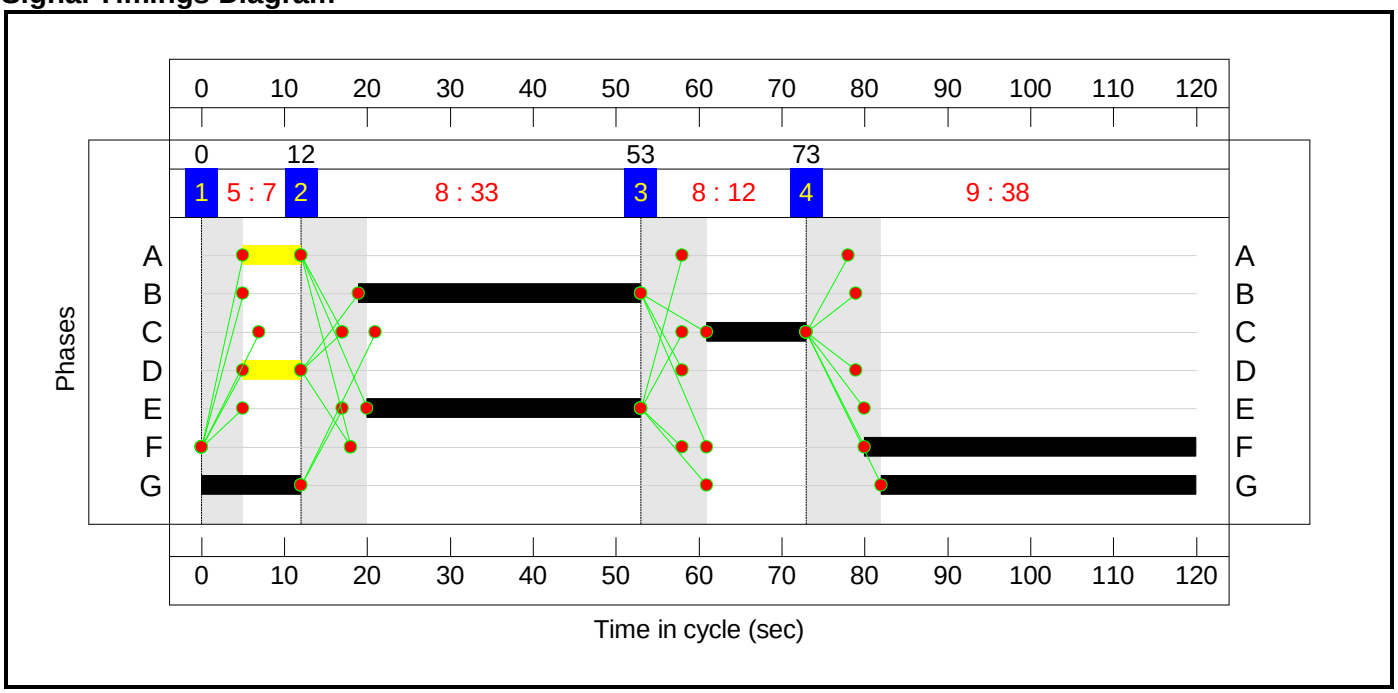
Stage Sequence Diagram



Stage Timings

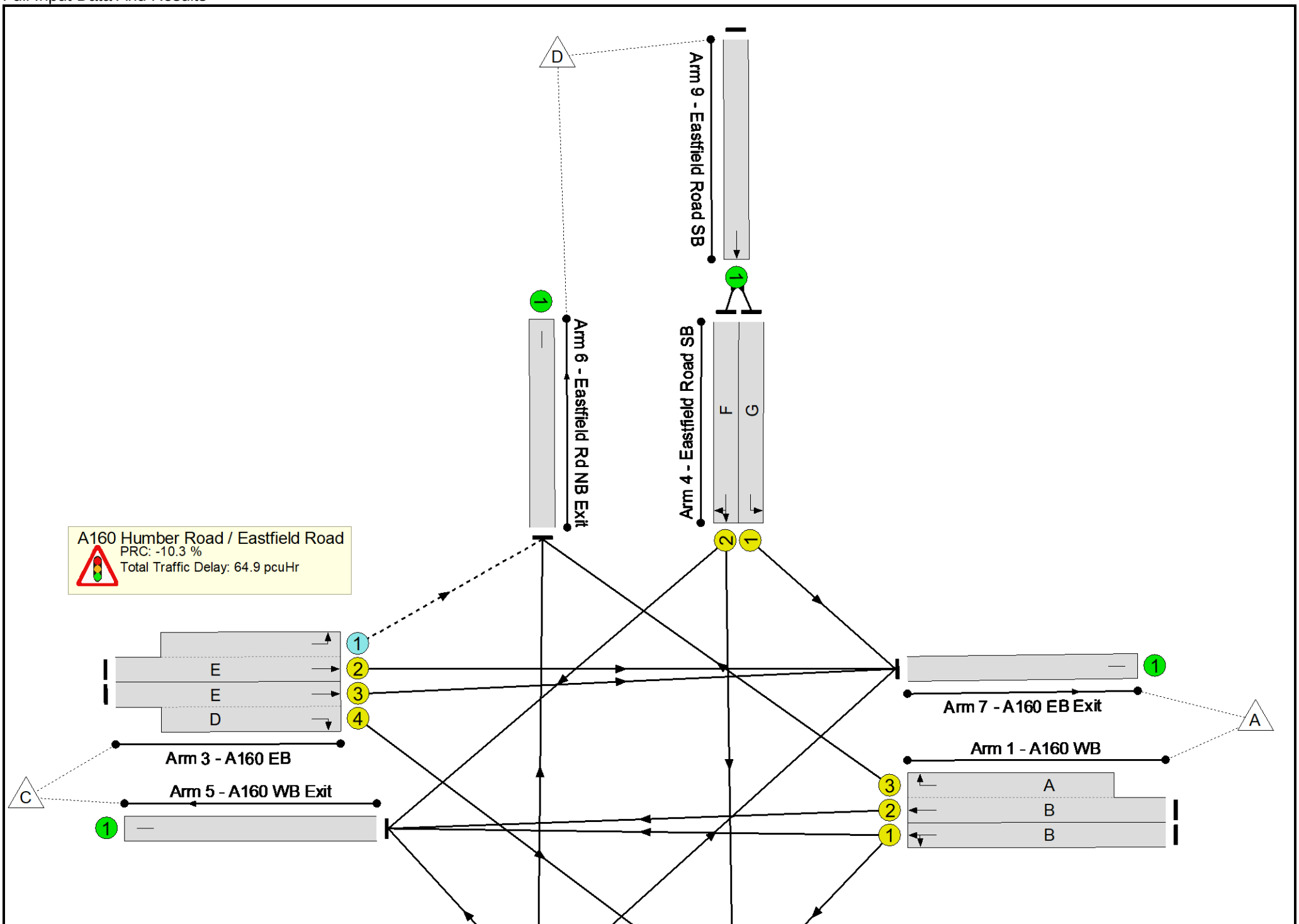
Stage	1	2	3	4
Duration	7	33	12	38
Change Point	0	12	53	73

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram


A160 Humber Road / Eastfield Road
PRC: -10.3 %
Total Traffic Delay: 64.9 pcuHr
Arm 9 - Eastfield Road SB
Arm 6 - Eastfield Rd NB Exit
Arm 4 - Eastfield Road SB
F
G
E
E
D
Arm 3 - A160 EB
Arm 5 - A160 WB Exit
Arm 7 - A160 EB Exit
Arm 1 - A160 WB
A
B
B
A
C
D

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	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.2%**
A160 Humber Road / Eastfield Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**99.2%**
1/1	A160 WB Ahead Left	U	N/A	N/A	B		1	34	-	560	1960	572	98.0%
1/2+1/3	A160 WB Ahead Right	U	N/A	N/A	B A		1	34:7	-	626	1966:1824	573+122	93.1 : 75.7%
2/1	Eastfield Road NB Left Ahead Right	U	N/A	N/A	C		1	12	-	209	1987	215	97.1%
3/2+3/1	A160 EB Left Ahead	U+O	N/A	N/A	E -		1	33	-	503	1956:1978	554+325	57.2 : 57.2%
3/3+3/4	A160 EB Ahead Right	U	N/A	N/A	E D		1	33:7	-	351	1950:1837	552+93	56.8 : 39.8%
4/1	Eastfield Road SB Left	U	N/A	N/A	G		1	50	-	135	1997	849	15.9%
4/2	Eastfield Road SB Right Ahead	U	N/A	N/A	F		1	40	-	690	2035	695	99.2%
5/1	A160 WB Exit	U	N/A	N/A	-		-	-	-	1859	Inf	Inf	0.0%
6/1	Eastfield Rd NB Exit	U	N/A	N/A	-		-	-	-	304	Inf	Inf	0.0%
7/1	A160 EB Exit	U	N/A	N/A	-		-	-	-	791	Inf	Inf	0.0%
8/1	Eastfield Road SB Exit	U	N/A	N/A	-		-	-	-	120	Inf	Inf	0.0%
9/1	Eastfield Road SB Ahead	U	N/A	N/A	-		-	-	-	825	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	**-**	**-**	**33**	**153**	**0**	**32.5**	**32.4**	**0.0**	**64.9**	**-**	**-**	**-**	**-**
A160 Humber Road / Eastfield Road	**-**	**-**	**33**	**153**	**0**	**32.5**	**32.4**	**0.0**	**64.9**	**-**	**-**	**-**	**-**
1/1	560	560	-	-	-	6.6	9.3	-	15.8	101.7	18.5	9.3	27.8
1/2+1/3	626	626	-	-	-	7.5	4.1	-	11.6	66.7	17.2	4.1	21.3
2/1	209	209	-	-	-	3.1	5.8	-	8.9	153.8	6.9	5.8	12.7
3/2+3/1	503	503	33	153	0	3.2	0.7	-	3.9	28.0	9.0	0.7	9.6
3/3+3/4	351	351	-	-	-	3.8	0.6	-	4.3	44.6	8.9	0.6	9.5
4/1	135	135	-	-	-	0.8	0.1	-	0.9	23.8	2.8	0.1	2.9
4/2	690	690	-	-	-	7.5	11.9	-	19.4	101.3	22.8	11.9	34.7
5/1	1859	1859	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	304	304	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	791	791	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	120	120	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	825	825	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -10.3 Total Delay for Signalled Lanes (pcuHr): 64.92 Cycle Time (s): 120
PRC Over All Lanes (%): -10.3 Total Delay Over All Lanes(pcuHr): 64.92

Junctions 10

ARCADY 10 - Roundabout Module

Filename: J2 A1061_HabroughRd_UlcebyRd_EHaltonRd.j10
Path: \\na.aecomnet.com\lfs\EMEA\Leeds-UKLDS2\Legacy\UKLDS2PFPSW001\WIP\LE_Projects\Newproje\60668866 - Humber Zero\400_Technical\Traffic & Transport\NH Comments 10.01.24\Junction Modelling
Report generation date: 06/03/2024 15:08:43

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025									
Arm 1	D1	0.3	1.94	0.22	A	D2	0.9	2.93	0.46	A
Arm 2		0.2	1.97	0.15	A		0.1	2.09	0.07	A
Arm 3		4.9	12.37	0.82	B		0.7	3.72	0.40	A
Arm 4		0.2	4.32	0.18	A		0.1	2.82	0.08	A
Arm 5		0.2	2.35	0.14	A		0.2	1.97	0.18	A
	2025 + Committed									
Arm 1	D3	0.3	1.97	0.23	A	D4	1.5	3.66	0.57	A
Arm 2		0.2	2.00	0.15	A		0.1	2.30	0.07	A
Arm 3		23.0	49.44	0.98	E		0.9	3.99	0.44	A
Arm 4		0.3	5.10	0.21	A		0.1	2.90	0.08	A
Arm 5		0.2	2.62	0.16	A		0.2	2.01	0.18	A
	2025 + Committed + Proposed									
Arm 1	D5	0.3	1.97	0.23	A	D6	2.2	4.76	0.67	A
Arm 2		0.2	2.00	0.15	A		0.1	2.54	0.08	A
Arm 3		114.2	190.22	1.11	F		0.9	4.01	0.44	A
Arm 4		0.3	5.30	0.21	A		0.1	2.90	0.08	A
Arm 5		0.2	2.71	0.16	A		0.2	2.02	0.18	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	
Location	
Site number	
Date	17/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NA\SimmonsA1
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025	AM	ONE HOUR	06:45	08:15	15
D2	2025	PM	ONE HOUR	15:45	17:15	15
D3	2025 + Committed	AM	ONE HOUR	06:45	08:15	15
D4	2025 + Committed	PM	ONE HOUR	15:45	17:15	15
D5	2025 + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15
D6	2025 + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.44	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.44	A

Arms

Arms

Arm	Name	Description	No give-way line
1	untitled		
2	untitled		
3	untitled		
4	untitled		
5	untitled		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	8.36	9.32	2.5	38.9	107.3	17.3		
2	7.43	9.04	26.3	109.1	93.1	17.3		
3	4.42	8.03	8.9	26.8	101.1	19.0		
4	4.54	6.41	16.7	48.0	92.7	14.3		
5	7.60	9.47	8.9	28.0	98.3	16.2		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.621	2844
2	0.638	2883
3	0.489	1908
4	0.506	1942
5	0.618	2805

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	529	100.000
2		✓	324	100.000
3		✓	1320	100.000
4		✓	180	100.000
5		✓	252	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	17	439	39	34
	2	53	0	151	3	117
	3	986	40	0	37	257
	4	82	8	70	0	20
	5	48	44	151	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.22	1.94	0.3	A
2	0.15	1.97	0.2	A
3	0.82	12.37	4.9	B
4	0.18	4.32	0.2	A
5	0.14	2.35	0.2	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	398	242	2694	0.148	397	0.2	1.724	A
2	244	557	2527	0.097	243	0.1	1.733	A
3	994	192	1815	0.548	989	1.3	4.763	A
4	136	1114	1378	0.098	135	0.1	3.185	A
5	190	928	2231	0.085	189	0.1	1.939	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	476	289	2664	0.178	475	0.2	1.808	A
2	291	667	2458	0.119	291	0.1	1.827	A
3	1187	229	1796	0.661	1184	2.1	6.429	A
4	162	1334	1267	0.128	162	0.2	3.581	A
5	227	1111	2118	0.107	226	0.1	2.093	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	582	354	2624	0.222	582	0.3	1.939	A
2	357	816	2362	0.151	357	0.2	1.974	A
3	1453	281	1771	0.821	1443	4.7	11.707	B
4	198	1627	1119	0.177	198	0.2	4.298	A
5	277	1356	1966	0.141	277	0.2	2.344	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	582	355	2624	0.222	582	0.3	1.939	A
2	357	817	2362	0.151	357	0.2	1.974	A
3	1453	281	1771	0.821	1453	4.9	12.374	B
4	198	1637	1114	0.178	198	0.2	4.323	A
5	277	1364	1962	0.141	277	0.2	2.351	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	476	290	2664	0.179	476	0.2	1.812	A
2	291	668	2457	0.119	291	0.1	1.827	A
3	1187	229	1796	0.661	1197	2.2	6.728	A
4	162	1347	1260	0.128	162	0.2	3.608	A
5	227	1122	2111	0.107	227	0.1	2.103	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	398	243	2693	0.148	398	0.2	1.724	A
2	244	559	2526	0.097	244	0.1	1.734	A
3	994	192	1814	0.548	997	1.3	4.864	A
4	136	1123	1374	0.099	136	0.1	3.200	A
5	190	936	2226	0.085	190	0.1	1.946	A

2025, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	2.94	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.94	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1063	100.000
2		✓	122	100.000
3		✓	648	100.000
4		✓	111	100.000
5		✓	391	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	119	811	19	114
	2	18	0	41	19	44
	3	371	62	0	75	140
	4	32	15	41	0	23
	5	40	114	207	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.46	2.93	0.9	A
2	0.07	2.09	0.1	A
3	0.40	3.72	0.7	A
4	0.08	2.82	0.1	A
5	0.18	1.97	0.2	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	800	352	2625	0.305	798	0.5	2.166	A
2	92	918	2297	0.040	92	0.0	1.794	A
3	488	183	1819	0.268	486	0.4	2.967	A
4	84	562	1657	0.050	83	0.1	2.515	A
5	294	405	2555	0.115	294	0.1	1.751	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	956	421	2582	0.370	955	0.6	2.432	A
2	110	1098	2182	0.050	110	0.1	1.909	A
3	583	219	1801	0.323	582	0.5	3.246	A
4	100	673	1601	0.062	100	0.1	2.636	A
5	352	484	2505	0.140	351	0.2	1.837	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1170	516	2523	0.464	1169	0.9	2.921	A
2	134	1344	2025	0.066	134	0.1	2.094	A
3	713	268	1777	0.401	713	0.7	3.716	A
4	122	824	1525	0.080	122	0.1	2.822	A
5	430	593	2438	0.177	430	0.2	1.972	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1170	516	2523	0.464	1170	0.9	2.926	A
2	134	1345	2024	0.066	134	0.1	2.095	A
3	713	269	1777	0.402	713	0.7	3.722	A
4	122	825	1525	0.080	122	0.1	2.823	A
5	430	593	2438	0.177	430	0.2	1.972	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	956	422	2582	0.370	957	0.6	2.440	A
2	110	1100	2181	0.050	110	0.1	1.913	A
3	583	220	1801	0.323	583	0.5	3.256	A
4	100	674	1601	0.062	100	0.1	2.640	A
5	352	485	2505	0.140	352	0.2	1.838	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	800	353	2625	0.305	801	0.5	2.171	A
2	92	921	2295	0.040	92	0.0	1.799	A
3	488	184	1818	0.268	488	0.4	2.977	A
4	84	564	1656	0.050	84	0.1	2.519	A
5	294	406	2554	0.115	295	0.1	1.754	A

2025 + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	27.98	D

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	27.98	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 + Committed	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	557	100.000
2		✓	329	100.000
3		✓	1574	100.000
4		✓	185	100.000
5		✓	256	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	17	467	39	34
	2	57	0	152	3	117
	3	1239	40	0	37	258
	4	86	8	71	0	20
	5	51	44	152	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.23	1.97	0.3	A
2	0.15	2.00	0.2	A
3	0.98	49.44	23.0	E
4	0.21	5.10	0.3	A
5	0.16	2.62	0.2	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	243	2693	0.156	419	0.2	1.740	A
2	248	580	2513	0.099	247	0.1	1.747	A
3	1185	195	1813	0.654	1177	2.0	6.148	A
4	139	1305	1281	0.109	139	0.1	3.463	A
5	193	1123	2110	0.091	192	0.1	2.064	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	501	291	2663	0.188	501	0.3	1.830	A
2	296	694	2440	0.121	296	0.2	1.845	A
3	1415	233	1795	0.789	1408	3.9	10.038	B
4	166	1561	1152	0.144	166	0.2	4.015	A
5	230	1343	1974	0.117	230	0.1	2.270	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	613	355	2624	0.234	613	0.3	1.969	A
2	362	849	2341	0.155	362	0.2	2.001	A
3	1733	285	1769	0.980	1678	17.7	32.263	D
4	204	1867	997	0.204	203	0.3	4.985	A
5	282	1607	1811	0.156	282	0.2	2.589	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	613	356	2623	0.234	613	0.3	1.970	A
2	362	850	2341	0.155	362	0.2	2.001	A
3	1733	285	1769	0.980	1712	23.0	49.438	E
4	204	1901	981	0.208	204	0.3	5.096	A
5	282	1635	1794	0.157	282	0.2	2.619	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	501	293	2662	0.188	501	0.3	1.832	A
2	296	695	2440	0.121	296	0.2	1.846	A
3	1415	233	1794	0.789	1489	4.4	15.840	C
4	166	1642	1112	0.150	167	0.2	4.192	A
5	230	1410	1933	0.119	230	0.1	2.326	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	419	244	2692	0.156	420	0.2	1.741	A
2	248	582	2512	0.099	248	0.1	1.748	A
3	1185	195	1813	0.654	1194	2.1	6.486	A
4	139	1323	1273	0.109	140	0.1	3.496	A
5	193	1138	2101	0.092	193	0.1	2.076	A

2025 + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	3.41	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.41	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 + Committed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1308	100.000
2		✓	122	100.000
3		✓	712	100.000
4		✓	111	100.000
5		✓	391	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	119	1056	19	114
	2	18	0	41	19	44
	3	431	64	0	76	141
	4	32	15	41	0	23
	5	40	114	207	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.57	3.66	1.5	A
2	0.07	2.30	0.1	A
3	0.44	3.99	0.9	A
4	0.08	2.90	0.1	A
5	0.18	2.01	0.2	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	985	354	2624	0.375	982	0.7	2.407	A
2	92	1102	2180	0.042	92	0.0	1.895	A
3	536	183	1819	0.295	534	0.5	3.079	A
4	84	609	1633	0.051	83	0.1	2.554	A
5	294	451	2526	0.117	294	0.1	1.773	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1176	423	2581	0.456	1175	0.9	2.815	A
2	110	1318	2042	0.054	110	0.1	2.049	A
3	640	219	1801	0.355	639	0.6	3.407	A
4	100	729	1573	0.063	100	0.1	2.687	A
5	352	540	2471	0.142	351	0.2	1.867	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1440	518	2522	0.571	1438	1.5	3.644	A
2	134	1613	1853	0.072	134	0.1	2.303	A
3	784	268	1777	0.441	783	0.9	3.979	A
4	122	893	1490	0.082	122	0.1	2.894	A
5	430	661	2396	0.180	430	0.2	2.014	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1440	519	2522	0.571	1440	1.5	3.659	A
2	134	1615	1852	0.073	134	0.1	2.304	A
3	784	269	1777	0.441	784	0.9	3.987	A
4	122	894	1490	0.082	122	0.1	2.895	A
5	430	662	2396	0.180	430	0.2	2.014	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1176	424	2581	0.456	1178	0.9	2.826	A
2	110	1321	2040	0.054	110	0.1	2.053	A
3	640	220	1801	0.355	641	0.6	3.419	A
4	100	731	1572	0.063	100	0.1	2.691	A
5	352	541	2470	0.142	352	0.2	1.868	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	985	355	2624	0.375	986	0.7	2.420	A
2	92	1106	2177	0.042	92	0.0	1.897	A
3	536	184	1818	0.295	537	0.5	3.090	A
4	84	612	1632	0.051	84	0.1	2.558	A
5	294	453	2525	0.117	295	0.1	1.777	A

2025 + Committed + Proposed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	110.33	F

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	110.33	F

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2025 + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	558	100.000
2		✓	329	100.000
3		✓	1791	100.000
4		✓	185	100.000
5		✓	256	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	17	468	39	34
	2	57	0	152	3	117
	3	1454	42	0	37	258
	4	86	8	71	0	20
	5	51	44	152	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.23	1.97	0.3	A
2	0.15	2.00	0.2	A
3	1.11	190.22	114.2	F
4	0.21	5.30	0.3	A
5	0.16	2.71	0.2	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	420	245	2692	0.156	419	0.2	1.742	A
2	248	581	2512	0.099	247	0.1	1.747	A
3	1348	195	1813	0.744	1336	3.1	8.105	A
4	139	1465	1201	0.116	139	0.1	3.726	A
5	193	1283	2012	0.096	192	0.1	2.176	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	502	292	2662	0.188	501	0.3	1.831	A
2	296	695	2440	0.121	296	0.2	1.846	A
3	1610	233	1795	0.897	1590	8.1	17.830	C
4	166	1744	1060	0.157	166	0.2	4.430	A
5	230	1528	1860	0.124	230	0.2	2.428	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	614	353	2624	0.234	614	0.3	1.969	A
2	362	850	2340	0.155	362	0.2	2.001	A
3	1972	285	1769	1.115	1753	62.9	82.502	F
4	204	1945	958	0.213	203	0.3	5.245	A
5	282	1708	1749	0.161	282	0.2	2.699	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	614	354	2624	0.234	614	0.3	1.970	A
2	362	851	2340	0.155	362	0.2	2.002	A
3	1972	285	1769	1.115	1767	114.2	186.850	F
4	204	1959	951	0.214	204	0.3	5.298	A
5	282	1720	1741	0.162	282	0.2	2.712	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	502	297	2659	0.189	502	0.3	1.837	A
2	296	695	2439	0.121	296	0.2	1.849	A
3	1610	233	1794	0.897	1777	72.4	190.221	F
4	166	1928	967	0.172	167	0.2	4.951	A
5	230	1684	1763	0.131	230	0.2	2.585	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	420	252	2687	0.156	420	0.2	1.748	A
2	248	582	2511	0.099	248	0.1	1.748	A
3	1348	195	1813	0.744	1624	3.5	50.245	F
4	139	1747	1058	0.132	140	0.2	4.312	A
5	193	1524	1862	0.103	193	0.1	2.373	A

2025 + Committed + Proposed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	4.04	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.04	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2025 + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1535	100.000
2		✓	122	100.000
3		✓	718	100.000
4		✓	111	100.000
5		✓	391	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	119	1283	19	114
	2	18	0	41	19	44
	3	437	64	0	76	141
	4	32	15	41	0	23
	5	40	114	207	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.67	4.76	2.2	A
2	0.08	2.54	0.1	A
3	0.44	4.01	0.9	A
4	0.08	2.90	0.1	A
5	0.18	2.02	0.2	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1156	354	2624	0.440	1152	0.9	2.685	A
2	92	1272	2071	0.044	92	0.1	2.000	A
3	541	183	1819	0.297	539	0.5	3.090	A
4	84	614	1631	0.051	83	0.1	2.558	A
5	294	455	2523	0.117	294	0.1	1.775	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1380	423	2581	0.535	1378	1.3	3.288	A
2	110	1521	1912	0.057	110	0.1	2.196	A
3	645	219	1801	0.358	645	0.6	3.423	A
4	100	735	1570	0.064	100	0.1	2.692	A
5	352	545	2468	0.142	351	0.2	1.870	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1690	518	2522	0.670	1686	2.2	4.716	A
2	134	1861	1695	0.079	134	0.1	2.537	A
3	791	268	1777	0.445	789	0.9	4.005	A
4	122	899	1487	0.082	122	0.1	2.901	A
5	430	667	2392	0.180	430	0.2	2.018	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1690	519	2522	0.670	1690	2.2	4.760	A
2	134	1865	1693	0.079	134	0.1	2.540	A
3	791	269	1777	0.445	791	0.9	4.014	A
4	122	901	1486	0.082	122	0.1	2.902	A
5	430	668	2391	0.180	430	0.2	2.019	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1380	424	2581	0.535	1384	1.3	3.317	A
2	110	1527	1909	0.057	110	0.1	2.201	A
3	645	220	1801	0.358	647	0.6	3.435	A
4	100	737	1569	0.064	100	0.1	2.694	A
5	352	546	2467	0.143	352	0.2	1.871	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1156	355	2624	0.440	1157	0.9	2.705	A
2	92	1277	2068	0.044	92	0.1	2.003	A
3	541	184	1818	0.297	541	0.5	3.103	A
4	84	617	1630	0.051	84	0.1	2.560	A
5	294	457	2522	0.117	295	0.1	1.779	A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: J3 A160_A180.j10
Path: \\na.aecomnet.com\lfs\EMEA\Leeds-UKLDS2\Legacy\UKLDS2PFPSW001\WIP\LE_Projects\Newproje\60668866 - Humber Zero\400_Technical\Traffic & Transport\NH Comments 10.01.24\Junction Modelling
Report generation date: 05/03/2024 15:04:59

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base									
Arm 1	D1	0.3	1.30	0.20	A	D2	0.5	1.51	0.32	A
Arm 2		0.3	1.88	0.20	A		0.1	1.80	0.07	A
Arm 3		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	2025 Base + Committed									
Arm 1	D3	0.3	1.31	0.21	A	D4	0.7	1.70	0.39	A
Arm 2		0.3	1.95	0.22	A		0.1	2.19	0.08	A
Arm 3		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	2025 Base + Committed + Proposed									
Arm 1	D5	0.3	1.31	0.21	A	D6	0.9	1.88	0.45	A
Arm 2		0.3	1.94	0.22	A		0.1	2.55	0.12	A
Arm 3		0.0	0.00	0.00	A		0.0	0.00	0.00	A

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

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

File summary

File Description

Title	
Location	
Site number	
Date	18/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NA\SimmonsA1
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	06:45	08:15	15	✓
D2	2025 Base	PM	ONE HOUR	15:45	17:15	15	✓
D3	2025 Base + Committed	AM	ONE HOUR	06:45	08:15	15	✓
D4	2025 Base + Committed	PM	ONE HOUR	15:45	17:15	15	✓
D5	2025 Base + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15	✓
D6	2025 Base + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15	✓

Analysis Set Details

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

2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3	0.89	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.89	A

Arms

Arms

Arm	Name	Description	No give-way line
1	untitled		
2	untitled		
3	untitled		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	8.17	9.38	24.9	35.5	163.8	11.6		
2	8.30	8.99	8.5	31.9	373.6	18.0		
3	10.58	16.00	21.6	62.4	325.2	18.7		

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	36.01
2	0	✓	131.52
3	0	✓	155.37

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
1		
2		
3	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	1.387	3826
2	1.319	3430
3	1.791	4957

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	06:45	08:15	15	✓

Default vehicle mix	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 (%)
1		ONE HOUR	✓	708	100.000
2		ONE HOUR	✓	467	100.000
3		ONE HOUR	✓	853	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	146	562
	2	467	0	0
	3	853	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.20	1.30	0.3	A	650	975
2	0.20	1.88	0.3	A	429	643
3	0.00	0.00	0.0	A	783	0

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	533	533	133	0	642	0	3826	0.139	532	351	0.0	0.2	1.202	A
2	352	352	88	0	0	423	2873	0.122	351	110	0.0	0.2	1.569	A
3	642	0	0	642	0	351	4329	0.000	0	423	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	636	636	159	0	767	0	3826	0.166	636	420	0.2	0.2	1.241	A
2	420	420	105	0	0	505	2764	0.152	420	131	0.2	0.2	1.688	A
3	767	0	0	767	0	420	4206	0.000	0	505	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	780	780	195	0	939	0	3826	0.204	779	514	0.2	0.3	1.299	A
2	514	514	129	0	0	619	2614	0.197	514	161	0.2	0.3	1.884	A
3	939	0	0	939	0	514	4037	0.000	0	619	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	780	780	195	0	939	0	3826	0.204	780	514	0.3	0.3	1.299	A
2	514	514	129	0	0	619	2614	0.197	514	161	0.3	0.3	1.884	A
3	939	0	0	939	0	514	4036	0.000	0	619	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	636	636	159	0	767	0	3826	0.166	637	420	0.3	0.2	1.243	A
2	420	420	105	0	0	505	2764	0.152	420	131	0.3	0.2	1.689	A
3	767	0	0	767	0	420	4205	0.000	0	505	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	533	533	133	0	642	0	3826	0.139	533	352	0.2	0.2	1.202	A
2	352	352	88	0	0	423	2872	0.122	352	110	0.2	0.2	1.570	A
3	642	0	0	642	0	352	4327	0.000	0	423	0.0	0.0	0.000	A

2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3	1.10	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.10	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	36.01
2	0	✓	131.52
3	0	✓	155.37

Bypass

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	15:45	17:15	15	✓

Default vehicle mix	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 (%)
1		ONE HOUR	✓	1099	100.000
2		ONE HOUR	✓	146	100.000
3		ONE HOUR	✓	509	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	361	738
	2	146	0	0
	3	509	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.32	1.51	0.5	A	1008	1513
2	0.07	1.80	0.1	A	134	201
3	0.00	0.00	0.0	A	467	0

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	827	827	207	0	383	0	3826	0.216	826	110	0.0	0.3	1.320	A
2	110	110	27	0	0	555	2698	0.041	110	271	0.0	0.0	1.529	A
3	383	0	0	383	0	110	4761	0.000	0	555	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	988	988	247	0	458	0	3826	0.258	988	131	0.3	0.4	1.394	A
2	131	131	33	0	0	663	2555	0.051	131	324	0.0	0.1	1.632	A
3	458	0	0	458	0	131	4722	0.000	0	663	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1210	1210	303	0	560	0	3826	0.316	1210	161	0.4	0.5	1.513	A
2	161	161	40	0	0	812	2359	0.068	161	397	0.1	0.1	1.800	A
3	560	0	0	560	0	161	4670	0.000	0	812	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1210	1210	303	0	560	0	3826	0.316	1210	161	0.5	0.5	1.513	A
2	161	161	40	0	0	813	2358	0.068	161	397	0.1	0.1	1.801	A
3	560	0	0	560	0	161	4669	0.000	0	813	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	988	988	247	0	458	0	3826	0.258	988	131	0.5	0.4	1.395	A
2	131	131	33	0	0	664	2555	0.051	131	325	0.1	0.1	1.633	A
3	458	0	0	458	0	131	4722	0.000	0	664	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	827	827	207	0	383	0	3826	0.216	828	110	0.4	0.3	1.320	A
2	110	110	27	0	0	556	2697	0.041	110	272	0.1	0.0	1.530	A
3	383	0	0	383	0	110	4760	0.000	0	556	0.0	0.0	0.000	A

2025 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3	0.83	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.83	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	36.01
2	0	✓	131.52
3	0	✓	155.37

Bypass

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

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

Default vehicle mix	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 (%)
1		ONE HOUR	✓	725	100.000
2		ONE HOUR	✓	506	100.000
3		ONE HOUR	✓	1107	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	146	579
	2	506	0	0
	3	1107	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.21	1.31	0.3	A	665	998
2	0.22	1.95	0.3	A	464	696
3	0.00	0.00	0.0	A	1016	0

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	546	546	136	0	833	0	3826	0.143	545	380	0.0	0.2	1.206	A
2	381	381	95	0	0	435	2856	0.133	380	110	0.0	0.2	1.599	A
3	833	0	0	833	0	380	4276	0.000	0	435	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	652	652	163	0	995	0	3826	0.170	652	455	0.2	0.2	1.247	A
2	455	455	114	0	0	520	2744	0.166	455	131	0.2	0.2	1.729	A
3	995	0	0	995	0	455	4143	0.000	0	520	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	798	798	200	0	1219	0	3826	0.209	798	557	0.2	0.3	1.307	A
2	557	557	139	0	0	637	2590	0.215	557	161	0.2	0.3	1.948	A
3	1219	0	0	1219	0	557	3960	0.000	0	637	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	798	798	200	0	1219	0	3826	0.209	798	557	0.3	0.3	1.307	A
2	557	557	139	0	0	637	2589	0.215	557	161	0.3	0.3	1.948	A
3	1219	0	0	1219	0	557	3959	0.000	0	637	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	652	652	163	0	995	0	3826	0.170	652	455	0.3	0.2	1.249	A
2	455	455	114	0	0	521	2743	0.166	455	131	0.3	0.2	1.730	A
3	995	0	0	995	0	455	4142	0.000	0	521	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	546	546	136	0	833	0	3826	0.143	546	381	0.2	0.2	1.206	A
2	381	381	95	0	0	436	2855	0.133	381	110	0.2	0.2	1.600	A
3	833	0	0	833	0	381	4275	0.000	0	436	0.0	0.0	0.000	A

2025 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3	1.28	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.28	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	36.01
2	0	✓	131.52
3	0	✓	155.37

Bypass

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Base + Committed	PM	ONE HOUR	15:45	17:15	15	✓

Default vehicle mix	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 (%)
1		ONE HOUR	✓	1367	100.000
2		ONE HOUR	✓	148	100.000
3		ONE HOUR	✓	553	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	361	1006
	2	148	0	0
	3	553	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.39	1.70	0.7	A	1254	1882
2	0.08	2.19	0.1	A	136	204
3	0.00	0.00	0.0	A	507	0

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1029	1029	257	0	416	0	3826	0.269	1028	111	0.0	0.4	1.415	A
2	111	111	28	0	0	756	2433	0.046	111	271	0.0	0.1	1.705	A
3	416	0	0	416	0	111	4758	0.000	0	756	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1229	1229	307	0	497	0	3826	0.321	1228	133	0.4	0.5	1.524	A
2	133	133	33	0	0	904	2238	0.059	133	324	0.1	0.1	1.880	A
3	497	0	0	497	0	133	4719	0.000	0	904	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1505	1505	376	0	609	0	3826	0.393	1504	163	0.5	0.7	1.705	A
2	163	163	41	0	0	1107	1970	0.083	163	397	0.1	0.1	2.191	A
3	609	0	0	609	0	163	4666	0.000	0	1107	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1505	1505	376	0	609	0	3826	0.393	1505	163	0.7	0.7	1.705	A
2	163	163	41	0	0	1108	1969	0.083	163	397	0.1	0.1	2.192	A
3	609	0	0	609	0	163	4665	0.000	0	1108	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1229	1229	307	0	497	0	3826	0.321	1230	133	0.7	0.5	1.527	A
2	133	133	33	0	0	905	2236	0.059	133	325	0.1	0.1	1.884	A
3	497	0	0	497	0	133	4719	0.000	0	905	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1029	1029	257	0	416	0	3826	0.269	1030	111	0.5	0.4	1.415	A
2	111	111	28	0	0	758	2431	0.046	111	272	0.1	0.1	1.706	A
3	416	0	0	416	0	111	4758	0.000	0	758	0.0	0.0	0.000	A

2025 Base + Committed + Proposed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3	0.78	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.78	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	36.01
2	0	✓	131.52
3	0	✓	155.37

Bypass

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2025 Base + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15	✓

Default vehicle mix	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 (%)
1		ONE HOUR	✓	725	100.000
2		ONE HOUR	✓	522	100.000
3		ONE HOUR	✓	1276	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	163	562
	2	522	0	0
	3	1276	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.21	1.31	0.3	A	665	998
2	0.22	1.94	0.3	A	479	718
3	0.00	0.00	0.0	A	1171	0

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	546	546	136	0	961	0	3826	0.143	545	392	0.0	0.2	1.206	A
2	393	393	98	0	0	423	2873	0.137	392	123	0.0	0.2	1.596	A
3	961	0	0	961	0	392	4255	0.000	0	423	0.0	0.0	0.000	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	652	652	163	0	1147	0	3826	0.170	652	469	0.2	0.2	1.247	A
2	469	469	117	0	0	505	2764	0.170	469	146	0.2	0.2	1.724	A
3	1147	0	0	1147	0	469	4117	0.000	0	505	0.0	0.0	0.000	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	798	798	200	0	1405	0	3826	0.209	798	574	0.2	0.3	1.307	A
2	575	575	144	0	0	619	2614	0.220	574	179	0.2	0.3	1.941	A
3	1405	0	0	1405	0	574	3928	0.000	0	619	0.0	0.0	0.000	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	798	798	200	0	1405	0	3826	0.209	798	575	0.3	0.3	1.307	A
2	575	575	144	0	0	619	2614	0.220	575	179	0.3	0.3	1.941	A
3	1405	0	0	1405	0	575	3928	0.000	0	619	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	652	652	163	0	1147	0	3826	0.170	652	470	0.3	0.2	1.249	A
2	469	469	117	0	0	505	2764	0.170	470	147	0.3	0.2	1.725	A
3	1147	0	0	1147	0	470	4116	0.000	0	505	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	546	546	136	0	961	0	3826	0.143	546	393	0.2	0.2	1.206	A
2	393	393	98	0	0	423	2872	0.137	393	123	0.2	0.2	1.599	A
3	961	0	0	961	0	393	4253	0.000	0	423	0.0	0.0	0.000	A

2025 Base + Committed + Proposed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3	1.48	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.48	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	36.01
2	0	✓	131.52
3	0	✓	155.37

Bypass

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2025 Base + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15	✓

Default vehicle mix	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 (%)
1		ONE HOUR	✓	1561	100.000
2		ONE HOUR	✓	186	100.000
3		ONE HOUR	✓	553	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	409	1152
	2	186	0	0
	3	553	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	10	10	10
	2	10	10	10
	3	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.45	1.88	0.9	A	1432	2149
2	0.12	2.55	0.1	A	171	256
3	0.00	0.00	0.0	A	507	0

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1175	1175	294	0	416	0	3826	0.307	1173	140	0.0	0.5	1.493	A
2	140	140	35	0	0	866	2288	0.061	140	307	0.0	0.1	1.842	A
3	416	0	0	416	0	140	4707	0.000	0	866	0.0	0.0	0.000	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1403	1403	351	0	497	0	3826	0.367	1403	167	0.5	0.6	1.633	A
2	167	167	42	0	0	1035	2065	0.081	167	368	0.1	0.1	2.086	A
3	497	0	0	497	0	167	4658	0.000	0	1035	0.0	0.0	0.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1719	1719	430	0	609	0	3826	0.449	1718	205	0.6	0.9	1.878	A
2	205	205	51	0	0	1268	1758	0.117	205	450	0.1	0.1	2.549	A
3	609	0	0	609	0	205	4591	0.000	0	1268	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1719	1719	430	0	609	0	3826	0.449	1719	205	0.9	0.9	1.878	A
2	205	205	51	0	0	1268	1757	0.117	205	450	0.1	0.1	2.550	A
3	609	0	0	609	0	205	4591	0.000	0	1268	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1403	1403	351	0	497	0	3826	0.367	1404	167	0.9	0.6	1.637	A
2	167	167	42	0	0	1036	2063	0.081	167	368	0.1	0.1	2.089	A
3	497	0	0	497	0	167	4658	0.000	0	1036	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1175	1175	294	0	416	0	3826	0.307	1176	140	0.6	0.5	1.496	A
2	140	140	35	0	0	868	2285	0.061	140	308	0.1	0.1	1.845	A
3	416	0	0	416	0	140	4706	0.000	0	868	0.0	0.0	0.000	A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: J4 M180_A15_A18.j10
Path: \\na.aecomnet.com\lfs\EMEA\Leeds-UKLDS2\Legacy\UKLDS2PFPSW001\WIP\LE_Projects\Newproje\60668866 - Humber Zero\400_Technical\Traffic & Transport\NH Comments 10.01.24\Junction Modelling
Report generation date: 05/03/2024 15:03:24

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base									
Arm 1	D1	0.6	3.76	0.36	A	D2	1.8	8.29	0.63	A
Arm 2		1.3	5.09	0.55	A		0.9	4.46	0.45	A
Arm 3		1.4	5.31	0.56	A		1.7	5.78	0.60	A
Arm 4		0.7	11.60	0.39	B		0.5	10.77	0.30	B
Arm 5		1.4	3.21	0.56	A		1.2	2.92	0.53	A
	2025 Base + Committed									
Arm 1	D3	0.7	4.24	0.39	A	D4	2.2	9.50	0.67	A
Arm 2		1.6	6.17	0.60	A		0.9	4.75	0.46	A
Arm 3		1.7	6.55	0.61	A		1.8	6.28	0.62	A
Arm 4		1.2	18.71	0.54	C		0.5	11.63	0.32	B
Arm 5		1.8	3.76	0.62	A		1.3	2.95	0.54	A
	2025 Base + Committed + Proposed									
Arm 1	D5	0.7	4.24	0.39	A	D6	1.3	4.94	0.54	A
Arm 2		1.6	6.17	0.60	A		1.1	5.49	0.50	A
Arm 3		1.7	6.55	0.61	A		0.8	4.45	0.43	A
Arm 4		1.2	18.71	0.54	C		0.3	6.62	0.21	A
Arm 5		2.0	4.12	0.65	A		0.9	2.15	0.46	A

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

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

File summary

File Description

Title	
Location	
Site number	
Date	18/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NA\SimmonsA1
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	06:45	08:15	15
D2	2025 Base	PM	ONE HOUR	15:45	17:15	15
D3	2025 Base + Committed	AM	ONE HOUR	06:45	08:15	15
D4	2025 Base + Committed	PM	ONE HOUR	15:45	17:15	15
D5	2025 Base + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15
D6	2025 Base + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4, 5	4.59	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.59	A

Arms

Arms

Arm	Name	Description	No give-way line
1	untitled		
2	untitled		
3	untitled		
4	untitled		
5	untitled		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	7.75	8.71	7.8	74.9	219.1	23.2		
2	7.12	7.60	13.1	82.9	189.9	16.0		
3	6.60	7.88	20.0	42.8	268.1	12.0		
4	3.51	6.02	8.2	20.4	158.2	17.5		
5	7.81	9.01	25.3	60.1	171.3	15.2		

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	142.35
2	0	✓	74.51
3	0	✓	135.31
4	0	✓	23.20
5	0	✓	59.36

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	1.280	3273
2	1.225	3194
3	1.239	3106
4	0.918	2329
5	1.350	3653

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	537	100.000
2		✓	854	100.000
3		✓	858	100.000
4		✓	199	100.000
5		✓	1450	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	62	1	28	446
	2	153	0	311	52	338
	3	2	238	1	46	571
	4	54	39	67	0	39
	5	638	260	531	20	1

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.36	3.76	0.6	A
2	0.55	5.09	1.3	A
3	0.56	5.31	1.4	A
4	0.39	11.60	0.7	B
5	0.56	3.21	1.4	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	869	2161	0.187	403	0.3	2.252	A
2	643	822	2187	0.294	641	0.5	2.558	A
3	646	779	2141	0.302	644	0.5	2.642	A
4	150	1314	1123	0.133	149	0.2	4.063	A
5	1092	416	3091	0.353	1089	0.6	1.975	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	483	1039	1943	0.248	482	0.4	2.710	A
2	768	983	1989	0.386	767	0.7	3.238	A
3	771	932	1951	0.395	770	0.7	3.349	A
4	179	1571	887	0.202	178	0.3	5.588	A
5	1304	497	2981	0.437	1303	0.9	2.357	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	591	1271	1646	0.359	590	0.6	3.746	A
2	940	1203	1720	0.547	938	1.3	5.045	A
3	945	1140	1693	0.558	942	1.4	5.252	A
4	219	1922	565	0.388	217	0.7	11.351	B
5	1596	607	2833	0.564	1594	1.4	3.192	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	591	1274	1643	0.360	591	0.6	3.764	A
2	940	1206	1717	0.548	940	1.3	5.095	A
3	945	1143	1690	0.559	945	1.4	5.309	A
4	219	1927	560	0.391	219	0.7	11.595	B
5	1596	610	2829	0.564	1596	1.4	3.211	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	483	1043	1938	0.249	484	0.4	2.724	A
2	768	987	1985	0.387	770	0.7	3.264	A
3	771	936	1947	0.396	774	0.7	3.382	A
4	179	1578	881	0.203	181	0.3	5.671	A
5	1304	501	2977	0.438	1306	0.9	2.372	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	872	2157	0.187	405	0.3	2.262	A
2	643	825	2183	0.295	644	0.5	2.573	A
3	646	782	2137	0.302	647	0.5	2.659	A
4	150	1319	1118	0.134	150	0.2	4.093	A
5	1092	418	3088	0.353	1093	0.6	1.984	A

2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4, 5	5.18	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.18	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	142.35
2	0	✓	74.51
3	0	✓	135.31
4	0	✓	23.20
5	0	✓	59.36

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025 Base	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	732	100.000
2		✓	657	100.000
3		✓	944	100.000
4		✓	144	100.000
5		✓	1397	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	160	0	11	561
	2	71	1	246	50	289
	3	2	338	1	83	520
	4	25	26	46	0	47
	5	397	445	525	29	1

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.63	8.29	1.8	A
2	0.45	4.46	0.9	A
3	0.60	5.78	1.7	A
4	0.30	10.77	0.5	B
5	0.53	2.92	1.2	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	551	1060	1916	0.288	549	0.4	2.894	A
2	495	881	2114	0.234	493	0.3	2.440	A
3	711	760	2164	0.328	709	0.5	2.717	A
4	108	1339	1100	0.099	108	0.1	3.990	A
5	1052	383	3136	0.335	1050	0.6	1.896	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	658	1268	1650	0.399	657	0.7	3.984	A
2	591	1054	1903	0.310	590	0.5	3.014	A
3	849	909	1980	0.429	847	0.8	3.495	A
4	129	1602	859	0.151	129	0.2	5.424	A
5	1256	458	3035	0.414	1255	0.8	2.224	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	806	1552	1287	0.626	802	1.8	8.084	A
2	723	1288	1616	0.448	722	0.9	4.421	A
3	1039	1111	1730	0.601	1036	1.6	5.683	A
4	159	1957	532	0.298	157	0.5	10.532	B
5	1538	560	2897	0.531	1536	1.2	2.906	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	806	1555	1283	0.628	806	1.8	8.286	A
2	723	1293	1611	0.449	723	0.9	4.461	A
3	1039	1115	1724	0.603	1039	1.7	5.777	A
4	159	1964	526	0.301	159	0.5	10.771	B
5	1538	562	2895	0.531	1538	1.2	2.918	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	658	1272	1645	0.400	662	0.7	4.051	A
2	591	1060	1896	0.312	592	0.5	3.040	A
3	849	915	1972	0.430	852	0.8	3.543	A
4	129	1611	850	0.152	131	0.2	5.512	A
5	1256	461	3031	0.414	1258	0.8	2.237	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	551	1064	1911	0.288	552	0.4	2.916	A
2	495	885	2110	0.234	495	0.3	2.455	A
3	711	764	2160	0.329	712	0.5	2.736	A
4	108	1345	1094	0.099	109	0.1	4.020	A
5	1052	385	3133	0.336	1053	0.6	1.903	A

2025 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4, 5	5.76	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.76	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	142.35
2	0	✓	74.51
3	0	✓	135.31
4	0	✓	23.20
5	0	✓	59.36

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	537	100.000
2		✓	874	100.000
3		✓	858	100.000
4		✓	222	100.000
5		✓	1555	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	62	1	28	446
	2	173	0	311	52	338
	3	2	238	1	46	571
	4	77	39	67	0	39
	5	659	260	531	20	85

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.39	4.24	0.7	A
2	0.60	6.17	1.6	A
3	0.61	6.55	1.7	A
4	0.54	18.71	1.2	C
5	0.62	3.76	1.8	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	932	2081	0.194	403	0.3	2.360	A
2	658	885	2110	0.312	656	0.5	2.720	A
3	646	857	2044	0.316	644	0.5	2.825	A
4	167	1392	1052	0.159	166	0.2	4.470	A
5	1171	448	3048	0.384	1168	0.7	2.104	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	483	1114	1847	0.261	482	0.4	2.902	A
2	786	1059	1897	0.414	785	0.8	3.556	A
3	771	1025	1836	0.420	770	0.8	3.713	A
4	200	1665	801	0.249	199	0.4	6.569	A
5	1398	536	2930	0.477	1397	1.0	2.580	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	591	1362	1530	0.386	590	0.7	4.208	A
2	962	1295	1608	0.598	959	1.6	6.068	A
3	945	1254	1553	0.608	941	1.7	6.437	A
4	244	2035	461	0.530	241	1.2	17.735	C
5	1712	653	2771	0.618	1709	1.8	3.717	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	591	1366	1525	0.388	591	0.7	4.242	A
2	962	1298	1604	0.600	962	1.6	6.166	A
3	945	1257	1549	0.610	945	1.7	6.553	A
4	244	2041	455	0.537	244	1.2	18.714	C
5	1712	657	2766	0.619	1712	1.8	3.757	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	483	1120	1840	0.262	484	0.4	2.925	A
2	786	1063	1892	0.415	789	0.8	3.601	A
3	771	1030	1830	0.421	775	0.8	3.767	A
4	200	1673	793	0.252	203	0.4	6.751	A
5	1398	541	2922	0.478	1401	1.0	2.608	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	936	2075	0.195	405	0.3	2.372	A
2	658	889	2105	0.313	659	0.5	2.739	A
3	646	861	2040	0.317	647	0.5	2.848	A
4	167	1398	1046	0.160	168	0.2	4.515	A
5	1171	451	3044	0.385	1172	0.7	2.116	A

2025 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4, 5	5.66	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.66	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	142.35
2	0	✓	74.51
3	0	✓	135.31
4	0	✓	23.20
5	0	✓	59.36

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Committed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	770	100.000
2		✓	657	100.000
3		✓	944	100.000
4		✓	144	100.000
5		✓	1411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	172	0	24	574
	2	71	1	246	50	289
	3	2	338	1	83	520
	4	25	26	46	0	47
	5	397	445	525	29	15

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.67	9.50	2.2	A
2	0.46	4.75	0.9	A
3	0.62	6.28	1.8	A
4	0.32	11.63	0.5	B
5	0.54	2.95	1.3	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	580	1071	1902	0.305	578	0.5	2.986	A
2	495	911	2078	0.238	493	0.3	2.497	A
3	711	790	2127	0.334	708	0.5	2.788	A
4	108	1359	1081	0.100	108	0.1	4.066	A
5	1062	383	3136	0.339	1060	0.6	1.905	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	692	1281	1634	0.424	691	0.8	4.193	A
2	591	1090	1859	0.318	590	0.5	3.119	A
3	849	945	1935	0.439	847	0.9	3.638	A
4	129	1626	837	0.155	129	0.2	5.593	A
5	1268	458	3035	0.418	1268	0.8	2.240	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	848	1567	1268	0.669	842	2.2	9.193	A
2	723	1331	1563	0.463	722	0.9	4.695	A
3	1039	1154	1676	0.620	1036	1.8	6.147	A
4	159	1986	506	0.313	157	0.5	11.310	B
5	1554	559	2898	0.536	1552	1.3	2.938	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	848	1570	1264	0.671	848	2.2	9.504	A
2	723	1337	1557	0.465	723	0.9	4.750	A
3	1039	1159	1670	0.622	1039	1.8	6.276	A
4	159	1994	499	0.318	158	0.5	11.630	B
5	1554	561	2895	0.537	1554	1.3	2.952	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	692	1285	1628	0.425	698	0.8	4.282	A
2	591	1097	1851	0.319	592	0.5	3.151	A
3	849	952	1927	0.440	852	0.9	3.700	A
4	129	1637	827	0.157	131	0.2	5.697	A
5	1268	461	3030	0.419	1270	0.8	2.251	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	580	1075	1897	0.306	581	0.5	3.010	A
2	495	916	2073	0.239	495	0.3	2.511	A
3	711	794	2122	0.335	712	0.6	2.810	A
4	108	1366	1075	0.101	109	0.1	4.100	A
5	1062	385	3133	0.339	1063	0.6	1.915	A

2025 Base + Committed + Proposed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4, 5	5.86	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.86	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	142.35
2	0	✓	74.51
3	0	✓	135.31
4	0	✓	23.20
5	0	✓	59.36

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2025 Base + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	537	100.000
2		✓	874	100.000
3		✓	858	100.000
4		✓	222	100.000
5		✓	1638	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	62	1	28	446
	2	173	0	311	52	338
	3	2	238	1	46	571
	4	77	39	67	0	39
	5	742	260	531	20	85

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.39	4.24	0.7	A
2	0.60	6.17	1.6	A
3	0.61	6.55	1.7	A
4	0.54	18.71	1.2	C
5	0.65	4.12	2.0	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	932	2081	0.194	403	0.3	2.360	A
2	658	885	2110	0.312	656	0.5	2.720	A
3	646	857	2044	0.316	644	0.5	2.825	A
4	167	1392	1052	0.159	166	0.2	4.470	A
5	1233	448	3048	0.405	1230	0.7	2.174	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	483	1114	1847	0.261	482	0.4	2.902	A
2	786	1059	1897	0.414	785	0.8	3.556	A
3	771	1025	1836	0.420	770	0.8	3.713	A
4	200	1664	801	0.249	199	0.4	6.569	A
5	1473	536	2930	0.503	1471	1.1	2.713	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	591	1362	1530	0.386	590	0.7	4.207	A
2	962	1295	1608	0.598	959	1.6	6.066	A
3	945	1254	1553	0.608	941	1.7	6.437	A
4	244	2035	461	0.530	241	1.2	17.734	C
5	1803	653	2771	0.651	1800	2.0	4.061	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	591	1366	1525	0.388	591	0.7	4.242	A
2	962	1298	1604	0.600	962	1.6	6.166	A
3	945	1257	1549	0.610	945	1.7	6.553	A
4	244	2041	455	0.537	244	1.2	18.714	C
5	1803	657	2766	0.652	1803	2.0	4.115	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	483	1120	1839	0.262	484	0.4	2.923	A
2	786	1063	1891	0.415	789	0.8	3.605	A
3	771	1030	1830	0.421	775	0.8	3.767	A
4	200	1673	793	0.252	203	0.4	6.751	A
5	1473	541	2922	0.504	1476	1.1	2.745	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	404	936	2075	0.195	405	0.3	2.370	A
2	658	889	2105	0.313	659	0.5	2.739	A
3	646	861	2040	0.317	647	0.5	2.845	A
4	167	1398	1046	0.160	168	0.2	4.515	A
5	1233	451	3044	0.405	1235	0.8	2.189	A

2025 Base + Committed + Proposed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4, 5	3.95	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.95	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	142.35
2	0	✓	74.51
3	0	✓	135.31
4	0	✓	23.20
5	0	✓	59.36

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2025 Base + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	853	100.000
2		✓	657	100.000
3		✓	606	100.000
4		✓	144	100.000
5		✓	1411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	0	172	0	24	657
	2	71	1	246	50	289
	3	2	0	1	83	520
	4	25	26	46	0	47
	5	397	445	525	29	15

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.54	4.94	1.3	A
2	0.50	5.49	1.1	A
3	0.43	4.45	0.8	A
4	0.21	6.62	0.3	A
5	0.46	2.15	0.9	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	642	818	2227	0.288	640	0.4	2.494	A
2	495	974	2001	0.247	493	0.4	2.624	A
3	456	853	2050	0.223	455	0.3	2.480	A
4	108	1168	1257	0.086	108	0.1	3.447	A
5	1062	129	3478	0.305	1060	0.5	1.635	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	767	978	2022	0.379	766	0.7	3.152	A
2	591	1165	1767	0.334	590	0.5	3.362	A
3	545	1020	1842	0.296	544	0.5	3.048	A
4	129	1397	1046	0.124	129	0.2	4.316	A
5	1268	154	3444	0.368	1268	0.6	1.819	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	939	1197	1741	0.539	937	1.3	4.907	A
2	723	1426	1448	0.500	721	1.1	5.432	A
3	667	1248	1561	0.428	666	0.8	4.418	A
4	159	1709	760	0.209	158	0.3	6.569	A
5	1554	189	3398	0.457	1552	0.9	2.145	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	939	1198	1740	0.540	939	1.3	4.945	A
2	723	1428	1445	0.501	723	1.1	5.488	A
3	667	1251	1557	0.429	667	0.8	4.451	A
4	159	1713	756	0.210	159	0.3	6.622	A
5	1554	189	3397	0.457	1554	0.9	2.148	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	767	979	2020	0.380	769	0.7	3.172	A
2	591	1169	1763	0.335	593	0.6	3.390	A
3	545	1025	1837	0.297	546	0.5	3.070	A
4	129	1403	1041	0.124	130	0.2	4.348	A
5	1268	155	3443	0.368	1270	0.6	1.824	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	642	820	2224	0.289	643	0.4	2.508	A
2	495	978	1997	0.248	495	0.4	2.638	A
3	456	857	2045	0.223	457	0.3	2.493	A
4	108	1173	1252	0.087	109	0.1	3.462	A
5	1062	130	3477	0.305	1063	0.5	1.642	A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: J5 A1060_A1733_HumberRd.j10
Path: \\na.aecomnet.com\lfs\EMEA\Leeds-UKLDS2\Legacy\UKLDS2PFPSW001\WIP\LE_Projects\Newproje\60668866 - Humber Zero\400_Technical\Traffic & Transport\NH Comments 10.01.24\Junction Modelling
Report generation date: 05/03/2024 15:10:26

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base									
Arm 1	D1	0.3	2.38	0.21	A	D2	0.8	3.32	0.42	A
Arm 2		0.5	2.83	0.32	A		0.3	2.51	0.19	A
Arm 3		0.0	0.00	0.00	A		0.0	5.63	0.02	A
Arm 4		0.6	3.16	0.34	A		0.4	2.72	0.27	A
Arm 5		0.0	2.71	0.00	A		0.0	0.00	0.00	A
	2025 Base + Committed									
Arm 1	D3	0.3	2.43	0.22	A	D4	1.2	3.99	0.52	A
Arm 2		0.7	3.14	0.38	A		0.3	2.67	0.21	A
Arm 3		0.0	0.00	0.00	A		0.0	6.37	0.02	A
Arm 4		0.7	3.56	0.39	A		0.5	2.92	0.31	A
Arm 5		0.0	2.96	0.00	A		0.0	0.00	0.00	A
	2025 Base + Committed + Proposed									
Arm 1	D5	0.3	2.42	0.22	A	D6	1.2	4.05	0.53	A
Arm 2		0.7	3.14	0.38	A		0.3	2.69	0.21	A
Arm 3		0.0	0.00	0.00	A		0.0	6.47	0.02	A
Arm 4		0.8	3.68	0.41	A		0.5	2.91	0.32	A
Arm 5		0.0	3.03	0.01	A		0.0	0.00	0.00	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	
Location	
Site number	
Date	17/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NA\SimmonsA1
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	06:45	08:15	15
D2	2025 Base	PM	ONE HOUR	15:45	17:15	15
D3	2025 Base + Committed	AM	ONE HOUR	06:45	08:15	15
D4	2025 Base + Committed	PM	ONE HOUR	15:45	17:15	15
D5	2025 Base + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15
D6	2025 Base + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	2.83	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.83	A

Arms

Arms

Arm	Name	Description	No give-way line
1	untitled		
2	untitled		
3	untitled		
4	untitled		
5	untitled		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	6.73	6.86	22.3	31.9	82.4	15.7		
2	6.60	7.55	4.4	46.0	71.6	24.6		
3	2.74	8.24	4.9	16.1	41.9	22.9		
4	6.58	7.31	1.6	15.3	80.6	23.7		
5	7.23	7.35	0.1	9.3	55.3	20.9		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.558	2220
2	0.599	2272
3	0.543	1205
4	0.531	2098
5	0.656	2142

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2025 Base	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	399	100.000
2		✓	587	100.000
3		✓	0	100.000
4		✓	576	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	13	61	0	324	1
	2	345	0	0	241	1
	3	0	0	0	0	0
	4	383	188	2	0	3
	5	4	0	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.21	2.38	0.3	A
2	0.32	2.83	0.5	A
3	0.00	0.00	0.0	A
4	0.34	3.16	0.6	A
5	0.00	2.71	0.0	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	300	144	2140	0.140	300	0.2	2.152	A
2	442	257	2119	0.209	441	0.3	2.359	A
3	0	696	827	0.000	0	0.0	0.000	A
4	434	270	1955	0.222	432	0.3	2.598	A
5	5	699	1684	0.003	5	0.0	2.357	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	359	172	2124	0.169	359	0.2	2.242	A
2	528	307	2088	0.253	527	0.4	2.536	A
3	0	833	753	0.000	0	0.0	0.000	A
4	518	323	1927	0.269	517	0.4	2.810	A
5	5	836	1594	0.003	5	0.0	2.493	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	439	211	2103	0.209	439	0.3	2.380	A
2	646	376	2047	0.316	646	0.5	2.826	A
3	0	1020	651	0.000	0	0.0	0.000	A
4	634	396	1888	0.336	634	0.6	3.154	A
5	7	1024	1470	0.004	7	0.0	2.704	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	439	211	2102	0.209	439	0.3	2.380	A
2	646	377	2047	0.316	646	0.5	2.826	A
3	0	1021	651	0.000	0	0.0	0.000	A
4	634	396	1888	0.336	634	0.6	3.157	A
5	7	1025	1470	0.004	7	0.0	2.706	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	359	173	2124	0.169	359	0.2	2.243	A
2	528	308	2088	0.253	528	0.4	2.538	A
3	0	834	752	0.000	0	0.0	0.000	A
4	518	324	1926	0.269	518	0.4	2.815	A
5	5	838	1593	0.003	5	0.0	2.496	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	300	145	2140	0.140	301	0.2	2.154	A
2	442	258	2118	0.209	442	0.3	2.362	A
3	0	698	826	0.000	0	0.0	0.000	A
4	434	271	1954	0.222	434	0.3	2.606	A
5	5	701	1682	0.003	5	0.0	2.362	A

2025 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	2.98	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	2.98	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2025 Base	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	792	100.000
2		✓	344	100.000
3		✓	10	100.000
4		✓	489	100.000
5		✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	51	316	0	425	0
	2	120	0	0	223	1
	3	0	4	0	6	0
	4	233	250	2	0	4
	5	0	2	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.42	3.32	0.8	A
2	0.19	2.51	0.3	A
3	0.02	5.63	0.0	A
4	0.27	2.72	0.4	A
5	0.00	0.00	0.0	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	596	192	2113	0.282	595	0.4	2.606	A
2	259	359	2058	0.126	258	0.2	2.201	A
3	8	616	871	0.009	7	0.0	4.588	A
4	368	132	2028	0.182	367	0.2	2.383	A
5	0	496	1817	0.000	0	0.0	0.000	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	712	230	2092	0.340	711	0.6	2.866	A
2	309	429	2015	0.153	309	0.2	2.320	A
3	9	737	805	0.011	9	0.0	4.975	A
4	440	158	2014	0.218	439	0.3	2.514	A
5	0	593	1753	0.000	0	0.0	0.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	872	282	2063	0.423	871	0.8	3.318	A
2	379	526	1958	0.193	378	0.3	2.507	A
3	11	902	715	0.015	11	0.0	5.623	A
4	538	194	1996	0.270	538	0.4	2.717	A
5	0	726	1666	0.000	0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	872	282	2063	0.423	872	0.8	3.323	A
2	379	526	1957	0.194	379	0.3	2.508	A
3	11	903	715	0.015	11	0.0	5.627	A
4	538	194	1995	0.270	538	0.4	2.717	A
5	0	727	1666	0.000	0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	712	230	2092	0.340	713	0.6	2.875	A
2	309	430	2015	0.153	310	0.2	2.323	A
3	9	738	804	0.011	9	0.0	4.981	A
4	440	158	2014	0.218	440	0.3	2.515	A
5	0	594	1753	0.000	0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	596	193	2113	0.282	597	0.4	2.614	A
2	259	360	2057	0.126	259	0.2	2.204	A
3	8	618	869	0.009	8	0.0	4.596	A
4	368	133	2028	0.182	368	0.2	2.387	A
5	0	497	1816	0.000	0	0.0	0.000	A

2025 Base + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	3.12	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.12	A

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	423	100.000
2		✓	700	100.000
3		✓	0	100.000
4		✓	636	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	13	61	4	326	19
	2	456	0	0	243	1
	3	0	0	0	0	0
	4	434	197	2	0	3
	5	4	0	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.22	2.43	0.3	A
2	0.38	3.14	0.7	A
3	0.00	0.00	0.0	A
4	0.39	3.56	0.7	A
5	0.00	2.96	0.0	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	318	151	2136	0.149	318	0.2	2.176	A
2	527	275	2108	0.250	526	0.4	2.500	A
3	0	796	773	0.000	0	0.0	0.000	A
4	479	367	1903	0.252	477	0.4	2.774	A
5	5	827	1600	0.003	5	0.0	2.482	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	380	181	2120	0.179	380	0.2	2.276	A
2	629	329	2076	0.303	629	0.5	2.737	A
3	0	952	688	0.000	0	0.0	0.000	A
4	572	439	1865	0.307	571	0.5	3.060	A
5	5	990	1493	0.004	5	0.0	2.661	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	221	2097	0.222	465	0.3	2.427	A
2	771	403	2031	0.379	770	0.7	3.138	A
3	0	1166	572	0.000	0	0.0	0.000	A
4	700	538	1813	0.386	699	0.7	3.555	A
5	7	1212	1347	0.005	7	0.0	2.953	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	221	2097	0.222	466	0.3	2.427	A
2	771	403	2031	0.379	771	0.7	3.141	A
3	0	1167	571	0.000	0	0.0	0.000	A
4	700	538	1813	0.386	700	0.7	3.559	A
5	7	1213	1346	0.005	7	0.0	2.955	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	380	181	2119	0.179	381	0.2	2.277	A
2	629	329	2075	0.303	630	0.5	2.740	A
3	0	954	687	0.000	0	0.0	0.000	A
4	572	440	1865	0.307	573	0.5	3.068	A
5	5	992	1491	0.004	5	0.0	2.666	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	318	151	2136	0.149	319	0.2	2.180	A
2	527	276	2107	0.250	527	0.4	2.506	A
3	0	799	771	0.000	0	0.0	0.000	A
4	479	368	1903	0.252	479	0.4	2.784	A
5	5	830	1597	0.003	5	0.0	2.485	A

2025 Base + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	3.44	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.44	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Committed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	970	100.000
2		✓	350	100.000
3		✓	10	100.000
4		✓	565	100.000
5		✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	51	358	4	532	25
	2	123	0	0	226	1
	3	0	4	0	6	0
	4	306	253	2	0	4
	5	0	2	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.52	3.99	1.2	A
2	0.21	2.67	0.3	A
3	0.02	6.37	0.0	A
4	0.31	2.92	0.5	A
5	0.00	0.00	0.0	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	730	194	2112	0.346	728	0.6	2.856	A
2	263	461	1997	0.132	263	0.2	2.284	A
3	8	719	814	0.009	7	0.0	4.907	A
4	425	153	2017	0.211	424	0.3	2.485	A
5	0	555	1778	0.000	0	0.0	0.000	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	872	233	2091	0.417	871	0.8	3.246	A
2	315	551	1942	0.162	314	0.2	2.432	A
3	9	861	738	0.012	9	0.0	5.434	A
4	508	183	2001	0.254	508	0.4	2.651	A
5	0	664	1707	0.000	0	0.0	0.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1068	285	2061	0.518	1066	1.2	3.973	A
2	385	675	1868	0.206	385	0.3	2.669	A
3	11	1054	633	0.017	11	0.0	6.366	A
4	622	224	1979	0.314	622	0.5	2.917	A
5	0	813	1609	0.000	0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1068	285	2061	0.518	1068	1.2	3.986	A
2	385	676	1868	0.206	385	0.3	2.670	A
3	11	1055	632	0.017	11	0.0	6.373	A
4	622	225	1979	0.314	622	0.5	2.917	A
5	0	814	1608	0.000	0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	872	233	2090	0.417	874	0.8	3.257	A
2	315	553	1941	0.162	315	0.2	2.436	A
3	9	862	737	0.012	9	0.0	5.444	A
4	508	184	2001	0.254	508	0.4	2.655	A
5	0	665	1706	0.000	0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	730	195	2112	0.346	731	0.6	2.872	A
2	263	463	1995	0.132	264	0.2	2.288	A
3	8	722	813	0.009	8	0.0	4.917	A
4	425	154	2017	0.211	426	0.3	2.490	A
5	0	557	1777	0.000	0	0.0	0.000	A

2025 Base + Committed + Proposed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	3.17	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.17	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2025 Base + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	423	100.000
2		✓	702	100.000
3		✓	0	100.000
4		✓	677	100.000
5		✓	6	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	13	65	0	344	1
	2	458	0	0	243	1
	3	0	0	0	0	0
	4	477	197	0	0	3
	5	4	0	0	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.22	2.42	0.3	A
2	0.38	3.14	0.7	A
3	0.00	0.00	0.0	A
4	0.41	3.68	0.8	A
5	0.01	3.03	0.0	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	318	149	2137	0.149	318	0.2	2.175	A
2	529	270	2111	0.250	527	0.4	2.498	A
3	0	797	772	0.000	0	0.0	0.000	A
4	510	355	1910	0.267	508	0.4	2.823	A
5	5	859	1578	0.003	5	0.0	2.515	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	380	179	2121	0.179	380	0.2	2.274	A
2	631	323	2079	0.304	631	0.5	2.734	A
3	0	954	687	0.000	0	0.0	0.000	A
4	609	425	1873	0.325	608	0.5	3.129	A
5	5	1029	1467	0.004	5	0.0	2.708	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	219	2098	0.222	465	0.3	2.425	A
2	773	396	2035	0.380	772	0.7	3.133	A
3	0	1168	571	0.000	0	0.0	0.000	A
4	745	520	1822	0.409	744	0.8	3.670	A
5	7	1259	1316	0.005	7	0.0	3.023	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	466	219	2098	0.222	466	0.3	2.425	A
2	773	396	2035	0.380	773	0.7	3.136	A
3	0	1169	570	0.000	0	0.0	0.000	A
4	745	521	1822	0.409	745	0.8	3.677	A
5	7	1261	1315	0.005	7	0.0	3.025	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	380	179	2120	0.179	381	0.2	2.276	A
2	631	324	2079	0.304	632	0.5	2.740	A
3	0	956	686	0.000	0	0.0	0.000	A
4	609	426	1872	0.325	610	0.5	3.137	A
5	5	1031	1466	0.004	5	0.0	2.712	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	318	150	2137	0.149	319	0.2	2.179	A
2	529	271	2110	0.250	529	0.4	2.506	A
3	0	800	770	0.000	0	0.0	0.000	A
4	510	356	1909	0.267	510	0.4	2.831	A
5	5	863	1576	0.003	5	0.0	2.521	A

2025 Base + Committed + Proposed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	3.47	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	3.47	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2025 Base + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	984	100.000
2		✓	354	100.000
3		✓	10	100.000
4		✓	575	100.000
5		✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1	2	3	4	5
From	1	51	364	0	569	0
	2	127	0	0	226	1
	3	0	4	0	6	0
	4	316	253	2	0	4
	5	0	2	0	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	10	10	10	10	10
	2	10	10	10	10	10
	3	10	10	10	10	10
	4	10	10	10	10	10
	5	10	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.53	4.05	1.2	A
2	0.21	2.69	0.3	A
3	0.02	6.47	0.0	A
4	0.32	2.91	0.5	A
5	0.00	0.00	0.0	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	741	194	2112	0.351	738	0.6	2.878	A
2	267	467	1993	0.134	266	0.2	2.291	A
3	8	731	808	0.009	7	0.0	4.947	A
4	433	137	2025	0.214	432	0.3	2.484	A
5	0	565	1771	0.000	0	0.0	0.000	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	885	233	2091	0.423	884	0.8	3.280	A
2	318	559	1938	0.164	318	0.2	2.444	A
3	9	875	730	0.012	9	0.0	5.492	A
4	517	164	2011	0.257	517	0.4	2.649	A
5	0	676	1698	0.000	0	0.0	0.000	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1083	285	2061	0.526	1082	1.2	4.035	A
2	390	684	1863	0.209	389	0.3	2.687	A
3	11	1071	623	0.018	11	0.0	6.465	A
4	633	201	1992	0.318	633	0.5	2.914	A
5	0	828	1599	0.000	0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1083	285	2061	0.526	1083	1.2	4.049	A
2	390	685	1862	0.209	390	0.3	2.688	A
3	11	1072	623	0.018	11	0.0	6.473	A
4	633	201	1991	0.318	633	0.5	2.914	A
5	0	829	1598	0.000	0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	885	233	2090	0.423	886	0.8	3.294	A
2	318	560	1937	0.164	319	0.2	2.446	A
3	9	877	729	0.012	9	0.0	5.503	A
4	517	165	2011	0.257	517	0.4	2.651	A
5	0	678	1698	0.000	0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	741	195	2112	0.351	742	0.6	2.894	A
2	267	469	1992	0.134	267	0.2	2.295	A
3	8	734	806	0.009	8	0.0	4.959	A
4	433	138	2025	0.214	433	0.3	2.489	A
5	0	567	1770	0.000	0	0.0	0.000	A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: J6 M180_A15.j10
Path: \\na.aecomnet.com\lfs\EMEA\Leeds-UKLDS2\Legacy\UKLDS2PFPSW001\WIP\LE_Projects\Newproje\60668866 - Humber Zero\400_Technical\Traffic & Transport\NH Comments 10.01.24\Junction Modelling
Report generation date: 18/03/2024 14:07:28

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Base 2025									
Arm 1	D1	1.6	4.93	0.59	A	D2	2.0	5.74	0.65	A
Arm 2		2.9	11.41	0.73	B		4.2	17.42	0.80	C
Arm 3		0.7	4.73	0.38	A		1.4	7.86	0.57	A
Arm 4		1.5	3.64	0.57	A		1.1	3.09	0.49	A
	Base 2025 + Committed									
Arm 1	D3	1.6	4.93	0.59	A	D4	4.4	10.11	0.80	B
Arm 2		6.4	21.77	0.86	C		40.9	142.11	1.07	F
Arm 3		0.9	6.26	0.45	A		2.0	11.21	0.65	B
Arm 4		2.6	5.86	0.71	A		1.1	3.14	0.50	A
	Base 2025 + Committed + Proposed									
Arm 1	D5	1.6	4.93	0.59	A	D6	5.1	11.47	0.83	B
Arm 2		7.4	24.77	0.88	C		55.6	188.13	1.12	F
Arm 3		0.9	6.56	0.46	A		2.0	11.13	0.65	B
Arm 4		2.9	6.40	0.73	A		1.1	3.08	0.50	A

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

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

File summary

File Description

Title	
Location	
Site number	
Date	04/03/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	NA\SimmonsA1
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Base 2025	AM	ONE HOUR	06:45	08:15	15
D2	Base 2025	PM	ONE HOUR	15:45	17:15	15
D3	Base 2025 + Committed	AM	ONE HOUR	06:45	08:15	15
D4	Base 2025 + Committed	PM	ONE HOUR	15:45	17:15	15
D5	Base 2025 + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15
D6	Base 2025 + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Base 2025, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4	5.94	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.94	A

Arms

Arms

Arm	Name	Description	No give-way line
1	untitled		
2	untitled		
3	untitled		
4	untitled		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	6.10	8.91	7.1	53.7	75.2	14.6		
2	6.21	6.73	3.2	59.4	41.0	18.2		
3	5.87	8.65	8.9	43.5	89.1	17.2		
4	8.29	8.75	4.1	125.1	79.0	16.3		

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	122.87
2	0	✓	53.30
3	0	✓	117.42
4	0	✓	61.45

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	1.310	3018
2	1.599	2885
3	1.211	2972
4	1.420	3585

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Base 2025	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1069	100.000
2		✓	862	100.000
3		✓	472	100.000
4		✓	1332	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	476	0	592
	2	446	0	247	169
	3	0	212	1	259
	4	826	197	305	4

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.59	4.93	1.6	A
2	0.73	11.41	2.9	B
3	0.38	4.73	0.7	A
4	0.57	3.64	1.5	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	805	540	2310	0.348	802	0.6	2.624	A
2	649	678	1801	0.360	646	0.6	3.423	A
3	355	909	1871	0.190	354	0.3	2.609	A
4	1003	495	2882	0.348	1000	0.6	2.102	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	961	646	2171	0.443	960	0.9	3.265	A
2	775	811	1588	0.488	773	1.0	4.849	A
3	424	1088	1655	0.256	424	0.4	3.213	A
4	1197	592	2744	0.436	1196	0.8	2.557	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1177	790	1982	0.594	1174	1.6	4.883	A
2	949	992	1299	0.731	942	2.9	10.885	B
3	520	1328	1365	0.381	519	0.7	4.671	A
4	1467	722	2559	0.573	1464	1.5	3.608	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1177	792	1980	0.594	1177	1.6	4.929	A
2	949	994	1295	0.733	949	2.9	11.406	B
3	520	1334	1357	0.383	520	0.7	4.728	A
4	1467	726	2553	0.574	1467	1.5	3.642	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	961	648	2169	0.443	964	0.9	3.293	A
2	775	814	1583	0.489	782	1.1	4.988	A
3	424	1097	1645	0.258	425	0.4	3.252	A
4	1197	598	2736	0.438	1200	0.9	2.581	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	805	542	2307	0.349	806	0.6	2.640	A
2	649	681	1796	0.361	651	0.6	3.463	A
3	355	914	1865	0.191	356	0.3	2.625	A
4	1003	498	2878	0.348	1004	0.6	2.115	A

Base 2025, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4	7.88	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.88	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	122.87
2	0	✓	53.30
3	0	✓	117.42
4	0	✓	61.45

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Base 2025	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1174	100.000
2		✓	827	100.000
3		✓	603	100.000
4		✓	1125	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	0	451	0	723
	2	434	0	196	197
	3	0	247	2	354
	4	656	200	268	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.65	5.74	2.0	A
2	0.80	17.42	4.2	C
3	0.57	7.86	1.4	A
4	0.49	3.09	1.1	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	884	539	2311	0.382	881	0.7	2.765	A
2	623	746	1692	0.368	620	0.6	3.685	A
3	454	1017	1742	0.261	452	0.4	3.067	A
4	847	512	2858	0.296	845	0.5	1.966	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1055	645	2173	0.486	1054	1.0	3.535	A
2	743	893	1458	0.510	741	1.1	5.513	A
3	542	1216	1500	0.361	541	0.6	4.125	A
4	1011	613	2715	0.372	1011	0.7	2.321	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1293	789	1984	0.651	1289	2.0	5.662	A
2	911	1092	1139	0.799	899	4.0	15.779	C
3	664	1481	1180	0.563	661	1.4	7.585	A
4	1239	745	2528	0.490	1237	1.1	3.064	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1293	790	1982	0.652	1293	2.0	5.742	A
2	911	1094	1135	0.802	910	4.2	17.416	C
3	664	1491	1167	0.569	664	1.4	7.864	A
4	1239	751	2518	0.492	1239	1.1	3.094	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1055	647	2169	0.487	1059	1.1	3.579	A
2	743	896	1451	0.512	756	1.2	5.789	A
3	542	1230	1483	0.365	545	0.6	4.237	A
4	1011	622	2702	0.374	1013	0.7	2.346	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	884	541	2308	0.383	885	0.7	2.785	A
2	623	749	1687	0.369	625	0.6	3.735	A
3	454	1023	1734	0.262	455	0.4	3.099	A
4	847	516	2853	0.297	848	0.5	1.977	A

Base 2025 + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4	9.66	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.66	A

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	122.87
2	0	✓	53.30
3	0	✓	117.42
4	0	✓	61.45

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

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

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1069	100.000
2		✓	1017	100.000
3		✓	472	100.000
4		✓	1487	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	476	0	592
	2	601	0	247	169
	3	0	212	1	259
	4	981	197	305	4

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.59	4.93	1.6	A
2	0.86	21.77	6.4	C
3	0.45	6.26	0.9	A
4	0.71	5.86	2.6	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	805	540	2310	0.348	802	0.6	2.623	A
2	766	678	1801	0.425	762	0.8	3.803	A
3	355	1025	1731	0.205	354	0.3	2.873	A
4	1119	611	2717	0.412	1116	0.8	2.470	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	961	645	2172	0.443	960	0.9	3.264	A
2	914	811	1588	0.576	912	1.5	5.823	A
3	424	1226	1488	0.285	424	0.4	3.720	A
4	1337	731	2547	0.525	1335	1.2	3.262	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1177	789	1984	0.593	1174	1.6	4.873	A
2	1120	992	1299	0.862	1102	5.9	18.603	C
3	520	1490	1168	0.445	518	0.9	6.071	A
4	1637	886	2327	0.704	1632	2.6	5.652	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1177	791	1980	0.594	1177	1.6	4.928	A
2	1120	994	1295	0.865	1118	6.4	21.774	C
3	520	1504	1152	0.451	520	0.9	6.259	A
4	1637	896	2313	0.708	1637	2.6	5.855	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	961	649	2167	0.443	964	0.9	3.298	A
2	914	815	1582	0.578	934	1.5	6.284	A
3	424	1245	1465	0.290	426	0.5	3.818	A
4	1337	745	2527	0.529	1342	1.2	3.356	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	805	542	2307	0.349	806	0.6	2.639	A
2	766	681	1796	0.426	768	0.8	3.864	A
3	355	1032	1723	0.206	356	0.3	2.897	A
4	1119	616	2711	0.413	1121	0.8	2.495	A

Base 2025 + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4	35.98	E

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	35.98	E

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	122.87
2	0	✓	53.30
3	0	✓	117.42
4	0	✓	61.45

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	Base 2025 + Committed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1446	100.000
2		✓	848	100.000
3		✓	603	100.000
4		✓	1146	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	9	573	9	855
	2	455	0	196	197
	3	0	247	2	354
	4	677	200	268	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.80	10.11	4.4	B
2	1.07	142.11	40.9	F
3	0.65	11.21	2.0	B
4	0.50	3.14	1.1	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1089	539	2311	0.471	1085	1.0	3.217	A
2	638	858	1512	0.422	635	0.8	4.499	A
3	454	1137	1595	0.285	452	0.4	3.460	A
4	863	534	2826	0.305	861	0.5	2.013	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1300	645	2173	0.598	1297	1.6	4.509	A
2	762	1027	1243	0.613	759	1.7	8.114	A
3	542	1359	1327	0.409	541	0.8	5.031	A
4	1030	638	2678	0.385	1029	0.7	2.400	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1592	788	1985	0.802	1582	4.2	9.579	A
2	934	1253	881	1.059	847	23.4	67.944	F
3	664	1597	1038	0.639	659	1.9	10.326	B
4	1262	737	2539	0.497	1260	1.1	3.092	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1592	790	1982	0.803	1592	4.4	10.107	B
2	934	1259	871	1.072	864	40.9	142.112	F
3	664	1616	1016	0.654	663	2.0	11.208	B
4	1262	747	2524	0.500	1262	1.1	3.136	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1300	648	2169	0.599	1311	1.7	4.671	A
2	762	1035	1229	0.620	918	1.9	21.003	C
3	542	1490	1168	0.464	546	1.0	6.409	A
4	1030	727	2553	0.403	1032	0.7	2.604	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1089	542	2308	0.472	1091	1.0	3.264	A
2	638	863	1505	0.424	643	0.8	4.614	A
3	454	1147	1584	0.287	456	0.4	3.519	A
4	863	540	2818	0.306	864	0.5	2.026	A

Base 2025 + Committed + Proposed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4	10.70	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	10.70	B

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	122.87
2	0	✓	53.30
3	0	✓	117.42
4	0	✓	61.45

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	Base 2025 + Committed + Proposed	AM	ONE HOUR	06:45	08:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1069	100.000
2		✓	1039	100.000
3		✓	472	100.000
4		✓	1509	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	1	476	0	592
	2	623	0	247	169
	3	0	212	1	259
	4	1003	197	305	4

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.59	4.93	1.6	A
2	0.88	24.77	7.4	C
3	0.46	6.56	0.9	A
4	0.73	6.40	2.9	A

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	805	540	2310	0.348	802	0.6	2.623	A
2	782	678	1801	0.434	779	0.8	3.862	A
3	355	1042	1711	0.208	354	0.3	2.915	A
4	1136	628	2694	0.422	1133	0.8	2.531	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	961	645	2172	0.442	960	0.9	3.264	A
2	934	811	1588	0.588	931	1.5	6.001	A
3	424	1246	1464	0.290	424	0.4	3.805	A
4	1357	750	2519	0.538	1355	1.3	3.393	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1177	789	1984	0.593	1174	1.6	4.871	A
2	1144	991	1300	0.880	1123	6.7	20.453	C
3	520	1512	1142	0.455	518	0.9	6.325	A
4	1661	908	2295	0.724	1655	2.8	6.128	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1177	791	1981	0.594	1177	1.6	4.927	A
2	1144	994	1295	0.883	1141	7.4	24.772	C
3	520	1527	1123	0.463	520	0.9	6.555	A
4	1661	920	2279	0.729	1661	2.9	6.402	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	961	649	2167	0.444	964	0.9	3.301	A
2	934	815	1582	0.590	957	1.6	6.566	A
3	424	1268	1437	0.295	426	0.5	3.924	A
4	1357	767	2496	0.544	1363	1.3	3.514	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	805	542	2307	0.349	806	0.6	2.641	A
2	782	681	1796	0.435	785	0.9	3.930	A
3	355	1049	1703	0.209	356	0.3	2.941	A
4	1136	632	2687	0.423	1138	0.8	2.559	A

Base 2025 + Committed + Proposed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Large Roundabout	Arm 1 - Large roundabout data	Large Roundabout Circulating Flow is zero for one or more arms.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Large Roundabout		1, 2, 3, 4	45.73	E

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	45.73	E

Arms

Arms

[same as above]

Roundabout Geometry

[same as above]

Large Roundabout Data

Arm	Circulating flow (PCU/hr)	Has entry-to-exit separation	Entry-to-exit separation (m)
1	0	✓	122.87
2	0	✓	53.30
3	0	✓	117.42
4	0	✓	61.45

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	Base 2025 + Committed + Proposed	PM	ONE HOUR	15:45	17:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1489	100.000
2		✓	848	100.000
3		✓	603	100.000
4		✓	1146	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	9	595	9	876
	2	455	0	196	197
	3	0	247	2	354
	4	677	200	268	1

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	10	10	10	10
	2	10	10	10	10
	3	10	10	10	10
	4	10	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.83	11.47	5.1	B
2	1.12	188.13	55.6	F
3	0.65	11.13	2.0	B
4	0.50	3.08	1.1	A

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1121	539	2311	0.485	1117	1.0	3.305	A
2	638	874	1487	0.429	635	0.8	4.630	A
3	454	1153	1577	0.288	452	0.4	3.511	A
4	863	534	2826	0.305	861	0.5	2.013	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1339	645	2173	0.616	1336	1.7	4.714	A
2	762	1045	1213	0.628	758	1.8	8.630	A
3	542	1378	1304	0.416	541	0.8	5.179	A
4	1030	638	2679	0.385	1029	0.7	2.399	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1639	788	1985	0.826	1627	4.9	10.702	B
2	934	1275	846	1.103	822	29.8	83.986	F
3	664	1600	1036	0.641	659	1.9	10.402	B
4	1262	723	2559	0.493	1260	1.1	3.048	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1639	790	1982	0.827	1639	5.1	11.471	B
2	934	1282	835	1.119	831	55.6	188.127	F
3	664	1614	1019	0.652	663	2.0	11.131	B
4	1262	730	2549	0.495	1262	1.1	3.075	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1339	647	2169	0.617	1352	1.8	4.919	A
2	762	1055	1197	0.637	976	2.0	42.216	E
3	542	1555	1090	0.497	546	1.1	7.326	A
4	1030	757	2510	0.411	1031	0.8	2.682	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1121	542	2307	0.486	1124	1.0	3.354	A
2	638	879	1479	0.432	643	0.8	4.763	A
3	454	1163	1564	0.290	457	0.5	3.583	A
4	863	540	2818	0.306	864	0.5	2.027	A